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## SUMMARY:—

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|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| The Final Decision on the Ireland Building Accident Case.—<br>The Relief to Owners that the Decision gives.—The Equit-<br>ableness of Insurance Premiums.—The Value of Paint as<br>a Rustproofing for Structural Ironwork.—A Change of New<br>York Commissioners of Buildings.—The Magnitude of the<br>Paris System of Sewage Disposal.—A Pacific Cable. . . . . | 9  |
| THE COLONIAL BUILDING AND THEATRE.—I. . . . .                                                                                                                                                                                                                                                                                                                    | 11 |
| ARBITRATION.—ITS PLACE IN OUR PROFESSIONAL PRACTICE. . . . .                                                                                                                                                                                                                                                                                                     | 12 |
| STATUES FROM THE SEA. . . . .                                                                                                                                                                                                                                                                                                                                    | 15 |

## ILLUSTRATIONS:—

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| The Colonial Building, Boylston St., Boston, Mass.—Plans of<br>the Same.—Longitudinal Section through the Same.—Ar-<br>rangement of Plumbing in the Same.<br>Design for a Cottage Hospital.—House at Vieux-Moulin, Oise,<br>France.<br>Additional: Basement Plan of the Colonial Building showing<br>Arrangement of Mechanical Plant.—Monument to Emperor<br>William I, Berlin, Prussia.—Arch of Fernand Gonzales,<br>Burgos, Spain.—House at the Corner of 106th St. and River-<br>side Drive, New York, N. Y.—No. 6 East 79th St., New<br>York, N. Y.—No. 4 East 79th St., New York, N. Y. . . . . | 15 |
| NOTES AND CLIPPINGS. . . . .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 16 |

THE famous Ireland case, or rather one of the Ireland cases, came to final decision in the New York Court of Appeals a few days ago. It will be remembered that, in the summer of 1895, a building in process of erection for Mr. John B. Ireland, on West Broadway, fell, in consequence, as was proved by expert testimony, of the insufficiency of the foundation under a certain column. It was shown that the plans provided for a sufficient foundation, but that they had been departed from by the foreman in charge of the masonwork; but the relatives of the men killed or injured by the fall of the building claimed that the architect and the contractor, who might have seen the deviation from the plans in time to correct it, were so far agents for Mr. Ireland as to make him responsible for the damage caused by it. The suit just decided was brought by the widow of a plasterer, named Burke, who was employed in the building by a sub-contractor, and was killed by its collapse. The court of first instance gave judgment, based on the verdict of a jury, in the widow's favor, and the Second Appellate Division of the Supreme Court affirmed the decision; but both decisions have now been reversed by the unanimous opinion of the Court of Appeals, which holds that there was no proof in the case which could justify the jury in finding personal negligence, on the part of Mr. Ireland, as the proximate cause of the accident. On the contrary, the Court holds that "an owner who employs a competent architect to prepare plans for a building, and lets the work of construction to a competent independent contractor, is not liable for injury to an employé upon the work from the falling of the building while in process of construction, caused, as in this case, by a foreman's negligence in departing from the plans, without any knowledge of the owner, and placing an insecure foundation under one of the piers."

THIS decision is of more importance than may at first appear, and there is no doubt that it will have a salutary effect in bringing workmen to a sense of responsibility for the consequences of their actions. So long as courts were in the habit of deciding, in case of building accidents, that the richest man connected in any way with the building must pay all the damages, whether he knew anything about the cause of the accident or not, it was not only easy, but agreeable, for men infected with the malice so industriously inculcated by the socialists to neglect or pervert their work in such a way as to bring about accidents which their trusting employers would have to pay for; but the settlement of the law for the State of New York, and, presumably, for other States in pursuance of the New York precedent, that the employer cannot be held responsible in such cases, will oblige the representatives of persons injured in consequence of such accidents to look to some one else for satisfaction; and the person through whose fault the accident occurred will come, in course of time, to be regarded as the proper one to be held responsible for it. As the workmen who leave out the foundation of a pier, or who build timbers into chimney-flues, or commit the other acts of

incredible stupidity and malice which architects know so well, rarely have any money to pay damages with, the representatives of those who suffer through their performances will have to console themselves, in most cases, with a vigorous criminal prosecution, and it will not be surprising if such prosecutions become much more common than they have hitherto been. If this should be so, the effect will be extremely salutary. The workman who follows the socialist rule of never saving any money, and knows, therefore, that no one can make him pay a pecuniary indemnity for the results of his actions, will find his pleasure in malicious or negligent mischief considerably dampened by the reflection that, under the new view of the law, they may bring him to state prison for life, instead of merely serving to extract a few thousand dollars from the pocket of the "greedy capitalist" who trusts him; and a few convictions in this direction would do more to improve the practice of building, particularly in New York, than all the efforts of the Building Commissioner and his inspectors. It is obvious that no contractor, still less any architect, would deliberately direct men to make mortar out of street mud, or caulk the joints of soil-pipes with bits of newspaper, or lay drains without any connection with the sewer. That some of the men whom the speculating builders employ do such things is well known, but they do it to cheat their employer, not to serve him, and they deserve punishment just as much as the men who maliciously deceive a liberal and high-minded contractor; and if they were held to strict criminal accountability, not only would the speculating builder have more difficulty in finding the cheap men for whose misdeeds he so often suffers, but the honest contractor, and with him the innocent public, would have less to fear, either from workmen's malice, or from the competition of the "skin" building which is only possible with "skin" workmen.

A NEW periodical, which should be of unusually permanent value, comes to us, under the name of "Insurance Engineering," as a small monthly magazine, devoted, as it says, "to the science of diminishing hazards to property and life." There is no doubt that it has a large field before it, and we are not without hope that it may also devote some attention to the science of diminishing the premiums that the public has to pay for insurance to something like a reasonable equivalent for the risks involved. According to some of the insurance journals, the average rate of premium in this country for fire-insurance now, after thirty years spent by the underwriters in execrating the architects, and spent by the architects in quietly devising the most scientific methods of fire-protection in use in the world, is about twice what it was on similar hazards a generation ago. There are three possible explanations of this fact, supposing it to be a fact. One is that the eloquent denunciations of the architects indulged in so copiously by the speakers at underwriters' dinners have perverted those at whom they were aimed to still worse misdeeds; the second is that the architects, owing to the wretched ignorance or malignant stupidity which the underwriters are pleased to attribute to them, have not only failed in their endeavors to protect buildings and their contents against fire, but have left the science of construction in a worse condition than it was before they began their miserable work; and the third is that the underwriters, finding it agreeable to pay themselves higher salaries, and their agents bigger commissions, and to occupy handsomer offices, than was customary thirty years ago, are obliged to charge larger premiums in order to have a sufficient residue left for paying indemnities.

WE do not, of course, attempt to say which of the three explanations is more nearly correct, supposing the existence of the fact to be assured, but simply to observe that the question of the reasonable ratio of premiums to risk is one in which the public takes a great and justifiable interest, and that a periodical which would, from time to time, compare the actual premiums paid with the losses on various classes of buildings, while it would not be popular with the managers of insurance companies, would do a great service to the public, and would do more to promote the safe construction and management of buildings than has been accomplished by the oburgations of all the diners at insurance feasts in half a century. It is fair to say that the younger generation of insurance-agents have begun, to a great extent, to look on

insurance as a science, rather than a collection of sharp tricks, and it is not impossible that, with the coöperation of the despised architects, and of such periodicals as the one before us, they may, when their turn comes to control the business, introduce such rational and open methods as have characterized the factory mutual companies, to the very great advantage of all concerned; but, in the meantime, it is desirable to collect as much information in regard to fire-prevention as possible, whether the underwriters care to use it or not.

ONE of the best articles in the new magazine is one on "Fireproof and Rustproof Construction of Steel Buildings," by Mr. Frank B. Abbott. Every one knows that the modern steel-frame construction is exposed to serious dangers. There have been repeated instances where steel or iron frames in buildings, when partially stripped of their masonry covering, have shown uprights, particularly, deeply corroded, after only a few years' standing. In other cases the steel has shown no signs of deterioration, and it is obviously a matter of the highest importance to know what are the conditions which secure immunity. We will not try to give an abstract of Mr. Abbott's paper, which should be read by those interested, but it may be useful to emphasize one of his conclusions, which is that metal intended to be entirely embedded in masonry or concrete, as is usually the case with uprights, and often with beams, in fireproof construction, should not be painted. Even the ordinary painting at the mill should be omitted, the mill scale being simply knocked off, and every trace of rust removed, by cleaning with wire brushes, before the metal receives its masonry casing. Where the steel is thus left bare, the cement from the surrounding concrete, or from the masonry, if this is grouted where it touches the metal, as it always should be, attaches itself to the surface, forming a coating which defies oxidation, while paint slowly disappears, leaving a crevice between the steel and the masonry into which moisture, or moisture-laden air, the arch-enemy of iron, can easily penetrate. Although this suggestion is not altogether novel, it will, we imagine, be new to most architects. The practice of painting all structural steel is so universal that something more than theoretical considerations will be necessary to change it; but we are inclined to think that experienced members of the profession will be able, if their attention is called to the matter, to furnish extremely valuable evidence in regard to it. We are told, for example, on the authority of Viollet-le-Duc, that iron ties have been taken from the masonry of Notre Dame, in Paris, in which they had been embedded for nearly seven hundred years, as bright as when they were first put in; while one of our own correspondents, the late Mr. James Freret, of New Orleans, mentioned a case within his knowledge where iron ties in masonry had been completely destroyed in a few years. The masonry of Notre Dame, consisting of limestone laid in lime mortar, would not resist moisture so well as our modern masonry, laid in mortar partly hydraulic; and the difference between the two cases would seem to lie rather in the condition of the iron than in that of the masonry around it. In the New Orleans building, the iron was undoubtedly painted, according to the modern practice, before it was built into the brickwork, while the iron ties in the Paris building are more likely to have been made by a blacksmith on the spot, and utilized immediately; so that it is not improbable that the coat of paint alone may have been the source of the trouble.

MR. THOMAS J. BRADY has resigned his post as Commissioner of Buildings for Manhattan and the Bronx, and has been succeeded by Mr. James G. Wallace. Mr. Wallace is a prominent builder, and has erected a considerable number of important structures. What qualifications he possesses for the responsible duties of an official who, under the present law, has almost unlimited power to vary regulations in his discretion, we are not informed, but many builders are well equipped in this respect, and Mr. Wallace is, presumably, one of this sort.

FEW people realize the magnitude of the system of sewage-disposal by irrigation which is already in operation in the neighborhood of Paris. It is only twenty-eight years since a portion of the Paris sewage was conducted to Gennevilliers, to be spread by irrigation on a modest tract, of one hundred and twenty-five acres, of sandy farming land. The experiment was viewed with alarm by many of the sanitarians of that day. One of them, a Professor, and a man of considerable reputation, made a visit to the irrigated farm, and reported that, on

cutting a stalk of celery growing in the irrigated ground, he saw unchanged sewage flow from the "pores." As celery stalks have no pores, and anything that rises from the roots into them must be filtered through the walls of countless cells, the "observations" of the learned Professor excited criticism from botanists, and he was honest enough, later, to acknowledge that his prejudices had probably influenced his imagination. Meanwhile, the farmers of Gennevilliers, finding that sewage irrigation helped to produce enormous crops of salable vegetables, and experiencing no ill effects from the microbes which, as they were told, crawled up from the ground over their turnips and lettuce, applied for additional supplies of the fertilizing liquid, and the little village grew prosperous. After a few years, however, some ingenious person discovered that the irrigation, instead of being a benefit to the people of the village, as had been supposed by those who saw them growing rich, was a source of injury and loss, for which the farmers ought to be compensated; and that, instead of being gratuitously supplied, at their own request, with sewage, they ought to be liberally paid by the city of Paris for taking it. The sanitary authorities of Paris, on being presented with this view of the subject, apologized in the most polite manner for having unintentionally inflicted such damage on their excellent friends, and assured the farmers that steps would immediately be taken for shifting the irrigation system to another town. The representatives of Gennevilliers, after receiving this reply, became suddenly thoughtful; and it was not long before another communication was made to the Parisian authorities, to the effect that the people of Gennevilliers, on further reflection, had decided that the injury caused to them by sewage irrigation was not so great as they had supposed, and that they would be willing, and, indeed, would prefer, to have no change made in the system. The Paris officials, with their usual courtesy, agreed to this request, and it was not long before applications came in for additional sewage, on the old terms. Nothing more was heard of the sufferings of the farmers, and the irrigated tract in Gennevilliers has grown from one hundred and twenty-five acres to twenty-three hundred, comprising practically all the farming-land in the town, in the centre of which stands a statue, representing the personification of the beneficent sewer, erected by subscription among the grateful agriculturists.

AS the sewerage system of Paris was extended, the territory of Gennevilliers became too small to deal with the liquid discharged, and a tract of twenty-five hundred acres was rented at Achères, some twenty miles from the centre of Paris, and subjected to systematic irrigation. The field of Achères now purifies satisfactorily about thirteen thousand million gallons of sewage a year. The farms of Gennevilliers consume nearly the same amount, but the topography of Gennevilliers is rather better suited for distribution than that of Achères. The two tracts combined are, however, very far from being sufficient for the needs of Paris, and, in 1899, a tract at Triel, lying, like Gennevilliers and Achères, in the valley of the Seine, and containing twenty-four hundred acres, was added to the irrigation system; while, more lately, a tract of more than five thousand acres, at Méry-Pierrelaye, opposite Achères, has been secured, and prepared for irrigation. With this new tract, the total area of irrigation-field comprised in the Paris system will be more than twelve thousand acres, although the city is so far from being completely drained that about sixty thousand houses are still without sewer connection. When these are ready to add their contribution to the flow, additional irrigation land will probably be required; but it is certain that there will be no hesitation in taking it when it is needed.

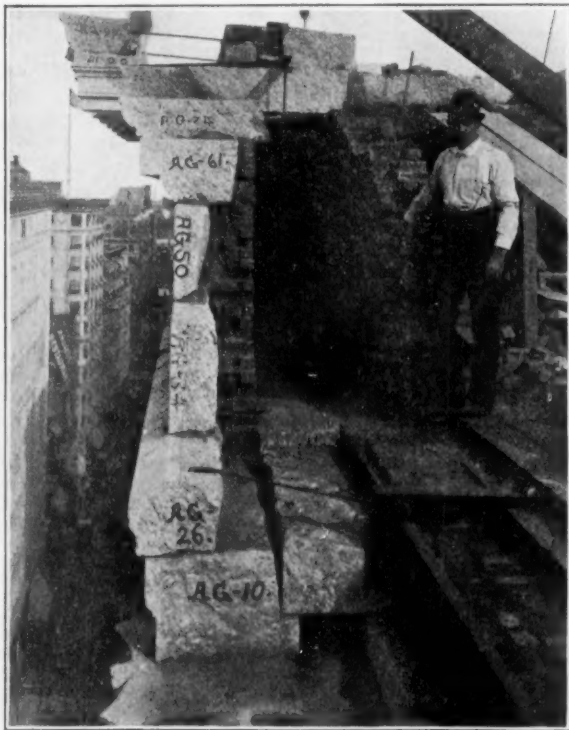
THE people who have been urging Congress to spend the public money on a telegraph cable across the Pacific Ocean do not mention the fact, which they probably know, that the English Government, which, it will be remembered, owns the British telegraph system, has already contracted with the Telegraphic Construction and Maintenance Company for the laying of a cable from Vancouver to Queensland, by way of the Feejee Islands, Norfolk Island and other suitable stations. From the landing-place, at Vancouver, a special line is to be constructed to Halifax, to connect there with the existing Atlantic cables, so that messages can be sent directly from England to Australia by way of Canada. The entire line is to be completed by the end of next year, ready for service.



## THE COLONIAL THEATRE AND BUILDING.—I.

THE Colonial Theatre and office-building has just been completed upon the site of the old Boston Public Library, facing the Common, and a short distance only from the corner of Boylston and Tremont Streets. The lot upon which the building is situated has a frontage of 115 feet on Boylston Street and a depth of 211 feet, extending in the rear to Van Rensselaer Place, a small private way entering from Tremont Street at a grade of about 8 feet below the grade of Boylston Street. The Theatre occupies all of the basement and ground-floor from a distance of about 75 feet from Boylston Street to the line of Van Rensselaer Place, and extends through the height of the first, second, third and fourth stories of the building. The fifth floor of the office-building is carried out over the auditorium of the Theatre, the entire structure rising to a height of 125 feet, in ten stories. The front of the building, including the cornice, is of Milford pink-granite throughout. The construction is of the steel-eage type, with columns of built sections. Owing to the complexity of the first-floor plan and the irregular break between the Theatre-proper and the office-building, the construction is complicated by a large proportion of columns being carried on girders rather than extending directly to the ground. The office and theatre portions are entirely distinct from one another, having almost nothing in common except the heating-plant.

