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CONTENTS.

SUMMARY:—

An Investigation of the Albany Capitol to be made.—The Congressional Library Site.—Accidents in New York: Fall of a Floor and of a Fire-Escape.—Failure of a Suit against a Plumber.—The Operations of the Electric-Light Companies.—Eddystone Light-House.—M. Charnay's Discoveries in Yucatan.—St. Sophia.—Roman Remains in Portugal.—Mexican Feather Painting.	1
BUILDING SUPERINTENDENCE.—XIX.	3
TESTS OF WOODEN POSTS.	6
THE ILLUSTRATIONS:—	
Christ Church Orphanage, Baltimore, Md.—House at Nave-sink, N. J.—House near Darby, Pa.	7
CRUSHING STRENGTH OF SANDSTONE AND MARBLE.	7
POPLAR.	8
COMMUNICATIONS:—	
Cement Facings.—Strength of Portland Cement-Mortars.—The Sewerage of a Summer Settlement.	9
NOTES AND CLIPPINGS.	10

A COMMISSION has been appointed by the Governor of New York, consisting of General Quincy A. Gillmore, one of the best living authorities upon many branches of the technology of construction, Mr. George B. Post, a very skilful architect, and Mr. Charles Babcock, Professor of Architecture at Cornell University, to examine the different parts of the new Capitol at Albany, and determine as to its safety. It would be difficult to find three men anywhere better qualified for such a task, and we congratulate Governor Cornell on the excellent judgment which he has shown on this, as on several other occasions, in the selection of expert commissioners. Although we are not inclined to give much credit to the alarming assertions of newspaper correspondents with regard to the great stone vault over the Assembly Chamber, the difficulty of such a construction, particularly in these days, when it is impossible to find workmen experienced in similar matters, is so great that the most scientific architect might hesitate to put implicit confidence in its success, however well it might be designed, and we have been sorry to hear that investigation, instead of being encouraged in every possible way, had been made very difficult, even for those most concerned in knowing the truth, by covering the vault with a thick coating of concrete or cement, which, however advisable in future as a protection against the infiltration of water, might safely have been postponed until the risk of movements taking place undetected beneath it should be past.

THE bill authorizing the construction of the new building for the National Library has been postponed until the next session of Congress, mainly on account of a renewal of the disputes about the site, which we had hoped were happily over. Although the committee having the matter in charge unanimously favor the purchase of land for the building on Capitol Hill, near the Capitol itself, a certain number of members, with what seems to us a very mistaken notion of economy, still urge that Judiciary Square, which already belongs to the Government, should be occupied for the purpose, quite forgetting that the area of government land in Washington being limited, if Judiciary Square is taken for the present purpose it will soon be necessary to buy another plot in place of it, with the very probable consequence that the Library, a structure which is to be nearly, if not quite, as costly as the Capitol itself, will be permanently relegated to an obscure and out-of-the-way region, as Judiciary Square, however central it may be, undoubtedly appears to strangers; while the noble site beside the Capitol will perhaps for want of other room be disfigured with a cheap barrack or office building. To the professional visitor, the magnificence of the opportunity which Washington presents for architectural display already seems only equalled by the astonishing indifference with which the opportunity has been thrown away. With the first great step already taken, in the erection of the Capitol, toward the formation of an Acropolis surpassing in imposing display any collection of buildings in the world, we find now, after the expenditure of hundreds of millions of dollars, the Capitol, except for the fourth-rate tenements which elbow themselves every year nearer, still lonely

on its height, while the vast piles of the Treasury, the State, War and Navy Building, the Patent-Office, and the Post-Office, seem to have rushed in terror down the hill and landed in confusion at the bottom, led by the Monument, which has gone farther, and abased itself more, than any of the others, and sticks contentedly out of the mud at the very edge of the water, overlooked by a hill ninety feet high.

Two accidents, neither of them, unfortunately, of a very unusual kind, took place in New York a few days ago. One of them occurred in the Colwell Lead Works, a well-known establishment situated on Centre Street. By some carelessness an immense weight of lead pipe, shot and other heavy goods had been allowed to accumulate on the second floor of one of the buildings belonging to the company, used principally for storage, until the beams, loaded far beyond their strength, gave way all at once, precipitating their burden to the cellar. A workman was packing lead in the first story, immediately beneath the place where the rupture began in the floor above, and hearing the cracking of the timbers sprang toward the door, only a few feet away, but was struck by the falling debris before he could reach it, and instantly killed, his body being found buried under ten tons of metal. The other accident resulted in serious injury to a man and wife, tenants in a house on East Broadway. The former, for the sake of the cool air, went out on the platform of a fire-escape to sleep. In the middle of the night he was waked by feeling the platform give way under him, and called for help, at the same time endeavoring to climb back into the room by the window. His wife ran to assist him, and as she stepped upon the platform her additional weight broke the slight remaining hold which it had on the building, and it gave way, carrying both with it. Instead of falling to the yard, they were thrown upon the roof of a small shed, but both were badly hurt.

A SUIT was recently brought in New York to recover damages for defective plumbing work, which we are sorry to see was unsuccessful. It seems that the plaintiff, a Mr. Scott, desiring some time ago to have a waste-pipe on his premises cleaned out, engaged Mr. Brown, who called himself a plumber, to do the work for him, and the latter deputed two of his employés to take charge of the job. These excellent men proceeded to the house, where they cut a hole in the pipe, cleared it out, and repaired the orifice by sticking on a bit of sheet lead with putty, and tying it with copper wire. Soon afterwards, sickness appeared in Mr. Scott's family. Three of his children died, one after the other, with symptoms which suggested sewer-gas poisoning, and Mr. Brown, fortunately for the public, having abandoned earthly plumbing to seek his eternal reward, he brought suit against his executrix to obtain pecuniary satisfaction for the loss which he had suffered, as he believed through her husband's fault. Although juries can generally be relied upon to show a commendable strictness in holding professed mechanics to a reasonable degree of care and skill in the arts which they practise, there was in this instance a doubt as to the actual cause of the illness which afflicted Mr. Scott's family. Not being himself, apparently, one of the neatest of men, he had allowed great numbers of rats to frequent his cellar, and the drain-pipe was not only found gnawed by them, but many of their bodies, half decomposed, were scattered around it. Under these circumstances there might well be a doubt whether the sewer-gas or the effluvium from the dead rats would be the more pernicious in its effects, and on the well-established principle that a man cannot hold other people responsible for injuries to which his own gross carelessness contributed, it was necessary to discharge the defendant.

THE electric-light companies in New York are preparing for a busy summer. The Edison Company, which expected to have all its wires laid, and incandescent lamps in full operation in at least one of the twenty or more districts into which it has divided the city by last January, now finds that the opening of its business must be deferred until some time next autumn, although great preparations have been made, and much of the necessary electrical machinery is already in place. Among the different forms of apparatus now ready to be set in motion are six enormous dynamo-electric machines, weighing about thirty

tons apiece, each driven by a steam-engine of one hundred and twenty-five horse-power, and furnishing a current capable of maintaining seventeen hundred and fifty incandescent lamps. Besides the six already mounted, four more machines will be needed to supply the first Edison district alone. The Brush Company is said to have obtained control of the Swan incandescent lamp for the city of New York, and is taking measures to introduce it into general use; while the United States Company also proposes to extend the sale of the Maxim lamps, for which it owns the patent. The Edison Company professes to claim that both the Swan and Maxim lamps are infringements of the Edison patents, so that there seems to be a prospect of indefinite litigation on the subject, unless, indeed, the arbitration committee of the Gramme Company, to which all the respectable electric-light corporations now belong, should succeed in effecting an adjustment. The contest for the control of the Faure storage battery seems to have abated in violence, partly, perhaps, on account of the claim of priority of invention made by Mr. Brush, which, if sustained, would invalidate the Faure patent in the United States.

THE *Scientific American* gives an interesting description of the new Eddystone light-house, in England, which has just been formally opened, after having been more than three years in construction. The renown of Smeaton's great work, which had stood for more than a century at the entrance to the Channel, perhaps exceeded its merit, and although it defied the waves to the last, an investigation, undertaken some five years ago, showed that the surface of the ledge on which it stood was so disintegrated as to compromise the safety of the whole structure. The upper portion was an ingenious combination of dovetailed and dowelled blocks of stone, and was apparently uninjured, but nothing could be done to save it so long as the foundation was imperfect, and it was taken down. The new light-house is constructed in a different spot on the reef, and like the old one, is a solid mass of dovetailed and dowelled granite masonry, a grouting of Portland cement adding to the cohesion of the whole. Smeaton's idea of profiling the tower like the trunk of a tree, the shaft rising with a concave curve from an expanded base, has also been followed, but with the difference that the curve, instead of starting from the surface of the ledge, as in the old one, begins only at the top of a cylinder with vertical sides, which rises some feet above high-water mark. The intention of this change was to diminish the tendency of heavy seas to run up the curve toward the top of the light-house, where they exerted a force the more destructive on account of the leverage afforded by the distance from the base. By the cylindrical portion, which is of enormous weight and resistance, it is hoped that the force of the waves will be met and broken, instead of being deflected vertically, and the light superstructure will be spared a portion of the shock.

