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ARCHITECTURE

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CONTENTS.

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CONTENTS

THE subject of the fire-losses of the year is occupying, perhaps, even more than the usual amount of attention in the newspapers. Roughly speaking, one hundred and fifty million dollars' worth of American property disappeared in 1893 in fire and smoke, or was ruined by water-soaking incident to attempts to save it. Counting in the cost of maintaining insurance companies, to distribute the loss over the community, and that of keeping up fire-departments, to prevent the losses from being even greater, we may safely say that the American people paid out last year not far from three hundred million dollars, none of which they will ever see again, in consequence of fires. If our recollection serves us, this is a great deal more than the annual cost of supporting the entire military force of France and Germany combined; yet we are constantly told that both those countries are on the verge of revolution, on account of the intolerable burden of militarism, while our people bear their far greater burden of fire-loss with apparent apathy. One reason for this is, probably, that the fire-loss bears so indirectly on ordinary people. The great mass of citizens are interested directly only in dwelling-house insurance, while the main part of the loss comes from the destruction of large warehouses. Of course, the common people have to pay, by premiums on dwelling-houses altogether disproportionate to the risk, the difference between the actual losses on mercantile risks and the inadequate premiums charged for such risks; but the common people have not time for investigation, and simply pay their premiums, without further question. Far worse than the insurance premiums, however, is the cost of fire-department service. No doubt, it would be impossible to dispense entirely with fire-departments, but, when we consider that the annual cost of maintaining them in many places is, at least, ten times the total annual loss by fire, and probably four times the amount of all the fire-insurance premiums paid, it certainly seems as if there were room for improvement in this sort of service. The first thing is, of course, better construction of buildings. If buildings will not burn, it will not be necessary to keep up costly fire-departments to put them out; and to make buildings so that neither they nor their contents can burn is the most pressing problem of the time in this country.

THE question of the leakage of gas-mains buried in streets is becoming a serious one for those who have the misfortune to live on city streets invaded by large mains. It is said that about one-fourth of the gas forced into the mains at the works leaks out before it reaches the burners, and most of the leakage is, necessarily, poured into the ground along the route, and is thence slowly dissipated into the air, either directly, or through the houses along the streets, into which it is drawn, particularly in winter, by the powerful inward current which always tends from the ground outside to the cellars of inhabited houses. Whether the substitution of the deadly water-gas for the less poisonous hydro-carbon compounds of the old-fashioned illuminating-gas will work a serious change for the worse in the ground-air of cities can hardly be decided yet, but the change is, at least, not likely to be for the better; and municipal authorities would do well to regulate the laying and maintenance of gas-pipes more strictly than has hitherto been the rule. The inhabitants of one street in New York — East Sixty-sixth Street — have recently been driven almost into rebellion by the troubles which have attended the laying of a gas-main, into which the gas has not yet even been turned. A company was organized, a year or two ago, for supplying portions of New York with gas from a plant situated on Long Island, the gas being conveyed across the East River by a tunnel. The tunnel is not yet completed, but an immense main, thirty inches in diameter, has been laid through Sixty-sixth Street, in so careless a manner, it is said, that the present gas-mains and sewers in the street have been broken, and the cellars of some of the adjoining houses have been so filled with gas that the occupants have not dared to light their furnaces for fear of an explosion; while in many of them there have been cases of low intermittent fever, due, as the physicians say, to the foul emanations from the soil. It is now proposed by the Board of Public Works to put down an asphalt pavement in a portion of the street, but this measure, otherwise an excellent one, is opposed by the residents, on the ground that, if the surface of the street is rendered impervious by asphalt, all the foul gases from the ground will have to find their outlet through the cellars, instead of principally by direct diffusion into the air of the street, and their troubles will be intensified. The New York Board of Health, which has the reputation of being efficient in its work, has promised to look into the matter, and it is to be hoped that its investigations will extend to the general subject of the effects of gas-leakage on health. It is worth remembering also that leakages of gas are said to have a very prejudicial effect on asphalt pavements, so that the Board of Public Works may have something to say as to the extent to which gas-companies should be held responsible for the results of carelessness in their work.

THE offer by the Metropolitan Traction Company, of New York, of a prize of fifty thousand dollars for a practical plan for propelling street-cars, superior to the overhead trolley system, and not more expensive in operation, is said to have brought out more than three thousand competing devices, some of which seem to have been simply ridiculous, while others really promise good results. Among the best of the competing schemes appears to be the Siemens and Halske system, using an underground trolley, which is already in successful operation at Buda-Pesth. The inventors of this system submitted a statement of earnings and operating expenses on the Buda-Pesth lines, which showed that the operating expenses for six months previous to June 30, 1892, were less than forty-one per cent of the receipts. As the operating expenses of the New York horse-car lines are about sixty per cent of the receipts, the Traction Company feels that the Buda-Pesth system offers advantages enough to warrant a trial, and an experimental line will probably be equipped as soon as the consent of the Railroad Commissioners can be obtained. The General Electric Company and the Westinghouse Electric Company have each submitted plans, similar to the Buda-Pesth system, but the latter will probably be tested first.

WE have been favored with a copy of a pamphlet, describing the Chase-Kirchner "Aerodromic System," for the improvement of transportation, of which Mr. H. W. Kirchner of St. Louis, a well-known architect and Fellow of the Institute, is one of the inventors. We cannot go into the details of the system, which is very carefully worked out; but our readers can, perhaps, form a general idea of it by supposing a train of cars to be furnished with inclined planes fixed overhead, at an angle to be regulated by the engineer, in such a

way, that, by adjusting the angle, the weight of the train can be, in greater or less part, lifted from the rails. In the Chase-Kirchner system, the cars are suspended from an overhead track, and the routes are, as nearly as possible, laid out in straight lines, so as to render possible the great speeds at which, according to Professor Langley's observations, the lifting power of the air can be most economically utilized. The scheme seems perfectly practicable, and indicates a direction in which engineering thought is likely to be profitably employed.

TWO rich and generous members of the Boston Art Club have, in the name of the Club, offered a prize of five thousand dollars for the best American painting shown in the annual exhibition of the Club for 1896. The details of the offer are not yet made public, if, indeed, they have been settled; but it is certain that this splendid prize will be used in such a way as to promote to the utmost the interests of American art, without reference to those of the Club. Various other prizes have already been established by the Club, both for oil and water colors, in addition to the sums annually set aside for the purchase of meritorious works; so that, for the next two years, at least, the Boston Art Club must rank among the foremost agencies in this country for encouraging the development of artistic talent.

PROFESSOR MELANI, in a recent number of *Arte e Storia*, comes courageously to the support of the architects and architecture of America, which have been, as he thinks, unjustly treated in a little book, published by Hœpli, of Milan, on *La Vita Americana*, by Dr. Tullio De Suzzara-Verdi. The author of this work dismisses the subject which interests Professor Melani in a brief sentence: — "As for architecture in America, there is practically none"; but he goes on to explain that, "There are, indeed, here and there some elegant edifices, but they are a mixture of all the orders and all the styles." The author of the book does not pretend to be an architect, and Professor Melani finds it easy to convict him of want of acquaintance with the actual condition of American architecture, on which he is himself, as readers of his interesting letters to this journal will remember, one of the best authorities in Europe. After citing the names of "the Signori Kim, Mead, White" as representatives of the classical school in American architecture; "the Signori Shepley, Rutan, Coolidge e Gibson" as among the "architetti modernissimi," "il Romeyn" as one of the most distinguished architects, "nelle costruzioni privati," he goes on to mention, among architects of repute for general excellence, "il Siter e il Cudell," "e altri e altri ancora;" and says, very properly, that the profile of a cornice, or the balancing of a front, is not the whole of architecture, and that, in his opinion, it is understood "a little better in America than anywhere else" that "architecture should be made of ideas, and not of lines," and, in consequence, that the American architects "make architecture, and not architectural designs."

THIS is certainly a very pretty and discriminating compliment, and our architects will be grateful to Professor Melani for his appreciation. In regard to our painters, however, he is not so liberal with his praises, for reasons which he gives in words as just as they are forcible. Speaking of the Paris Exhibition of 1889, he says that what struck him most, in looking at the works of the American artists, was to see, in the Catalogue, appended to the name of each, the information, "Pupil of Bonnat and Collin," or "Pupil of Bouguereau and Lefebvre," or of "Boulanger and Carolus Duran," or of "Gérôme and Courtois," or of one, two or three other favorites of Parisian artistic fashion. Apart from the doubtful taste of having their names appear in public, escorted, as it were, by the more distinguished ones of their masters, an arrangement, however, for which, as he explains, the artists themselves were not responsible, he says that the thought that a painter of Boston should be the product of one of Paris, or artists of Washington must trace their training to Versailles, gave him "un stringimento al cuore." "How," he asks, "can these Americans, who have such great and just reason for pride in their nativity, condescend to wish, in painting, to be anything else than the free citizens of the youngest, most active, rich and modern State in the world?" "Why do they not stay at home to study painting? Why do they not study their own country, their own life, and the poetry of their own soil?" "For me," he continues, "I cannot understand how the Americans can remain content with reproducing at home an art which does not belong to them, and counterfeiting a sort of painting which reflects unfaithfully their own character. Let them even pursue the highest aims, in the manner in which they now do it, they will never succeed in interesting those spirits which understand deeply the mission and the significance of the arts." "Whether it is Gérôme, or Orchardson, or Bonnat that hypnotizes them, one painful impression always remains: — the absolute lack of American painting, and the contrast between this art and its sister, architecture, which has made itself American in fulfilment of the national needs."

A LECTURE was recently given before the Society of Architects in Berlin, by Herr Boettger, on the present state of the science of hospital-planning, which has much interest. As nearly every summer sees some important congress of sanitarians or physicians, at which hospital-construction is discussed, it is not strange that ideas on the subject are brought forward, tested, and abandoned, or developed further, in rapid succession, and the hospitals of this year differ materially from those of even three or four years ago. According to Herr Boettger, while there is very far from being unanimity among experts on many points of hospital-design, it is generally agreed that, for large establishments, with more than one hundred beds, the system of wards connected by corridors is to be condemned, and that isolated pavilions should be exclusively employed. It has usually been considered that, with isolated pavilions, the cost of supervision and service is much greater than where the wards are connected by corridors, but Herr Boettger says that, if the buildings are carefully grouped around the administration offices, this is not the case. The theory once prevalent, that hospitals for cities must be at or near the centre of population, is also becoming obsolete. Great improvements have been made in the rapidity and comfort of ambulance service, and the most recent hospitals are built far enough outside the cities to secure fresh air. The immense new establishment at Hamburg, which comprises eighty-one separate buildings, is about five miles from the city, and so careful are hospital directors to avoid what Herr Boettger calls the defiled air of great towns that the direction of the prevailing wind is studied, so that, even at five miles distance, the city air may have little chance as possible of reaching the patients.

CELLARS are now abandoned for the pavilions of large hospitals, as they have long been for small ones. No use can, or should be made of them, and it is much better to allow the air to blow freely through under the first floor. The best number of patients for a ward in general hospitals is generally agreed to be thirty, with twenty as the maximum for wards containing certain classes of patients. To secure the best effects of sun and air, the long axis of the wards should run north and south, instead of east and west, as in many of the older Continental hospitals. This gives sun on both sides of the room during some part of the day, and allows the "day-room," or "sunning-room," which is now an indispensable part of every large hospital ward, to be placed at the south end, where it does not shade any windows. Roofs should be flat, without air-spaces between the rafters and ceiling, and covered with "wood-cement," or other similar material. Opinions still vary as to the best flooring. Some still prefer wood, but Herr Boettger considers that a pavement of smooth concrete, or Mettlach tiles, is much better, if suitable provision can be made for keeping it warm. The best material for walls is now agreed to be brick. Probably it is intended that they should be built hollow, for Herr Boettger continues that the inside face should be laid as smoothly as possible, with very close joints, and painted in oil to a height of seven feet above the floor, or else covered to that height with tiles. For hospitals for infectious diseases, the newest idea, which is certainly a good one, is to provide, in the hospital grounds, a number of monolith platforms of concrete, of suitable size, on which temporary structures can be erected at any time, either in winter or summer, in a few days, or even in a few hours, and cleared away as quickly after the exigency is past.

OFFICE-HELP FOR ARCHITECTS.[1]—XXVIII.

SECTION II.—SLOW-BURNING CONSTRUCTION:

§ 336. Materials: — White pine, yellow pine and spruce. For the framing (filling-in) spruce is best, unless a very good quality of white hemlock is available, or yellow pine is not too expensive. For the under-floors white pine is best and for the upper-floors yellow pine.

The principal features in slow-burning construction are the massing of the framing timbers into large pieces which will lose not to exceed 25% by burning, the avoidance of all hidden spaces in which fire can lodge or travel, and the floors so arranged as to permit of the holding of about 1″ of water on them in case of fire. To secure these advantages, the floor areas are divided so as to permit of the columns being spaced so as to support from 150 to 400 square feet.

The columns are connected longitudinally by heavy girders supporting heavy floor-beams from 3′ 0″ to 7′ 0″ on centres. The floors are made up of one course of 2″, or thicker, planking, 5½″ face, tongued-and-grooved or splined, and one course of ⅞″ to 1¼″ × 3½″ tongued-and-grooved hard or yellow pine.

§ 337. Proportions: — General proportions are given in Table XL, but for special cases the sizes should be carefully computed. In the general scheming, it should be arranged, so far as possible, to make the beam divide the girders into an unequal number of equal parts.

§ 338. Framing: — The best method of framing is to use the Goetz-Mitchell or Duvinage column-caps, supporting the girders on the brackets which form a part of the cap, and framing the beams to the girders with Duplex or Goetz beam-hangers. In this case the top of the beam should be set ⅝″ above the top of the girder to allow for shrinkage. A somewhat less expensive framing is to rest the beams upon a 1½″ notch gained into the girder, leaving the lower 4″ of the girder untouched, and to rest the girders on oak brackets bolted to the columns; they being strapped across the column with ⅝″ × 2″ wrought-iron straps. The beam may be sized onto a 2″ × 4″ strip spiked to the bottom of the girders.