The machinery is all installed in a sub-basement carried to a depth of 30 feet below the Boylston-Street sidewalk. The soil in the rear of the lot is a hard blue clay, on a bed so much inclined that about midway of the building it passes below the bottom of the cellar, so that while the rear columns are on clay the front ones are on sand, and the difficulties of the foundations were complicated by the fact that the ground-water stands at a level of 6 inches above the cellar bottom; consequently, all the large foundations of the front columns were laid in water. It was not considered necessary to make any special provisions against settlement. The footings were proportioned to an actual load of about 2½ tons per square foot, and, so far as has been observed, thus far there have been no settlements whatever. The borings for the elevator-shafts show that the clay-bed is quite a heavy one, extending to a depth of 81 feet below the sidewalk, followed by a layer of gravel and broken ledge, 40 feet thick, before rock is reached at a depth of 121 feet below the Boylston-Street sidewalk.



Sectional View of Cornice.

The sub-basement is carried out under the sidewalk to receive light, and, as the space was somewhat restricted, the construction of the retaining-wall was made of the same type that was used in the Boston Subway, namely 15-inch vertical beams, with horizontal brick arches turned between the flanges, the vertical beam-work being braced to the floor-construction at intervals. In erection, this construction had to be watched very carefully, and, in spite of the utmost care, the pressure of the earth from the street forced in the first two stories enough to throw the columns slightly out of plumb, the maximum variation, however, being only a little over an inch. No attempt was made to correct this, but the walls were carried plumb and the slight variations were taken up in the total height of the building so as to be unnoticeable.

The monolithic columns, 24 inches in diameter, forming the loggia of the upper two stories, are entirely free in the building. They directly support the entablature and the cornice, the steel framework of the building being set back on girders at the line of ninth floor, to allow for the recessed loggia. The construction of the cornice is shown by the photograph. An inner 12-inch brick-wall was built on the archings of the roof, and the bracket-stones of the cornice were carried clear through onto this inner wall, serving as a direct support for the cap-stone of the cornice. As additional safeguard, a heavy course of granite was laid on top of the inner end of each of the brackets and the bracket-stones were further tied to the floor-construction by means of a tee-iron and vertical rods as shown, so that the excess of weight is very largely on the inside of the wall. The whole of the cornice and the back of the parapet were, of course, covered with copper in the usual manner, and the cornice pitches inward towards the roof.

The building faces due north, and, to take care of snow and ice, the floors of the loggia are covered throughout with copper, and conduits are cut through the bases of the columns, so there is a continuous water-way across the entire front, and at each end connection is made with an interior conduit draining to the cellar.

In its internal arrangement the commercial part of the building is of the ordinary first-class office type, and presents few features which are not made manifest by the plan and section. The disposition of the piping in the lavatories is, however, of some interest. The drawing shows the way in which the pipes were made at once accessible and concealed. The men's and women's lavatories are placed back to back, and are separated only by a double line of 1-inch marble sheathing, the slabs being set sufficiently far apart to give ample space for the running of the soil and vent pipes. The water-closet cisterns are continuous over each row of fixtures. The traps are dropped down below the ceiling and are cased-in immediately over the cisterns, so that by removing the casing all the pipes and the ball-cocks can be readily inspected and repaired. All the piping is run in the space between the closets, the supply, soil and waste pipes leading to the vertical duct at one end, while the local vents are carried in the other direction to a small vent-duct adjoining the safe and extending to the roof, the movement of exhaust being accelerated by a steam-coil.

The elevators are of the "plunger" type. Two of them have a travel, from the basement to the tenth floor, of 125 feet. The cylinders for the pistons were sunk to a depth of nearly 140 feet below the sidewalk, the last 20 feet being through solid rock. The cars, which are about 6 feet square, are carried on the ends of the 6½-inch steel pistons. One of the conditions of the acceptance of these elevators was that one of the cars should be run up to the top of the well and loaded until the piston should be deflected sufficiently to touch the sides of the well, regaining its original position when the weight was released. The machinery is calculated for 3,000 pounds live-load on each elevator, but one of the elevators is provided with additional connections permitting of a load of 10,000 pounds, for hoisting safes, etc.

In the entire frame of the building there are about 3,500 tons of steel. All of this material had full mill and shop inspection.

The walls of the entrance to the office portion of the building in first story are wainscoted full height in marble, and the floor is of cosmato mosaic in chipped tile. The elevator-cars and the elevator-fronts and stair-finish in first story are of bronze and, above that, of iron. In the upper stories the wainscot in the corridors and the corridor-floors are of white marble throughout, all other finish being of quartered oak. The heating of the offices is entirely by direct radiation. Gas is brought into the building and two outlets provided in each room with the idea that some tenant may wish to use the gas for heat. No provision is made for lighting with gas. A duct is provided at the rear of the elevators at one side, which is reserved specially for electric-wires. On each story above the fifth, a room marked on the plan "for janitor" is used for electric distribution. This room measures 7' x 10', and gives excellent opportunity to easily control the different circuits. The risers are carried up in the duct and on the wall adjoining the chimney are placed the fuses, cut-outs and the meters for each of the thirty-two offices on each floor. The meter connections are so arranged that any number of rooms can be tied together without any alteration in the wiring itself. From this room the wires are led in iron conduits carried along the ceiling of the corridor to the different rooms, each room having an independent circuit. The wires are concealed by furring-down the finished ceiling.

For telephones, a special room is provided in the sub-basement adjoining the elevators, where are located the cut outs. From this point cables are led up in the wire-duct adjoining the elevator to the same rooms which serve for the distribution of the electric-current. From here connections are made to every office by means of special conduits, through which the telephone-wires can be fished. In addition, heavily moulded cornices are carried around the halls and the offices, leaving a passageway of about 2¼" x 1½" for stringing telephone and call wires.

The arrangement of machinery in the sub-cellar is shown by the plan. The boiler-room is 30' 6" below the sidewalk and has a clear height of 17' 3". In it are located four Babcock and Wilcox water-tube boilers of about 150-horse power each, provided with Bannister rocking grates and connected by wrought-iron flues to a wrought-iron chimney set in the brickwork. This chimney has a total height of 165 feet, the lower 30 feet being lined with fire-brick set in kaolin.

Coal is delivered to the building every morning and is dumped through the sidewalk into a large vault underneath the entrance to the Theatre, whence it is carried as required through a wrought-iron chute delivering directly over the coal-car, this car running on a track as shown on drawings. The coal is shovelled directly from the car into the furnaces. The daily consumption at present is about seven tons. Three of the boilers are amply sufficient to do the work of the entire building, the fourth being held in reserve.

Adjoining the boiler-room is the dynamo-room, which is made of sufficient size to receive a generating-plant capable of supplying the entire building, though the present installation includes only two 40-kilowatt direct-connected Thompson-Houston generators with Ames engines, supplying current for corridor-lights only. The entire end of the dynamo-room towards the street is utilized for an electric-distribution board. To this board are brought all the street-mains, which are thence carried to the Theatre or to the rising mains supplying the offices. To this board are also carried the feeders from the two dynamos, these feeders being connected to the mains which supply the lights in the public corridors and lavatories only.

In the central portion of the sub-basement is the pump-room. The pumping-plant includes one Deane compound pump 16" x 20" x 30" with 24-inch stroke, one Deane duplex pump 14" x 18" x 18½", and one Deane duplex pump 9" x 12" x 18", in addition to which there is provided a jack-pump to connect with the elevator apparatus in order to give additional hoisting capacity for heavy weights. In the rear of the pump-room there is a rectangular discharge-tank of 5,400 gallons capacity, made of ¾-inch iron, and two cylindrical horizontal pressure-tanks of 3,000 gallons capacity each, made of ¾-inch refined iron with the longitudinal seams triple-riveted and girth seams double-riveted. The pumping-plant is of sufficient capacity to take care of six elevators, leaving one pump constantly unused. Only four elevators are actually installed, but the framing of the building and the arrangement is such that two additional elevators can be put in if found necessary. The suction-pipe from the discharge-tank is 16 inches in diameter. The discharge-pipe from the smaller pump is 7 inches, from the intermediate pump 10 inches, and from the duplex pump 14 inches. From each pressure-tank two independent sets of piping are taken to the two groups of elevators, and all the piping and the connections to the pumps are so arranged that one or either pressure-tank can supply one or both sets of piping to the elevator machinery and the pumps can work into either pressure-tank. This means a quite complicated system of piping, and, to give ready access to all parts, the floor of the pump-room is raised 3½ feet by a false floor above the concrete, all the piping being run underneath so as to be out of the way and yet readily accessible in case of need. The elevator-plant also includes a Westinghouse air-compressor used for pumping air into the pressure-tanks.

The elevator-plant serves not only for the elevators of the building, proper but also for a large elevator in connection with the stage of the Theatre, and a small ash-lift, access to which is had through the area under the sidewalk. In designing the capacity of the pumping-plant, no account was taken of either of these smaller elevators, as they were likely to be used at times when the elevators of the office portion of the building would not be in operation.

A passageway leads from the dynamo-room through a tunnel under the heating-chamber of the auditorium to the pit under the stage of the Theatre. This passage is closed by fireproof doors and is utilized for electric conduits, telephone-wires, etc.

The boiler-room is about 10 feet below the level of the sewer in Boylston Street. Consequently, as there is considerable plumbing in the sub-basement, provision had to be made for lifting the sewage. The main soil-pipes and the rainwater-drains run overhead in the sub-basement and empty into the sewer by gravity. The sewage from all fixtures below the level of the street unite in a single pipe which is carried to a Shone eductor. This apparatus is enclosed in a large wrought-iron tank sunk below the cellar floor, the bottom of the tank reaching about 40 feet below the sidewalk. A Westinghouse compressor in the pump-room carries air to a tank suspended from the beam-work over the eductor, and the sewage is lifted by means of compressed air.

For the water-supply there is a 3-inch fire-pipe, a 4-inch sprinkler-supply and a 4-inch house-main for the offices, and a 2-inch main for the Theatre. The supplies are carried to a distributing-drum placed on the wall back of the boilers between the two sets of elevator machinery. Here are controlled all of the branches supplying hot and cold water to the office-building and to the Theatre. All this piping is of brass, and the drips and water-cocks are connected with a drain in the cellar floor emptying into a catch-basin between the boilers, which in turn overflows into the eductor. The elevator discharge-tanks are connected so that the water can be forced up into the overhead gravity system of sewerage, while any slight residuum and the discharge-tank are together drained through trenches into the eductor.

Hot water is supplied through two Jacobs feed-water heaters of 300-horsepower and 80-horsepower capacity, delivering respectively to the office portion of the building and to the Theatre. All of the bowls and sinks throughout the building are supplied with both hot and cold water. The heaters can be fed with either live or exhaust steam and are each fitted with Curtis automatic temperature-regulators. All the piping for hot water is of brass.

The heating-system is calculated upon the assumption of using either exhaust-steam from the engines, or live-steam from the boilers at a pressure of 85 pounds per inch. From each boiler a 6-inch connec-

tion is led into a 14-inch drum carried across the entire front of each pair of boilers. From this 14-inch drum a 5-inch branch is taken to supply the elevator-pumps, another 5-inch branch to supply the fan-engine, and a third 5-inch connection to supply the dynamos. An 8-inch branch is also taken from the drum to connect with the heating-system, with two outlets connected through reducing pressure-valves to the heating-mains of front building and with the outlet to reducing-valve of Theatre. The exhausts from all the engines and pumps and dynamos are collected and returned through a 600-horsepower Jacobs feed-water heater, with by-pass about the heater, so that the exhaust can be sent either through the heating-system or directly to the roof through a 10-inch pipe. There is also a connection for live steam from the main drum to the indirect-heating coils of the Theatre, as well as a separate connection from the boiler-room for the low-pressure steam to these same heating-coils. The heating returns are collected into a receiving-tank in the boiler-room connected with one single-acting 5" x 8" x 12" Deane pump and one duplex 5" x 7½" x 12" Deane pump. There is also an iron blow-off tank with vapor-pipe to the roof, and the cesspool-tank in the floor of the boiler-room is constructed in same manner as the blow-off tank and sunk beneath the pavement. The general arrangement of the piping is shown by the plan. All of the piping between and in front of the boilers is carried overhead and the valves are reached by means of an iron platform or gangway built about midway in height of the boiler-room and reached by ladders at each end.

The capacity of the boilers was determined upon substantially the following basis: There is required for power 33 horse-power for the ventilation-fan, 60 horse-power for the elevator-pumps, and 80 horse-power for the electric-dynamos as a maximum, or a total of 173 horse-power. As the exhaust is utilized for heating, only the loss from these engines needs to be considered. The loss in case of the fan-engine and the electric-engines would be 10 per cent, and from the pumps 25 per cent, making a total loss of 26.3 horse-power. The total amount of direct radiation in the whole building is 8,623 square feet. On the basis of 100 feet of surface per horse-power for boiler capacity this would require 86.23 horse-power. In addition there is 7,500 square feet of indirect radiation, which on a basis of 25 square feet per horse-power would require 300 horse-power. The total required horse-power would then be for engines, 26.3, for direct radiation, 86.23, indirect radiation, 300; total, 412.53. Four boilers, each of slightly less than 150-horsepower capacity, would allow the plant to be run in full operation with one boiler in reserve.

C. H. BLACKALL.

[To be continued.]

#### ARBITRATION.—ITS PLACE IN OUR PROFESSIONAL PRACTICE.<sup>1</sup>



DO not expect to be able to present for your consideration this evening anything that can be justly termed new or original. My paper consists largely of notes made from time to time for my own guidance, with an occasional suggestion based upon experience with technical arbitrations.

I will say frankly that I believe the arbitration of disputes connected with their professional work is, and should be, closely allied to the legitimate modern practice of the architect and of the engineer. . .

But, to return, there are probably no professions in which the spread of this principle has, during recent years, been greater than in connection with our contract methods of carrying out work, and we as architects or engineers may at any time be called upon to apply the recognized principles of the practice of arbitration. Our professional literature, however, seems to be somewhat silent on this useful subject. There are legal works for the attorney, of course, containing the law in the premises, the code and digests of many cases that have been heard arising out of "arbitration" proceedings, the most frequent examples being the efforts of parties wishing to set aside awards; but there is very little published adapted to the needs of the layman who finds himself, for the first time, occupying the position of arbitrator.

Let us therefore briefly consider the subject to-night as practical laymen rather than from the legal stand-point.

In the trial of technical suits there has never been a time when the best technical testimony has been more sought after than now, and the reason for this is not far to seek. Indeed, the time is not far distant, I think, when the courts will realize the advantage of referring such technical cases entirely to the professional expert. This method is quite prevalent in older countries, and it is of immense advantage to litigants, while at the same time it greatly facilitates the work of the courts. Who is there among us who does not recall some technical case which ought to have been determined by arbitration rather than by a suit? Is it not safe to say it would have been settled more quickly, more economically and perhaps more satisfactorily to the parties concerned?

Arbitration, as regulated by statute, certainly results in prompt and equitable settlements, and without causing that bitterness of feeling between the parties which sometimes results in enforcing their claims in our courts of law. It is a practical remedy for long-continued technical suits, and can be applied by practical men, who certainly have the advantage of understanding the technical points involved. In short, it may be called the substitution of reason for force.

<sup>1</sup> Portions of a paper by G. Alexander Wright, Member Technical Society of the Pacific Coast, read before the Technical Society of the Pacific Coast, Nov. 2, 1900, and printed in the Journal of the Association of Engineering Societies.



Take an ordinary case, one that might arise any day in our practice: A client, for example, declines to pay for extra work; by no means an uncommon incident. In such a case arbitration may arise by the terms of the contract or by subsequent consent of the parties. Either of these methods is better for the disputants than a suit, because no expense or loss of time is incurred in preparing and waiting for trial. This is no small advantage in itself.