M. CHARNAY's discovery of a hitherto unknown ruin in Yucatan turns out to have been of less moment than was at first imagined, although some interesting observations were made. On arriving at what was supposed to be the "Phantom City" mentioned in the account of the journey of Stephens and Catherwood, he found the remains of a Toltec settlement of considerable importance. The great temple of the place, built on the summit of a pyramid a hundred and twenty-five feet high, still stands, and until the decay and fall of the idol, which lies in fragments on the floor, was frequented by the Indians of the neighborhood, who came there to offer incense. A great teocalli, or pyramid, two hundred feet high, stands behind the temple, and exhibits the remains of palaces or other buildings on its top. The sculptures, of which many remain, show the Toltec type already studied at Palenque and other places. Although he found himself forestalled by an amateur English explorer, Mr. Alfred Maudslay, who had reached the ruins before him, M. Charnay, as a professional archaeologist, had the honor of naming the town, which he called Lorillard City, after the patron of the expedition. In his opinion, the Phantom City of Stephens yet remains to be discovered, and he is inclined to place it in the state of Chiapas, on the other side of the mountains. The result of his investigations seems to strengthen the apparent relationship between the Toltec or Maya civilization of Mexico and Central America and that of Eastern Asia. There is a Chinese legend of a voyage of one Fuh Siang to the unknown East in the fourth century of our era, and although we are not prepared to receive without hesi-

tation the assertion of one enthusiastic explorer, that the hieroglyphics found on a certain Mexican monument are identical with "old Chinese," there may still be an interesting story of migration to be traced out by future ethnologists.

THE great church of St. Sophia in Constantinople is said to be in danger of speedy ruin, partly from the natural decay of its masonry and the long-continued pressure of its enormous domes, and partly from the effect of the misjudged alterations and repairs made by the Italian architect, Fossati, who was employed for many years about the building. During the progress of the works of restoration, which continued from 1847 to 1861, the Sultan Abdul-Medjid, no doubt on the solicitation of Fossati, who was an enthusiast in his way, caused a magnificent monograph upon the structure to be prepared, illustrated with chromo-lithographs in the best style of the time, from water-color drawings made on the spot expressly for the purpose, by Louis Haghe, the rival of Prout as a painter of architectural subjects. This work, published under the title of "Aya Sofia," the Turkish corruption of the Greek name of the church, would become of priceless value in case of the destruction of the famous building from any cause, and it is much to be wished that the same service which the Turkish ruler performed for a monument of a foreign age and religion might be repeated even half as thoroughly and well for some of the great masterpieces of Christian architecture, which the descendants of the original builders are either quietly suffering to pass out of existence, or are improving beyond recognition. It is said that the court dentist of Constantinople is to have charge of the repairs which have become essential to preserve the great mosque even a few years longer. This probably means that he is to disburse the money, employing persons more competent than himself to carry out the actual operations: so that although at first sight the arrangement does not appear particularly well calculated to secure the best technical results, it is by no means certain that interesting and scientific work may not be done.

OUR readers will remember the interesting letter written by the Chevalier da Silva, from which we had the pleasure of making some quotations, describing his singular discovery of the remains of the Roman city of Nabactia, near Thomar in Central Portugal. Being in the neighborhood on business, and knowing that the ancient town was situated at or near the spot, he amused himself, while taking a morning walk through the fields, in thrusting his cane at random into the ground. Almost at the first trial the ferrule struck a small, hard substance, which on being thrown out proved to be a fragment of a mosaic pavement, and a slight excavation, made by the laborers who were soon summoned, laid bare the site of what appeared to have been a richly-decorated *exèdre*. Since then systematic explorations have been carried on, and, as we learn from *L'Architecte*, four streets have been cleared of debris, and the remains of sixteen houses laid bare; more mosaics have been found, together with marble shafts and capitals; and there is every reason to suppose that temples and other public buildings will soon be discovered.

It seems from the *Boston Transcript* that the present inhabitants of Mexico are about to be indebted to "Boston enterprise" for the revival of "an ancient Aztec art." According to this authority, "whoever has looked upon specimens of the art and literature of the Aztecs must confess that they were an ingenious people," a proposition which, for several reasons, it would be difficult to controvert; but it appears that "about the only art which has survived the violent rupture of the Indian Empire" is that of feather painting. We had supposed that the renowned silver filigree work of Chihuahua, whose merits were heralded not long ago in a somewhat similar manner, might claim to be included in the list of Mexican arts, but perhaps this is excepted as not being an Aztec invention. However that may be, we are delighted to learn that within a short time the invaluable aid of some Boston tourist has been lent for the improvement of the rude Indian taste in feather work, and now, "acting on the suggestions of Northern visitors," the natives "have surpassed all former efforts in producing combinations and groups of figures of birds in their natural colors, and with all their natural aspects." We long to see some of these Yankee-Aztec productions, and can well believe that a revelation in art awaits us.

BUILDING SUPERINTENDENCE. — XIX.

PLASTERER.

[If this is made a separate contract, the full title and the General Conditions should precede the Specification.]

Verifying Furrings. The plasterer is to examine and try all ceilings, partitions, and furrings, and is to notify the carpenter of all that are not square, true, plumb and level, and see that they are corrected before lathing, and that all are firm and secure.

Back-Plastering. Back-plaster the whole of exterior walls from sill to plate between the studs, on laths nailed horizontally $\frac{3}{4}$ " apart to other laths or vertical strips put on the inside of the boarding, all well trowelled and brought well out on the studs, girts, and plate, making all air-tight.

One-Coat Work. Lath and plaster basement ceiling one heavy coat, well trowelled and smoothed.

Lath and plaster two coats in the best manner all other studdings, underside of stairs, partitions, furrings and ceilings throughout the building, except in rooms marked "Unfinished" on plans, carrying the plaster to the floor everywhere.

Two-Coat Work. Laths to be best seasoned pine, free from knots, bark or stains, all laid $\frac{3}{4}$ " apart, and breaking joint every six courses and over all door and window heads.

Laths. The first coat of plaster to be of No. 1 Extra [Rockland] lime, and clean, sharp sand, well mixed with a half bushel of best long cattle or goat's hair to each cask of lime, thoroughly worked and stacked at least one week before using, in some sheltered place, but not in the cellar of the house; all to be well trowelled, straightened with a straight-edge and made perfectly true, and brought well up to the grounds. The skim coat to be of No. 1 Extra [Rockland] lime, slaked at least seven days before using, and washed [beach] sand, and well floated.

Run moulded cornice, not over 30" girt, with one enriched member, in parlor, and plain moulded cornices, not over 24" girt, in dining-room, library, and four chambers in second story, and in first-story hall, carrying two members of the hall cornice up the soffit of stairs to second story and around second story hall: all to be in accordance with detail drawings.

Beams. Form beams where shown, according to detail drawings.

Plant plaster centres in parlor, dining-room and library, to be 3' in diameter in parlor, and 2' 6" in dining-room and library, all to be made in accordance with detail drawings, and two wax models to be made and approved before casting.

Point up with lime and hair mortar around outside door and window frames; clear away and remove all rubbish from the premises after the second coat of plaster is on; clean the mortar off the floors and sweep out the house and leave all ready for the wood finish; patch up and repair all the plastering at the completion of the building, and leave all perfect.

Whitewash. Whitewash cellar ceiling, walls and piers two coats in the best manner.

CARPENTER.

[If this is made a separate contract, the full title and the General Conditions should precede the Specification.]

Scantlings. Sill, 6" x 6", halved and pinned at angles. Plates, 4" x 6".

Posts at angles and opposite partitions, 4" x 8".

Girts, 4" x 8".

Braces, 4" x 4".

Window studs, 3" x 4".

Door studs, 4" x 4".

All other studding, 2" x 4", 16" on centres.

Partition caps, 3" x 4".

Soles, 2" x 5 $\frac{1}{2}$ ".

Girders, 8" x 10".

Sleepers, 6" x 6", 8' apart.

Floor beams, 2" x 10", 16" on centres.

Headers, 4" x 10", and 6" x 10", according to framing plans.