From the centre of the building the floor-beam should slope at the rate of ½″ for 15′ 0″ toward the sides. The planking should be laid on the beams parallel with the girders with the joints made as tight as possible and thoroughly nailed. Along the outside walls, scuppers or openings the size of a half brick should be left, with the bottom of the hole 1″ below the top of the planking if the beams have not shrunk to their full extent. The joint between the side wall and the planking should be made with bright tin or copper plate with spouts carried out through scuppers, there being a light tin flap put in the spout to prevent back draughts. The flashing should be double as there will be considerable shrinkage in the floor-beams. Flashing should be carried up 6″ on the wall and out 8″ on the floor-plank. On top of the floor-plank should be placed a thickness of waterproof or resin-sized building-felt, and on this the upper-floor laid diagonally and well nailed through. All planking should be kept away from the wall running parallel to it, making the joint a distance equal to 1″ for 15′ 0″ spans, so as to prevent the pushing out of the wall if the plank swells. Plank curbings 4″ thick should be carried around all openings, carried up 1″ above the line of the finished floor, so as to permit of flooding the floor. All timber and lumber should be mill-dressed and should be left unpainted for at least two years after the erection of the building. All partitions should be made of 2″ tongued-and-grooved or splined plank placed either horizontally or vertically. The general lay-out would follow the lines shown in Figure 121.

TABLE XL.

PROPORTIONS FOR SLOW-BURNING FLOORS.

Girders.	Span	12′ 0″	13′ 0″	14′ 0″	15′ 0″	16′ 0″	17′ 0″	18′ 0″	19′ 0″	20′ 0″
	Breadth	6″	8″	8″	6″	6″	8″	8′ 6″	10′ 6″	10′ 8″
	Depth	12″	12″	14″	16″	16″	16″	16′ 20″	16′ 20″	16′ 20″
Beams.	Span	12′ 0″	13′ 0″	14′ 0″	15′ 0″	16′ 0″	17′ 0″	18′ 0″	19′ 0″	20′ 0″
	Spacing	4′ 0″	4′ 4″	4′ 8″	5′ 0″	5′ 4″	5′ 8″	6′ 0″	6′ 4″	6′ 8″
	Breadth	4″	4″	4″	6″	6″	6″	6″	6′ 4″	8′ 6″
	Depth	12″	12″	12″	12″	12″	12″	14″	14′ 16″	14′ 16″
Underfloor.[1]	Depth	2″	2″	3″	3″	3″	3″	4″	4″	4″
	Safe uniform load	200	200	200	200	200	200	200	200	200
	" conc'ted "	400	450	450	500	500	500	600	650	700
	Dead load sq. ft.	15	15	20	20	20	20	25	25	25

[1] 5½″ face for all floors throughout.

Based on a fibre strain of 750 pounds for beams and 1,000 pounds for girders, per square inch.

These results will give stiff floors whose strength will not be impaired by any ordinary fire. Where the machinery is very light or absent, and the loads will be only those due to people, the thickness of the floor-plank may be reduced 1″ provided that in no case shall the plank be less than 2″ thick.

SECTION III.—ORDINARY FRAMES:

§ 339. Materials: — Oak, yellow pine, white pine, spruce and hemlock. Oak is very seldom used; yellow pine is much used in the South, and for girders; white pine in places in the West, spruce and white hemlock in the Eastern and Eastern Middle States, and Oregon pine on the Pacific Coast. Spruce is a little better than white hemlock, but requires careful watching and culling to insure against getting large knots in the bottom of girders and beams. All of the tables refer to spruce.

§ 340. Proportions: — The members will be proportioned almost entirely to fulfil the condition of stiffness for all beams. Girders should be calculated for a fibre-strain of 750 pounds per square inch. The data of Table XLI give sizes for the floor-beams of dwellings and will give satisfactory results, if the framing and bridging are properly done. In New York City no floor-beam can be less than 3″ broad.

TABLE XLI.

DATA RELATIVE TO FLOOR-FRAMING.

Spans.	DWELLINGS. Breadth.	Depth.	Spacing.	PUBLIC BUILDINGS. Breadth.	Depth.	Spacing.
Up to 8′ 0″	2″	8″	16″	2″	10″	16″
8′ 0″ to 12′ 0″	2″	10″	16″	3″	12″	16″
12′ 0″ to 16′ 0″	2″	12″	16″	3″	12″	12″
16′ 0″ to 20′ 0″	3″	12″	16″	3″	16″	16″
20′ 0″ to 25′ 0″	3″	14″	16″	4″	16″	12″

§ 341. Bridging: — Use 2″ × 3″ or 2″ × 4″ stuff in double continuous rows, with each end of each piece nailed with two nails. Bridging should be put on so as to divide the span into a number of equal parts, each about 4′ 0″ long, but never exceeding 6′ 0″ long. The cutting of the ends of the pieces should be done in a mitre-box so as to secure a good bearing against the floor-beams.

§ 342. Framing: — (See Chapter VIII.) Each beam should be fully carried on a piece of an area equal to the load on the

[1] By George Hill, Consulting Engineer. Continued from No. 953, page 148.

ABBREVIATIONS AND SYMBOLS.

= equal to.
∥ parallel to.
÷ divided by.
× multiplied by.
+ added to.
a^2 a multiplied by itself.
$a > b$: — a greater than b.
$a < b$: — a less than b.
$\frac{a}{b}$: — a divided by b.
∴ therefore.
□′ square feet.
□″ square inches.
8* read 8 pounds per lineal foot.
[channel bar.
I I-beam.
T T-iron.
L angle iron.
⊥ deck beam.
● round section.

I ton = 2,000 pounds as this is the conventional ton, the legal ton is 2,240 pounds, but is rarely used.
l = the length between supports of any beam or girder or height of any column, always in feet.
b = breadth of any beam or girder, always in inches.
d = depth of any beam or girder, or the least transverse dimension of any column, always in inches.
L = total load uniformly distributed coming on any piece in pounds.
L^{sq} = " " " per square foot in pounds.
W = concentrated load on any piece in pounds.
s = span of any arch or truss between centres of end pins in feet, or spread of footing courses.
A = area of any section in square inches.
M = maximum bending-moment in inch pounds.
n = distance of centre of gravity of section from either top or bottom edge in inches.
I = moment of inertia, neutral axis through centre of gravity.
R = moment of resistance of section.
r = radius of gyration, in inches.
Sc = safe compressive strain in pounds per square inch.
St = " tensile " " " " " "
Ss = " shearing " " " " " "
S = strain per square inch in extreme fibre.
P_e = upward reaction of support at left-hand end of beam.
P_f = " " " " " right " " " "
e = distance of centre of gravity of load from left hand of beam.
f = " " " " " " " " right " " "

beam divided by 1,400 pounds. Each beam should be brought close up to the studding and be spiked to it where the beams run end-on to the studding. A header should be cut-in and the beams framed around all openings for hot-air flues, chimneys, stair-wells, and the like. Framing of beams should be by means of $1\frac{1}{4}'' \times 2''$ strips spiked along the bottom edge of the header, or else by means of Duplex or Goetz joist-hangers. Whenever there are three or more tail-beams framing into a header, the header should be doubled. Whenever a header frames into a trimmer-beam at more than one-fourth span from a bearing, the trimmer should be doubled. Tiers of beams running parallel to rows of studding should begin and end with a beam brought close to the studding and well spiked to it. Ribbon girts should be either $1\frac{1}{4}'' \times 4''$ or $2'' \times 4''$, gained 1″ into the studs and well nailed. Vertical sections of all frame partitions should be made for the carpenter, so arranged as to equalize the shrinkable stuff throughout. Whenever a partition runs up through a tier of beams, either the flooring must run through in places, or else iron ties must be used to carry the tie through.

When it is necessary to start a stud partition at a tier of beams, the studs should rest on a $\frac{5}{8}'' \times 4''$ iron plate, punched for two or more $\frac{5}{8}''$ lag-screws and screwed to the bottom side of the beam; the plates running so as to catch the studs as shown in Chapter VIII, Figures 118, 119 and 120. In addition, each stud should have a stay-bolt $\frac{5}{8}''$ in diameter, with large washers to guard against accident.

§ 343. Top Surfaces: — (See Section II of this chapter.)

Remarks: — The under-floor should be laid diagonally, well nailed and of mill-dressed stock, free from all rot and from other imperfections. Upper-floors should be laid on two or three thicknesses of building-felt; should never exceed $3\frac{1}{2}''$ face; may be as light as $\frac{5}{8}''$, but $\frac{7}{8}''$ is better for any place where there is much wear; should be planed off, filled and covered as soon as laid; should be run at right angles to the beams and nailed through to them. In good work, should be laid in the rooms after the base and other trim are in place.

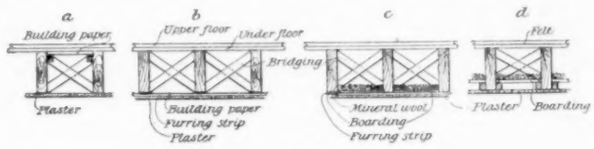
§ 344. Bottom Surfaces: — Are best finished with lath and plaster. Of lathing there are two kinds, wood and metal.

§ 345. Wood Lath: — Are usually of spruce, straight, free from knots, bark or stains, and from sap-wood or rot. They should be spaced $\frac{3}{8}''$ apart in the clear, and should have a bearing every 16″, with the ends of the lath on a solid bearing. The laths should break joints every twelve courses, and over all door and window heads. Good nailing must be had for both ends of the lath in all angles for both surfaces. Where there are needed heavy false arches, beams, pilasters, and the like, a bracketing of wood 16″ on centres is nailed up and the lath is nailed to it. The lathing for any of the patent, rock or hard plasters is similar in all respects, except that the laths are placed $\frac{1}{4}''$ apart.

§ 346. Metal Lath: — Is of two general kinds; heavy wire-cloth made of about No. 16 wire with about a $\frac{3}{8}''$ mesh. This is the best for usual work, the soffits of all stairs, around small pilasters, beams, cornices and the like, being generally applicable in a building, and relatively inexpensive. This lath should be put up with supports every 16″, being nailed to the wooden beams with galvanized staples, secured to the framing by being bent around it, if for iron beam-flange protection, or secured to the framing with galvanized wire where necessary. Where there are no beams to fasten the lath to, it is necessary to make a frame like that shown on Figure 132, and secure to the arch or framing every 4′ 0″ or 5′ 0″. For the better class of dwellings that are not made entirely fireproof, the ceilings should be lathed with wire-lath and plastered with hard plaster, as that gives the best results for finished surface and resistance to fire. Then they must have a deafening of mineral-wool or other material put in over, as these materials are very resonant. The second kind of metal-lath consists of sheets of about No. 26 metal crimped-up so as to form a series of dove-tails (Cornell's Metal Lath), or corrugated (Cincinnati Corrugating Company's), with perforations to make a clinch for the plaster. The corrugated lath is the best and where there are large flat surfaces to cover and the framing is spaced about 4′ 0″ on centres, it makes an excellent surface. It should be plastered with hard plaster.

§ 347. Cross-Furring: — For all ordinary work the lath or wire can be nailed directly to the beams, but where the ceilings are intended to be made perfectly flat so as to give them a high finish, either in plaster or paint, then the beams should be cross-furred with $1'' \times 2''$ spruce lath, with the lath so cut to the beams as to make the bottom surfaces of the lath all in the same plane. Cross-furring is desirable wherever there are cornices of more than 10″ girt called for, as the ceiling must be perfectly plane to make a joint.

§ 348. Deafening: — Wherever hard plaster is used or noise is feared, deafening should be put in by filling over the



Methods of deafening.

Fig. 138.

top of the plaster with 2″ of mineral-wool or by tacking strips to the sides of the beam with building-felt or paper interposed. (Fig. 138.)

[To be continued.]

OUR SENATORS AND OUR PUBLIC BUILDINGS.

[The following discussion which took place in the Senate on April 11, is fairly typical of the manner in which the building interests of the Government are cared for. An excellent example of the way in which these interests are made subservient to the expediencies of party politics can be found in the passage-at-arms between the Senators from Massachusetts and Missouri. — Eds.]

The *Vice-President.* — The Chair lays before the Senate the resolution of the Senator from Oregon [Mr. Dolph], coming over from a previous day, which will be read.

The Secretary read the resolution submitted by Mr. Dolph on the 6th instant, as follows:

Resolved, That the Committee on Public Buildings and Grounds, to whom was referred the bill (S. 65) to provide for the construction of a public building at Salem, Oregon, be, and is hereby, discharged from the further consideration thereof; and said bill is ordered to be placed on the Calendar for consideration by the Senate in its regular order.

Mr. Cockrell. — I should like to hear some reason why the committee should be discharged from the further consideration of the bill named in the resolution, and the bill be brought before this body for passage without any report and without any action of the committee? It is a very strange proceeding.

Mr. Dolph. — I am going to state the reason for the resolution:

Mr. President, I wish to disclaim any disrespect for or discourtesy to the Committee on Public Buildings and Grounds. So far as I know, there has never been any opposition in the committee to the bill referred to in the resolution, and there has been substantially no opposition to it in the Senate.

The bill referred to was introduced in the Fiftieth Congress; it was then Senate bill 21, introduced by me December 12, 1887, reported March 19, 1888, and passed the Senate April 17, 1888. It was not reported in the Fiftieth Congress in the House of Representatives. In the Fifty-first Congress the bill was again introduced by me; it was then Senate bill 78. It was introduced December 4, 1889; reported February 10, 1890; passed the Senate March 13, 1890; reported to the House of Representatives April 22, 1890. In the Fifty-second Congress it was Senate bill 534, introduced by me on December 10, 1891, reported January 12, 1892, and passed the Senate January 20, 1892. A similar bill was introduced by my colleague in the other House, and was reported in the Senate March 24, 1892.

The bill was again introduced by me on the 8th of August last, more than eight months ago, and was referred to the Senate Committee on Public Buildings and Grounds. It has not been reported by that committee at the present Congress. It will be seen that the bill has been, heretofore, three different times favorably reported by that committee, and has passed the Senate three times.