The first step is for the disputing parties to enter into an agreement whereby they consent not only to arbitrate their differences, but to abide by the award. This agreement is technically known as the submission, and the subsequent award depends largely upon its terms and conditions. Its preparation requires some care, and this is often attended to by the attorney of one of the parties and submitted for the approval of the attorney on the other side. But there is no reason why it cannot be prepared by an engineer or an architect, the same as he may prepare his award, or a contract, or specification or any other document required in his regular practice, provided the submission be in accordance with Section 1283, Code of Civil Procedure. Assuming, however, that the submission is best prepared by the attorney of one side, I have found it no disadvantage for the arbitrators to be acquainted with the fundamental principles involved, and it is these only with which we are now dealing. But the essential point involved in this question of arbitration is not so much in the technical knowledge necessary to prepare a submission as it is to so present the facts to disputing clients and others that they shall prefer arbitration in place of resisting technical claims in the courts. Indeed, I do not think professional ethics would be violated if at every suitable opportunity we were to give prominence to the advantages of arbitration over actions-at-law in matters of technical dispute.

The submission must be in writing, and, if proceeding under the provisions of the Code of Civil Procedure, it may be entered as an order of the Superior Court. This is done by filing the document with the clerk of the county in which one of the parties resides. In San Francisco the filing fee is \$6.00. A note of the filing of the submission must thereupon be entered by the county clerk in the Register of Actions, as held in the case of *Kettleman vs. Treadway*, 65 Cal. 505. The mere authority to file, without the act, is insufficient, but by inspecting the Register of Actions an arbitrator may always satisfy himself that this has been done. The entry should contain the necessary particulars,—for example, the names of the arbitrators and the time limited by the submission (if any) within which the award must be made. After such entry has been made a submission cannot be revoked without the consent of both parties. But in the case of the California Academy of Sciences *vs. Fletcher*, 99 Cal. 207, it would appear that the word "thereupon" does not necessarily mean "immediately," for in this case such entry was not completely made until nineteen days after the award was made and filed; but it was held that jurisdiction did exist to enter judgment upon the award, which was done. We see, therefore, that the submission may be filed at any time before judgment is entered upon the award.

In a general way any person legally capable of making a contract may submit controversies to arbitration, but it must be remembered that a single partner cannot bind his co-partners to arbitration unless his co-partners have wholly abandoned the business to him, or are incapable of acting (Sec. 2430, C. C. P.). The case of *Jones vs. Bailey*, 5 Cal. 345, has a good decision on this point.

Arbitrators should allow a reasonable time when fixing a date of hearing, in order that both sides may be ready to present their respective claims and testimony.

Should either side wish to be represented by counsel before the Board of Arbitration, it would be proper to notify the other side of such intention; and, although arbitrators are not bound to hear counsel, it would scarcely seem to be right to refuse to do so. In such cases especially the attendance of a stenographer is desirable to take verbatim notes of the proceedings.

Although not compulsory, I have found it a good plan to have a schedule of the specific matters in difference made part of the submission. This prevents the possible importation of other matters by the parties during the hearing, a practice which, if permitted, always causes unnecessary discussion and loss of time.

A disputant may nominate any person as his arbitrator, for every person has the right to select whom he pleases for his private judge; but in seeking to take the benefit of his right to arbitration he should use discretion and judgment, such as might be displayed, for example, in the selection of a jurymen.

In matters of accounts mercantile men are often selected; in other cases attorneys; in others architects or engineers, etc., according to the nature of the subject-matter in dispute. An arbitrator's chief qualifications are good judgment, impartiality, clear-headedness and patience. He should be absolutely free from bias or feeling in act and expression. If he is unfriendly in the slightest degree toward the party on the opposite side, it would be better for him not to act. Should the parties happen to be either his creditors or debtors, that alone need not prevent his acting. He should not accept any favors, nor even any part of his legitimate fees prior to the award. Such acts are liable to misconstruction, although done in the best of good faith. Disputants should beware of nominating as arbitrator persons known to be prejudiced in their favor, or whose minds are already made up regarding any of the matters in difference. No honest arbitrator would act under such conditions. Indeed, in such a case the subsequent proceedings would become a farce instead of a benefit.

Above all, his mind should at all times be open to honest conviction, any disposition to stubbornness or laxity being carefully avoided. In short, much depends upon the judgment and broadmindedness of an arbitrator.

Having been appointed and named in the submission signed by both parties, the arbitrator's first duty is to qualify before an officer authorized to administer oaths, by declaring that he will faithfully and fairly hear the allegations and evidence and make a just and true award according to his understanding; and the umpire, when appointed by the arbitrators, will also make similar oath.

Regarding the "powers" of arbitrators, they occupy a similar position to those of judges of the Superior Court, the principal exception being that they are without contempt powers. They should endeavor as far as possible to arrive at correct conclusions by the same rules as would have governed the court for which they have, for the time being, been substituted. The exact terms of the submission must be closely followed, and its specific language complied with. Arbitrators, however, are neither expected nor compelled to follow court methods exactly. Indeed, if the award is an equitable decision, made in good faith, the actual law in the case may be disregarded, and the award would not necessarily be thereby rendered invalid and void; but, if it can be shown that the arbitrators intended to decide according to law and that they were in error, then the court might set aside the award.

It is the arbitrators' duty to appoint a time and place of hearing; to notify the parties thereof; to adjourn as often as necessary; to administer the oath, and, above all, they must act "together," and not individually, in all things. The majority may determine any question. In other words, two may do any legal act authorized by the terms of the submission that three may do. They must decide on all the controversies submitted, omitting to consider nothing and leaving nothing in doubt or undecided. They must, of course, hear evidence on both sides. Lord Eldon, the eminent jurist, once said, "By the great principles of eternal justice (which is before all acts, regulations and proceedings of court), it is impossible that an award can stand where arbitrators hear one side and decline to hear the other." I think the case of *Curtiss vs. City of Sacramento*, 62 Cal. 102, presents an interesting point. It is an application to set aside an award on the ground that no opportunity was given the parties to submit evidence, and, briefly, the point arose in this way: Two arbitrators met, without a third, and took testimony; the third one arrived at a decision by reading over the notes of the evidence without being present when it was given. It was held that the award was invalid and void.

The duties of the arbitrator must not be delegated to another. If, however, the opinion or knowledge of any person (for example, an independent attorney) is necessary to "confirm" the understanding of an arbitrator, it is allowable to obtain such assistance, but the greatest possible care must be taken not to blindly follow such person's opinion or knowledge. Again, in the same way, it is customary for an arbitrator, when necessary, to consult with outside parties regarding, for example, matters of construction or prices, but it must be for the purpose only of fortifying his own opinion. This also should be done with caution, for as a matter of principle, it is dangerous to go outside for evidence, and perhaps it is safer, after all, to obtain opinions by placing such parties upon the witness-stand in the regular way.

Each arbitrator should carefully study every detail of his case, however small, bearing in mind "precedents," trade customs, etc., if any exist, and leaving nothing to chance. Still, arbitrators must remember that they are judges, not advocates, of the parties. I have met inexperienced arbitrators whose sole idea of their duty seemed to be to advocate for and to take everything in sight, regardless of equity and justice. But this is not arbitration. It is a direct violation of the arbitrator's oath to hear fairly the allegations and to make a just and true award according to his understanding.

In some "submissions" I have seen a clause to the effect that the parties agree not to appeal from the award, but this does not, of course, prevent the court from exercising its jurisdiction if occasion demands.

My knowledge of the statutes is insufficient to warrant my saying that the Legislature intended an arbitrator's award to be absolutely final and beyond appeal (except, of course, for fraud), but I think such was the original intention, and I would certainly be in favor of an amendment making it so.

Now let us consider the matter of the third party, or umpire. Provision is made in the arbitration-clause of many contracts that if the two arbitrators cannot agree they shall then select a third to act with them. It has been held in *Dudley vs. Thomas*, 23 Cal. 365, that arbitrators duly qualified may appoint the umpire at any time, and it would therefore appear that it is quite unnecessary to defer the appointment of umpire until disagreement between the two arbitrators occurs, although this may be so stipulated in a contract agreement. At any rate, it is found to be a bad and inconvenient condition in actual arbitration practice, and it is better and proper, in my opinion, for the umpire to be selected immediately after the arbitrators and before the investigation is commenced. A convenient arrangement is for him to act as chairman of the commission. By so doing he has the opportunity not only of hearing, but of directing the presentation of testimony from the commencement of the proceedings; and he is thus enabled to render his decisions without putting witnesses on the stand twice over, which would otherwise be necessary if the two original arbitrators were unable to agree.

The umpire should refrain from voluntarily joining in any discussion between the arbitrators in their efforts to agree, his duty being to decide if they cannot agree. Arbitrators should not permit parties to a submission to influence them in the nomination of persons to act as umpire. The selection lies with the arbitrators alone, and it makes no difference whether the parties are satisfied with such selection.

It may be also well to remember that an umpire must be "selected," and his appointment should be in writing by agreement between the arbitrators. But he should not be chosen by drawing lots or by the tossing up of a coin, a method which I have known to be suggested when the names of two or more equally eligible parties have been named for umpire. A case sometimes occurs in which arbitrators, although acting in perfectly good faith, are unable to agree upon a third party, and I am unaware of any power of the courts to compel arbitrators to agree on an umpire. Not so long ago I had a case of this kind in my own practice. The conditions were such that it was impossible to agree upon an umpire. My co-arbitrator was inexperienced and stubborn. The arbitration was abandoned. Suit followed, and in due course judgment was rendered in favor of my co-arbitrator's side, but for about one-third of the amount which, I feel sure, would have been awarded by arbitration. This is a good illustration of the effect of stubbornness on the part of an arbitrator.

Touching upon the subject of evidence, all witnesses must, of course, be sworn. Plans, specifications, correspondence, etc., should always be identified by testimony and numbered as exhibits before being admitted as evidence. Memoranda made in books by one of the disputants stand in very much the same light as hearsay evidence, and should be accepted with reserve, for nothing can prevent any one from making entries exactly to suit his case. Such entries may be used, however, by the opposite party if so desired.

A jury is very apt to attach undue importance to a large number of witnesses, but a few good men of known reputation are more convincing to technical arbitrators, for they have the necessary skill and judgment to be able to decide for themselves just what portion of such evidence they may justly accept or reject. This, I think, is a strong argument, not only in favor of arbitration itself, but in favor of technical arbitration occupying its proper place as a branch of our professional work.

A few words about the award. When all the testimony is in and the controversies are decided, the arbitrators prepare their award, usually in writing, although a verbal award, in other respects good, would not be invalid.

It is usual to recite from the submission the authority for the investigation, and other points essential to clearness. The award should preferably be written by the arbitrators, or one of them, and not, for example, by the attorney of one of the parties. It must be definite, unmistakable and conclusive in its language. The expression sometimes used by arbitrators, "We propose that such a thing should be done," is ambiguous, and should not be employed. "We direct" is much to be preferred.

The award must not only state the amount of money due from one party to the other, but it should direct its payment and when it is to be paid, otherwise non-payment would not constitute a disobedience of the award. It should conform to the terms of the submission, and deal only with the specific matters of controversy, and nothing more nor less. It should state, moreover, that all the evidence has been heard, and that all disputed matters have been determined and closed; otherwise the award is liable to be held defective and to be set aside. The greatest care is necessary in writing out the award, for it cannot be legally altered by the arbitrators even to correct errors. Any corrections so made will be void, and the language originally written will stand good. The court may, however, on motion, correct or modify an award upon a proper showing, as, for example, in the case of a miscalculation of figures.

Arbitrators are not required to give details of their figures, nor reasons, nor explanations for arriving at their conclusions any more than judges of the court are required to do such things. Comments or discussions thereon with the parties or their acquaintances are best avoided.

If the submission has been filed with the county clerk, the award must also be filed and a note thereof made in the Register of Actions, in order that the award may be entered as a judgment or order of the court.

An award may be set aside if serious irregularities can be shown—for example, corruption, fraud, gross error or material irregularity; refusing to postpone a hearing, or acting in such a way that the rights of the parties were prejudiced. But an award cannot be impeached solely as being contrary to law and evidence (see *Carsley vs. Lindsay*, 14 Cal. 394). This is a good point to bear in mind. I remember a recent case in which one of three arbitrators declined to sign the award, upon the ground that it was contrary to the evidence, and he filed a minority report to this effect. But it will be seen that this proceeding would have been of little or no value in any attempt to impeach the award. As a general thing, I think it is better not to make a "minority" report, notwithstanding an arbitrator may not be able to conscientiously agree to the award. Where it is possible to do so, it is better for all the arbitrators to unite and sign the award. I believe that even an attempt to set aside an award on the ground of refusing to hear certain evidence has been overruled, but I am unable for the moment to cite the case.

The reason for the foregoing seeming strictness exhibited by the

courts in reference to arbitrations is because arbitration is a purely statutory proceeding, and there can be no doubt whatever that the statute must be closely followed.

Having touched upon the fundamental principles regulating arbitration, let us proceed to consider its advantages, especially in regard to those technical disputes which come under our observation as engineers and architects.

A court-trial differs, of course, from one held before technical judges. In the former, witnesses are always entitled to be considered as truthful until proved otherwise. The court knows nothing personally of the "weight" which might reasonably be attached to their technical testimony beyond what appears on the face of the evidence; whereas technical or trade witnesses testifying before a technical tribunal would, in all probability, be personally known by one or more of them, and their reputations could be considered; and, such arbitrators being personally familiar with the subject-matter of such testimony, could make allowances, and estimate such evidence at its proper value.

Again, expert and also trade testimony in court have been known to differ considerably, but technical arbitrators would, of their own experience, understand such matters and be able to discover reasons for such differences or errors, and, as I have stated, to make due allowances therefor.

Another advantage is that the hour and place of hearing may in some measure be fixed to suit the convenience of the parties and their witnesses. This concession cannot, of course, be obtained, nor expected, from the courts.

Sometimes it happens that neither the court nor disputants' attorneys are sufficiently acquainted with the true interpretation of drawings, details, specifications, etc., nor, indeed, with much of the technique appertaining to our professional work, nor can it be expected that they should be. And so it happens that we sometimes hear of the details of technical cases being insufficiently understood by both court and counsel during a trial. And although a verdict under such conditions may be a just one, as far as the law is concerned, it may not be "equity," viewed in the customary technical light of practical minds.

Then, as regards quick settlement of technical cases and costs, I submit that the best results are usually obtained by early arbitration, when all the matters are still fresh in the minds of all parties and of their witnesses. Indeed, this very point has recently been brought forcibly to my attention, for during the time in which I was engaged in preparing this paper I was subpoenaed to give testimony in a suit regarding the quantity of certain work done in a building not far from here, and I found that the dispute had extended over three years, although the amount of the claim was only about \$400. But if the matter had been arbitrated three years ago a saving of time and money would have been effected, and probably without producing strained relations on either side.

Then, again, in arbitration there is more opportunity and latitude for producing rebuttal evidence, but in court, if the best and strongest testimony be not produced according to the rules of the court, the opportunity of doing so may be lost. Again, there is less risk of one side being overthrown by "surprise" testimony, as occurs sometimes in court. Technical arbitrators have a way of getting down into the facts. They go at once to the very essence of the dispute, and are hampered neither by court-rules nor by precedent. In short, they get at the facts, and are able to render judgment accordingly in a common-sense, practical manner.

It is only right, perhaps, that I should refer to one or two of the objections which one occasionally hears against arbitration. I have heard it alleged that arbitrators may be uncertain judges, admitting evidence of a certain nature at one time and rejecting it at another. It is sometimes said that arbitrators are liable to be inconsistent regarding the weight of evidence submitted, or that they may be very firm and hard to convince to-day and unnecessarily yielding to-morrow, and so on. But these objections do not hold good, I think, where arbitrators have had the advantage of experience. I have heard it stated that arbitration is good provided there are perfect arbitrators, but would it not be equally reasonable and convincing to say that the courts are good provided every judge is perfect? And it is doubtful whether his honor himself could maintain that this condition has always existed, though it is very far from my intention to suggest the least disrespect to the honorable and painstaking judges of our courts.

It, of course, happens sometimes that both parties to an arbitration are no more satisfied with an award than others may be with a court decision. This often arises from a misunderstanding or lack of knowledge as to the real objects of arbitration. Occasionally one meets those who cherish a grievance unless they are awarded the whole, or nearly so, of whatever they choose to claim. But such cases are very rare, and they in no way affect the great principle—viz, the undoubted advantage of the application of arbitration to technical disputes. As a general rule, I find fair-minded and reasonable persons are not only satisfied with awards, but heartily glad to get their differences so quickly adjusted and off their minds without resorting to an action-at-law. While it is true that some contract-agreements provide for arbitration of disputes between the actual parties to such contract, this provision does not, of course, provide for settlement of any disputes that may arise between other parties, and which do arise; and we have but to refer to the court-calendar to see how frequently such technical cases are taken into court.