Trimmers, 4" x 10", and 6" x 10", according to framing plans.

Rafters, 2" x 6", or 2" x 8", as marked on framing plans, 20" on centres.

Deck rafters, 2" x 8", 20" on centres.

Hip and valley rafters, 3" x 9", or 3" x 12", as marked on framing plans.

Trimmer and header rafters doubled and spiked together.

Ridges, 1" x 10".

Piazza and porch girders, 4" x 10".

Piazza and porch floor beams, 2" x 6", 20" on centres.

Piazza and porch rafters, 2" x 6", 20" on centres.

Hips and valleys, 3" x 9".

Piazza and porch plate, 6" x 10".

Piazza and porch posts, 8" x 8".

Sleepers in basement to be of locust. Piazza and porch posts to be of best well-seasoned dry white pine or white-wood. All other framing timber to be good sound spruce, free from large knots, waney pieces, and shakes. **Stock.**

The house is to be full frame, all framed, braced, and pinned in the best and strongest manner, perfectly true and plumb, and in accordance with the framing drawings. No wood-work is to be placed within one inch of the outside of any chimney, and no nails to be driven into any chimney. **Framing.** The underside of sill and ends of girders are to be painted two heavy coats of oil paint before setting in place. The basement beams to be sized upon the sleepers, which are to rest on the concrete. The beams of first-story floor to be notched down four inches on the sill and mortised two inches more into it, bringing the bottom of the beams flush with the bottom of the sill, and to be framed with tenon and tusk into the girders, flush at top and bottom: all to be well spiked to the sill, and the tenons secured to girders with oak pins. Beams of second and third story floors to be notched down four inches on the girts, and spiked to girts and studs, and sized one inch on partition caps, spiking the beams strongly together wherever possible to form a tie across the building. Headers to be framed into trimmers with double tenon and pinned, and all headers which carry more than three tail-beams to have $\frac{3}{4}$ " joint-bolts at each end in addition. Tail-beams to be framed into headers with tenon and tusk and pinned. All floors to be bridged once in every eight feet with a straight, continuous row of double herring-bone cross-bridging of 1" x 4" pieces, cut in and nailed with two nails at each end of each piece. Beams under unsupported partitions which run parallel with them to be in pairs, set $7\frac{1}{2}$ " apart on centres. **Bridging.**

Piazza and porch floor to be framed with a 4" x 10" girder from each post or pier to the house, set so that the top of the girder is 1" below the top of the sill, and pitching away from the house one inch in every five feet. Each girder to be gained one inch into the whole depth of the sill, and to be secured to the sill with $\frac{3}{4}$ " joint-bolt. Into these girders are to be framed the 2" x 6" piazza beams, all flush on top. **Piazza and Porch Floor.**

The finished posts of piazza and porch will stand upon the floor, with tenon 4" long into the girder, and the plates are to be framed into them and pinned. The rafters are to be notched upon the plate and spiked, and strongly secured to house. **Piazza and Porch Roof.**

Form the cornice of porch and piazza as shown on detail drawings, all of pine, with planceer, fascia, bed mould, and gutter all around as shown, with leaded joints, two-inch lead goose-necks and [four] three-inch [tin] conductors where directed, properly supported and entered into the drain-pipes prepared to receive them. **Piazza and Porch Cornice.**

The main roof of the house is to be framed as shown on framing plans. Rafters to be notched on the plate and spiked. Partitions to be carried up to support roof wherever practicable, and all to be thoroughly tied and made perfectly secure and strong. **Main Roof.**

Form the main cornice as shown in detail drawings, with 3" x 4" gutter all around, fascia, and planceer, rebated $1\frac{1}{4}$ " belt at top of wall, and raking moulding in the angle: all of pine. Gutter to have leaded joints and three-inch lead goose-necks. Put on [six] four-inch tin conductors where directed, all strongly secured and properly entered into drain-pipes prepared for them. **Main Cornice.**

Gable finish to be as shown on detail drawings, all of pine, with $1\frac{1}{4}$ " rebated piece at top of wall, to show 8" wide, $1\frac{1}{4}$ " plain planceer put on under side of projecting roof-boards with $\frac{3}{4}$ " furring between and to show 10" wide, and corona and cymatium moulding $3\frac{3}{4}$ " wide in all, to cover ends of roof-boards and edge of planceer, and 3" x 3" bed-mould in the angle. **Gable Finish.**

Cover all the roofs, including those of porch and piazza, with good hemlock boards, planed one side to an even thickness, and well nailed to every rafter, two plies of pine-tarred felt paper, breaking joint, and shingle with first quality 16" sawed cedar shingles, laid $4\frac{1}{2}$ " to the weather, and nailed with two galvanized nails to each shingle. Form dormers, etc., as shown on drawings. Furnish wide counter-flashings of 4-lb. lead for the mason to build into joints of chimneys, shingle in wide zinc flashings to turn up against the brickwork as high as the counter-flashing will allow; then turn down the counter-flashing, dress close, and cement perfectly tight against the brickwork. Shingle in wide zinc flashings in valleys and around dormers, and put on wide zinc apron to protect junction of piazza and porch roofs and house wall, and warrant all tight for two years from the completion of the building. Make all tight under dormer sills and around dormers. **Roofing.**

Make scuttle 2' x 2' in roof where directed with rebated frame 4" high, and cover hung with strong strap hinges, and to have iron bar fastening and fixtures to keep it open at any desired angle. Frame and cover to be tinned and all warranted tight. **Scuttle.**

Enclose the walls with good hemlock boards planed one side to an even thickness, and two thicknesses of good felt-paper breaking joint. Shingle the whole of the walls above belt at

Walls. second-story floor level with first quality 16", sawed cedar shingles, laid 6" to the weather and nailed with two common nails to each shingle. Where the shingles come against door or window casings nail only at the side next the casing, with two nails. Under window sills and elsewhere where exposed the nails to be galvanized. Shingles in gables to be laid alternately long and short, without selecting for uniform width, the difference in length to be 1 1/2". Cut shingles, of uniform width and to pattern

Cut Shingles. as per drawings, to be used in panels where shown on elevations.

Clapboards. All other portions of the wall to be covered with sap-extra pine clapboards, all laid to a perfectly even gauge of not over 4 1/2", and all nailed to every stud with galvanized nails, set in for puttying.

Zinc. Put strips of zinc 3" wide around all window and door casings throughout, running under casings and clapboards or shingles.

Form the belt at second-story floor level according to detail drawings by putting on furrings over each stud on top of the under boarding and putting a second boarding outside, brought to a feather edge at the top. The lowest of these boards to be planed on the edges and the shingles to be brought down over. Finish under the edge with a 2 1/2" bead. Under the moulding will be a belt 1 1/2" thick and to show 6", with the bottom edge rebated.

Make also belt at level of window-sills where shown, of a 2 1/2" cove and fillet moulding, bevelled on top to correspond with the pitch of the window-sills, and put on over the shingles, which are to be gauged to correspond. Form the front edge of these window-sills so as to continue the moulding without any break.

Form the base as shown on detail drawings, on sides next to piazza and porch to be 1 1/2" thick, rebated on top, and to show 6" high above piazza floor, with small bevel, stopping against

Base. half-posts of the balustrade, scribed against the wall. In other places the base will be formed by 1 1/2" feather-edged piece standing out from the wall, the clapboards to be brought down over it, and a 1 1/2" bead to run underneath. All of good, seasoned white pine.

There will be corner-boards only in first story where clapboarded, shingles being in all cases brought out to the angles.

Casings and Corner-boards. All corner-boards, door and window casings to be 1 1/2" thick, and of widths as marked on drawings, all of good, seasoned pine, and the top edge rebated.

The porch will stand on 12" x 12" brick piers to be built by the mason. Piazza to stand on red cedar posts, 4' in the ground, furnished and set, exclusive of excavation and refilling, by the carpenter. Floors to be framed as described

Piazza and Porch. above, and to be covered with 3/4" rift hard-pine boards, not matched, laid close joint and well nailed and the outer edges rounded. Finish under edge of floor with a planed board 10" wide, case the posts in front with planed boards, and fill in between them, and between piers under porch, with jig-sawed work of 3/4" pine boards down to the ground, finishing with board, and with mouldings broken around to form panels, all as shown on drawings.

Complete the porch and piazza as per detail drawings, the balustrades, braces, turned, carved and ornamental work to be all of good seasoned white pine; and ceil the underside of roofs, and of all projections of oriels, balconies, etc., with 3/4" matched and beaded spruce sheathing not over 4" wide, on furring strips 12" on centres, formed into panels by 3/4" x 4" bevelled strips, planed on. Case over the plate with 3/4" pine with 3/4" bead on each edge, and finish the junction of piazza ceiling and main wall with 2" cove moulding neatly stopped.