There have been seventy public-building bills introduced in the Senate at this session and referred to the Committee on Public Buildings and Grounds. None of them, I believe, has been reported, and what the committee proposes to do in regard to the reporting of bills for public buildings at the present session of Congress, or during the present Congress, I am not advised.

I do not propose to quarrel with the committee about any policy they may think it necessary to adopt in regard to the seventy bills providing for the erection of public buildings which are now before the committee. There are four bills relating to public bills in Oregon before the committee. One is to increase the further limit of cost of the public buildings at Portland, Oregon; another is the bill referred to in the resolution, for the construction of a public building at Salem, Oregon; another is for the construction of a public building at Baker City, Oregon, a bill introduced by myself, and reported favorably during the last Congress; and still another is for a public building at The Dalles, Oregon, introduced by my colleague.

The bill which I have selected, with which to test the sense of the Senate, is a bill which has not only been three times favorably reported in the Senate and twice favorably reported in the House of Representatives, but has three times passed the Senate. Besides, it is a bill for the erection of a public building at the capital of the State.

The senior Senator from Missouri [Mr. Cockrell], when I was discussing the bill for a public building at Salem during the last session, said in the Senate — or if not, he said to me privately afterwards, I think he made the statement in the Senate — that the rule of the Senate had always been to authorize the construction of a public building at a State capital.

Mr. President, of course my constituents hold me responsible for the success of this measure, and for other similar measures which I have presented to the Senate.

The object of the resolution is to ascertain whether the policy of the Committee on Public Buildings and Grounds, which has been followed for the eight months since the bill referred to was introduced, is to be the policy of a majority of the Senate. I desire a vote of the Senate upon the resolution, without any desire to cast any reflection whatever upon the committee. I do not quarrel with any policy the committee may see fit to adopt owing to the condition of the Treasury or otherwise.

Mr. Vest.— Mr. President, this is an extraordinary resolution; and I ask the attention of the Senate to the statement I am about to make, as there are a great many of these bills authorizing the construction of public buildings pending before the Joint Committee on Public Buildings and Grounds of the two Houses of Congress.

When I became chairman of the Committee on Public Buildings and Grounds of the Senate, the Secretary of the Treasury, Mr. Carlisle, called upon the chairman of the Committee on Public Buildings and Grounds of the House and upon me, and requested, if compatible with our views of the necessities of the public service, we should not recommend the passage of bills which made original appropriations for new public buildings until the monetary depression, which was then threatening the country, should either pass away or its extent be ascertained. He apprehended then — and subsequent events showed that he was correct — a large deficiency in the Treasury of the United States, a deficiency which he afterwards estimated at $29,000,000, and subsequently at $76,000,000, and the extent of which to-day can not be definitely stated by anyone.

How long this is to continue, and what is to be the effect of legislation had by Congress in regard to taxation, no one who does not possess the gift of prescience can possibly state with any exactness to the country.

We know very well the condition of business; we know the condition of the Treasury; we know the financial uncertainty as to the future, and I perfectly agree with the Secretary of the Treasury that, until the clouds have passed away, until we can see our pathway with some sort of certainty, it will be reckless and almost criminal to pile up additional indebtedness when we do not know the sources from which the money can be had with which to meet it.

If the Committee on Public Buildings and Grounds had been guilty of discrimination against the bill of the Senator from Oregon, there would be some sort of pretext for his action here to-day. No bill for an original appropriation has been reported from that committee; no discrimination has been had. We are simply waiting to know what will be the financial legislation of Congress and the probable condition of the Treasury before we assume the pecuniary obligation which would arise from passing any of these bills.

There has been a rule adopted by our committee — and one which has my entire assent — that the capital of every State in the Union shall have a Federal building. It is just as certain as the existence of this Government, that the capital of Oregon will have a Federal building in the near future; but until we know how much money will be in the Treasury, until we can see our way, as any ordinarily prudent business man would in the transaction of his own business, it would, I repeat, be not only reckless, but almost criminal for us to pile up enormous indebtedness on this or any other account, unless it be absolutely necessary.

As to the public buildings which are in course of construction or for which Congress has already made appropriations, as a matter of course we are compelled to furnish enough money to preserve those buildings in their present condition, in order that the effects of the weather and the wear and tear will not destroy the investments already made in that regard by the United States.

Mr. President, I am glad that the resolution of the Senator from Oregon gives me an opportunity to make an official exhibit in regard to the condition of the public buildings of the United States, those already constructed and those which we propose to construct hereafter.

I have in my hand a paper sent to me from the Treasury Department by the Supervising Architect, giving the number of public buildings finished and paid for by the United States. They amount to 251 now completed, for which the Government has expended $109,798,187.97.

Mr. Frye.— What is the total number of buildings?

Mr. Vest.— The total number is 251, excluding the buildings in Alaska, which are inconsiderable in number.

I ask that this statement be printed as a miscellaneous document for the convenience of Senators.

The *Vice-President.*— Is there any objection to the request of the Senator from Missouri? The Chair hears none, and it is so ordered.

Mr. Vest.— Mr. President, now I come to a question more pertinent to the resolution offered by the Senator from Oregon.

I have also here a list of buildings now on the books of the Supervising Architect of the Treasury Department, embracing buildings not commenced and those in course of erection, giving the limit of cost under existing legislation, and the total amount appropriated. There are of those buildings in number 104, and I have a list of them in the respective States, with the limit of appropriation as to cost and the amount already appropriated. Congress has appropriated for the erection of these buildings the sum of $22,802,317.69.

Mr. Pasco.— Is that the amount appropriated or the limit of the appropriation?

Mr. Vest.— That is the amount appropriated.

Mr. Pasco.— What is the limit of appropriation?

Mr. Vest.— The limit of appropriation is $32,827,664.69.

I call the attention of the Senate to the fact that we have 104 buildings, some of which have been commenced and some of which have not been commenced, for which the Government has already pledged its credit to the amount of $32,827,664.69. Is it prudent, is it safe, with this enormous indebtedness already incurred by us, and the money — it is true not taken out of the Treasury, but liable to be taken out at any time — to rush blindly forward, without any immediate and actual necessity for it, in a time of the greatest possible distress, governmental and personal, to make appropriations until we have ascertained the exact policy and resources of the Government in the near future? That is the whole of this question.

Mr. Dolph.— Will the Senator have that statement published with the other?

Mr. Vest.— Certainly. I shall ask that this statement be published as a separate document.

Mr. Dolph.— Will it not be better to have them published together?

Mr. Vest.— Very well, let them be published together.

The *Vice-President.*— Is there objection to the request of the Senator from Missouri? The Chair hears none, and it is so ordered.

Mr. Vest.— Let me say to the Senator from Oregon that the claims of his State will be fairly and equitably met. There has been no discrimination on the part of our committee, and no such intention. I know but one rule in regard to my public action, and that is to conduct the business of this Government, its importance and magnitude considered, upon the same principles of prudence and discretion which I would apply to my own. If I found myself in embarrassed circumstances, with a limited amount of money at my command, and contemplated the erection of a residence or a business house, and a great panic like that from which the country is now suffering should come, I should consider myself unworthy of the name of a prudent business man if I rushed on blindly and incurred obligations which I saw no immediate chance of meeting.

If the Senator from Oregon will but wait, it is the intention of the committee, as soon as we find out exactly how much money we are to raise and what is the condition of the country and the Government financially, to meet the demands for other public buildings, and in the meantime, at all events, to preserve those buildings which are now in process of construction and to redeem the promise of the Government as to appropriations already made.

Mr. Frye.— Mr. President, I call the attention of the Senator from Missouri to the promise he makes to the Senator from Oregon, which may not be acceptable to that Senator, and that is, that justice, and only that, shall be done to the State of Oregon. With the persistence, energy, and determination of the Senator from Oregon in behalf of appropriation for that State, if the Senator from Missouri succeeds in preventing the Senator from Oregon from getting more than twice what justly his State may be entitled to, he will be smarter than I think he is. [Laughter.]

Mr. Dolph.— Mr. President, I of course duly acknowledge and duly appreciate the compliment intended to be paid to me concerning my energy; but I think the Senator from Maine is doing me an injustice. I never ask anything but justice, and the Senator from Missouri will bear me witness that I did not complain of any discrimination by the Committee on Public Buildings and Grounds. I stated that there were seventy bills before that committee for public buildings, and I procured copies of them in order that I might know that fact. I have been treated precisely like the Senators who introduced those seventy bills. I said it was simply a question of policy, and all I desired to ascertain was whether a majority of the Senate agreed with the majority of the Committee on Public Buildings and Grounds that all appropriations for public buildings must for the time being be stopped.

I ask for the yeas and nays on the resolution.

Mr. Quay.— Before the question is put, as a member of the minority of the Committee on Public Buildings and Grounds, I think it proper to mention that I agree with the policy adopted by the committee, and do not believe that committee should be discharged from the consideration of this bill. There is certainly no reason why a discharge should be effected such as that proposed by the Senator, which would not apply to almost every one of the public building bills before the committee.

I assented to this policy, Mr. President; because in view of the imbecile financial management of the present Administration, the apparent inability of the majority in the other House of Congress and in this to get together upon any satisfactory financial agreement, and the probable passage of what is known as the "Wilson tariff bill," I believe there will be a vacuum in the Treasury, and it will be safer not to go forward with any new public improvements, but to husband our resources for the protection of those already in the course of construction; in other words, that we should not load up a probably bankrupt treasury with appropriations not certainly necessary.

I shall, therefore, vote against the resolution of the senator from Oregon.

Mr. Vest.— I wish to make one statement somewhat personal to myself and simply to accentuate my sincerity in what I have stated.

There are three towns in the State of Missouri, all equally anxious for the erection of public buildings, and their people consider it a great outrage that such buildings have not been commenced. At a former session of Congress, bills were passed for the erection of those buildings. Under existing circumstances, I have declined to reintroduce those bills. I have stated to my constituents frankly the condition of the Treasury, and that I could not, with my views in regard to official duty, ask Congress under the circumstances to enter upon new appropriations.

In addition to that, there is a public building now being erected in the city where I live. I have not asked any additional appropriation to carry on that work. I simply mention this to acquit myself of having any selfish or sinister design or object, either now or hereafter, in regard to this matter.

The *Vice-President.*— The question is on agreeing to the resolution proposed by the Senator from Oregon.

Mr. Dolph.— I ask for the yeas and nays.

The yeas and nays were ordered.

Mr. Morrill.— I think the pending resolution had better be referred to the Committee on Public Buildings and Grounds. At the last meeting of the committee we were not able to have a majority present; but I think it was very clearly indicated by those present that before the adjournment of the present Congress there will be appropriations for buildings at the capitals of States which have not buildings already, and also for buildings in process of construction where further money is necessary to complete them. I, therefore, move that the resolution be referred to the Committee on Public Buildings and Grounds.

Mr. Pasco.— Mr. President, I was a member of the Committee on Public Buildings and Grounds during the extra session of Congress, and for the most part of the present session, although I am not now a member of that committee, and I rise to state that I agree entirely with the views expressed by the chairman of the committee.

There are two buildings in my own State in which we are very much interested, and bills for their erection have passed the Senate at previous sessions; yet the committee has taken no action whatever, either favorable or unfavorable, with reference to those buildings simply because of the existing condition of the Treasury.

There has been no disposition on the part of the committee to discriminate against the Senator from Oregon, and I think if the list of the public buildings now in process of erection had been read through, it would have been seen that Oregon certainly has secured her share, if not more than that.

Under these circumstances, I shall be compelled to vote against the resolution. Oregon has been treated as fairly as any other State, and the Senator from Oregon has been treated with the same courtesy that other Senators have been.

Mr. Cockrell.— The Senator should vote, then, to have the resolution referred to the Committee on Public Buildings and Grounds.

Mr. Vest.— I thought the motion was to discharge the committee from the further consideration of the bill referred to by the Senator from Oregon.

Mr. Cockrell.— The Senator from Vermont [Mr. Morrill] has moved to refer the resolution to the Committee on Public Buildings and Grounds, and that is the pending motion.

Mr. Pasco. — I did not understand that to be the motion.

Mr. Dolph. — On that motion I ask for the yeas and nays.

Mr. Bate.— We do not understand in this part of the Chamber what is the proposition under consideration, whether to discharge the committee, or to refer the resolution.

The *Vice-President.*— The Chair will state the condition of the question. The question is on the motion of the Senator from Vermont [Mr. Morrill] that the pending resolution be referred to the Committee on Public Buildings and Grounds. Upon that motion the Senator from Oregon asks for the yeas and nays.

The yeas and nays were ordered.

Mr. Allen.— Mr. President, I am not usually in very hearty accord with the ambition of the Senator from Oregon, especially upon the question of appropriations; but there is a principle involved in his motion which I think ought to be considered by the Senate.

I say, with all due respect to the Senate and its rules, that in the year I have been here I have been constantly impressed with the thought that the rules of this body are so constructed as to impede rather than to facilitate the public business. A bill introduced in the Senate, when it once leaves the hand of the Senator who introduces it, passes hurriedly into the possession of the committee organized to receive it. That committee very rarely, if a majority of it are against the measure, report it or report progress upon it until they are called upon by a resolution such as the Senator from Oregon has introduced in this case.

I have introduced a number of bills, which to me, at least, have some importance, whether they have to other Senators or not. Those bills have been referred to committees, and I suppose pigeonholed months ago. I have never been able to obtain thus far even an unfavorable report upon them, so that I might have an opportunity to place the bills upon the Calendar with the unfavorable report attached, to the end that they can be considered by the Senate. These bills seem to be suspended in the air. There is no possibility of getting a favorable report and no possibility of getting an unfavorable report; but the purpose seems to be to have them die a quiet death in the pigeon-holes of the committee-room, so that the country will not know what has become of them.

While I say that ordinarily I should not be in sympathy with the motion of the Senator from Oregon, I am in favor of it in this instance, because I want to see the rule introduced here of reporting some time in an ordinary lifetime upon bills that may be introduced and referred to committees.

Mr. Dolph.— I wish to say again that the purpose of this resolution is not to gain advantage over any other Senator or over any other public building bill. It is simply to get a vote of the Senate to see if a majority of the Senate approve of the policy of the committee.