Having now touched briefly upon the fundamental principles of



arbitration, I may be excused, perhaps, for presenting for your consideration one or two thoughts that have occurred to me in regard to the settlement of those differences which affect the engineer and architect, the contractor and the client.

(1) Arbitration is perhaps one of the most practical of subjects in the statutes. A practical man can understand and readily apply its fundamental principles; a further knowledge of which might well form a part of our professional training, enabling us to occupy with better advantage the position of technical arbitrator when the necessities of our practice require it.

(2) I would even favor compulsory arbitration of all technical or trade disputes, believing that the interests of all can best be served by its adoption. Take, for example, the differences which will sometimes arise between the professional man and his client. Most of us know something of the uncertainty of submitting such differences in court to a jury of laymen. Such matters should, I think, be invariably adjusted by technical men who are familiar with what is right and proper in such cases.

(3) It would seem to me to be an important advantage to technical disputants and a relief to the court-calendar and practice if a permanent technical court or tribunal could be established, where all cases, such as occur in the work of the engineer and architect, might be referred and be quickly determined beyond appeal by technical men along arbitration lines; or, if this should be considered too sweeping a change in our judiciary methods, then perhaps a particular judge might be set apart and be given a special court to try (in conjunction with technical advisers who would sit in bank with him) the particular classes of cases under consideration. These, gentlemen, are merely suggestions which I offer as being possible remedies for existing conditions, and which are known to be capable of improvement by those of us who have had experience with technical trials in courts of law.

In conclusion, I hope I have not detained you too long. If my enthusiasm has led me into saying too much, it is because I believe in my subject, believe in its equity and believe it to be the quickest and most inexpensive process for settling those vexatious technical disputes which sometimes arise. These are also my reasons for believing that arbitration has its place in our modern professional practice.

#### STATUES FROM THE SEA.

THE *Independent* of February 28 contains a most interesting account by Dr. Rufus B. Richardson, Director of the American School at Athens, of the remarkable discoveries of bronze and marble statues in the sea south of the Peloponnesus. Recently receiving from Professor Richardson himself copies of the Athens *Astý* of January 23 and 24 (February 5 and 6 of our calendar) with accounts of the find, I desire to share these with the readers of the *Transcript*, furnishing, perhaps, additional information to those who have seen the above-mentioned article, and calling the attention of those who have not to the same. Not many weeks ago divers brought up from the bottom of the sea near the island of Anticythera (which lies off Cape Malen, the southeastern point of the Peloponnesus) pieces of statues and some figures nearly intact, and reported that there were many more on the bottom or partially buried in the sand, which they could not move on account of their great weight.

The Greek Government took possession of these finds and brought them to Athens, where they arrived on the 4th of February and were taken to the office of the Ministry of Education.

The following detailed account is taken from the *Astý* of the first date (January 23-February 5): The first finds consisted of fragments of bronze statues. Among these were three right feet and one left, with the lower part of the leg preserved in all cases. On these the sandals, with the straps surrounding the foot, are most beautifully preserved. Among several forearms and hands, one of marvellous workmanship was from the statue of a boxer, for on the hand and around the wrist were the straps of the *cæstus*, or leather boxing-glove. Beside these there were found a marble hand of good technique holding a mantle, the head of a small bronze lion, another of a dog, and a horse's hoof with a base, on which stood the man about to mount. More important than these fragments were three bronze statuettes, about a foot and a half (45 cm.) in height. Two represented youths (*epheboi*), and one a woman in the garb of a priestess. Of this latter, only the body and part of the hair have as yet been found, but the youths are complete. "But what moved the admiration of the archaeologists and lovers of the antique, who eagerly gathered at the Ministry of Education, was the great bronze statue, which is of more than life-size. This is broken in fragments, but fortunately almost all of these have been preserved, and can be put together so as to restore the whole of the statue. If anything is lacking it will be a part of no consequence, for the head, body, arms and legs are preserved in splendid condition, and when these are fitted together the whole will be a real masterpiece, almost equal in value to the *Hermes* of Praxiteles, which, indeed, it resembles in expression." The restoration was begun immediately by the sculptor Kalondes, who will have charge of this work. No one will need to be assured of his fitness who has seen in the Acropolis Museum at Athens, the group of "Athena and the Giants" restored by him from a great number of marble fragments discovered during the excavation of the citadel some fifteen or more years ago. Indeed, by noon of the next day, as the *Astý* of January 24 (February 6th) informs us, the body from the loins upward had

been set up on a wooden base, and the broken arm attached. That day this statue and the lesser fragments and statuettes were exhibited to an eager throng of archaeologists, among the visitors being a number of ladies, who stood long in rapt admiration before the noble figure, which is further described as follows: "The right arm is extended, the forearm bending slightly to the front, while the left falls at the side without touching the body or being supported on any object. The beauty of the head, however, surpasses all the other excellences of the statue. The symmetry of the lines of the face and the regularity, in general, of all the features—nose, eyes, forehead, cheeks and lips, which are slightly open—manifest the perfection of the work."

"The pupils of the eyes are wanting, for these were set in of a different material. This lack, however, does not detract at all from the artistic appearance of the statue. Likewise this curious fact is to be noted, that the nipples of the breast are distinguished by being made of different metal and set in."

The Ephor-General of Antiquities, Mr. Kabbadias, is quoted as saying that "with the *Hermes* of Praxiteles, Greece has now to present a second statue of equal value."

The heroic size of the figure indicates that it represents some god, but just which deity it is, or in what attitude, can be determined better after the statue is thoroughly cleaned and restored. Opinions of archaeologists now differ, some thinking it an "Apollo," but the majority inclining to call it a "Hermes." Among these is Mr. Sboronos, the Greek numismatologist, who, in a long interview printed by the *Astý*, discusses the question in detail, comparing other well-known statues and representations on coins. His conclusion is that it is a "Hermes Rhetor" or "Logios," the patron of orators, represented as delivering a speech.

According to the same archaeologist, the statue is an original work of the fourth century before Christ, inferior to the "Hermes of Praxiteles" and superior to the "Hermes of Atalante." "However, its technique is such as certainly to call forth the admiration of every one and the study of connoisseurs."

At the date of the second copy of the *Astý* no definite plan had been formed by the Ministry of Education for the recovery of the rest of the statues, which, according to the report of the divers, were still on the bottom. It was regarded as certain, however, that proposals would be made to the Prince of Monaco for the use of his diving-bells and other apparatus, and that a naval vessel would be ordered to Anticythera to serve as a base of operations, until the whole treasure is recovered and brought to Athens to be added to the already rich collection of the National Museum.

In conclusion, let me give a translation of a short article entitled "The Miraculous Depths."

"The surprises which the sea off Anticythera has been keeping for us continue. Gods and youths, wonders in bronze and wonders in marble, emerge daily from the foam. It seems as if a studio existed in those dark depths, a studio like those of Phidias and Praxiteles, producing works to delight our eyes and senses. After the 'Gazing Youth' now comes the triumphant 'God,' a picture in bronze, which, still broken as it is, does not now give its perfect impression, but to-morrow, when fitted together, set upright and restored, will be among the objects of pride in our museum and one of the most splendid monuments of ancient art."

"We are in the presence of a great event for art. The discovery of this statue may mark an epoch, since even the material of which it consists, bronze, makes the find a rare one. Of the works of Greek art only those in marble have been preserved, because they furnished greater resistance to the axe and could not be used and sold as those of metal could. Only wonders of nature have hitherto saved for us bronze monuments of Greek art from the covetousness of barbarism and of time. The fire and lava of Vesuvius preserved for us those masterpieces of bronze in the Naples Museum, the only collection of its kind in the world. Now the sea off Anticythera saves for us other bronzes, coming who knows whence, which, had they gone to Rome, must have undergone the same destruction at the hands of Christians and barbarians, who choked and annihilated Greek art. And who knows what is yet to be found, how many surprises the jealous sea still guards for us? The first foundations of the treasure have been laid. Two statues of unrivalled excellence have been found, and the miraculous depths, according to the expressions of the divers, have still 'a world of things.' Every day a new god or a new hero, a new wonder of art, may be brought up to the light to receive again the worship of lovers of the beautiful."—Arthur Stoddard Cooley in the *Boston Transcript*.



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ANIMALS IN JAPANESE ART. — In portraits of people taken reading or writing a letter (a favorite pose) a crane almost invariably appears — cranes being trained by the Japanese to play the part of carrier-pigeons. Of course, a far more bulky correspondence can be entrusted to them, and one of the most charming sights the country offers is the arrival or departure of such feathered postmen. The white swallows of children's portraits are to be accounted for by a time-honored native custom. At the doors of the temples always sit old crones with cages containing these birds, and it is the children's delight to spend their pocket money in buying swallows, which they immediately set free. Hokusai, greatest of all Japanese artists, is famed for his animal jokes. One of his finest pictures represents a swallow surprised by a mole just emerging from the ground at its feet. In the outstretched wings and attitude of the bird, so well expressing surprise and alarm, there is irresistible drollery. But Hokusai was also a master of pathos, and some of his little sparrows shivering in the snow bring tears to the eyes. Sosen, another master of the last century, is celebrated for his inimitable monkeys. The monkey is, indeed, a favorite subject with both ancient and modern Japanese artists. In all conceivable attitudes he constantly figures in embroideries, carvings and paintings. In ivory carvings he often covers eyes, ears and mouth with his paws, and a little "net-suki," or umbrella handle, may thus serve to remind one that evil should not be looked upon, listened to, or spoken. The tiger, in popularity as a subject, ranks next to the monkey, and these artists excel in depicting his lithe power. A wonderful medallion of tigers ornamenting the entrance of one of the Nikko temples is so carved that the grain and knots of the wood give the effect of stripes and thick, velvety fur. At Nikko may also be seen the carved likeness of a white cat which has attained almost world-wide fame. Marvellously lifelike it certainly is, and the natives declare that when a storm is approaching it winks. — *London Animal Friends*.

ARCHEOLOGICAL "FIND" IN ARIZONA. — Dr. J. Miller, President of the Antiquarian Association of Arizona, has outlined a project for the development near this city of a finer Casa Grande than that so widely known in the vicinity of Florence, Ariz. Five miles east of Phoenix, on the line of the Southern Pacific branch railroad, is a high Toltec mound, probably the largest in the Southwest. The traveller might consider it merely a hillock, and no photographer has ever succeeded in taking a photograph that looked anything like a building. Yet superficial excavations have demonstrated the fact that within the crumbled debris of the upper part of the once lofty structure walls are still standing to the height of three or more stories. The material is a sort of adobe concrete. Around the old castle are the lines of a moat, that was filled

by a ditch that first ran through a large city, of which the streets and buildings are to be readily distinguished. High walls guarded the castle, and in the southwestern corner once was a tall watch-tower or citadel. To the south is a smooth expanse of several acres, that may have been a drill-ground or an assembly-place for the people. To the north a hundred yards are the outlines of a circular reservoir. The castle to-day measures 380 feet in length, exactly north and south, by 180 feet in width. Now it is proposed to clear from the walls the debris of centuries, saving every find of value, to be held within the building as the nucleus of a Southwestern museum of archaeology. The importance of the project may be gauged by a mere comparison of the size of the building with that of the famed Casa Grande, which has an area of only 50' x 60'. Dr. Miller has offered to supervise the work without personal compensation. A bill now in the Arizona Legislature carries a small appropriation for the work. — *N. Y. Tribune*.

FRENCH DEMAND FOR LUMBER. — United States Consul Skinner, of Marseilles, in a report to the State Department upon the demand in France for walnut-logs, says that that country presents a good market for American lumber. He says: "All kinds of exotic wood in logs are admitted free of duty; squared lumber is dutiable at the rate of 24 cents per 220 pounds, while walnut is the timber most in demand and the most difficult to obtain. There is also an opportunity to dispose of ebony and mahogany, if Americans are at present prepared to export these woods from our colonial possessions. Present prices are about \$19.30 per 1,308 cubic yards for logs, and \$24.12 per 1,308 cubic yards for sawed lumber." All of the American pine imported at Marseilles is purchased from London middle-men. I have had occasion to investigate this matter, and discover that the occasional efforts made in this city to buy direct have been extremely unsatisfactory. Two firms in London are reported to me to be the actual importers of fully 80 per cent of all the American lumber shipped to England and the Continent. These two houses sent their representatives into the Florida and other pine regions, who supervise every detail preceding the actual departure of the lumber for its final destination. What is true of the lumber-trade is also more or less true of many other commercial lines, and I think it would surprise a great many American business-men if they could realize the extent to which they are dependent upon British middle-men for their foreign trade. — *Exchange*.

ST. LOUIS AND THE CHICAGO DRAINAGE-CANAL. — Since St. Louis secured from Congress the appropriation for its Exposition, no more has been heard of the rumor that the city would abandon its opposition to the passing by its doors of Chicago sewage in return for Illinois support of the Exposition bill. On the contrary, the Missouri city is preparing for its fight on the subject before the United States Supreme Court next fall. One exhibit which it will make will be a record of typhoid-fever cases in the city for six years. As prepared by the Health Commissioners, the table shows that during the fiscal year ending April 1, 1896, there were 392 cases of typhoid and 100 deaths; in 1897, 281 cases, 118 deaths; 1898, 464 cases, 119 deaths; 1899, 406 cases, 99 deaths; 1900, 1,114 cases and 149 deaths, and from April 1, 1900, to March 22, 1901, 1,156 cases, 159 deaths. The drainage canal was opened in January, 1900. The health-officers are unanimous in attributing to the opening of the canal the startling increase in typhoid, and claim that the comparison would be more striking had not so many residents begun boiling their drinking-water as soon as the canal was opened. — *N. Y. Evening Post*.

ARTIFICIAL BUILDING-STONE. — The business of manufacturing building-stone by a new method has just been established in Germany on a paying basis. The process employed seems to be exceedingly simple, and the industry apparently has a great future before it, not only in that country, but elsewhere. The ingredients of the stone are nothing but lime and sand, in the proportion of from 4 to 6 per cent of the former to between 94 and 96 per cent of the latter. The ratio varies according to the quality of the sand. The materials having been mixed thoroughly and shaped into blocks of the desired size, the latter are thrust into a boiler that is subsequently closed hermetically, and subjected to the influence of steam at a pressure of from 120 to 150 pounds to the inch. This operation lasts about ten hours. The consolidation of the lime and sand is effected not only by mechanical force, but by chemical action. Nor is this chemical action the same as that which occurs in making mortar. The calcium of the lime unites with the silica of the sand to form entirely new compounds. These are of a flinty character, and give the stone peculiar hardness. The American Consul at Magdeburg institutes a comparison between the advantages of this industry and of brickmaking. He declares that a bigger output of sand-and-lime stone than of brick is possible with the same investment of capital. The plant can work at all seasons of the year. The stone is harder than brick, and does not waste through breakage. It has a higher compressive strength, too. No drying-sheds are required, and the granulated cinder from blast-furnaces can be used instead of sand. — *N. Y. Tribune*.

WOMEN AND THE ROYAL SCOTTISH ACADEMY. — At Edinburgh the question of the admission of women is agitating the Royal Scottish Academicians. There is no mention of their exclusion in the charter of the Academy, but the chances of their admission are not very strong. — *N. Y. Times*.

A STATE WATER-SUPPLY FOR LONDON. — In the House of Commons, March 29, the Rt. Hon. Walter Long, President of the Local Government Board, announced that the Government would introduce a bill granting authority for the establishment of a State water-supply for the whole of London. The scheme will include the purchase of all the existing water-supply companies. — *Exchange*.