All outside steps except the granite lower step at front entrance to have 3/4" pine risers and 1 1/2" rift hard-pine treads with rounded nosings returned at the ends; all to be supported on

Outside Steps. 2" x 12" spruce strings 12" on centres, the outer strings to be planed or cased, and the foot of the strings to be notched upon the granite step or upon a 4" x 4" piece supported by two red cedar posts 4" in the ground. Enclose under ends with vertical 3/4" pine strips, jig-sawed as shown on drawings, with bevelled base.

Make bulkhead entrance to cellar, with plank steps on plank strings, all planed, and cover of 4" matched pine boards, battened, hung with heavy strap hinges bolted on, in strong plank frame, and all made tight, and furnished with strong bar fastening.

All other outside finish is to be of good, thoroughly seasoned white pine in strict accordance with elevations and detail drawings, and all leaded where necessary to make it weather-tight. Project beams for bays, oriels, etc., and do all furring and other work for completing the whole in the best and strongest manner.

Other Outside Finish.

The carpenter must call upon the painter to prime all exterior finish before putting up or immediately afterwards, and is to replace all work warped or cracked.

Priming.

The Hall, Laundry and Water-Closet in Basement will have single floor of first quality 3/4" rift hard pine, square joint, not over 6" wide. All other floors throughout the building are to be double, the under floor to be of good hemlock boards, planed one side to an even thickness, well nailed, and two plies of good felt-paper to be laid between all upper and under floors. Under flooring in Hall, Parlor and Bath-room to be not over 3" wide; in Kitchen, not over 6" wide; elsewhere to be any width.

Inside Flooring.

The Kitchen, Back Vestibule, Storeroom and Butler's Pantry on first story, and Back Hall in first, second and third stories to have upper floor of first quality rift hard pine, not over 6" wide, matched and blind-nailed. The main Hall on first story to have upper floor of first quality selected quartered 3/4" oak, 2 1/2" wide, matched, laid in herring-bone pattern, as per detail drawing, and blind-nailed. The Parlor is to have upper floor of 3/4" second quality white pine, not over 6" wide, matched, but not blind-nailed, with border of [Dill's] parquetry, 20" wide, in maple and cherry, of pattern No. [twenty-six] all laid in the best manner and warranted not to shrink. The Bath-room in second story is to have upper floor of alternate strips of maple and black walnut, not over 4" wide, matched and blind-nailed.

Upper Floors.

All other rooms and closets throughout the building to have upper floor of 3/4" second quality pine, matched but not blind-nailed, not over 6" wide in first story and second story chambers; not over 9" wide elsewhere. Make mitred borders to all hearths, registers, and staircase openings.

All under floors to be thoroughly repaired and cleaned before upper floors are laid.

All hard-wood flooring to be of the very best selected perfectly seasoned stock, and all upper floors to be kiln-dried, laid breaking joint in every course, well strained and nailed to every beam with twelve-pennies, and all neatly smoothed off by hand and scrubbed out at the completion of the building.

Put on grounds for 3/4" plastering in first story and 3/4" elsewhere, and put on all angle-beads. Cross-fur all ceilings, including basement ceiling, with 1" x 2" strips, 12" on centres. Cross-fur rafters in finished attic rooms diagonally, with strips 12" on centres; fur out attic outside walls with studding to give 4' vertical height, and fur down attic ceiling to 9' clear height. Set the grounds for vertical sheathing 4' high in Laundry, Kitchen and Bath-room; for panelled wainscot 3' high in first and second story Hall and Vestibule, and stairs from first to second story, and for bases elsewhere of heights as specified.

Grounds and Furring.

Fur chimney-breasts with 2" x 4" studding set flatways, to be everywhere 1' clear away from the brickwork; and fur outside stone walls of Laundry in basement with 2" x 4" studs set flatways. Fur for beams, arches, etc., as required. All furrings, grounds and angle-beads to be perfectly strong, true and plumb.

Set all partitions with 2" x 4" studs 16" on centres, try with a straight-edge, and straighten and bridge before plastering. All partitions except those that stand over each other to stand on a 2" x 5 1/2" piece, and all partitions to have 3" x 4" cap. Where a partition stands over another, the studs of the upper partition must stand on the cap of the partition below — not on the floor nor on the beams. Truss over all opening in partitions which extend through more than one story, or carry beams; and strongly truss all partitions not supported from below, to take the weight off the middle of the beams.

Partitions.

Bridge all partitions in first and second stories with two rows of angular bridging of 2" x 4" pieces cut in and nailed with two nails at each end of each piece. Reverse the direction of the bridging pieces in each row. Line the pockets for sliding doors with planed boards.

Bridging.

Fill in with saw-dust or planing-mill chips between beams around all water-supply pipes which run in the floors, making all tight.

Saw-dust Filling.

INTERIOR FINISH.

All the stock for interior finish of every kind is to be of the very best quality, thoroughly seasoned and of selected grain, and well smoothed, sand-papered and kiln-dried before putting up. Ash to be best Indiana calico figure, and white-wood to be free from white sap. The Laundry, Kitchen, and Back Halls throughout, including back stairs, are to be finished in hard pine, excepting doors, which are to be of whitewood; the Front Hall and Vestibule in first story to be finished in quartered oak, except stairs to second story, which are to be cherry. The Parlor is to be finished in maple and the Dining-room in ash. The Bath-room in second story is to be finished in black walnut and maple. All other rooms and closets in first and second stories to be finished in white-wood. The hall and large front room in attic are to be finished in

Stock.

white pine for varnishing. All other rooms and closets in attic are to be finished in pine to paint.

Framed Partitions. Make panelled partitions under front stairs as per detail drawings, the framing to be $1\frac{1}{2}$ " thick, moulded, with raised panel $\frac{3}{4}$ " thick, all bead and flush on back, all of quartered oak.

Front Hall and Vestibule in first story, stairs from first to second story, and second-story hall, to have panelled wainscot 3' high, according to detail drawings, with framing $\frac{3}{4}$ " thick, moulded, and raised panels $\frac{3}{4}$ " thick, and moulded cap, but no base. To be of quartered oak in first-story Hall, cherry on stairs, and whitewood in second story.

The Laundry in basement and Kitchen in first story are to be sheathed 4' high with $\frac{3}{4}$ " matched and beaded vertical strips of hard pine, not over 4" wide, without base, but with neat bevelled cap. The Bath-room in second story is to have $\frac{3}{4}$ " matched and beaded vertical sheathing, 4' high, of alternate strips of black walnut and maple, 4" wide, with neat bevelled cap of black walnut and $\frac{3}{4}$ " bevelled black-walnut base, 4" high. Plough the sheathing into cap of bath-tub.

The Parlor and Dining-room are to have moulded base, $\frac{3}{4}$ " x 10", according to detail drawings, to be of maple in Parlor, and ash in Dining-room. All second-story rooms except Bath-room to have $\frac{3}{4}$ " x 10" bevelled base of whitewood. All other rooms and closets to have $\frac{3}{4}$ " x 8" plain board base, of hard pine in Back Halls and Back Stairs throughout; whitewood in remaining parts of basement, first and second stories; pine to varnish in attic hall and large front room, and pine to paint in other rooms and closets in attic.

Plough all bases together at the angles and put them on before the upper floor is laid, and allow $\frac{3}{8}$ " extra below top of floor.

All doors and windows in first-story Hall and Vestibule, Parlor and Dining-room, and Hall and all chambers in second story, to have $1\frac{1}{2}$ " x 4" architraves, moulded as per detail drawings. To be of quartered oak in Hall, maple in Parlor, ash in Dining-room, and whitewood in second-story hall and chambers. All other doors and windows to have $\frac{3}{4}$ " x 4" plain square board architraves, of black walnut in Bath-room, and elsewhere of wood to correspond with finish of room.

The architraves of doors and windows in Parlor, Hall and Dining-room will have corner blocks with carved rosettes according to detail drawings; all others to be mitred. All moulded door-architraves throughout will have plain plinth-blocks. Architraves in Parlor, first-story Hall, and Vestibule to be carried to floor; elsewhere to be cut $\frac{1}{8}$ " short, to allow for carpet.

All stool-caps to be $\frac{3}{4}$ " thick, with round edges, of wood to correspond with the finish of the several rooms; and in rooms with moulded finish to have moulding and be according to detail drawings; elsewhere to have bevelled board 4" wide under.

Brad all architraves, bases and other moulded work in the quirks of the mouldings, and set in all finish-nails for puttying. No splicing of any architrave will be allowed, and joints of bases must be carefully matched.