Mr. Hoar.— I was sorry to hear the announcement of the policy of the committee by the Senator from Missouri, and I hope Congress will proceed in its ordinary way, providing for the public wants and the reasonable expenditures of the Government. I am sorry that that Senator seems to think that the mischievous schemes which he is supposed to be favoring, and is to some extent the father of, are going to keep the country in its present condition for a long time. I suppose these public buildings will not be built by very large expenditures during the present year. It takes some time to get the designs from the Supervising Architect, some time to purchase the land and to agree upon the site. I think we had better act as if we all hoped and believed that the threats which are now filling the people of the country with alarm will soon pass by, and we had better legislate as if the country was going to recover its accustomed prosperity very speedily.

Mr. Vest.— It is absolutely impossible for the Senator from Massachusetts [Mr. Hoar] to discuss any sort of measure here without injecting his partisan feelings and opinions. The "mischievous schemes" which I am advocating could be very well discussed when the tariff bill comes before the Senate. Everybody who knows the Senator from Massachusetts knows that no rules of the Senate will insure his silence upon that or any other question. When the tariff bill comes up for discussion I shall be very glad to discuss the question submitted. I care nothing for that sort of talk.

I wish to say, in answer to the Senator from Nebraska [Mr. Allen], that he seems to be under the impression that there is a system of stifling legislation going on in the Committee on Public Buildings and Grounds and other committees. He is very much mistaken.

We do not wish to report against these public buildings. We have an indebtedness of $32,000,000 now upon us, and we simply want to wait to see what will be the financial legislation of Congress, which will very soon be determined, and what will be the financial condition of the country, in order to decide whether we shall recommend so many buildings equitably distributed amongst the States and with a view to their importance and need in the respective States. That is all. Does the Senator want us to report the bills back now without recommendation, or adversely? We are unwilling to do that. There is no great necessity for these buildings and the country will not suffer because they are not commenced. We are now trying to complete those which we have commenced.

If the doctrine advocated here to-day, or which seems to be advocated, should prevail, we should go on and make appropriations without looking at the condition of the Treasury, without considering the probabilities of the future, and pass every bill which has an appropriation in it. I do not understand why we should do that, and I shall certainly not act upon any such assumption or argument.

I hope that the motion of the Senator from Vermont will prevail.

Mr. Hoar.— I wish to remind the always garrulous and voluble Senator from Missouri [Mr. Vest], that the form of argument which he himself says ought not to be introduced was introduced by him. It was he who suggestad that the Senate could not go on with the ordinary provisions for the convenient transaction of the public business, because of certain very painful and disturbing conditions of the public finances. I observed in answer to that, only that I thought those conditions would pass away. I had said nothing about the tariff, and the Senator, like a small boy who is defeated in a contest, runs off and hurls back a personality as he disappears.

Mr. Peffer.— While this subject is before the Senate, I wish to again call the attention of the Committee on Public Buildings and Grounds to the fact that there is a resolution now before that committee, referred perhaps five months ago, in relation to the backwardness of work in the Supervising Architect's office, where they are several years behind as to some buildings, and especially as to one in the State of Kansas, where they are some five or six years behind in the matter of preparing designs and specifications for the building, for which appropriations were made long ago. I think if the committee would exercise a spirit of inquiry in that direction, perhaps

some good would result from it; at any rate, I think it would help us a little in our part of the country.

Mr. Vest.— I wish to say, in reply to the Senator from Kansas, that the matter to which he refers is under consideration by the Supervising Architect and the Secretary of the Treasury. I have had interviews with them and correspondence with them. The difficulty seems to be in regard to the method by which relief can be given to the Bureau of the Supervising Architect. It is a mere question of method and of detail. I agree with the Senator from Kansas that that Bureau should be thoroughly reorganized. There is a joint committee now at work, appointed by the two Houses of Congress, to investigate the methods of business in the Executive Bureaus and Departments, and we have been awaiting their report, especially upon the Supervising Architect's Bureau, hoping that we could agree in regard to the remedy that should be applied.

Mr. Peffer.— I am very glad to hear it.

Mr. Vest.— As soon as possible that matter will be attended to.

So the resolution was referred to the Committee on Public Buildings and Grounds. — *Congressional Record.*

THE LATE W. F. POOLE, LIBRARIAN. — STRIKES. — THE PLUMBERS DEMANDS. — BIDS FOR THE WORLD'S FAIR BUILDINGS. — MOVING THE "*Illinois*." — CONDITION OF THE COUNTY BUILDING. — EXHIBITIONS.

SINCE the writing of last month's letter, Chicago has suffered a great loss in the death of Dr. William F. Poole, Librarian of the Newberry Library. Dr. Poole, as is well known, had a wide reputation as the originator of certain reforms in interior library construction as opposed to the "stack" system, a relic of old monastic and ecclesiastical libraries quite unsuited for our present kind of buildings with their excessive steam heat. Mr. Poole's ideas have had a great influence in library construction all over the country, and even when this influence was denied recognition, it is easily recognized. In the Newberry Library this arrangement of books has been carried out, and it is entirely practical to combine these ideas with successful architectural features. Mr. Poole was a man of wide culture and broad ideas, and in his death the Association of Librarians, as well as the public in general, has sustained a loss that will not soon be filled. The Orington Law Library, of the North Western University at Evanston, now nearing completion, is another structure into which his ideas are to a large extent incorporated.

As usual, as spring makes its advent, strikes become the order of the day. At the present writing a strike among the brickmakers is pending, though it is unsettled whether it will be declared "on" or not. The chief demand is on the matter of wages, but, unfortunately for the success of the enterprise, the owners of the yards say that, with the present small profit in the business, they themselves are indifferent as to whether they are able to keep the yards open or not. Consequently the cinch which the strikers in this case have on the proprietors is of a decidedly flexible nature. A strike of much larger proportions and stronger nature is declared "on" among the painters and paper-hangers. In the first days of the month, four thousand men left the ranks of the workers. A representative of one of the largest firms in the city is reported as saying that a cut in wages from the present rate was intended and that the minimum rate of thirty cents an hour was all that the present condition of affairs would warrant, that a general shut down seemed inevitable, and that the prospects were for a long lock-out. On the same day on which the painters and paper-hangers struck, nearly two thousand plumbers joined the ranks of the discontented, the men claiming they must have $3.75 a day while the bosses are willing to pay $3.25, and insist that the men shall buy their own furnaces, at a cost of seven dollars. The claims made by the Master Plumbers' Association are as follows, and on the bosses refusing to accede to them a general strike was declared. Section first concerns the hours of labor:

"The hours of labor shall be from eight A. M. till five P. M., with "one hour for dinner, except Saturdays from June 15 to September "15 when the hours of labor shall be from eight to twelve.

"The wages shall be $3.75 a day, excepting Saturdays, when they "shall be $2.25.

"Wages are due and payable when work ceases on Saturday.

"All Sundays and holidays and overtime work shall be paid at "the rate of double time. Meals shall be furnished by employers "for any man who works two or nine hours overtime.

"Any man reporting for work who has not been laid off previously "shall receive no less than one-quarter day's pay.

"Car-fare shall be paid to and from job by employer, where distance "is more than one mile from shop.

"The members working outside the city of Chicago shall be sub-"ject to all the conditions of this agreement, and in addition thereto "shall have their board and railway tickets furnished, travelling "time paid at rate of regular time; when travelling at night, sleeper "to be furnished where distance is more than one hundred miles; no "charge for said time; Sunday travelling to be paid as single time.

"That all men shall be held responsible for their work when it is "due to their negligence and other causes traceable to their careless-"ness and incompetency.

"That whenever a question shall arise between the employing "plumber and the employed, in regard to inferior work done by said "employé, and said question cannot be settled by said parties, then "an arbitration committee shall be appointed, consisting of two "members, one to be selected from the Master Plumbers' Associa-"tion, and the other by the Journeymen Plumbers' Association, and "in case said committee of two cannot agree, then said committee of "two shall select a third party, and the decision of the majority of "said committee of three shall be final and binding upon both "parties."

These are not all the items in the compact drawn up, but are the sections of most importance, and it really seems to leave little to desire on the part of the men. Of course, each side claims that the other is going to give in and, indeed, it does not now look as if a prolonged struggle would be the outcome of the demands.

Since last month bids have been received by the Jackson Park Commissioners for the World's Fair Buildings. The difference in amounts offered was a surprise to all concerned, as well as the number of bids — nineteen in all — which were made. The most striking feature of the whole thing is the difference of the amounts now offered for the buildings, with what was the original salvage calculated on them. The principal bids were: World's Fair Wrecking, Salvage, and Warehousing Company, $21,202.00; the Globe Wrecking and Salvage Company, $15,160.00 for ten buildings; the Block-Pollak Iron Company, $15,025.00, for the Agricultural, Transportation, Electrical, Mines and Mining Buildings and Machinery Hall, and Dion Geraldine offered for the Manufactures Building, $10,000. None of these bids, however, were satisfactory to the Commissioners, being much lower than what they had decided the buildings to be worth.

On April 7th, however, the South Park Commissioners completed a private sale, by which all of the principal buildings of the Fair went to a St. Louis firm for $75,500. The Manufactures, Administration, Electricity, Mines, Agricultural, Fishery and Transportation Buildings and Machinery Hall were all in the purchase. In fact, the Art Building and the Forestry, together with the Convent of La Rabida, were the only buildings of any importance not included in the sale. The work of demolishing the structures will be begun at once. [This sale, too, has been cancelled by the Park Commissioners. — Eds.]

The most interesting feature in the matter of removing any of the structures which once belonged to the Fair will be that connected with the mimic battleship "*Illinois*," which last summer, resting securely on brick and pile foundation, constituted the unique naval exhibition by the side of one of the long piers. The "*Illinois*" is destined to be the new home of the Naval Reserve, an organization which has had a short but flourishing existence here in Chicago. This Reserve is the naval part of the State Militia and, consequently, in a measure under United States protection, which was sufficient reason for the Government presenting the battle-ship to be used as the home of the body. It is intended to remove the "*Illinois*" from its present position at Jackson Park to a point several miles farther north, opposite the Lake Front Park and behind the Government breakwater. The account as given by the Chicago *Tribune* in an interview with F. W. Grogan, the naval architect who has charge of the undertaking, was most interesting. That the magnitude of the enterprise may be better appreciated, the *Tribune* gives a description and the dimensions of the "*Illinois*," which, though familiar to many, are easily forgotten. The ship is the size of the new steam-ship "*Indiana*," being three hundred and forty-eight feet in length. It is about sixty-nine feet wide amidships, and from the water to the main deck is twelve feet. On this deck is a superstructure eight feet high, with a hammock berthing on this seven feet high, while still above is the bridge, chart-house, and the cone-shaped tower called the "military mast," which makes the distance from the water to the top of this mast seventy-six feet. Mr. Grogan says, "I now feel absolutely sure of the success of the plan, provided, of course, no unforeseen circumstances arise, such as a sudden storm of extraordinary violence, for instance.

"How do I propose to move the '*Illinois*'? Just as soon as I can do so, I shall begin on the foundation at the foot of Van Buren Street. This foundation will be made to last and to withstand the assaults of wind and wave. To prevent disintegration from the action of the elements, I shall make a composite foundation: all material under the water will be of wood, and all above the water-line of brick, concrete or possibly granite. The latter would be best, of course, but it is expensive, and I shall probably conclude to follow the example set in the construction of the present foundation and use brick.

"The plans show that the wood portion of the foundation is to be of piles, well driven and tied with heavy cross timbers or caps and the stringers running fore and aft form a longitudinal tie, and at the same time serve the purpose of a bed, upon which the brick portion of the foundation is to be built. Sheet-piling is driven around the periphery for stiffness and to prevent the action of waves under the structure. These brick walls are about three feet high; the inside

wall about thirteen inches and the outside wall three feet thick. The brick at the outside of the periphery will be given shape to the line of the foundation by being laid as stretchers, fore and aft, as a tangent to the curve or contour of the hull; also 'stepped' to give 'tumble home' or batter to the sides and ends. The walls will also be anchored, or rather tied to the stringers, by iron rods passing through them, and set up with nuts upon iron plates or washers on top of the brick walls. For a width of twenty-six feet in the centre, and running the whole length of the foundation, a clearance space will be left unfinished for the passage of the pontoons that sustain the central portion of the structure during transportation. Inside this space the pile heads will be cut off and capped with timber below water of sufficient depth to permit the floating of pontoons over them.

"Coming to the moving of the structure, the first thing to be done will be the preparing for the arrangement of thirteen pontoons, or floats, by whose aid this work is to be accomplished. The ship, at present, rests upon a foundation of piles and heavy timber. The berth and lower deck rest on top of this foundation and is about four feet above the average water-level of the lake. Finish was given to the outside of the hull at the sides of the foundation by iron plates fastened to sheet-piling driven about the periphery. These plates extended well below the lowest water-level. It is the intention to raise the superstructure and all the foundation, except the piles, and deposit it upon the foundation of the new site. There are about six hundred and eighty-five piles, besides the sheet-piles at sides, from which the structure is to be separated. There is not sufficient depth of water under and about the ship to float the pontoons, and it will, therefore, be necessary to dredge on the outside and to either 'suck' or 'jet' the sand from beneath the foundation until the required depth is attained to float the pontoons to their requisite position about and beneath the structure. A portion of the present protective pier will be torn away, also, for this purpose, but the break-water protection will be left until the ship is in readiness for her trip.

"In order to equally distribute the bearing power of the structure upon the floats, it will require about thirteen scows, each of which is eighty feet long, twenty-four feet wide and six and a half feet deep. The draught of water of the scows when light is about twelve inches, which leaves about five and one-half feet free-board (the distance from water-level to rail) to work upon. This is equal to a displacement of over three thousand eight hundred tons, which is about two and two-thirds times more displacement than is needed to carry the weight of the ship. There will be three lines of scows, one on each side and one in the centre of the vessel. To get this central line of scows under the structure, it will be necessary to cut away three rows of piles the whole length of the ship, thus leaving hanging a space of about thirty-two feet in width. Previous to the cutting away of these piles, however, the ship's decks at this part will be temporarily trussed by placing heavy timber on top of the berth-deck, reaching across this span, and tied by rods to the beams of the foundation. The ends will be further supported by using the military mast for a ring-post, and running iron rods from the top to a timber lashed beneath each end of the ship.