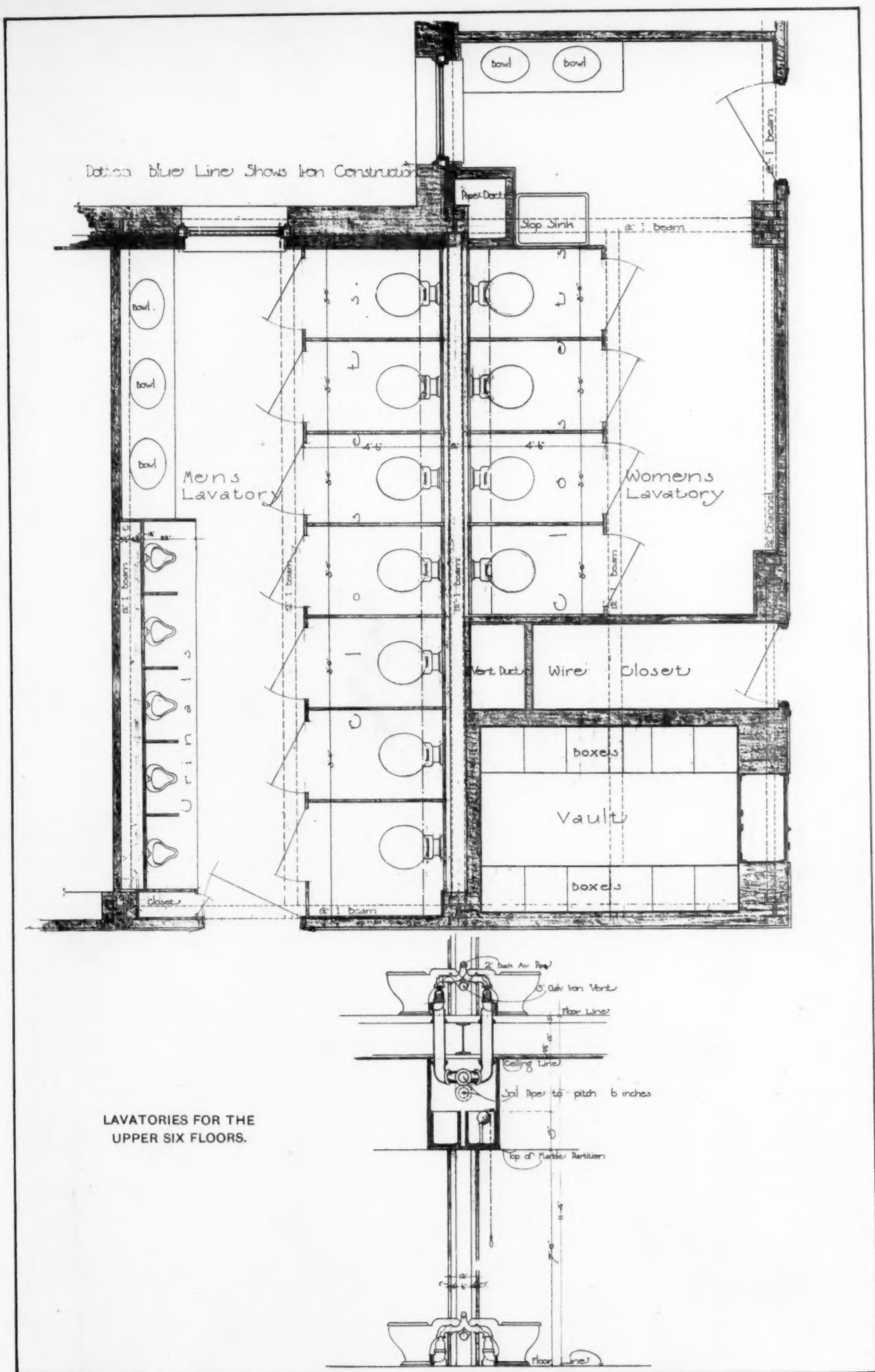
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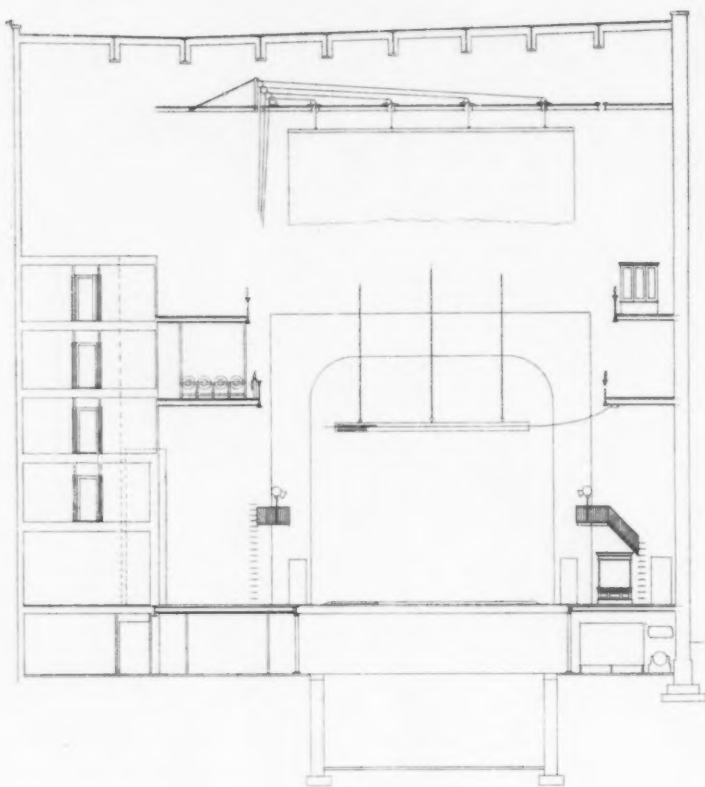
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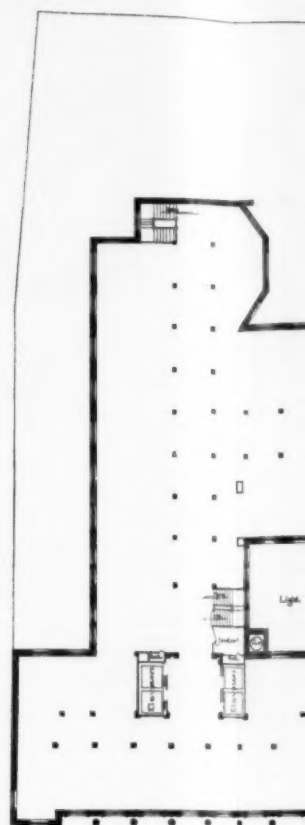
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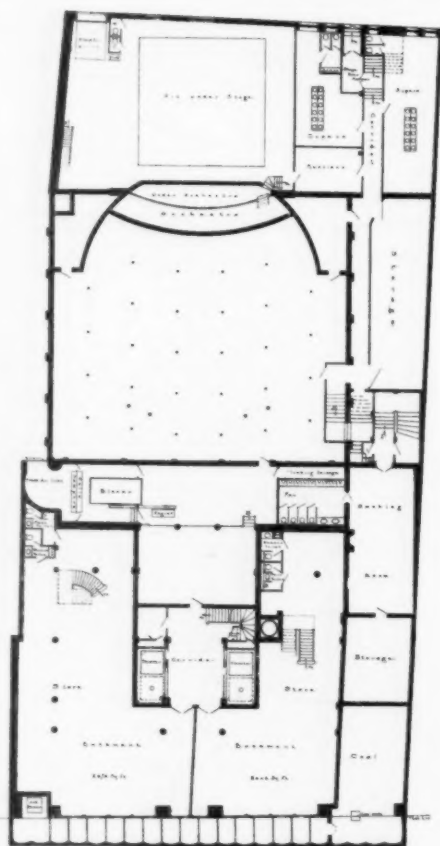




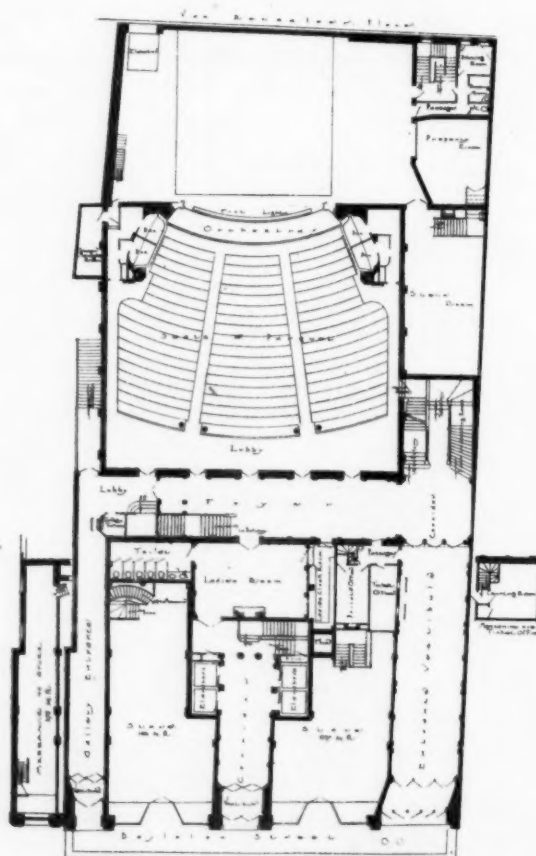
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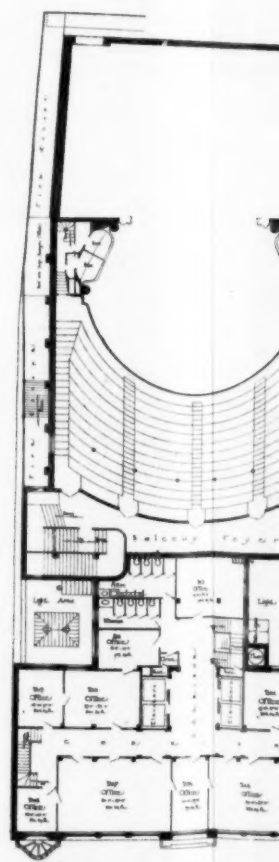
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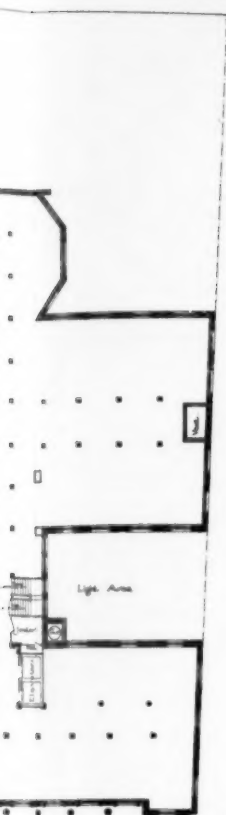
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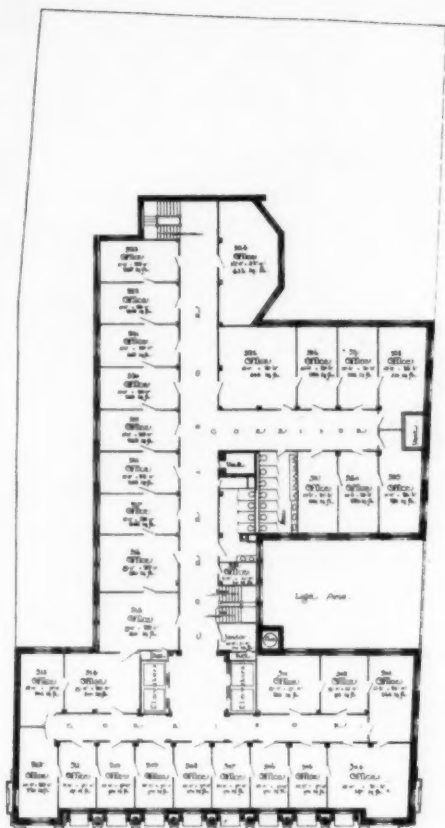
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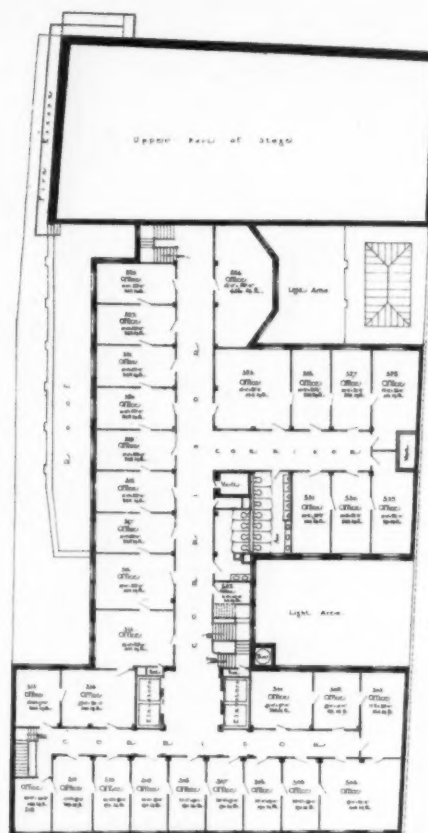