Front and kitchen outside doors to be made of pine according to detail drawings, the front door to be $2\frac{1}{2}$ " thick, moulded both sides, with panels raised and carved outside only as shown; the kitchen door to be 2" thick, moulded both sides, with plain panels raised one side only.

All doors in first-story Hall, Parlor and Dining-room, including each leaf of double doors, to be $1\frac{1}{2}$ " thick, 8' high, 8-panelled according to detail drawings, with flush mouldings and raised panels both sides. All to have thoroughly seasoned pine cores, veneered with quartered oak in Hall and Vestibule; maple in Parlor and ash in Dining-room. Doors opening between rooms finished in hard wood are to be veneered to correspond with the rooms; but doors opening from rooms finished in hard wood into closets or inferior rooms are to be veneered both sides with the hard wood. Doors from Hall to Vestibule to be similar to other doors in Hall except that the four upper panels are to be filled with stained glass in lead work, to be selected by the owner, but paid for and set by the carpenter, and to cost \$2.00 per square foot. All other inside doors throughout the house to be $1\frac{1}{2}$ " thick, of solid whitewood. To be 7' 6" high throughout second story, 7' high in Attic, Kitchen and Basement. Second-story doors to be 5-panelled according to detail drawings, with flush mouldings and raised bevelled panels both sides. Attic, Kitchen and Basement doors, except sash-doors, to be 4-panelled square with raised panels both sides.

Sash doors. The door from Laundry to Basement hall-way will have sash in upper part, in 6 lights, glazed with best $\frac{3}{4}$ " ribbed plate-glass; the glass and glazing to be furnished by the carpenter.

All doors to have $1\frac{1}{2}$ " rebated and beaded frames of wood to

correspond with the finish of the room, and all to have 5" hard-pine thresholds. Veneer frames where necessary to show different wood on each side. Sliding doors between Parlor and Hall to have astragal and hollow on the meeting-styles. Double front outside doors to meet with the ordinary bevel, but to have half of a turned colonnette planted on one leaf to protect the joint. Vestibule doors and double doors between Dining-room and Hall to meet with ordinary bevel and moulding over joint.

The carpenter is to furnish all window frames and sashes, and is to deliver the sashes and sash doors, excepting those which he is himself to furnish ready glazed, to the contractor for painting and glazing, and bring them back to the building when completed; and is also to deliver all frames for cellar windows and doors when required by the mason for building into the walls.

All windows in Basement except in Laundry are to have $1\frac{1}{2}$ " rebated pine frames and $2\frac{3}{4}$ " sills, and $1\frac{1}{2}$ " pine sashes hinged at the top, with galvanized hooks and staples to keep them open, and strong japanned iron button fastenings; and to have heavy galvanized wire netting with $\frac{3}{4}$ " mesh nailed securely on outside of frame. Make frame only for cold-air box openings, covered with galvanized netting in the same manner.

The small windows in Laundry Closet in Basement and in Coat-closet, Pantry, and China-closet in first story, are to have rebated plank frames and $1\frac{1}{2}$ " pine sashes, screwed in tight.

All other windows throughout the building are to have boxed frames with pockets, 2" sills pitching $1\frac{1}{2}$ ", and ploughed for shingles or clapboards as required, all of pine except beads and pulley-styles, which are to be of hard pine; and $1\frac{1}{2}$ " clear pine sashes in lights as shown, with moulded sash-bars and counter-checked meeting rails, all to be double hung with best steel-axle capped brass-faced pulleys, and best shoe-thread sash-line and best iron weights, and well balanced.

Inside beads to be of hard pine throughout, and all put on with round-headed blued screws. Frames in rooms finished with hard wood to have a strip of corresponding wood veneered on the inner edge of the frame.

Make and put up dresser in Kitchen as per drawings, all of hard pine. To be 5' wide and 8' high, including neat cornice, with two cupboard doors under with shelf in each, and four shelves above, enclosed by $\frac{3}{4}$ " sash doors to slide past each other on metal tracks, with sheaves complete; all to be furnished ready glazed with first quality sheet-glass by the carpenter and fitted up in perfect order.

Fit up the China-closet, as shown on drawings or as directed by the owner, with stand for sink and cupboard under, and four drawers each side, large cupboard with two shelves; six glass shelves 6" wide on one side, with open fronts, but to have brackets and neat fancy turned standards; and five shelves on the other side, 14" wide and enclosed with $\frac{3}{4}$ " sash doors in front to slide past each other on metal tracks, all to be furnished glazed with first quality glass and fitted up with sheaves complete by the carpenter. All the work in China-closet to be of white wood. Fit up slide in partition with porcelain pull to run sideways.

Fit up Pantry with three barrel-cupboards, with neat panelled doors and lifting covers, one case of three drawers, and four shelves running all around. All of whitewood.

Fit up Coat-closet in whitewood, with one case of four drawers, a shoe rack with eight compartments, each 8" square, and two rows of hooks.

Make stand for wash-bowl in Bath-room, with cupboard under, and panelled door, and four drawers each side, all of black walnut. Case the bath-tub with black walnut in one long panel on each exposed side with cap of the same. Case the cistern in the same way, finishing the angles with a neat quarter-round. Fit up water-closet with seat, 8" bevelled wall-strips and flap only, strongly supported, both seat and flap to be hung with nickel-plated brass hinges and screws: all to be of black walnut. Put black-walnut strip and hooks on one side of the room only.

Basement water-closet to be fitted with whitewood in the same manner above specified for the one in bath-room, and cistern to be cased with whitewood panelling. Put whitewood lining all around above seat, 15" high.

Make stands for other wash-bowls shown on plans as above specified for the one in bath-room, but all to be of whitewood instead of black walnut.

Fit up all closets not specially described above as marked on plans or as directed by the owner. All closets in second story more than 18" deep, and two closets in attic,

Door Frames.

Windows.

Cellar Windows.

Fixed Sashes.

Double Hung Windows.

Dresser.

China-Closet.

Pantry.

Coat Closet.

Bath-Room.

Basement Water-Closet.

Other Wash-bowls.

Other Closets.

are to have, unless otherwise indicated, a case of three drawers, with three shelves over, and two rows of hooks. The remaining closets to have two rows of hooks, and one shelf above. All drawers to have neat panelled or moulded fronts, and to run on hard-wood centre strips.

Make tank in attic where directed, 4' long, 2' wide, and 4' deep inside, of 1½" planed pine plank, with splined joints, to be lined by the plumber. Make cover to the same of matched and beaded pine sheathing, battened on the under side, with rounded edges, and hasp and padlock fastening.

Make strong frame to support soapstone sink in Kitchen and wash-trays in Laundry, with 2½" ornamental turned legs, and put grooved draining-shelf over sink, all of whitewood. Put beaded strips of hard pine on walls and ceilings of Kitchen and Laundry, and black walnut in Bathroom, for pipes to run on, and case over such pipes as may be directed with neat casings of wood suited to the rooms, screwed on with brass screws.

Provide and hang first quality 1½" outside blinds to all windows, divided and hinged with care so as to fold back neatly and without interfering. All to have rolling slats in the lower half only. Divided blinds, and those of fixed windows, to be hung with wrought-iron L-hinges; all others to be fitted complete with patent Automatic blind-awning fixtures, and all to have Washburn's patent ring fasts, except those for fixed windows, which are to have Shedd's patent wire fasts, so that they can be opened from the outside.

Furnish mosquito guards to all outside doors and windows. Those for the windows to slide outside the sashes on beads put up for the purpose. Those for the doors to be hung on the outside, with springs to keep them closed, and brass hook and staple fastening. All to be made in the best manner with frames of clear seasoned pine, ¾" thick, covered with suitable wire netting, and all to be stained, varnished, fitted, and marked complete by the carpenter, and neatly stored in a convenient place in the attic.

Furnish outside sashes to all exterior windows, to be of clear seasoned pine, 1½" thick, glazed with first quality double-thick glass, in lights to correspond with inner sash, packed with listing around the edges, and arranged to be secured by round-headed screws from the inside to small permanent brass plates set in flush with the outside of the casing and firmly screwed to it. Six plates and screws are to be provided for each window, and for convenience in fixing projecting screws are to be set in the outside sash, by which it can be hung from the edge of the upper plates while the other screws are adjusted. All to be made in the best manner, glazed, painted three coats, fitted and marked complete by the carpenter, and safely stored in a convenient place in basement.

The carpenter is to set all mantels in the best manner, and case over for protection until the house is delivered, removing the casing only for painters' work, and replacing afterwards.