"The floats being in position, we shall make practically three solid pontoons by securing them together with timbers, fastened by screw-bolts. Pipes will encircle the pontoons, with branch pipes leading into each float, and connected to powerful steam-pipes for filling and pumping out the water from the floats when desired. The pontoons will be sunk by filling with water until there is only about three inches of free-board. Trusses or timbers will be placed under the foundation, running crosswise the vessel from one pontoon to another, the ends of which rest upon blocking built up from scows.

"Everything being in readiness to raise the vessel off the pile-heads, the pumps will be started to relieve the water-ballast from the pontoons until enough water has been pumped out of them to equal the weight of the structure, which is one thousand six hundred tons, or about two and one-half feet in depth of water. As the pumping of the water from the scows progresses, the strain upon the timbers supporting the vessel becomes gradual, until the water relieved from the scows equals the weight put upon them.

"The '*Illinois*' now being ready to start on its first voyage, all that remains to be done is to tear away the outer end of the break-water for egress to the open Lake. For transporting it will require about three tug-boats besides one tug-boat aft to steady or help steer the mass *en route*.

"It will probably take about three hours to make the trip, and by making an early morning start there is no reason why the transporting and settlement of the structure upon its new foundation cannot be accomplished before sundown of the same day. Upon arriving at its destination, the ship will be floated over the new foundation which will be so constructed as to permit the passage of the floats as before described. When she is in the right position, the pontoons will be settled by filling with water until the vessel comes to her bearings upon her new resting-place. The pontoon timbers and blocking will then be removed, and the uncompleted foundation be finished, the ends of which will be done by sinking cribwork filled with stones, and the setting of a row of cast-iron pillars through the centre for the support of that portion of the structure."

While the Board of Trade is being dismantled of its dangerous tower, another building in the city is threatening the lives of its occupants with instant and sudden death. This is the County Building, where weak construction and general settling has caused dangerous results. In one of the court-rooms a heavy ceiling weighing twenty-five thousand pounds fell during this last month, fortunately however choosing the opportune time of four A. M. to do so, thus averting what might have been a most disastrous catastrophe. The architect of the building lays the accident to the fact that the building has settled badly and unevenly, and he considers that the ceiling itself was constructed as it should have been. One of our most prominent architects has been called in for consultation with the present county architect. In one of the judge's room the iron brackets supporting the heavy cornice have started away from the walls in many places, and examinations are being made as to the ceiling of this room, especially in regard to the stability of the floor arches of the floor above. In still another of the court-rooms there is a bad crack over one of the entrances, and still another over one of the windows, and what is most alarming, these cracks go through the hall and outside wall, the entire width of the building from Clark Street to the court-room. Several other cracks have appeared in other parts of the building, and orders have been given to have levels taken around the structure, and excavations made at the foot of the southeast pier of the foundation, where the worst settling is supposed to have occurred, so as to ascertain the condition of affairs in that quarter.

These old buildings which were erected before the matter of foundations for large structures was entirely understood, or the system completely developed, are a constant source of danger and annoyance, and as soon as they all disappear from the community, just so soon will a dangerous feature be removed from our daily life.

At the Art Institute the spring water-color exhibition is now being held and, as usual, this is one of the most interesting exhibits of the year. There has just closed an exhibition of one of the local art clubs, this time the Cosmopolitan, which was one of the strongest ever made here in the city. Such strides has local art taken within the last few years, that could all these clubs, three or four in number, combine in one annual exhibition to display their best and strongest work, there certainly could be made a very creditable showing. The Cosmopolitan exhibition contained many more pieces of work of a pretentious nature (we do not use the word in any derogatory sense) than is usually found here in an exhibit of the local clubs. In fact, there is less of the sketch element and more actual pictures. Some especially strong work is displayed by the sculptors who are members of this club.

The Chicago Society of Artists and the Architectural Sketch Club have combined to form a new home, having rented one of the old houses on Michigan Avenue. The societies intend renting out studios in the building to help defray the expenses of the place, and the old barn of the place is to be turned into an exhibition-gallery.

The Architectural Sketch Club is soon to hold an exhibit at the Art Institute, which will be an innovation in the usual class of exhibitions held there, inasmuch as it will be purely architectural in character.

: CANADA :

CONTRACT TAKES PRECEDENCE OVER GENERAL CONDITIONS: CASE OF THE TORONTO COURT-HOUSE CONTRACTOR. — PROPOSED FORMATION OF A BOARD OF CONCILIATION FOR LABOR DISPUTES. — NIAGARA FALLS WATER-POWER.

A DECISION of great importance to architects and contractors (against which, however, an appeal will be taken) has recently been given by Mr. Justice Rose at Osgoode Hall, Toronto, in the case of Neelon *v.* Lennox. The decision is to the effect that where a "contract" and "general conditions" conflict, the "contract" governs, and must be taken as binding. This case is the outcome of proceedings which terminated, at the time, in the dismissal of the contractor of the new Toronto Court house, accounts of which have appeared in these letters eighteen months ago. In this action, Captain Neelon, the contractor, sued the architect, Mr. E. J. Lennox, and the city. The defendant was represented by Dalton McCarthy, Q. C., G. T. Blackstock, Q. C., and Messrs. Monro Grier and W. B. Chisholm; while on the plaintiff's side were S. H. Blake, Q. C., and Messrs. Walter Cassels and M. A. Piggott. A large number of witnesses had been subpœnaed by both parties. The case was opened on behalf of the plaintiff, Captain Neelon, by Mr. Cassels and Mr. Blake. They began by reciting the statement of claim: On July 27, 1889, the contract for the new Court-house was let to Captain Neelon and John Elliott of Brantford (the latter having since died). The work under contract did not begin regularly until April, 1890. The specifications called for Credit-Valley greystone and New Brunswick stone. The amount of the contract was $838,061.47. Under the conditions of the contract, the architect had power to dismiss the contractors, in case the work was not carried on with promptness, and with such materials and workmanship as the architect deemed

necessary. A further provision was made to the effect than in all disputes the architect's opinion was to be final. The contractors made arrangements for delivery of the stone from the quarries and during 1890, 1891 and 1892 about $60,000 worth of the New Brunswick stone was delivered from a quarry at Wood Point, New Brunswick. In June, 1892, Mr. Lennox, the architect, condemned some of this stone that had already been built into the wall some time, because it was weathering badly. The plaintiff, at first, refused to remove it, stating that it had been previously passed by the defendant, but finally agreed to remove portions of it, and requested the City-council (the proprietors) to investigate the dispute. In July, 1892, the architect ordered the plaintiff to put on an additional force of 190 men within ten days, declaring that the work was not making satisfactory progress, and that the contractor must also supply more material in accordance with the contract. In default of this he would be dismissed. At this time Mr. Kivas Tully, Provincial-Government Architect, and Mr. Langley, architect, were making an investigation of the stone on behalf of the contractor, and he applied for and obtained an interim injunction, restraining the architect from taking the step of dismissal of which he had given notice. On July 21, 1892, the plaintiff agreed to remove all the stone the architect objected to personally, but he did not remove it and considerable delay followed. Another notice was served on the contractor in August, to the same effect, ordering additional workmen and the supply of the requisite material, dismissal being threatened if the order was not complied with. On September 8th following the contractor was dismissed. At midnight, the architect, who had been prevented by the contractor from entering on the works, went to the building with a couple of policemen for his protection. Having climbed the fence, he admitted the police, and finding only a couple of watchmen turned them out, but reinstated them directly as caretakers in his employ. By an order of the Court, the city was then given possession of the works and permitted to continue them by day-labor.

The plaintiff, in this action, claimed that the notice of dismissal was insufficient and not in conformity with the contract; that the consent of the City-council was necessary to the architect before he could take action, and that the architect, in dealing as he had done with the contractor, was actuated by unfair and malicious motives. The plaintiff sued for the dismissal of the architect, the appointment of another in his stead, for his reinstatement as contractor and for damages. The defence was that the stone was not according to contract; that the *contract* gave the architect the power to dismiss the contractor, but that the "*general conditions*" of the contract left this power in the hands of a committee of the City-council. The defence claimed *that the contract should take precedence over the general conditions.* On the second day's proceedings, Mr. Blake, counsel for the contractor, was arguing that the plaintiff was pushing on the work with all possible speed, but that it was impossible to obtain the required quality of stone. Mr. McCarthy, counsel for the architect, objected and contended that the city (as proprietor), had nothing to do with the difficulties of the contractor. Upon this a long argument followed, in which the defence brought up and argued the principal point in their statement of claim, which was as above stated, that although the general conditions gave the power of dismissal to the Court-house Committee of the City-council, the contract vested this power in the architect, and it was shown that the City-council, after the seizure by the architect, ratified and conformed his action.

On this point the judge reserved judgment till the next day, but when the court reassembled he said: "I think the architect was not "bound to have the consent in writing of the Court-house Com- "mittee, prior to serving the notice dismissing the plaintiff. If the "decision of the architect, as to the quality of the stone, was within "the powers conferred by the contract, and was right, it seems to "me that it is not of moment to inquire what motive influenced "the architect in determining according to the right. If he ex- "ercised his judgment with reference to the material and deter- "mined properly that it did not answer the contract, the decision "cannot be interfered with. It, therefore, is manifest, as it seems "to me, that the plaintiff must demonstrate beyond controversy, "that when the architect decided that the stone did not answer the "contract, such decision was wrong. If I cannot say that it was "wrong, I cannot say that it was fraudulently wrong, and the "plaintiff must fail, whatever view I might possibly form upon any "evidence tendered to show malice or ill-will. If the plaintiff is "to make out that the decision of the architect was not only wrong, "but fraudulently wrong, I do not see any object in receiving evi- "dence of fraud until I am satisfied there was error, and I do not "see how I could determine that there was error in judgment if "there was evidence upon which the architect might have acted, "and might properly have found as he did. If what the architect "did was within the scope of his powers, it must, I think, be "assumed that he was acting in the exercise of such powers.

After the delivery of this judgment, a long technical argument followed as to the procedure for an appeal, of which Mr. Blake gave notice. Mr. Blake wanted the suit adjourned, pending the result of the appeal, but Mr. McCarthy pressed for the continuance of the case, and that the evidence should be taken with regard to the stone and the motives that led the architect to reject the material. Mr. Blake demurred, and said they were not prepared to go on with this part of the suit. Mr. McCarthy at length asked that the case be dismissed, unless the plaintiff was prepared to go on. Mr. Justice Rose then dismissed the case. The appeal will be made at the next sittings of the Chancery Divisional Court.

It is stated that the Ontario Provincial Government has in contemplation a bill for the establishment of Boards of Conciliation, whereby labor disputes may, if possible, be settled, without resort to the trade-ruining strike which is the usual result of a disagreement between masters and men. There is a Provincial Act entitled "The Trades Arbitration Act," now forming Chapter 140 of the Revised Statutes of Ontario, which authorizes the formation of elective Boards, of employers and workmen in equal numbers, and after evidence has been taken by these Boards, the judgment given is final and conclusive. But, strange to say, this Act is rendered nugatory in nine cases out of ten by Section No. 28, which declares that nothing in the statute shall authorize the Boards to deal with disputes as to wages, wages being the very point about which nearly all disputes arise — the Act has remained a dead letter, and has never once been acted upon. The proposed legislative measure is intended to cover the ground that is prohibited in this Trades Arbitration Act, while at the same time it will probably deal with all cases, such as would be likely to result in strikes, and the experience gained since the passing of the above Act will be utilized to simplify the system. The new bill ought to be a valuable addition to the Provincial Statutes.

It does not seem very long ago, that the idea of utilizing the power of the Niagara Falls for the driving of machinery was looked upon as a "wild-cat" scheme and the notion struck horror into the hearts of scenery-loving visitors, who pictured the sides of the gully denuded of trees, and their places taken by factories clinging to the face of the rock, crowding as near as possible to the edge of the stream to take advantage of the force of the waterfall: while the more enlightened and practical among them considered it a matter of impossibility to "harness Niagara." Engineering science, however, has surmounted all difficulties and the water-power of Niagara has actually been made to turn prosaic wheels. Whether the result will be that hundreds of mills will be built, so as to spoil the magnificent scenery, must be left to the future, but sufficient precaution has been taken by the Canadian Government to prevent anything of this kind happening on its side of the gorge, all the land having been expropriated and turned into a National Park. A short time ago a test was made of the great hydraulic tunnel that has been driven from the back of the falling cataract; the great turbines were used for the first time and were reported to be thoroughly satisfactory and to have worked with smoothness and regularity. It would be difficult to say what will be the end of such a scheme. Fabulous sound the figures that are said to represent the power. Miles and miles of mills might be constructed and take their fill of the power, and yet leave plenty for miles and miles more. This is the beginning of a new era for the town of Niagara. Will it become a great workshop for the world?

BOOKS AND PAPERS

A DISTINGUISHED company, indeed, graces the feast to which the publishers of "*Les Artistes Célèbres*" now invite us — soldiers such as Gustavus Adolphus, Ernest of Mansfeldt, and Maurice of Nassau, statesman and patriots like Jan van Oldenbarnevelt, the Swedish chancellor Oxenstiern, and Admiral Coligny, and other famous personages, noble either in rank or soul, among them Elizabeth of Bohemia, "the Queen of Hearts," her husband Frederick, and her gallant champion, Christian of Brunswick; and handsome George Villiers, Duke of Buckingham, the favorite of "the English Solomon," in his wide lace collar and "great and manifold ropes and knots of pearl." The portraits of these notabilities, with others painted by Mierevelt, and engraved by his son-in-law, Willem Jakobsz Delff, dignify the pages of M. Henry Havard's book on "*Michiel van Mierevelt*," the latest issue of the series of artist-biographies which comes from the Librairie de l'Art of Paris. Van Mierevelt, an eminent artist who is said to have painted a greater number of portraits than any other of his countrymen, was born at Delft in 1567, and died in his native city in 1641. Quite apart from any fame due to his high talents, he linked his name indissolubly with that of some of the great ones of history by the fact of having painted their portraits, portraits accepted as the most faithful copies of their outward aspect.