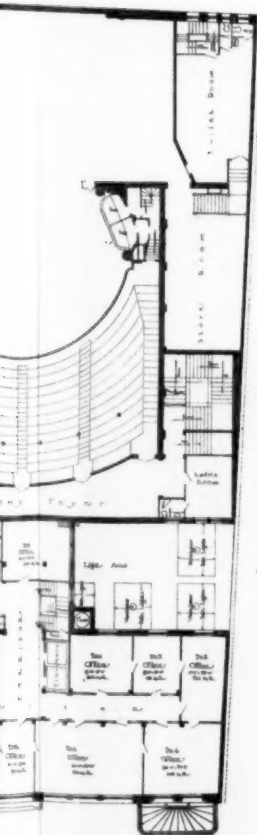
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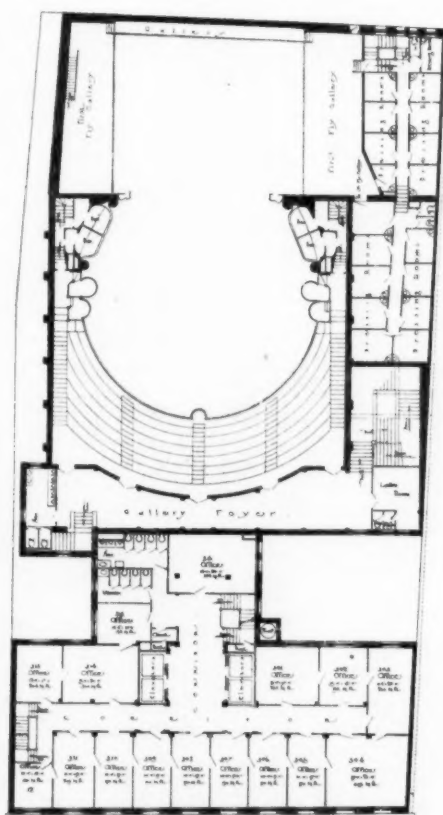
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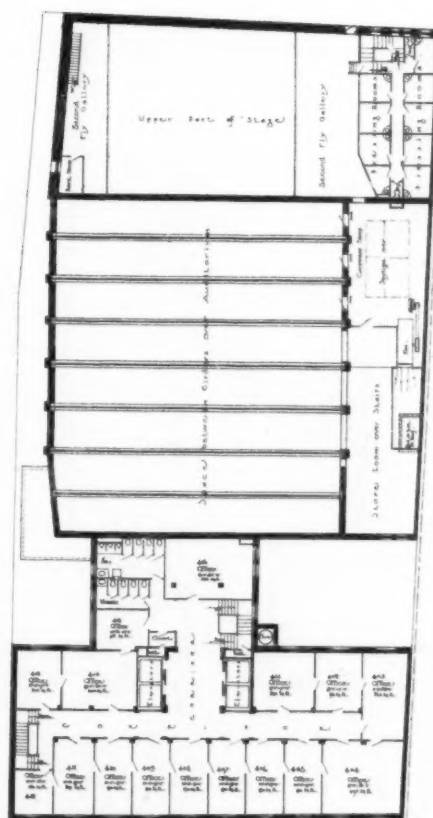
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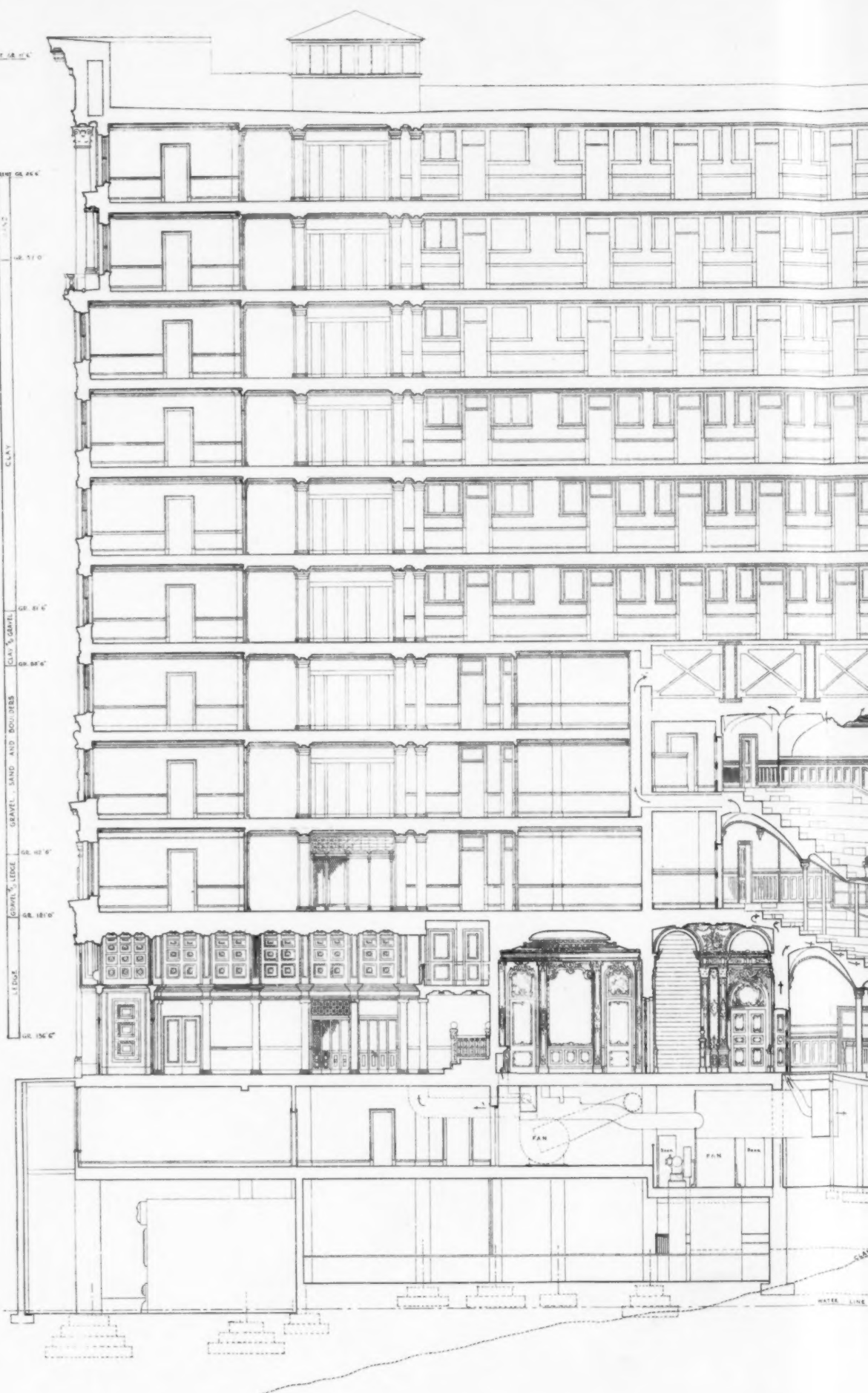
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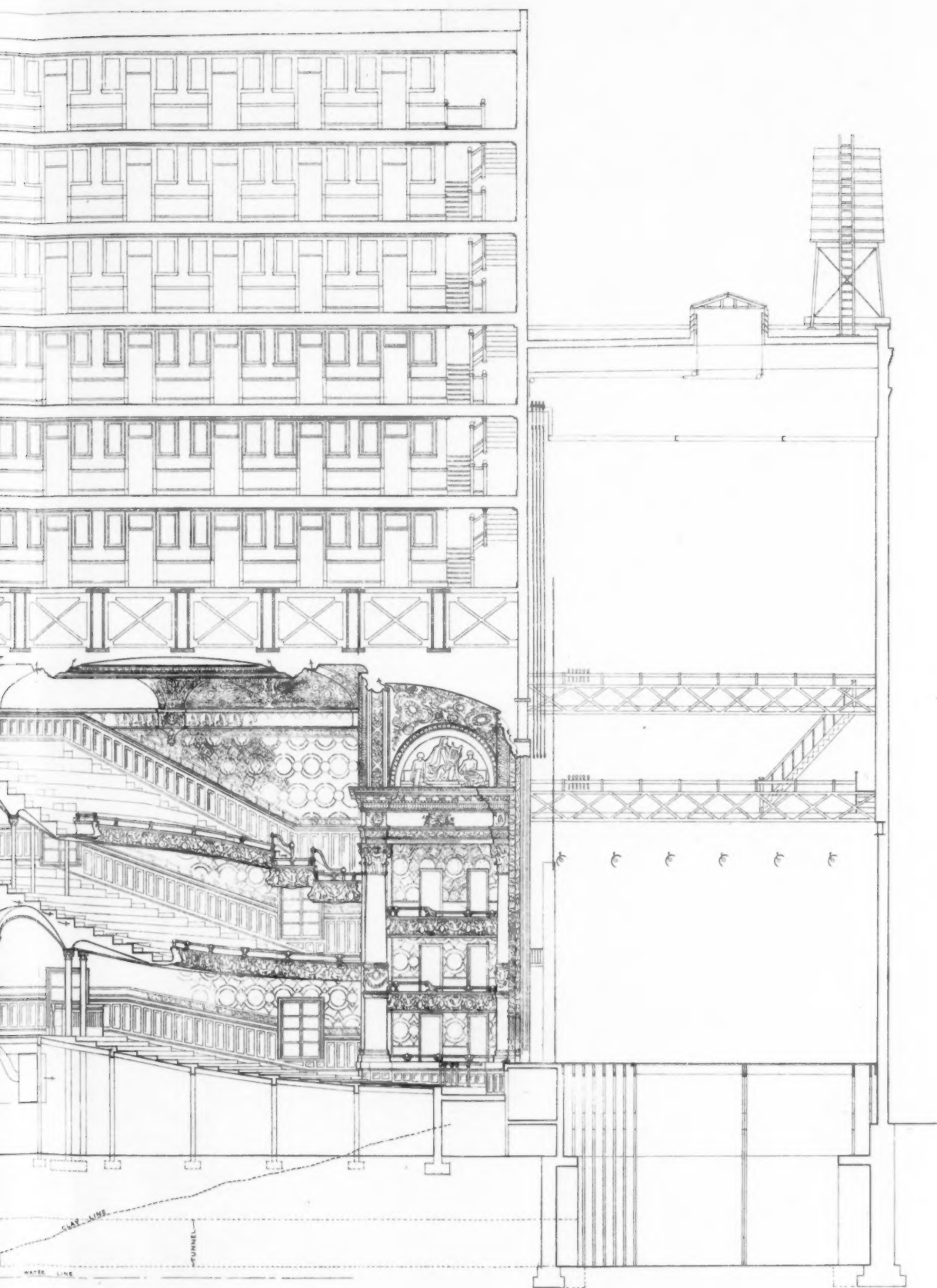
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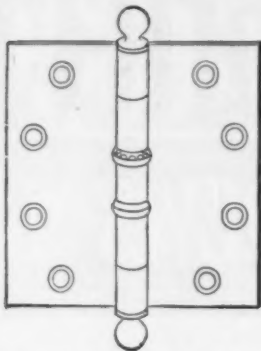
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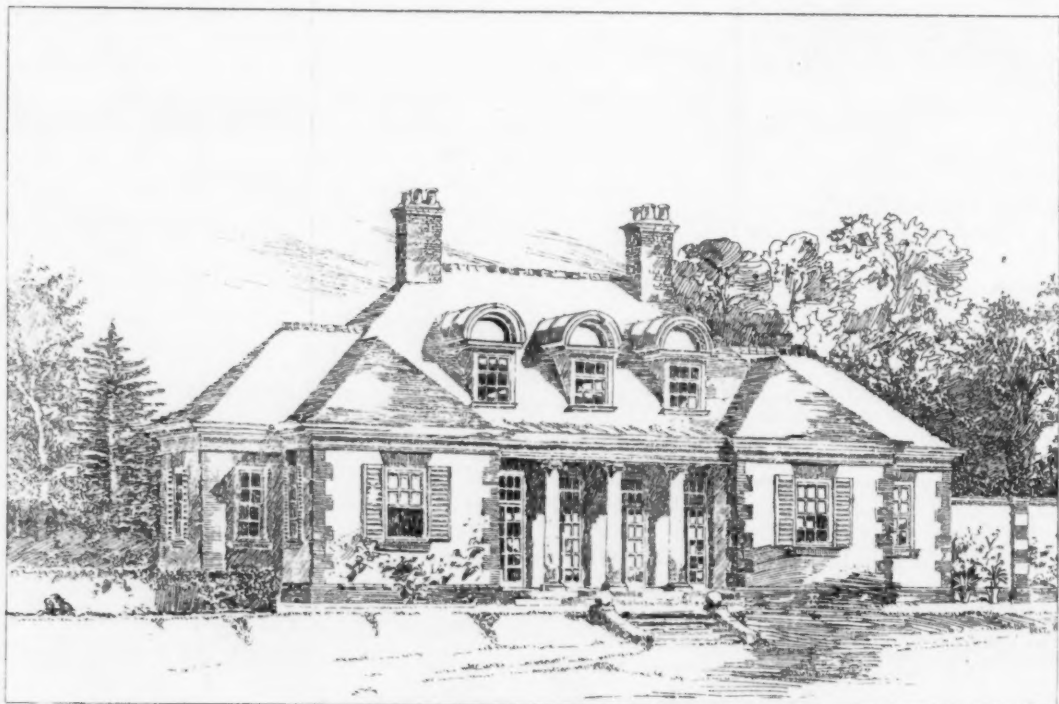
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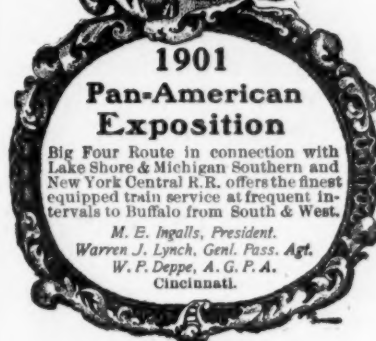
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| <b>New Britain.</b><br>The Stanley Works.....[Wrought-Steel Butts.]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  | <b>Baltimore.</b><br>Valle & Young.....[Slaylights.]                                                                                             |  | <b>N. Y. City.</b><br>Allen's Cement Works.....[Cements.]<br>American Iron Bridge Co.....[Steel Structures.]<br>Atlas Cement Co.....[Cements.]<br>Bickelhaup, G.....[Slaylights.]<br>Deane, E. Eldon.....[Colorist.]<br>Fisher & Co., Robert C.....[Marble.]<br>Frank, I. F.....[Reflectors.]<br>Gorton & Lidgerwood Co.....[Boilers.]<br>Hayes, George.....[Metallic Lathing.]<br>Hitchings & Co.....[Greenhouses.]<br>Holophane Glass Co.....[Holophane Glass.]<br>Hurd & Co.....[Wall Tiles.]<br>Jackson & Co., Wm. H.....[Grates.]<br>Jenkins Bros.....[Valves.]<br>Jones, T. W.....[Pumps.]<br>Laughlin-Hough Co.....[Drawing Tables.]<br>Mott Iron Works, The.....[Iron Work.]<br>Neuchatel Asphalt Co.....[Asphalt.]<br>New Jersey Zinc Co.....[Zinc White.]<br>New York Belting and Packing Co., Ltd.....[Belting.]<br>Lawrence Cement Co., The.....[Cement.]<br>New York Marble Works.....[Marble.]<br>N. Y. Metal Ceiling Co.....[Metal Ceilings.]<br>Ogden & Wallace.....[Floor Plates.]<br>Oxonite Co. (Ltd.).....[Insulated Wire.]<br>Pitt, W. B.....[Folding Gates.]<br>Raritan Hollow & Porous Brick Co., [Fireproofing.]<br>Rider-Ericson Engine Co [Hot-Air Engines.]<br>Sargent & Co.....[Builders' Hardware.]<br>Smith Co., H. B.....[Steam Boilers.]<br>Smith & Co., Edward.....[Varnishes.]<br>Thiele, E.....[Portland Cement.]<br>U. S. Mineral Wool Co.....[Mineral Wool.]<br>Warren Chemical & Mfg. Co.....[Amphibol Roofing.]<br>Williams, John.....[Wrought Metal.]<br>Yale & Towne.....[Hardware (Art).] |  | <b>Canton.</b><br>Berger Mfg. Co., The.....[Metal Ceilings.]<br>Canton Steel Roofing Co., The [Metal Ceilings.] |  | <b>Cincinnati.</b><br>American Steel Roofing Co., The..[Conductors.]<br>Ohio Marble and Wood Co., The [Marbles Colored.] |  | <b>Cleveland.</b><br>Gidden Varnish Co., The.....[Varnish.]<br>Osborn, J. M. & L. A.....[Roofing Tin.]<br>Tyler Co., The W. S.....[Ornamental Iron and Bronze.] |  |
| <b>Chicago.</b><br>Crane Co.....[Valves.]<br>Flanagan & Biedenweg Co.....[Painted Glass.]<br>Northwestern Terra-Cotta Co.....[Terra-Cotta.]<br>Peck Brothers Company.....[Flash-Valve.]<br>Stannum & Blome.....[Cement Facing.]<br>Taylor, J. W.....[Photographs.]<br>Winslow Bros. Co., The.....[Ornamental Iron and Bronze.]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  | <b>St. Louis.</b><br>Ludlow Saylor Wire Co.....[Art Metal-Work.]                                                                                 |  | <b>Columbus.</b><br>Columbus Brick & Terra-Cotta Co., The.....[Bricks.]<br>Kinneer Mfg. Co.....[Steel Rolling-Doors.]<br>Nelson Co., The C. T.....[Capitals (Carved).]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  | <b>Pennsylvania.</b><br><b>Ambler.</b><br>Kearney & Mattison Co.....[Magnesia Covering.]                        |  |                                                                                                                          |  |                                                                                                                                                                 |  |
| <b>MASSACHUSETTS.</b><br><b>Boston.</b><br>Auer, Mason Safety Tread Co.....[Stair Tread.]<br>Bartlett Lumber Co.....[Redwood Lumber.]<br>Butcher Polish Co.....[Floor Polish.]<br>Cabot, S.....[Shingle-Stains.]<br>Campbell, Walter M.....[Perspectives.]<br>Carlisle, Pope & Co.....[California Redwood.]<br>Carter Ink Co.....[Ink.]<br>Dickey & Co., A.....[Spiral Mouldings.]<br>Folsom Snow Guard Co.....[Snow Guards.]<br>Gurney Heater Mfg. Co.....[Hot water, etc.]<br>Haberstroh & Son, L.....[Decorators.]<br>Heliotype Printing Co.....[Art Printing.]<br>Lombard & Co.....[Architectural Ornamentation.]<br>New England Felt Roofing Works.....[Roofing.]<br>Samson Cordage Works.....[Sash-Cord.]<br>Seawall Printing Paper Co.....[Paper Prints.]<br>Union Brass Works.....[Faucets.]<br>Whitaker Machine Co.....[Elevators.] |  | <b>NEW JERSEY.</b><br><b>Jersey City.</b><br>Dixon Crucible Co., Joe.....[Graphite.]<br>Snead & Co. Iron Works, The.....[Ironwork (Ornamental).] |  | <b>Philadelphia.</b><br>Electric Storage Battery Co.....[Chloride-Accumulator.]<br>French & Co., Samuel H.....[Morris Colors.]<br>Harrison Brothers & Co.....[Protective Paints.]<br>International Sprinkler Co.....[Automatic Sprinklers.]<br>Leonis Filters Improved System.....[Filters.]<br>Merchant & Co.....[Tin Roofing.]<br>Morse, Williams & Co.....[Refractors.]<br>Taylor Co., N. & G.....[Tin.]<br>Thorn, J. S. Co.....[Sheet Metal.]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  | <b>Pittsburgh.</b><br>Reaife, Wm. B. & Sons.....[Filters.]<br>Wisconsin Graphite Paint.....[Graphite Paints.]   |  |                                                                                                                          |  |                                                                                                                                                                 |  |
| <b>BRIDGE.</b><br>Lawrence Scientific School.....[School.]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  | <b>NEW YORK.</b><br><b>Brooklyn.</b><br>Moore, Benjamin.....[Murexco.]                                                                           |  | <b>Syracuse.</b><br>Dunning, W. D.....[Mixer.]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  | <b>Scranton.</b><br>International Correspondence Schools, The..[Architecture.]                                  |  |                                                                                                                          |  |                                                                                                                                                                 |  |
| <b>CLINTON.</b><br>Clinton Wire Cloth Co.....[Metallic Lathing.]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  | <b>Irvington-on-Hudson.</b><br>Lord & Burnham Co.....[Conservatories.]                                                                           |  | <b>Troy.</b><br>Globe Ventilator Co.....[Ventilators.]<br>Troy Laundry Machinery Co.....[Washing Machines.]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  | <b>VERMONT.</b><br><b>Burlington.</b><br>Burlington Venetian Blind Co.....[Venetian and Sliding Blinds.]        |  |                                                                                                                          |  |                                                                                                                                                                 |  |
| <b>PALMER.</b><br>Flynt Building & Construction Co.....[Building Contractors.]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  | <b>Jamestown.</b><br>Art Metal Construction Co.....[Art Metal Work.]                                                                             |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |                                                                                                                 |  |                                                                                                                          |  |                                                                                                                                                                 |  |



# "The Georgian Period"

THIS publication, which now consists of seven Parts, contains more than a hundred pages of text, illustrated by some two hundred and fifty text-cuts, and two hundred and forty-nine full-page plates, of which fifty-five are gelatine or half-tone prints. It is in truth a work of superior excellence and great usefulness.