The carpenter is to make mantels to all fireplaces, and also shelves with brackets in chambers which have no fireplaces, in the best manner, in strict accordance with detail drawings and the directions accompanying them. To be of first quality thoroughly seasoned stock to match the finish of the rooms, and all well bolted and dowelled together.

Make strong step-ladder of planed spruce to scuttle in roof: to be movable.

Fit up shelf along one side of Laundry and Kitchen, 4½ feet above floor, strongly supported, and put one row of hooks on beaded strip under the same. Put up also neat roller for towel in Kitchen, and hook strip over sink, and put 20 feet run of shelving in furnace-cellar in the most suitable place, and three shelves for batteries and gas-meter where directed by the electrician, bell-hanger, and gas-fitter.

Make in a suitable place a strong double box of 1½" matched and beaded pine, to contain ash and garbage barrels, with division between. Each part to have battened door in front, with good lock and two keys, for removing barrels, and lifting cover on top, hung with brass butts, and with brass hook and staple fastening.

Put base-knobs with inserted rubber to all doors, of wood to match finish of room.

Fit up strong flap-table in Kitchen and one in Laundry, of pine.

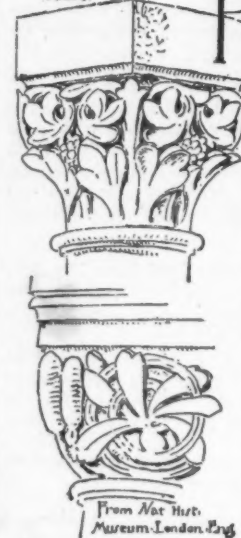
Make two good coal-bins in cellar as directed, to hold ten tons each.

Build temporary privy for the workmen, to be cleared away and the place cleaned out, filled up, and graded over at the completion of the house.

Cut the floors for registers and hearths as may be requisite, and fit borders neatly around, and cut as required for plumbers, gas-fitters, and other workmen, repairing neatly afterwards. Assist other workmen employed in the building, furnish centres, patterns for bays, lintels, and rough furring as much as may be needed.

TESTS OF WOODEN POSTS.

A Waterhouse A.R.A. Archt.



PROFESSOR Gaetano Lanza of the Massachusetts Institute of Technology read before the Society of Arts, May 17, a paper on the tests made by him with the government testing-machine at Watertown, on the strength of wooden posts, which has been reported in the *Boston Transcript* as follows:—

Last December I had the pleasure of presenting to the society an account of some tests of the strength of full-sized wooden mill-columns, made under my direction for the Boston Manufacturers' Mutual Fire Insurance Company on the government testing-machine at the Watertown Arsenal. Since that time an opportunity has presented itself for testing some old columns, and Mr. Atkinson having authorized me to spend a little more money, but not at all enough to make any one of the investigations complete, I have used it to obtain a few more facts which contain, as I believe, a number of useful suggestions.

The old columns were all of oak, and came from three different mills, which I shall call mills No. 1, 2 and 3, No. 2 being the Pacific Mills at Lawrence.

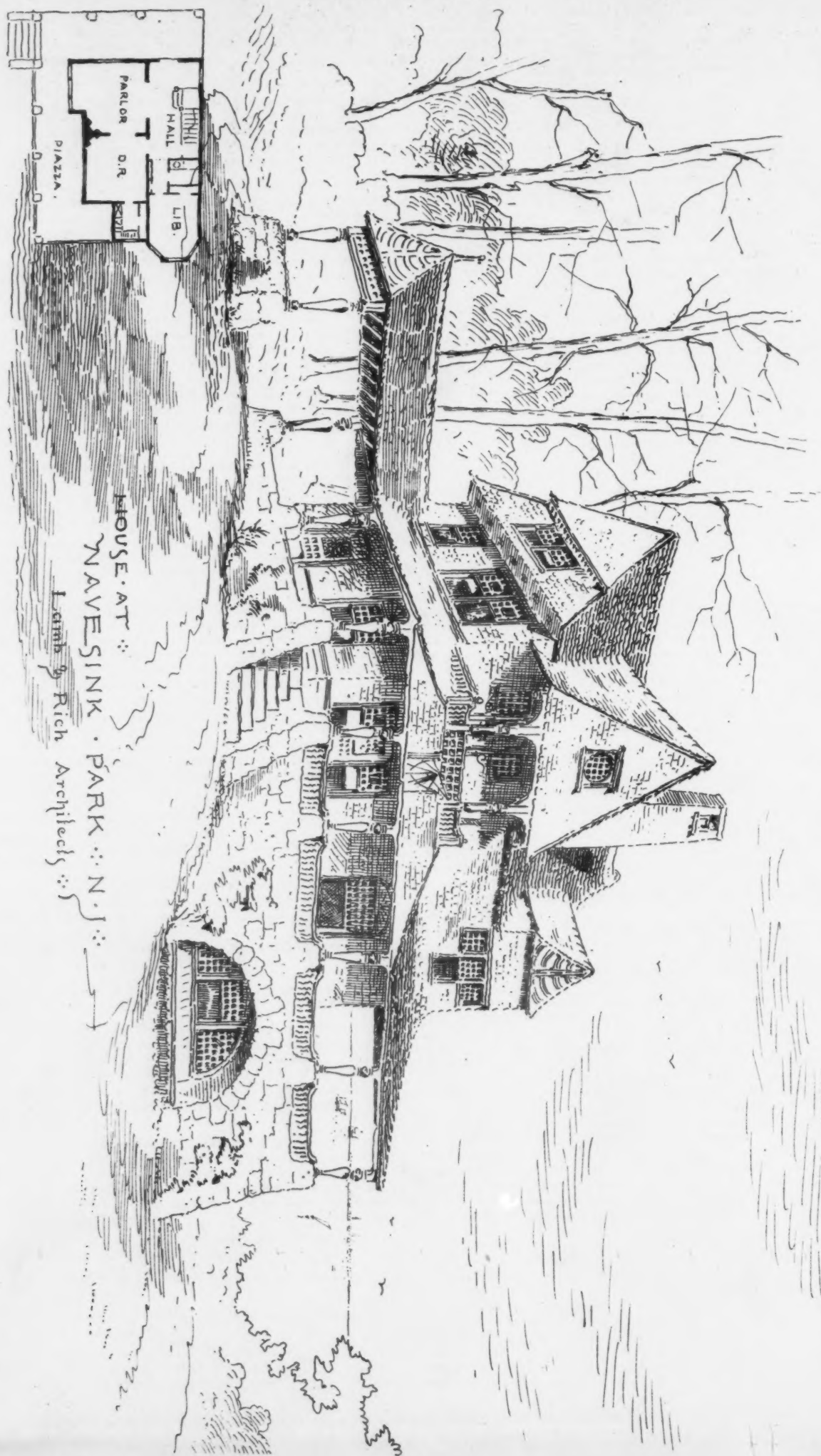
The posts that were received from mill No. 1 were seven in number, had been in service about six and one-half years, and were removed because they were deemed unsuitable. They were all about 12 feet long, about 6½ inches in diameter at the larger end, and 5½ to 6 inches at the smaller end. They were all bored, and the boring was excellent. The load they had sustained was estimated by one of the gentlemen connected with the mill at about 10,600 lbs. per column, beside the weight of snow in winter. They were provided at the top with a maple cap surmounted by an oak base on which rested the next column above, or the roof timbers.

Of these columns three were tested between the platforms of the machine, the ends being brought to an even bearing. These broke under loads giving a breaking strength per square inch of cross section (=total load divided by area of smallest section) of 4,602, 6,032, and 4,682 lbs. The remainder had the maple cap at one end and the oak base at the other, these resting against the platforms of the machine, and the ends not being specially brought to an even bearing. These broke under loads giving a breaking strength per square inch of 2,943, 3,263, 4,223 and 3,450 pounds. The details of appearance of the various columns and their deflections under the loads used were given, and reference made to charts hung around the room. Sections of the columns showing the fractures were shown and described.