THE same House also sends us a good photogravure of a painting by the Misses Desliens, which bears the title of "An Excellent Pot-au-Feu," and shows a pleasant-faced priest watching with interested mien the movements of his elderly housekeeper as she stirs the savory compound. The figures are painted with much truth of characterization, and the accessories give evidence of great care in their execution.

WHEN the first Part[1] of Mr. Bancroft's elaborate attempt to describe the late World's Fair and its results appeared, we were disposed to

[1] "*The Book of the Fair*," by Herbert Howe Bancroft, published in twenty-five Parts at $1.00 per Part, by the Bancroft Company, Chicago.

feel that it might turn out a worthy monument of the great undertaking, but the succeeding Parts as they appear convince us that its true characterization must be that of a monument of misdirected effort. As a "popular" affair — one to be sold to the people and kept as a show-book in the locked-up New England parlor — it will do very well; but for almost any other purpose of serious import it is very far from satisfactory or worthy of what we assume to be its author's real capacity. It is merely a money-making subscription-book on rather an elaborate scale, rushed into print as rapidly as possible in the hope of getting the cream of the market before other works of a similar nature could be got ready.

A curious want of what may be styled "temporal judgment" is shown by the selection of the present tense for use in a book which could not be finished during the life of the enterprise it professes to describe, and this, when added to the manner in which the long lines of the broad pages are broken up by the insertion of illustrations of all sorts and all sizes, makes the book a very disagreeable one to read, and this disagreeability is not offset by good classification, proper technical statement or satisfactory connection between the text and the cuts which have the appearance of illustrating it.

As a mere picture-book, the work is unquestionably interesting, but as a picture-book that is instructive it is a failure. The cuts are generally interesting, and, as a rule, admirably printed, but the insufficiency of the titling or the entire absence of a title, and still worse, the incompleteness of the information conveyed by the title, make it, as a useful picture-book, a failure. Add to this the immorality with which the author has failed to make a proper connection between text and cuts, and it will be seen that the book consists of two imperfect parts without proper connection between them. If a really good index is added to the book, it may possibly be made a little more valuable than it now appears to be. Unquestionably there is much good matter in the work, but what there is of it is uncommonly hard to get at.

The annual report of the City Engineer of the City of Omaha, Neb., for 1893 is an unusually interesting document, partly because it contains a special report on the several ways in which Omaha may be converted into a manufacturing centre by the construction of a power canal from the Platte River, but mainly because of the ingenuity displayed in conveying a deal of valuable information of statistical and permanent value by means of colored maps. By changing the colors and making a few minor alterations in the key-plan, Mr. Rosewater has produced half-a-dozen very instructive maps of the city under his charge. These maps show: (*a*) the hydrant pressure and position of the hydrants all over the city, the engine-houses and fire-alarm boxes; (*b*) the position of the sewers, whether of brick or pipe, and the lines of projected sewers; (*c*) the paved and unpaved street, indicating as well whether the paving is of stone, brick, asphalt or wood; (*d*) the lighting of the streets and the position of the lamps, whether gas, oil or electric.

SOCIETIES

THE ENGINEERS' CLUB OF PHILADELPHIA.

AT a business meeting, March 17, 1894, President John C. Trautwine, Jr., in the chair, one hundred and two members and visitors were present.

Mr. E. R. Keller made some interesting remarks on some results obtained in the Government investigations of American timbers, illustrated by large plates which he had prepared.

The timber investigations now in progress under the supervision of Mr. B. E. Fernow, of the Forestry Division, were first brought to the attention of the Club by the latter in a lecture in October, 1891. It is the object of these investigations to determine the physical, mechanical, chemical, and other properties of American timbers, and the interrelation existing between these. The subject of timbers has never before been treated in so comprehensive a manner in any country.

The investigations have been productive of some valuable results regarding long-leaf yellow pine, so abundant in some of our Southern States. The remarks presented are a condensation of such parts of the work as will be of special interest to the engineer.

Mr. Keller described in detail the apparatus and methods used by Professor J. B. Johnson in testing logs to determine:

(*a*) Cross breaking of large and small beams.
(*b*) Tension.
(*c*) Compression — endwise and cross-grain.
(*d*) Shearing.
(*e*) Properties of full-sized columns.

Regarding the long-leaf yellow pine, of more than ten species of pine found in the Southern Atlantic and Gulf States, not more than four reach our Northern markets, and of these the long-leaf yellow pine has no less than twenty-three different names, arising from the practice of designating different qualities by different names, and from the use of local names. The long-leaf species may be distinguished from others by the occurrence of the leaves in bundles of three — nine to twelve inches long — and by its cones, — six to nine inches long. Its wood is the heaviest of the Southern pines, being about 48 pounds per cubic foot. It has a fine and even grain, reddish-yellow color, very little sap-wood, and is pitchy throughout.

The results of tests of this wood were given, and the following deductions by Professor Johnson:

"The long-leaf-pine timber is specially fitted to be used as beams, joists, posts, stringers in wooden bridges, and as flooring when quarter sawed. It is probably the strongest timber in large sizes to be had in the United States. In small selected specimens, other species, as oak and hickory, may exceed it in strength and toughness. Oak timber, when used in large sizes, is apt to be more or less cross-grained, knotty, and season-checked, so that large oak beams and posts will average much lower in strength than the long-leaf pine, which is usually free from these defects. The butt cuts are apt to be wind-shaken, however, which may weaken any large beams coming from the lower part of the tree. In this case, the beam would fail by shearing or splitting along this fault with a much smaller load than it would carry without such defect. These wind-shakes are readily seen by the inspector, and sticks containing them are easily excluded, if it is thought worth while to do so. For highway and railway wooden bridges and trestles, for the entire floor system of what is now termed 'mill,' or 'slow-burning' construction, for masts of vessels, for ordinary floors, joists, rafters, roof-trusses, mill-frames, derricks, and bearing piles; also for agricultural machinery, wagons, carriages, and especially for passenger and freight cars, in all their parts requiring strength and toughness, the long-leaf pine is peculiarly fitted. Its strength as compared to that of short-leaf yellow pine and white pine is probably very nearly in direct proportion to their relative weight, so that pound for pound all the pines are probably of about equal strength. The long-leaf pine is, however, so much heavier than these other varieties that its given strength for given sizes is much greater."

A great many tests have now been made on short-leaf and on loblolly pine, both of which may be classed with long-leaf as "Southern yellow pine," and from these tests it appears that both these species are inferior to the long-leaf in strength in about the ratio of their specific gravities. In other words, long-leaf pine (*Pinus Palustris*) is about one-third stronger and heavier than any other varieties of Southern yellow-pine lumber found in the markets. It is altogether likely that a considerable proportion of the tests heretofore made on "Southern yellow pine" have been made on one, or both, of these weaker varieties.

DISCUSSION.

Mr. James Christie: Very extravagant claims have been made for Oregon pine. Have tests been made of this or other Western woods?

Mr. Keller: I believe not, as yet, but they will be taken up by the department later.

Mr. W. C. Furber: It may be of interest to give the results of some few tests of full-sized sticks of some joist which were made under my supervison for the new Harrison Buildings at Tenth and Filbert Streets. There were eleven sticks broken of 2 inches by 10 inches — 13 feet clear span — of the long-leaf pine, the modulus of rupture varying between 3,616 and 11,408. The lower values were for sticks with knots in the upper and lower fibres of the middle third of the span, knots of considerable size outside of this middle third seeming to have no detrimental effect. The higher values were for sticks almost or entirely clear of knots. These sticks of the long-leaf variety exhibited little tendency to buckle, and broke with little notice, at the different moduli given above, with a short fibre, some sticks exploding and flying into small pieces. These results agree closely with Lanza's published "*Tests on Yellow Pine*," in which he gives moduli of 5,092 to 11,360. None of these beams showed any tendency to longitudinal shearing along the neutral surface.

Four tests were made of the short-leaf pine, with moduli of from 8,000 to 10,096. The lowest value was for a stick with some knots — the other three were clear. All of this lumber showed a much greater deflection than the long-leaf, and a greater tendency to buckle. It frequently failed by the bottom fibres splitting off.

I hope soon to present the photographs showing these timbers before and after the tests.

Mr. Frederick H. Lewis read a paper on the new Building Law of the city of Philadelphia, of which the following is an abstract:

The Bureau of Building Inspection in this city is now about to be re-organized and enlarged in order to give full effect to the general building law enacted in June, 1893, for cities of the first class in Pennsylvania.

I venture the opinion that architects, lawyers, or engineers who may have to deal with this law will find it seriously defective in matter and in arrangement.

Of recent general laws enacted prior to our own, those of the cities of New York and Boston, dated April 9 and June 16, 1892, respectively, are the most notable and interesting. They have been freely drawn upon by the author of the law now under consideration, as evidenced by the verbatim reproduction of clauses, sentences, and whole sections. It is remarkable that such poor results should have been achieved in compiling our new building law from an abundance of fairly good material. The Pennsylvania law is neither clear nor forceful, and its regulations for the most part give details which are not of general application.

From *Sections* 4 and 5, it is sufficiently clear that no building can hereafter be erected or altered, and no work done affecting the strength or the fire-risk of a building, except by permit from the Bureau, granted only after an examination of the plans and specifications to see that they comply with the law. The Bureau is authorized to decide, at discretion, on the thickness of pilasters and spandrel walls for buildings in which the weight is carried wholly by an iron or steel framework; to order the tearing down or repair of existing party or division walls, if not deemed satisfactory, for new constructions or alterations; to require piers and buttresses to be heavier than specified; and to decide for or against proposed roof and cellar-floor coverings. As the law gives no rules for walls over six stories in height, the new building problems now interesting engineers must be considered and passed upon by the Bureau in examining plans and specifications.

It is certainly very desirable that the Bureau exercising such a censorship as this over the building designs of the city should be well equipped in technical information, experience and ability, but the law gives little encouragement in this direction. It provides without making any distinction whatever, that the chief and assistant inspectors shall be "either practical builders, civil engineers, carpenters or bricklayers." Architects have no standing at all, and few engineers will care to take positions which will place them exactly on a par with carpenters and bricklayers. By the Boston law, the chief must be either an engineer, an architect or a builder, and his force is divided into engineers, clerks and inspectors, with distinctive duties. The New York law is still better. It provides that the superintendent should be appointed by the mayor, and may engage and fix the compensation of "such officers and employees" as shall be necessary to execute the duties imposed by the law.

There are certain appeals, which adjacent property-holders may, within specified time-limits, make from the decisions of the Bureau, first to the corps of inspectors sitting as a Board, and afterward to a commission of experts. The question here arises as to what authority building-inspectors can exercise on work in progress after a permit is granted. All that the law says on this point is that inspectors shall examine buildings in course of erection or alteration, and record all violations of the Act, and that they may require columns to be drilled for inspection. There are no fines or penalties except to enforce decisions on permits, unsafe walls and underpinning between adjacent properties.

It is remarkable, and it will probably prove troublesome, that the law should be obscure regarding the authority of inspectors over work in progress. The Boston and New York laws, which are copied in solid paragraphs in the administrative regulations, are quite clear and explicit in this respect, and our older laws are not so defective.

Section 26, relating to existing buildings, provides that in all warehouses, etc., the weight which each floor will safely sustain shall be estimated by a civil engineer or architect, and a detailed record thereof posted by the owner in a conspicuous place, within one year from the passage of the Act. This, if properly enforced, would serve the public interest in a very high degree. There is, however, no precaution to insure that these surveys shall be reliable, and the Bureau is not authorized to act upon the results, nor does it even receive copies of the reports. The New York law, from which this regulation is taken, further provides that the estimate shall be reduced to writing, stating particulars; shall be sworn to by the person making the same, and shall be filed in the office of the Bureau; after which, the superintendent, if he has cause to doubt the correctness of the estimate, can make further examinations, and regulate the distribution of the load on any floor. Why were such provisions omitted in our statute?

In our law, the portion referring to details of construction has been culled from various sources, and is a confusing mass of special details of no particular value, and apt to mislead in many cases. There is scarcely an intimation that walls should be proportioned to carry loads, or that foundations are intended to distribute loads upon the earth with pressure suitable to the bearing capacity of the soil. Most of the six-story walls given in *Sections* 11 and 14 will load the specified footings with over 7,000 pounds per square foot by their own weight alone, or with from 12,000 to 20,000 pounds per square foot, by including floor-loads; and even a three-story party-wall, with its floor-loads, will put 10,000 to 12,000 pounds pressure on these footings.

In the tables of enclosing and division walls of business buildings, the idea of making walls heavier in proportion to their length is elaborated, but no regular rule has been followed in doing this. The idea of increasing the thickness with the length has not had very wide recognition, and is open to discussion.

Section 11 is made up of clippings from the New York and Boston laws, and is most confusing in its wording. It probably means that "where trusses are used, the walls upon which they rest shall be thicker than is otherwise required by this section by at least four inches for every addition of twenty-five feet, or part thereof, to the length of trusses of more than thirty feet span. The same amount of materials specified may be used in piers or buttresses." It is also noticeable that the law does not deal with fireproof construction at all.

The safe loads of floors for business buildings, new or old, are required to be estimated by an architect or civil engineer. The loading per square foot is provided, and the loads are to be considered in the calculation as concentrated at the centre "in all cases." There seems to be no reason whatever why concentrated loadings should be considered in dwellings, office-buildings, public-halls, or the great majority of stores and factories.

In *Section* 17, it is provided that beams carrying joists or other beams must be reckoned for at least 200 pounds in buildings of any class, whereas such loadings are unprecedented and entirely unwarranted by considerations of fact, 100 pounds per square foot being considered quite sufficient for office-buildings, ordinary halls and highway bridges, while for dwellings 70 pounds is ample.

The law puts the unit stresses at one-sixth the ultimate strength, which is from fifty to sixty-five per cent of the figures usually adopted for wrought-iron or steel in buildings, so that our ironwork in buildings must be just about twice as heavy all around as in usual practice elsewhere. The provision with regard to wooden joists show that the author of the law did not realize what he was doing, as evidenced by *Section* 34.