The matter already illustrated may in small part be classified thus:

## PUBLIC BUILDINGS

|                                          |           |              |
|------------------------------------------|-----------|--------------|
| City Hall, New York, N. Y.               | . . . . . | Date 1803-12 |
| Old State House, Boston, Mass.           | . . . . . | " 1748       |
| Pennsylvania Hospital, Philadelphia, Pa. | . . . . . | " 1755       |
| Carpenters' Hall, Philadelphia, Pa.      | . . . . . | " 1770       |
| Independence Hall, Philadelphia, Pa.     | . . . . . | " 1729       |
| Faneuil Hall, Boston, Mass.              | . . . . . | " 1741       |
| and others.                              |           |              |

## CHURCHES

|                                                 |           |           |
|-------------------------------------------------|-----------|-----------|
| King's Chapel, Boston, Mass.                    | . . . . . | Date 1749 |
| Seventh-day Baptist Church, Newport, R. I.      | . . . . . | " 1729    |
| Christ Church, Alexandria, Va.                  | . . . . . | " 1767    |
| Christ Church, Philadelphia, Pa.                | . . . . . | " 1727    |
| St. Paul's Chapel, New York, N. Y.              | . . . . . | " 1764    |
| Old South Church, Boston, Mass.                 | . . . . . | " 1729    |
| First Church, Hingham, Mass.                    | . . . . . | " 1681    |
| St. John's Chapel, New York, N. Y.              | . . . . . | " 1803    |
| First Congregational Church, Canandaigua, N. Y. | . . . . . | " 1812    |
| St. Peter's P. E. Church, Philadelphia, Pa.     | . . . . . | " 1758    |
| Gloria Dei Church, Philadelphia, Pa.            | . . . . . | " 1700    |
| and others.                                     |           |           |

## IMPORTANT HOUSES

|                                      |           |           |
|--------------------------------------|-----------|-----------|
| Fairbanks House, Dedham, Mass.       | . . . . . | Date 1636 |
| Royall Mansion, Dedham, Mass.        | . . . . . | " 1737    |
| Philipse Manor House, Yonkers, N. Y. | . . . . . | " 1745    |
| Tudor Place, Georgetown, D. C.       | . . . . . | " 179-    |
| Mappa House, Trenton, N. Y.          | . . . . . | " 1809    |
| Woodlawn, Va.                        | . . . . . | " 1799    |
| Mount Vernon, Va.                    | . . . . . | " 1743    |
| and others.                          |           |           |

Incidentally there are shown special measured drawings or large views of the following features and details:

|                      |           |             |
|----------------------|-----------|-------------|
| Porches and Doorways | . . . . . | 54 Subjects |
| Staircases           | . . . . . | 18 "        |
| Mantelpieces         | . . . . . | 76 "        |
| Pulpits              | . . . . . | 6 "         |
| Fanlights            | . . . . . | 60 "        |

In addition to the subjects enumerated above there is a large quantity of measured and detailed drawings of Cornices, Ironwork, Gateposts, Windows, Interior Finish, Ceiling Decoration, Capitals, etc., together with elevational and sectional views of entire buildings.



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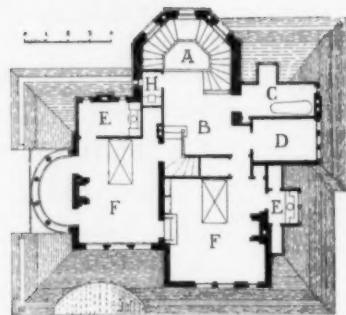
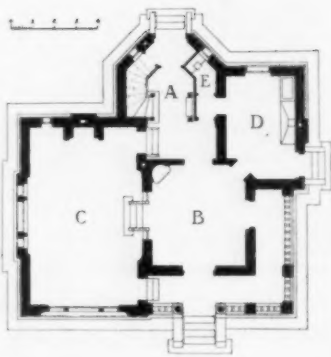
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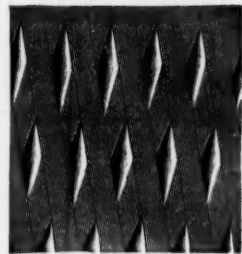
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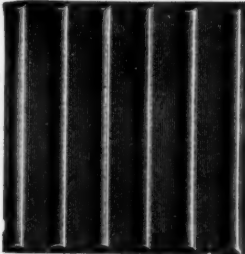
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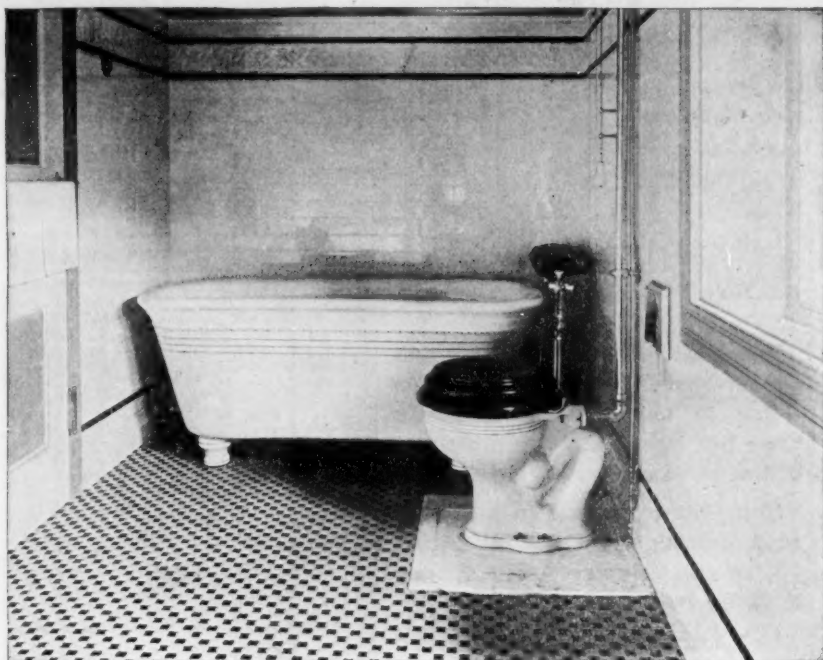
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**Janeville, Wis.**—Architect K. S. Evans, Camp Building, Milwaukee, has made plans for a \$50,000 cannery, to be erected in this city.

**Lewiston, Me.**—The City Government has decided upon the lot of land opposite the City hall as the site for the library building, for which the city had a present of \$50,000 from Andrew Carnegie. Work on the library building will begin right away.

**Louisville, Ky.**—It is reported that C. D. Meyer, Norton Building, has prepared plans for a \$50,000 brick and stone church for the German Evangelical Society.

**Manitowoc, Wis.**—C. H. Tegen has drawn plans for a three-story brick building to be erected by Schutte Bros.; cost, \$40,000.

**Marietta, O.**—Bids are being received for the erection of the new \$25,000 Congregational Church. Gardner, Payne & Gardner, of Springfield, Mass., architects.

**Montclair, N. J.**—Andrew Carnegie has made a conditional offer of \$40,000 for the establishment of a public library building. Doubtless the annual appropriation of \$4,000 for its maintenance will be secured.

**New York, N. Y.**—A fine six-story gray brick limestone block of model tenements will be erected at a cost of \$150,000, from plans furnished by Messrs. Andrews & Withers, 22 Bellevue Ave., Newport, R. I. Building will be strictly fireproof and have all modern improvements. Architects have entire charge of all details.

New York City is shortly to have one more big hotel. It is to be built by a syndicate of a few New Yorkers and will occupy the block front on the west side of Park Ave., between E. 41st and E. 42d Sts., across from Grand Central Station. It will represent the investment of a good-sized fortune.

The New York City Mission and Tract Society has filed plans through Barney & Chapman, architects, for a four-story brick nursery, costing \$24,000. The building will be erected at 632 Fifth St.

Plans are being drawn for a new \$75,000 clubhouse, Broadway and 75th St., for the Tilden Club. The site selected for the new College Hall for Columbia University is at the corner of Broadway and 116th St. It will be a four-story building, 55' x 205', and the cost will be in the neighborhood, it is said, of \$400,000.

It is expected that within another month the subscriptions will warrant the preparation of plans for the new building of the Historical Society in Central Park West, between 76th and 77th Sts. \$100,000 has already been subscribed for building purposes.

**Northfield, Minn.**—Halle Steenland, a millionaire and philanthropist of Madison, Wis., has announced his intention of giving a library building to St. Olaf College.

**Oshkosh, Wis.**—The First Baptist Society is to erect a new church. J. M. Deal, Lincoln, Ill., is making the plans. It will be of stone, having steam heat, slate or tin roof, and will cost \$20,000.

**Oskaloosa, Ia.**—It is reported that a \$40,000 Y. M. C. A. Building will be erected here.

**Pensacola, Fla.**—Bruce & Morgan, of Atlanta, are drawing plans for the five-story building to be erected at the corner of Palafox and Romana Sts., for C. Thiesen.

**Philadelphia, Pa.**—It is stated that Wilson Bros. & Co. have plans under way for a \$200,000 extension to the Drexel Institute. The extension is to be used for class-rooms and laboratories, and will be connected with the main building by bridges.

**Pittsburgh, Pa.**—Architects Alden & Harlow have prepared plans for an office-building to be erected on the corner of Wood St. and 4th Ave. It will be fifteen stories high, costing \$600,000.

Plans have been prepared by Architect T. D. Evans for an expensive apartment-house to go up on the corner of Ann and Stephenson Sts.; cost, about \$50,000. Owner, Attorney Joseph Stadfield. James Stewart & Co., St. Louis and Pittsburgh, have been awarded the contract by D. H. Burnham & Co., Rookery Building, Chicago, for rebuilding the exposition buildings recently burned; cost, \$250,000.

**Richmond, Va.**—The Finance Committee of the Common Council reports favorably on Mr. Carnegie's offer to contribute \$100,000 for a public library here, provided the city would appropriate \$10,000 per year for its support.

**Roanoke, Va.**—A new building is to be erected for Virginia College; cost, \$35,000.

**Sacramento, Cal.**—Plans have been drawn by J. Seidler for the new city hall; cost, \$250,000.

**San Antonio, Tex.**—A \$60,000 five-story Y. M. C. A. Building will be built here after plans by Harvey L. Page.

**Shepherdstown, W. Va.**—Shepherd College will be rebuilt at a cost of \$33,000.

**Springfield, Mass.**—Plans for the new Swedish Methodist Church on Bay St. have been completed, and bids will soon be asked for the construction not only of the church but of a parsonage. The total cost of both buildings will be about \$10,000.

**Stapleton, S. I.**—It has been voted by the members of the Tompkins Masonic Lodge to appropriate \$40,000 for the erection of a new building at Sand and Bay Sts.

**St. Louis, Mo.**—Two more sites for branch libraries have been offered to the public library board. One is in the southern part of the city and the other near the centre. Librarian F. M. Crunden thinks there will be no trouble about securing all the sites for branch libraries if the two-fifths-mill tax is adopted by the voters at the next election.

Plans are being prepared for a new \$800,000 hotel to be built at 12th and Olive Sts. for Thomas Hayden of the Hayden Roofing Co.

**Tolland, Conn.**—Mr. Ratcliffe Hicks proposes to establish in this his native town an industrial and educational institute. He desires to purchase 40 acres of land on the hill overlooking Snipsie Lake, and it is his purpose to adopt the cottage system for the institute similar to that at Holyoke. In the centre will be the general institute buildings and around them grouped the cottages. He will put \$100,000 into the work at the start and will endow

## BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

the institute with \$1,000,000 if it proves a permanent success.

**Topeka, Kan.**—Six buildings will be erected by the Atchison, Topeka & Santa Fe in addition to the present plant of the company, to cost about \$500,000, provided the city furnishes an additional site, to cost \$70,000.

**Waukegan, Ill.**—Andrew Carnegie offers \$25,000 for a public library building under the usual conditions.

**Wausau, Wis.**—Plans have been adopted for a \$30,000 addition to the Lincoln School.

**West Superior, Wis.**—Schmidt Bros. have been awarded the contract for the erection of a \$25,000 two-story brick office-building on Tower Ave. for Senator A. P. Lovejoy, of Janeville.

**Williamsport, Pa.**—It is stated that Edgar V. Seeler, 328 Chestnut St., Philadelphia, has completed plans for the proposed new J. V. Brown Memorial Library Building, at 4th and State Sts.; cost, \$200,000.

**Yankton, S. D.**—W. R. Parsons & Son Co., of Des Moines, Ia., have prepared plans for a \$25,000 temple for the Scottish Rite Masons.

## APARTMENT-HOUSES.

**Chicago, Ill.**—Woodlawn Ave., Nos. 4455-59, three-sty' bk. apart., 44' x 115', steam; \$60,000; o., T. G. Otis; a., Sidney Lovell.

**Winthrop Ave.**, Nos. 307-309, three-sty' bk. & st. apart., 42' x 63'; \$20,000; o., Mrs. E. L. Wolfe; a., J. S. Woolcott.

**Washington Boulevard**, nr. 42d Ave., three-sty' bk. & st. apart.; \$50,000; o., A. S. Terrill and Geo. W. Stewart; a., W. G. Krieg, 84 Washington St.

**Minneapolis, Minn.**—Seventh Ave. and Fourteenth St., four-sty' & base, bk. & st. apart., 83' x 123', steam; \$50,000; a., I. R. Berry, 518 Bank of Commerce Bldg.; o., Silas King.

**St. Paul, Minn.**—St. Albans St., bet. Summit & Grand Sts., three-sty' & base, bk. apart., 43' x 100', gravel roof, steam; \$24,000; a., Herman Krets & Co.; c., Newman & Hoy.

## EDUCATIONAL.

**Alma, Mich.**—Three-sty' bk. & st. dormitory, 123' x 158', slate roof, steam; \$50,000; o., Alma College; a., Donaldson & Meier, 89 Moffat Bldg., Detroit.

**Eagle Grove, Ia.**—Two-sty' bk. & st. school, steam; \$20,000; o., City; a., Oemyer & Thorl, St. Paul.

**Jackson, Mich.**—Three-sty' bk. academy, 85' x 138', slate roof, steam; \$35,000; o., St. John's Roman Catholic Society; a., H. J. Rill, Detroit.

## FACTORIES.

**Milwaukee, Wis.**—Twenty-seventh St., cor. St. Paul Ave., 2 two-sty' bk. carriage-factory buildings, one 60' x 200', other 60' x 80'; \$25,000; o., Snellhorn & Seefeld; a., H. J. Esser.

## HOUSES.

**Boston, Mass.**—Mouniford St., Nos. 93-99, Ward 11, 4 three-sty' bk. dwells., 35' x 40', furnaces; \$40,000; o., Boston Construction Co.; a., Benj. Fox, 16 State St.

**Russell St.**, Nos. 86-88, Ward 4, 2 three-sty' bk. dwells., 26' x 51', stoves; \$10,000; o. & a., J. Frank Sonay.

**Roy St.**, nr. Chestnut Ave., Ward 22, three-sty' fr. dwell., 25' x 46', stoves; \$5,000; o., John W. Priesing; b., Wm. Priesing; a., J. Luipold.

**Hollander St.**, No. 42, Ward 21, two-sty' fr. dwell., 27' x 46', furnaces; \$5,600; o. & b., W. P. Shaw; a., Jas. Booth.

**Stratford St.**, nr. Park St., Ward 20, two-sty' fr. dwell., 32' x 46', furnaces; \$5,000; o. & b., Henry J. Rice; a., Brainard & Russell.

**Hampstead Road**, nr. Parkway, Ward 22, two-sty' fr. dwell., 30' x 47', furnaces; \$5,000; o., Alma and C. E. Blumberg; b., Wm. Sullivan.

**Centre St.**, No. 82, Ward 24, two-sty' fr. dwell., 28' x 48', furnaces; \$5,000; o., Lydia M. Sherman; a. & b., W. A. Sherman.

**Henshaw St.**, nr. Cambridge St., Ward 25, two-sty' fr. dwell., 28' x 40', furnaces; \$6,000; o., Mary E. McMurty; a., E. L. Clark; b., J. & W. Muldoon.