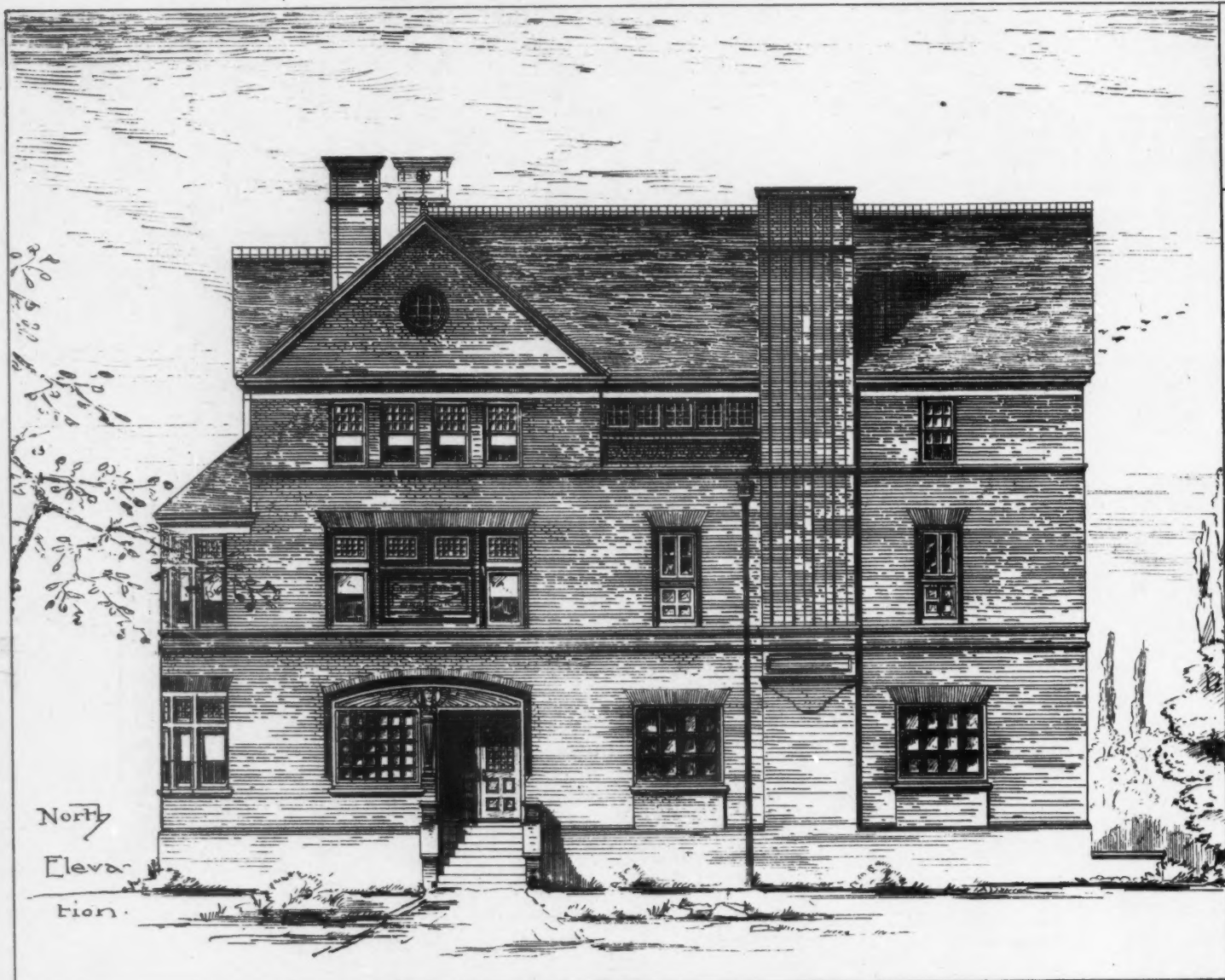
It is to be observed that in only one case does the crushing strength per square inch reach 6,000 pounds, and also that in the case of the last four, when the maple caps and oak bases were used, and the ends were not squared up, the strength averages less than in the first three.

The ten columns from mill 2 were taken from the worsted department of the Pacific Mills at Lawrence, where some alterations were being made. Columns A, B, C, D, E, and F were from the first floor of the mill, and the remaining four, G, H, I and J were from the second story. All were about 14 feet long, the first six having a diameter of 10½ inches, the last four of 9½ inches. A, B and C were tested directly between the platforms of the machine, without having the ends specially squared. They broke at 4,265, 3,880, and 4,984 pounds per square inch respectively. D was similarly tested, but had ends squared up, and broke at 4,604 pounds per square inch. E and F were tested with an iron base-plate at one end, and iron cap and pintle at the other, an arrangement the same as that used at the mill. They gave way under 4,662 and 4,838 pounds respectively. Of these posts A was not straight, B had a winding grain, C was quite knotty and appeared shaky near the failure; D, E and F appeared tolerably free from defects.

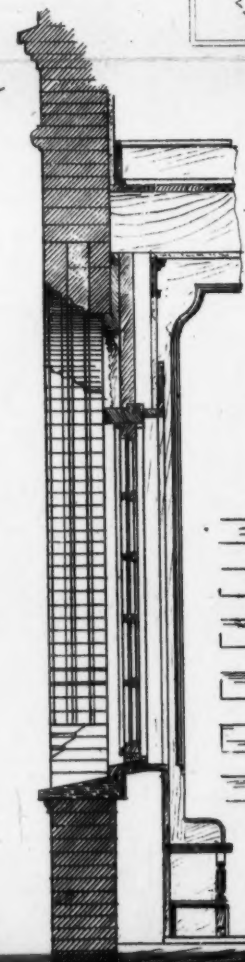
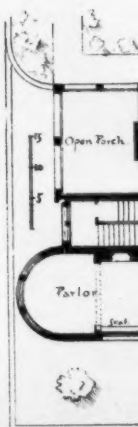
The posts G, H and I were tested directly and without special squaring of ends between the platforms of the machine, and broke under 4,881, 3,433, and 3,981 pounds per square inch respectively. J was tested with pintle in the same way as E and F. It yielded under 3,266 pounds per square inch. These four posts appeared quite defective, owing to knots, bending, etc. All the posts from the Pacific Mills had been in use twenty-five years, and, assuming fifty pounds per square foot as the weight on the roof, and sixty pounds per square foot as the weight on the floor, there would have been a load on each of the first six of 46,400 pounds to 53,650



HOUSE AT
NAVESINK PARK, N.J.
Lamb & Rich Architects



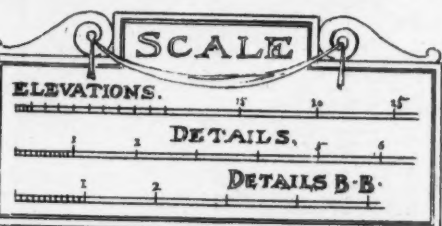
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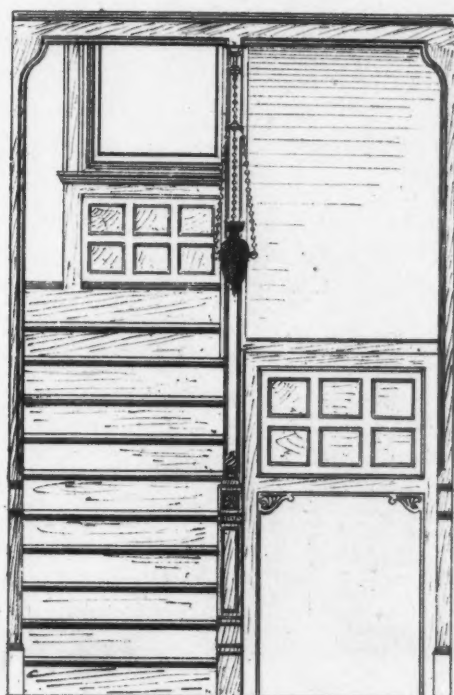
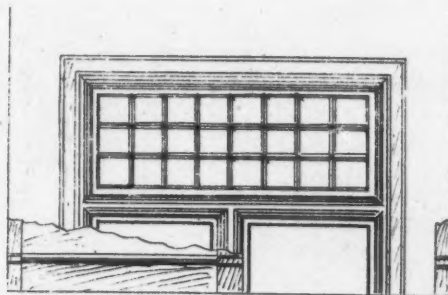
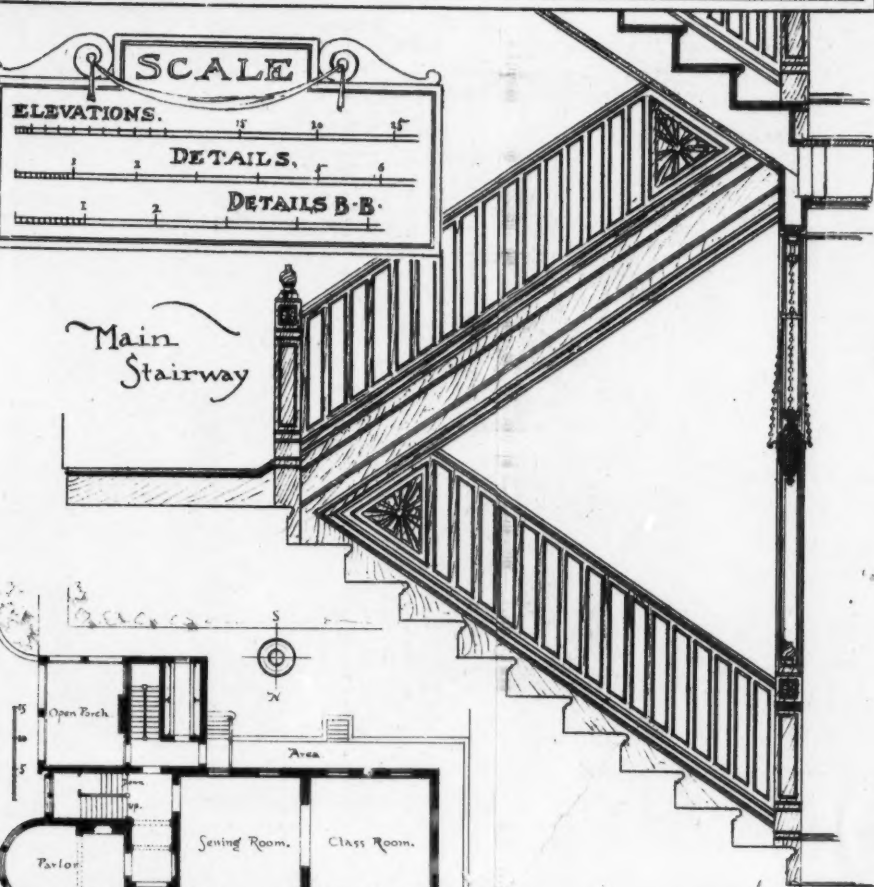
Detail