The provision in *Section* 24 that "no greater weight shall be placed on any column, etc., than the published tables of said manufacturer show it to be capable of sustaining with safety," is, of course, absurd, as the manufacturer could readily get up tables to show that his products might sustain with safety one-third, or even one-half of their breaking strength.

The latter part of the law about hearths, chimneys, registers, and especially regarding theatres, is very good, the text of this being taken in full from the New York law.

Other contradictions and obscurities than those referred to will doubtless be found, and many cases will occur in which it is quite inadequate. It is remarkable that much is omitted which is found in other laws, and which one expects to find in a modern building law, and ours is positively bad to such an extent that the building operations of this city should not be saddled with it, and its early revision should be insisted upon.

THE ILLUSTRATIONS

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

HOUSE OF W. K. BIXBY, ESQ., ST. LOUIS, MO. MR. W. ALBERT SWASEY, ARCHITECT, ST. LOUIS, MO.

[Gelatine Print issued with the International and Imperial Editions only.]

THE house is built of brown terra-cotta with a brown-yellow Roman brick and red slate roof.

HOUSE FOR W. PERCY SIMPSON, ESQ., OVERBROOK, PA. MESSRS. BAILY & TRUSCOTT, ARCHITECTS, PHILADELPHIA, PA.

THE house is built of a local gray stone, blue slate roof, and Vermont-marble trimmings. The interior is all hardwood of several varieties — Indiana-limestone mantel in the hall; is provided with large elevator for raising trunks, etc.; has laundry in light basement and is heated by steam, an O. K. sectional boiler being used. The building is provided with electric-lights and gas, burglar-alarms, iron tanks and Roman tubs, and plate and crystal plate-glass in the windows. The whole house is lined with mackite boards and ordinary lime mortar. The style of architecture of the interior is Elizabethan with flowing-ribbed plaster ceiling in the hall. The building stands on a hill with a background of heavy woods, as indicated in the drawing, and is reached by a winding or a serpentine road from the gateway.

HOUSE FOR JOHN KATZ, ESQ., LYNCHBURG, VA. MR. EDWARD G. FRYE, ARCHITECT, LYNCHBURG, VA.

THIS house, which cost $25,000, is built of red brick with brownstone and terra-cotta finish. The roof is covered with red slate.

HOUSE FOR JOHN FOWLER, ESQ., ST. LOUIS, MO. MESSRS. STEWART, MCCLURE & MULLGARDT, ARCHITECTS, ST. LOUIS, MO.

PROPOSED HOUSE FOR W. J. HICKMOTT, ESQ., HARTFORD, CONN. MR. F. R. COMSTOCK, ARCHITECT, HARTFORD, CONN.

TWO SMALL HOUSES ON S AND R STREETS, WASHINGTON, D. C. MR. W. J. MARSH, ARCHITECT, WASHINGTON, D. C.

DESIGN FOR A COUNTRY HOUSE. MR. M. N. CUTTER, ARCHITECT, NEW YORK, N. Y.

PROPOSED COUNTRY HOUSE. MR. WALTER B. CRABTREE, ARCHITECT, NEW BRITAIN, CONN.

[Additional Illustrations in the International Edition.]

NORTH FRONT OF THE ADMINISTRATION BUILDING, WORLD'S COLUMBIAN EXHIBITION, CHICAGO, ILL. MR. RICHARD M. HUNT, ARCHITECT, NEW YORK, N. Y.

[Gelatine Print.]

ARABESQUES IN THE LOUVRE: SCHOOL OF RAPHAEL, XVI CENTURY.

[Photogravure.]

TUDOR HOUSE, HAMPSTEAD, ENG.: GARDEN FRONT. MESSRS. ERNEST GEORGE & PETO, ARCHITECTS.

NEW SCHOOL, ARMADALE, WEST LOTHIAN, SCOTLAND. MR. GRAHAM FAIRLEY, ARCHITECT, EDINBURGH, SCOTLAND.

In the plan of this school it will be seen complete cross ventilation is provided for, and there is the minimum of occasion for using one class-room as a passage from another. The cost will be about 2,500*l.*

COMMUNICATIONS

[*The editors cannot pay attention to demands of correspondents who forget to give their names and addresses as guaranty of good faith; nor do they hold themselves responsible for opinions expressed by their correspondents.*]

PARQUETRY FLOORS: A PROTEST.

New York, N. Y., April 16, 1894.

To the Editors of the American Architect: —

Dear Sirs, — In your issue of March 31 you have, in an article entitled "Office-help for Architects," a description of parquet flooring and finishing of hardwood floors, which, as manufacturers, we must protest against, as being misleading and calculated to the injury of our business.

The method of manufacture described is the cheapest and least desirable of any employed, the finish for yellow pine flooring given will, if followed, in a very short time, result in making the floor indistinguishable, and the whole result would be to disgust the victim with hardwood floors of every description.

We, or any parquet floor manufacturer, would have been glad, if called upon, to give practical information, rather than have possible customers misled in that manner.

Very respectfully, National Wood Mfg. Co.

MARKET-HOUSES.

Springfield, Mass., April 11, 1894.

To the Editors of the American Architect: —

Dear Sirs, — I would like to know of any public markets in cities of 40,000 to 60,000 inhabitants in the Eastern, Middle or Western States. If any one can tell me where they are, I shall be greatly obliged. Yours truly, G. C. G.

EXHIBITIONS

Boston, Mass. — *Annual Spring Exhibition of Water-colors, Pastels, Black-and-Whites, and Sculpture:* at the Boston Art Club, April 9 to April 28.

Loan Collection of Paintings by William Morris Hunt: at the St. Botolph Club, April 3 to April 28.

Several hundred Specimens of Textile Designs of all countries, from the second century to the present time, from the collection given by Denman W. Ross; also a collection of Japanese Color-prints: at the Museum of Fine Arts, during April.

Water-colors by S. P. Rolt Triscott: at Chase's Gallery, 7 Hamilton Place, opens April 20.

Brooklyn, N. Y. — *Third Annual Exhibition of Architectural and Decorative Drawings of the Department of Architecture of the Brooklyn Institute of Arts and Sciences:* at the Brooklyn Art Association Galleries, 174 Montague Street, March 30 to April 21.

Buffalo, N. Y. — *Exhibition of Architectural Drawings:* at the Buffalo Library building, now open.

Chicago, Ill. — *Annual Exhibition of Water-colors:* at the Art Institute, April 3 to May 6.

Drawings and Etchings by Joseph Pennell: at the Art Institute, April 17 to May 7.

Sixth Annual Spring Exhibition of the Chicago Society of Artists: at the Society's Galleries, April 16 to April 28.

New York, N. Y. — *Sixty-ninth Annual Exhibition, National Academy of Design:* 23d Street and Fourth Avenue, April 2 to May 12.

Bookbindings: at the Grolier Club, open until April 28.

Exhibition of Amateur Photography: at the Galleries of the American Fine Arts Society, 215 West 57th Street, April 16 to April 28.

Philadelphia, Pa. — *Fourth Annual Exhibition of Water-colors and Pastels:* at the Art Club Galleries, March 26 to April 22.

NOTES & CLIPPINGS

"Restored Rome is a German City." — Everybody finds in Rome, says Goethe, exactly what he brings to it. Unless he comes with education, sentiment, sympathy for what is beautiful in art and memorable in history, his visit will be fruitful in nothing but confused and bewildering impressions, leaving him with no desire to return. On the other hand, if he possesses in even modest proportion the conditions of intelligent appreciation, his sojourn, were it but for a week, will form an event in his life, full of grand and august associations, delightful to cherish and still more to renew. It is a fact that the descriptions of Rome which have most deeply impressed the world have been the work of men whose days in it were few, but who brought to it, in the highest degree, the essentials of culture and insight. Thousands of men and women have been as many years within its walls, as Goethe was weeks or Byron days. And yet from one page of the *Italienische Reise,* or from one stanza of *Childe Harold,* may be drawn more of the real Rome than the combined recollections of the thousand residents aforesaid could embody in a book. It is, indeed, the appreciative outsider that has done most for the resuscitation of the city's past, if not for the rehabilitation of its present; and just as, thanks to the Winckelmanns and Goethes, and Niebhurs and Bunsens, the Mommsens and Jordans, "restored Rome is a German city," so it is to the compatriots of these and the fellow countrymen of Arnold and Ruskin, of Clough and Hawthorne, of Freeman and Browning, that Italians themselves owe that respect for their noblest monuments, classical and mediæval, the want of which has aforetime resulted in such irreparable vandalism. But for northern, mainly Teutonic, scholarship and sentiment, but for German science and British-American taste and refinement, the Italy of archæology and romance — the Rome which to-day attracts pilgrims from civilized Christendom — would not only be immensely the poorer in actual treasure-trove, and in traditional relics, duteously conserved, but would miss, even among Italians themselves, that enlightened appreciation and reverence which contrasts so strikingly with the ignorance and apathy of the last two centuries and the first quarter of this. — *London Lancet.*

A New Palace in Venice. — Four hundred years have passed away since the last Gothic palace was erected in Venice, and one hundred and fifty since a palace of any kind was constructed. Not only that, but during these past centuries, whilst little or nothing was erected, hundreds of palaces were destroyed. Since the time of Napoleon alone it is calculated that between two and three hundred palaces, in all kinds of styles of architecture, have been demolished; now, happily, all that is ceasing. The last twenty or thirty years had been a period of conservation and of restoration. Property had doubled in value during that period. A palace on the Grand Canal that could have been bought in 1850 for from eight hundred to a thousand pounds, now costs two. Old tumble-down buildings have been made to "look as good as new." This property restoration throughout Venice has been chiefly the work of Jews. They are the richest merchants in the city, and at the head of the chief business houses. These buy up old houses at a small figure, put them in good order, and let them at rather high rents. The saying is common in Venice that wherever you see a house nicely done up you may be sure that it belongs to a Jew. The other great restorer of property is the Italian Government. As all ecclesiastical property belongs now to the Government, and many churches and similar buildings have been registered national monuments, the State charges itself with their maintenance. This has necessitated much expenditure in the way of restoration. Fifty thousand francs (2,000*l.*) are spent annually upon the conservation and restoration of St. Mark's Church alone. And upon the whole the restorations, whether effected by private citizens, by the Government, or by public corporations, are done in good taste. To a period of conservation and restoration is now being added one of construction. A lovely Gothic palace in pure style has just been erected on the Grand Canal, opposite the Grand Hotel and near the well-known church of the Madonna della Salute. — *Correspondence of the Scotsman.*

Smoke-abatement in Chicago. — The abatement of the smoke nuisance is still giving the authorities of Chicago a great deal of trouble, and a recent decision of Judge Gary threatens to add to it. In a case brought under the ordinance which forbids factory owners to pollute the air with clouds of smoke and imposes a fine for every offence, the judge held that they could not be compelled to burn hard coal. "Proprietors of such nuisances," says the chief smoke-inspector, "believe that Judge Gary's decision practically nullifies the smoke ordinance. It shall be my duty to teach them that it doesn't. The city cannot compel a man to burn hard coal, it is true. But it can and will compel him not to have large streams of smoke come from his chimneys. Any man who owns a chimney can burn soft coal, or old rags, or anything else he wants to so long as he doesn't create too much smoke. But if he makes a smoke nuisance, it will cost him $50 a day in fines. When he has paid $300 a week for a few months, he may decide that it will be cheaper in the future to burn hard coal and make less smoke. We shall also get at smoke offenders in another way. We shall enforce the city ordinance which provides that all engineers or stokers who wilfully permit dense volumes of smoke to issue from their chimneys shall forfeit their licenses." The building-commissioner promises to coöperate with the smoke-inspector in abating the nuisance by submitting to him all plans for new buildings. The commissioner will require that the capacity of chimneys shall be large enough, the draught strong enough, and the boiler capacity for power great enough to insure a proper combustion of the coal. These rules will extend to all plans for tenements, apartment-houses, stores, business blocks, shops, sky-scrapers, hotels, factories, and, in short, to every sort of building except the ordinary dwelling-house. — *N. Y. Evening Post.*

S. J. Parkhill & Co., Printers, Boston, U. S. A.

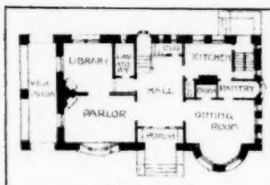
RESIDENCE FOR JONAS FOWLER ESQ.
SAINT LOUIS. STEWART MACKIE MULLGARDT ARCHITECTS

HELIOTYPE PRINTING CO. BOSTON.

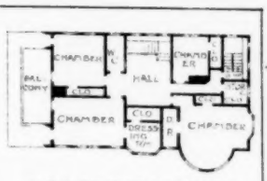
PROPOSED COUNTRY HOUSE

WALTER P. CRABTREE, ARCHITECT

NEW BRITAIN, CONN.