**Heien St.**, No. 10, Ward 20, two-sty' fr. dwell., 26' x 45', furnaces; \$5,000; o., T. F. Doherty; b., D. F. Doherty; a., P. A. Tracy.

**P St.**, nr. E. 5th St., Ward 14, three-sty' fr. dwell., 23' x 63', stoves; \$6,000; o., W. F. Cogan; a., T. R. Hughes.

**Bentley St.**, Nos. 15-17, Ward 25, two-sty' fr. dwell., 33' x 48', furnaces; \$6,000; o., S. N. Davenport; a., F. A. Norcross.

**Donkin Terrace**, nr. Savin Hill Ave., Ward 20, two-sty' fr. dwell., 26' x 46', furnaces; \$5,000; o., Minnie L. Donkin; a. & b., C. C. Donkin, 13 Savin Hill Ave.

**Cambridge, Mass.**—Fayette St., No. 52, three-sty' fr. dwell., 29' x 53', furnaces; \$6,300; o., Honora O'Keefe, 33 Warren St.; b., Patterson & Fox, 1287 Cambridge St.

**Columbus, O.**—Two-sty' bk. dwell., 36' x 44', slate roof, furnaces; \$12,000; o., Willis McAllister; a., McAllister & Restieux.

**Dorchester, Mass.**—Hollander St., No. 42, two-sty' fr. dwell., 27' x 46', furnace; \$5,600; o., W. P. Shaw; a., James Booth.

**Hillsboro, O.**—Two-sty' fr. dwell., 32' x 43', slate roof, furnaces; \$8,000; o., Andrew Mathews; a., E. W. Hart & Co., Columbus.

**Two-sty' fr. dwell.**, 36' x 44', slate roof, furnaces; \$5,000; o., Dr. Lewis Nelson; a., E. W. Hart & Co., Columbus.

**Medford, Mass.**—Brooks St., two-sty' fr. dwell., 33' x 45', furnaces; \$6,000; o., Walter R. Magoun.

**Minneapolis, Minn.**—W. Franklin Ave., No. 2101, two-sty' attic & base, fr. dwell., 44' x 47', hot water; \$7,000; o., W. C. Gregg; a., W. C. Whitney.

**Newton, Mass.**—Hunnewell Terrace, Ward 1, two-sty' fr. dwell.; \$5,000; o., H. E. Hibbard; b., W. J. Henderson.

**Centre St.**, Ward 1, two-sty' fr. dwell., steam; \$12,000; o., Geo. F. Meacham; b., H. F. Ross Co.

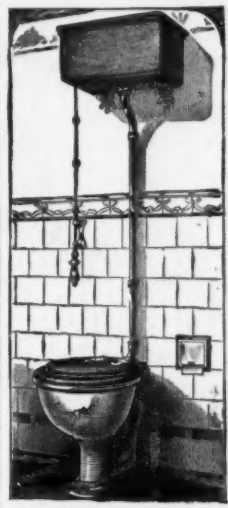
**Hunnewell Terrace**, two-sty' fr. dwell., 38' x 60', hot water; \$8,000; o., J. W. Blaisdell; a., H. M. Stephenson.

**Piqua, O.**—Two-sty' bk. dwell., 28' x 41', slate roof, furnaces; \$6,000; o., C. E. Leonard; a., E. W. Hart & Co., Columbus.

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## BUILDING INTELLIGENCE.

(Houses Continued.)

**Pomfret, Conn.**—21-sty' fr. dwell., 40' x 50', shingle roof, steam; \$12,000; o., F. L. Wright; a., Chas. H. Kelley, Grove St., Putnam.

**Somerville, Mass.**—Boston Ave. and Lowell St., two-sty' fr. dwell., 33' x 55', pitch roof, hot water; \$6,000; o., J. Duncan; a., W. B. Paige; b., Walter Grant, 37 Lowell St.

**St. Paul, Minn.**—Lincoln Ave., nr. Avon St., two-sty' fr. dwell., 27' x 46', hot water; \$5,000; o., Mr. Pfaff; a., Louis Lockwood, 2d National German Amer. Bank.

## MERCANTILE BUILDINGS.

**Marion, Ind.**—Three-sty' bk. business block, 80' x 120', comp. roof, steam; \$20,000; o., Smith & Holde-  
man; a., F. L. Packard, Columbus.

**Oshkosh, Wis.**—Six-sty' bk. & st. bank & office building, 20' x 80', tin roof, steam; \$35,000; o., Union National Bank; a., Wm. C. Klapproth.

**Sioux City, Ia.**—Jackson St., nr. 4th St., two-sty' bk. business building, 50' x 150'; \$20,000; o., Mass. Real Estate Co.; a., Henry Fisher.

**St. Paul, Minn.**—Sixth St., cor. Cedar St., three-sty' & base, bk. building, 80' x 120', gravel roof, steam; \$100,000; a., Mark Fitzpatrick.

## PUBLIC BUILDINGS.

**Carrollton, Mo.**—Two-sty' & base, st. court-house, 70' x 118', slate roof, steam; \$60,000; o., Carroll County; a., J. B. Lerg, 715 Locust St., St. Louis.

## STABLES.

**Boston, Mass.**—W. Broadway, nr. Dorchester St., Ward 14, two-sty' bk. stable, 37' x 67', hot water; \$18,000; o., City; a., A. W. Gould.

**Newton, Mass.**—Morseland Ave., Ward 6, two-sty' stable, 27' x 66', steam; \$3,000; o., Geo. L. Forristal, Newton Highlands. b., E. L. Noera, Cliftondale.

**Beverick Road**, Ward 5, two-sty' bk. stable, 30' x 32', stoves; \$1,600; o., A. D. Dowd; b., J. H. Davidson.

## STORES.

**Des Moines, Ia.**—W. Sixth St., cor. Walnut St., three-sty' bk. store, 132' x 132'; \$100,000; a., Liebke, Nourse & Rasmussen.

**Minneapolis, Minn.**—Hennepin Ave., No. 721, two-sty' bk. store, 38' x 50'; \$3,000; o., Mary B. Wheeler; c., L. C. Berg, 124 Fourth St.

## WAREHOUSES.

**Boston, Mass.**—Commercial St., Union Wharf, one-sty' storage warehouse, 40' x 250', iron roof; o., Kennebec Steamship Co.

**Minneapolis, Minn.**—Third St., bet. 6th & 7th Sts., five-sty' bk. & st. warehouse, 52' x 132', gravel roof, steam; \$30,000; o., Lindsay Bros.

**Fourth Ave. and N. Third St.**, six-sty' & base, bk. & st. warehouse & office-building, 80' x 150', gravel roof, steam; \$50,000; o., Minnesota Moline Plow Co.; a., Jas. C. Lilwell, 1218 Association Bldg., Chicago, Ill.

## COMPETITIONS.

## JAIL.

[At Lewiston, Me.]

Plans and specifications will be received by the County Commissioners until April 27 for a two-story stone jail. C. M. KELLY, co. clk. 1321

## LIBRARY.

[At Houston, Tex.]

Designs will be received by the Trustees of the Houston Lyceum and Carnegie Library Association of Houston, Texas, until 12 o'clock, noon, of the 1st day of May, 1901, for the Carnegie Library Building, to cost not to exceed \$45,000. For prospectus, address H. H. DICKSON, Chairman Building Committee, Houston, Texas. 1321

## PROPOSALS.

## BUILDINGS.

[At Milledgeville, Ga.]

Bids are wanted until April 24, 1901, for the erection of two buildings at the Georgia State Sanitarium to cost about \$136,000. T. H. DE SAUSURE, engineer. 1320

## ELEVATOR.

[At Washington, D. C.]

The Department of the Interior will receive bids for the installation of an electric elevator in the patent office building, until April 23. 1320





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### PROPOSALS.

#### SCHOOL.

[At Cincinnati, O.]  
The board of education will receive sealed proposals until April 22, 1901, for the construction of a twelve-room school-building on Fairfax and Cincinnati Sts. JACOB E. CORMANY, chairman committee on buildings, board of education. 1320

#### SCHOOL-HOUSE.

[At Brookline, Mass.]  
Brookline, Mass. Sealed proposals for the erection and completion of a manual training school-house on Tappan St. will be received by the Board of School Committee until 5 o'clock P. M. on April 16, 1901, at the selectmen's office in the town-hall. Separate proposals will be received for the main building, for the heating and ventilation and for the plumbing, according to plans and specifications, which may be seen at the office of F. Joseph Untersee, architect, Room 608, 178 Devonshire St., Boston. MICHAEL DRISCOLL, chairman of committee on buildings. 1320

Treasury Department, Office Supervising Architect, Washington, D. C., April 4, 1901. Sealed proposals will be received at this office until 2 o'clock P. M., on the 22d day of April, 1901, and then opened, for constructing a waiting-shed addition to the covered way and for completing the second story of the Kitchen and Restaurant, Bath and Laundry, and the Boiler-house, all at the U. S. Immigrant Station, Ellis Island, New York, in accordance with the drawings and specification, copies of which may be had at this office or at the office of Boring & Tilton, architects, 32 Broadway, New York City. JAMES KNOX TAYLOR, Supervising Architect. 1321

#### BUILDING MATERIALS, ETC.

[At West Point, N. Y.]  
Sealed proposals will be received here until May 2, 1901, for building materials, plumbing materials, gas and steam fittings, hardware, tools, paints, glass and other miscellaneous stores specified on schedules to be had on application and addressed to Q. M., U. S. M. A. 1321

#### SEWER CONSTRUCTION.

[At Rocky Mount, N. C.]  
Sealed proposals will be received by the Board of Mayor and Commissioners, of Rocky Mount, N. C., until April 25th, 1901, for constructing pipe-sewers and for furnishing sewer pipe. Extent of proposed work approximately 6 miles of pipe-sewers from 6 to 15 inches diameter. J. L. LUDLOW, engineer, Winston, N. C. 1321

### PROPOSALS.

#### OFFICE-BUILDING.

[At Shreveport, La.]  
Sealed proposals will be received by the First National Bank Building Co. until April 30 for the erection of a five-story fireproof office-building. The James Riley Gordon Co., architects. 1321

#### SCHOOL.

[At Washington, D. C.]  
Sealed proposals will be received at the office of the commissioners until April 27, 1901, for constructing a twelve-room school, corner of Lincoln Ave. and Prospect St. HENRY B. F. MACFARLAND et al., commissioners, D. C. 1321

#### COURT-HOUSE.

[At Clyde, Ga.]  
Local press reports state that sealed proposals will be received until May 6, 1901, for the erection of a court-house. W. B. BRAGG, ordinary. 1322

#### SEWER WORK.

[At Boston, Mass.]  
Sealed proposals will be received at the office of the Metropolitan water and sewerage board, 1 Ashburton Pl., Boston, Mass., on April 30, 1901, or soon afterward, for seven separate contracts for sections 2, 3, 4, 5, 6, 12 and 13 of the Weston aqueduct, having an aggregate length of 7.9 miles. HENRY H. SPRAGUE, et al., metropolitan water and sewerage board. 1322

#### CEMENT.

[At Cincinnati, O.]  
U. S. Engineer Office, Custom-house, Cincinnati, O. Sealed proposals for furnishing at dam No. 2, Ohio River, about 5,000 barrels cement, Portland or natural, will be received here until May 8, 1901. WM. H. BIXBY. 1322

#### CHURCH.

[At Selma, Ala.]  
It is stated that bids are wanted by the Building Committee of the First Baptist Church until May 1 for a church to cost \$25,000. WILSON & EDWARDS, archts., Columbia, S. C. 1322

#### STEEL STACKS, ETC.

[At Washington, D. C.]  
Department of the Interior, United States Patent Office, Washington, D. C. Sealed proposals will be received at this office until April 22, 1901, for fitting up the scientific library of the U. S. patent office with steel stacks and book elevators. C. H. DUELL, commissioner. 1320

### PROPOSALS.

Treasury Department, Office of the Supervising Architect, Washington, D. C., April 1, 1901. Sealed proposals will be received at this office until 2 o'clock P. M. on the 26th day of April, 1901, and then opened, for furnishing the heating apparatus complete in place for the N. W. Extension, Bureau of Engraving and Printing Building, Washington, D. C., in accordance with drawings and specifications, copies of which may be had at this office at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1320

Treasury Department, Office Supervising Architect, Washington, D. C., March 27, 1901. Sealed proposals will be received at this office until 2 o'clock P. M. on the 18th day of April, 1901, and then opened, for plumbing, gas-piping, ventilating and new interior partitions for the northwest extension of the U. S. Bureau of Engraving and Printing at Washington, D. C., in accordance with drawings and specification, copies of which may be had at this office or at the office of the Superintendent at the Bureau, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1320

#### SCHOOL.

[At Washington, D. C.]  
Sealed proposals will be received at the office of the commissioners until April 20, 1901, for constructing a four-room school-building on the grounds of the Industrial Home School, Tenallytown Road, Washington, D. C. HENRY B. F. MACFARLAND, for the commissioners. 1320

#### BUILDING.

[At Key West, Fla.]  
Sealed proposals will be received at the bureau of yards and docks, Navy Department, Washington, until April 27, 1901, for constructing a two-story fireproof brick and steel building about 60' x 160' at the naval station, Key West, Fla. MORDECAI T. ENDICOTT, chief of bureau. 1320

#### IRON PIPE, ETC.

[At Governor's Island, N. Y.]  
Sealed proposals will be received until April 26, 1901, for furnishing iron pipe, fittings and hydrants. S. R. JONES, Q. M. 1321

#### BRIDGE.

[At Springfield, Mass.]  
Bids will be received until May 1, 1901, for the erection of a bridge having two 150-foot spans, 20-foot roadway and two 6-foot walks. Estimated to cost \$20,000. COLLINS & NORTON, engineers. 1321

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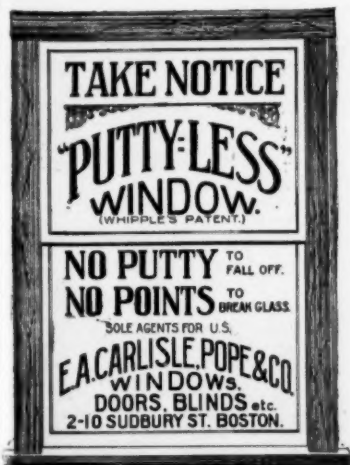
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#### ["SYRACUSE UNIVERSITY," *Syracuse, N. Y.*]

Should find its way into the reference-room of every public library, as well as into the draughting-rooms of the architects, and the studies of cultured men.

EDWIN H. GAGGIN,  
*Professor of Architecture,  
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*UNIVERSITY," Ithaca, N. Y.]*

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

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

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

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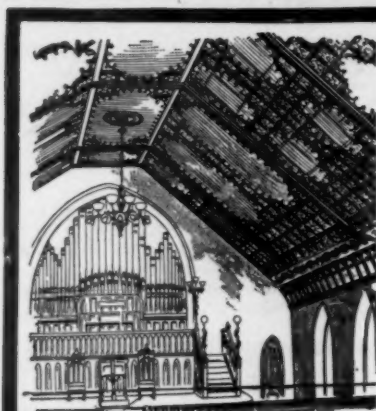
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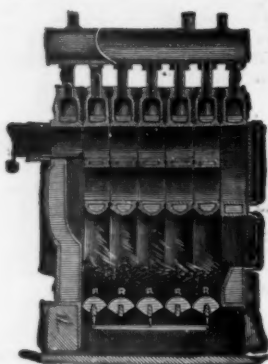
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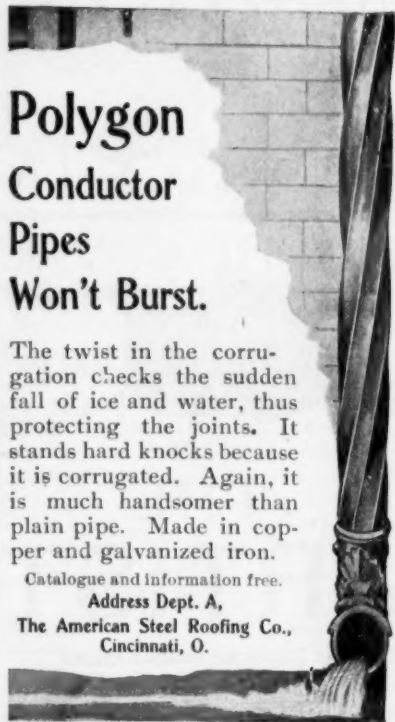
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