FIRST FLOOR PLAN



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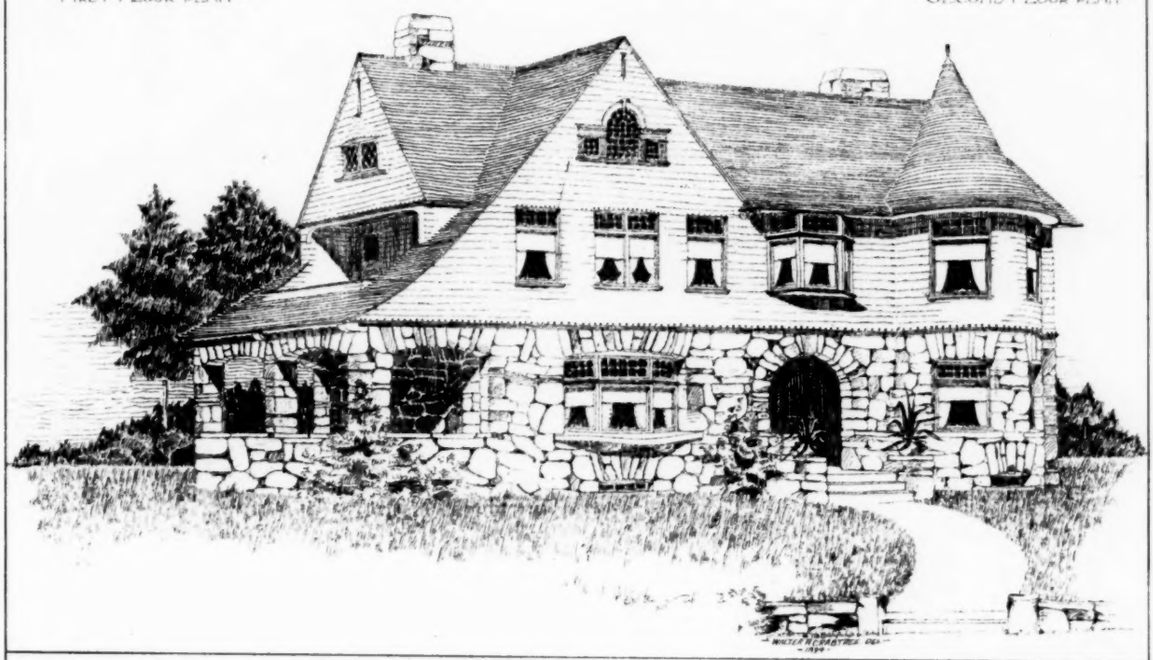
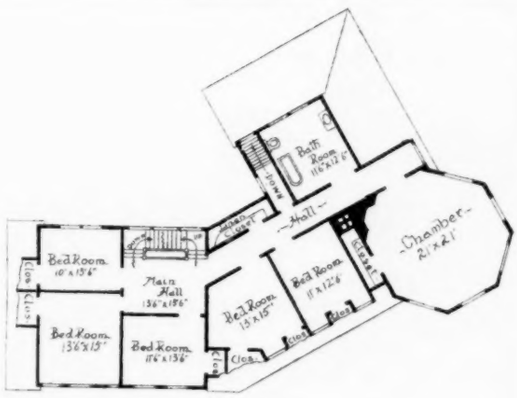
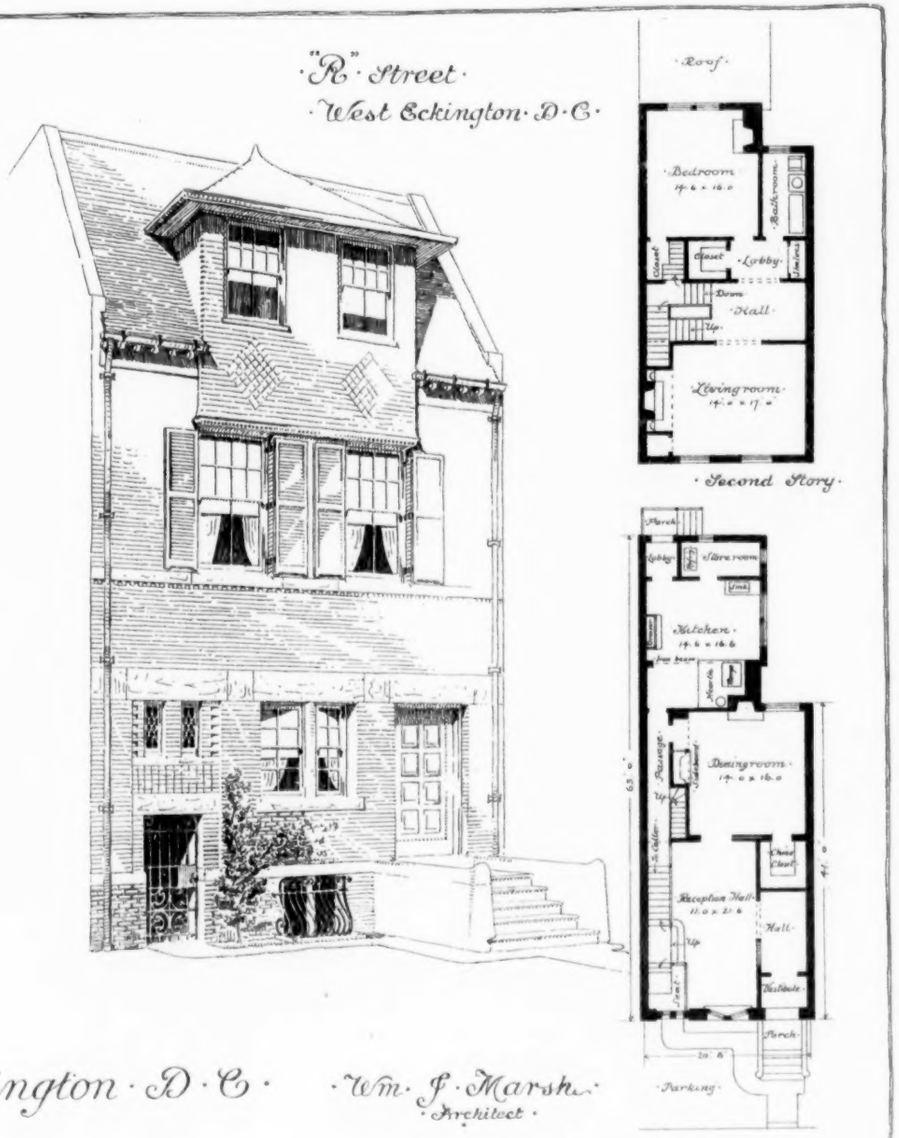




Second Floor Plan

MANLY N. GUTTER, ARCH'T.

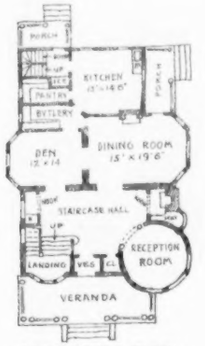


Two small Houses · Washington · D.C. · Wm. F. Marsh · Architect ·

Heliotype Printing Co. Boston

American Architect and Building News, Apr. 21, 1894. No. 956.

PROPOSED RESIDENCE FOR
MR W J HICKMOTT
HARTFORD CONN
F R COMSTOCK ARCHITECT
HARTFORD CONN



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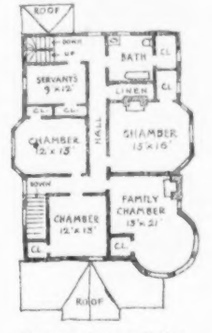
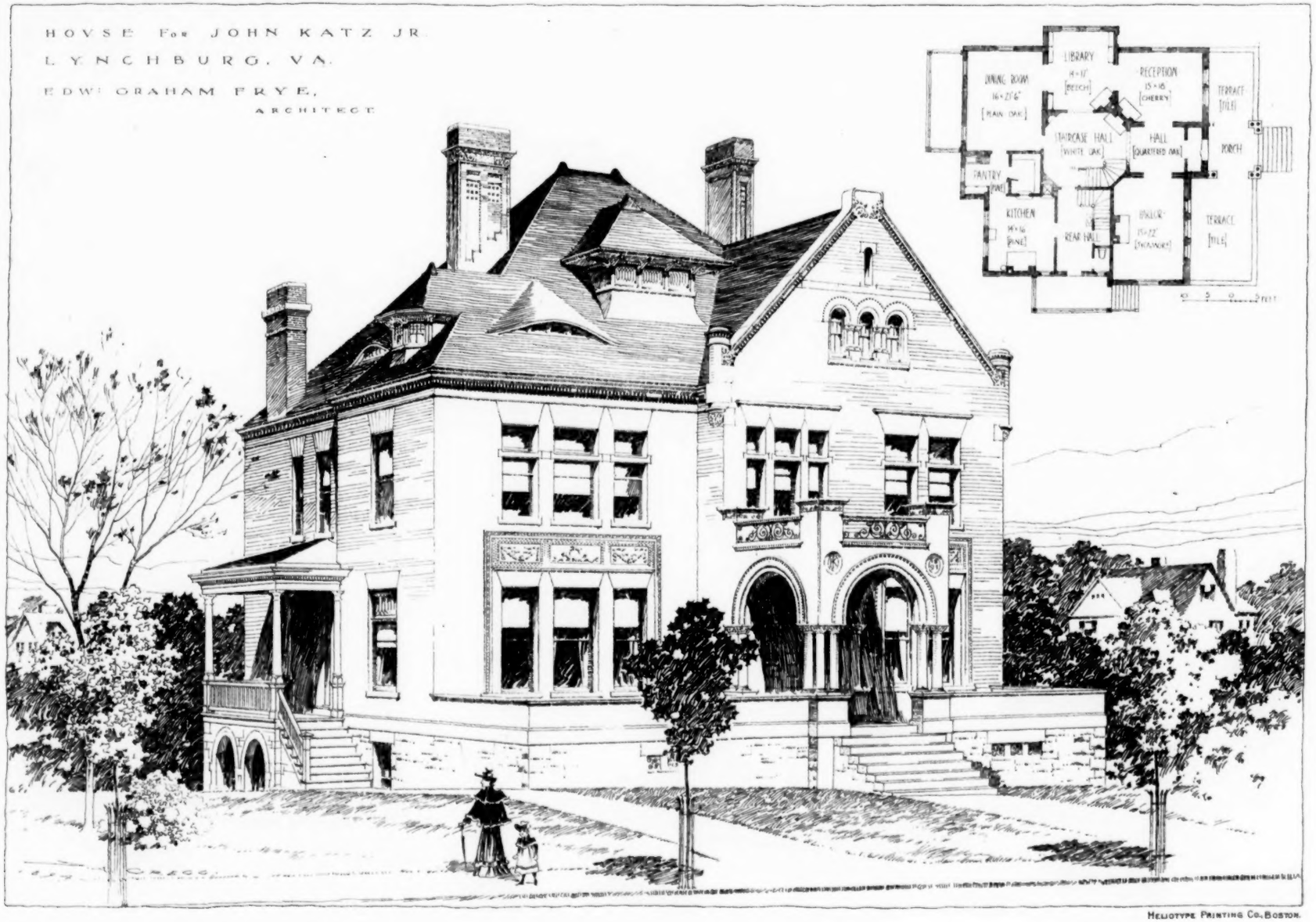


SECOND FLOOR PLAN

Heliotype Printing Boston.

No 956. American Architect and Building News, Apr. 21 1894.

HOUSE For JOHN KATZ JR.
LYNCHBURG, VA.
EDW: GRAHAM FRYE,
ARCHITECT



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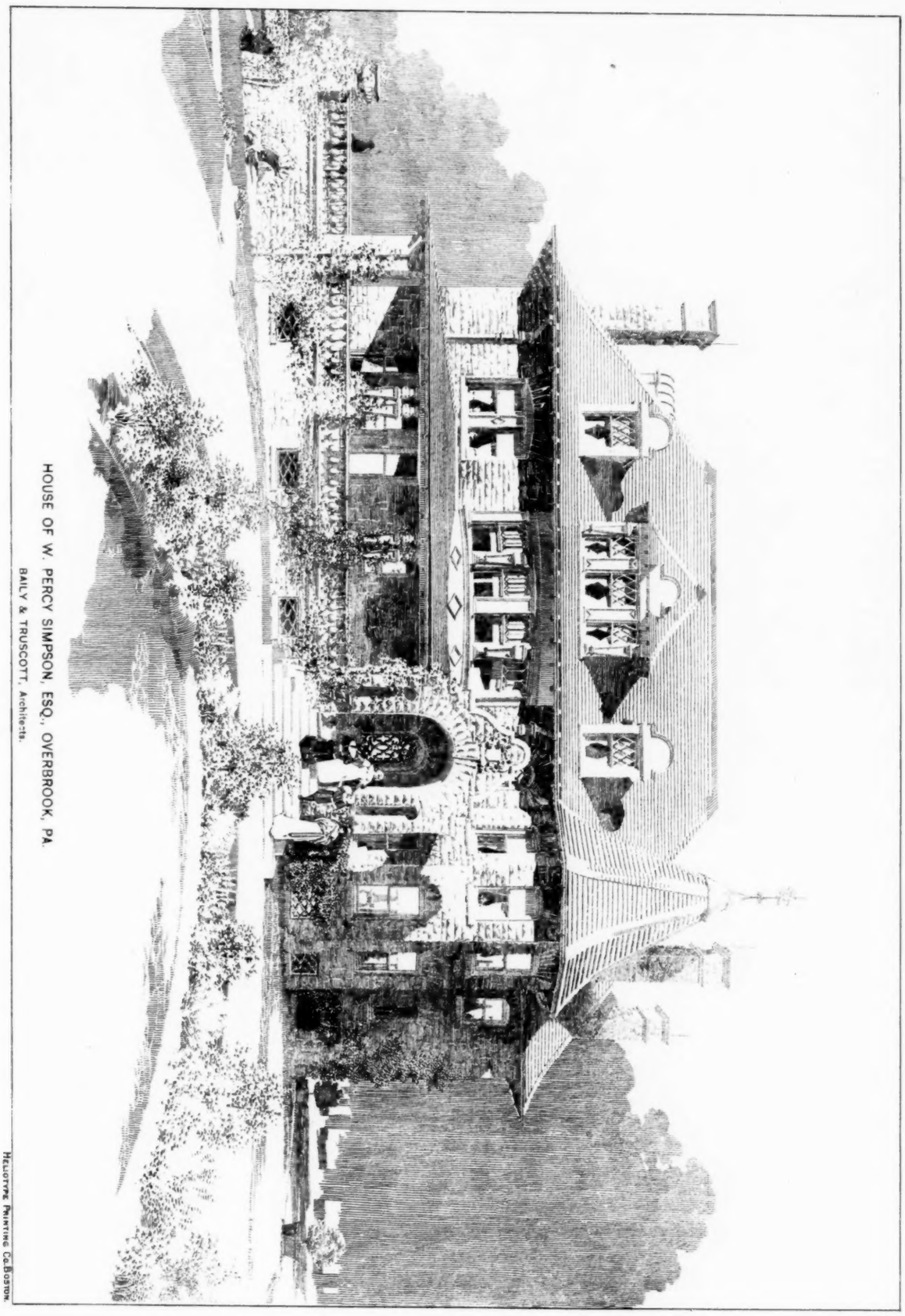

HOUSE OF W. PERCY SIMPSON, ESQ., OVERBROOK, PA.

BAILY & TRUSCOTT, Architects.

Heliotype Printing Co. Boston.