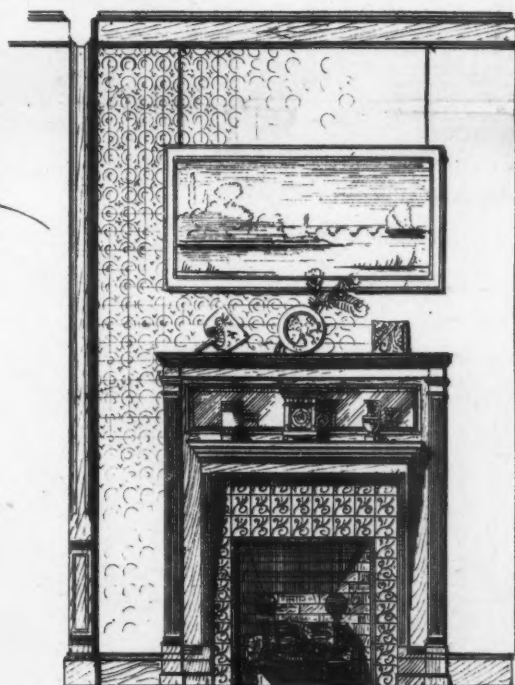
CHRIST CHURCH ORPHANAGE.
BALTIMORE, MD.
WYATTE & SPERRY ARCHTS.



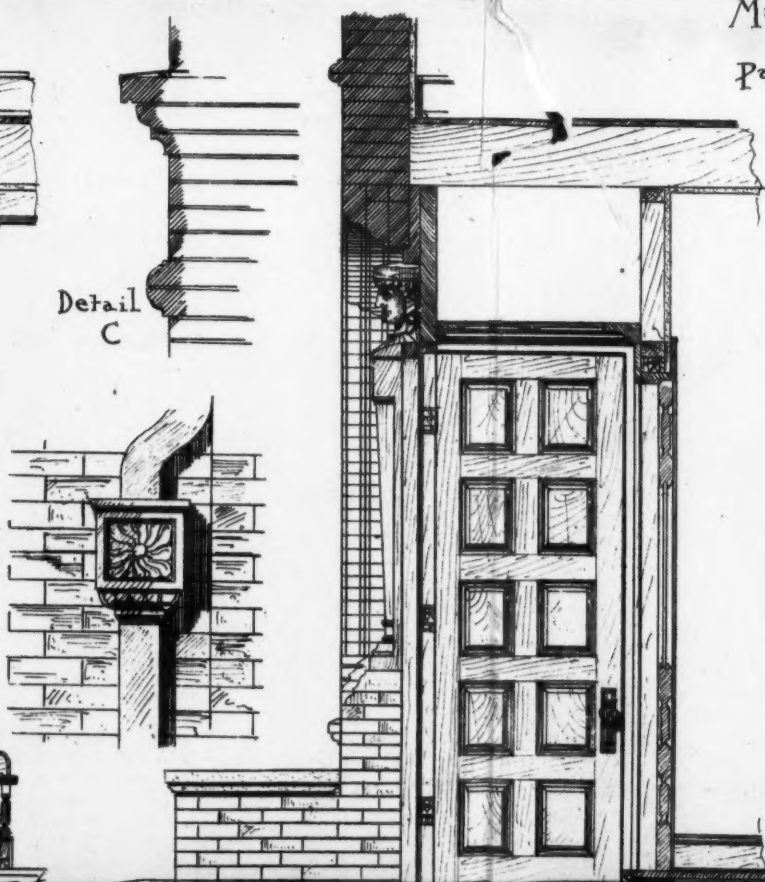
Main
Stairway



Mantel
in
Parlor



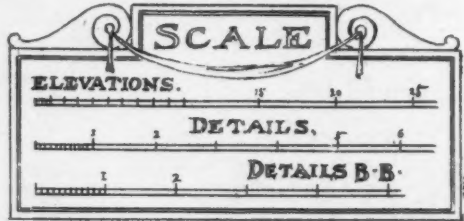
Detail
C



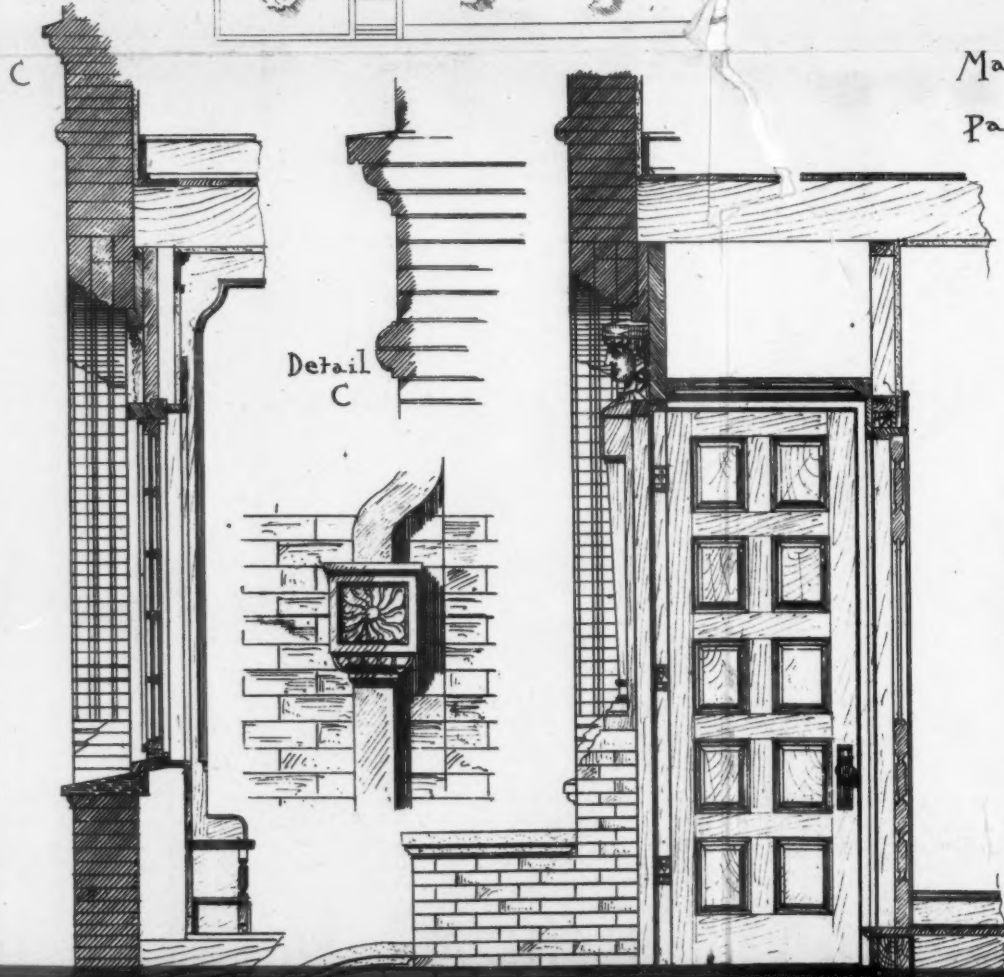
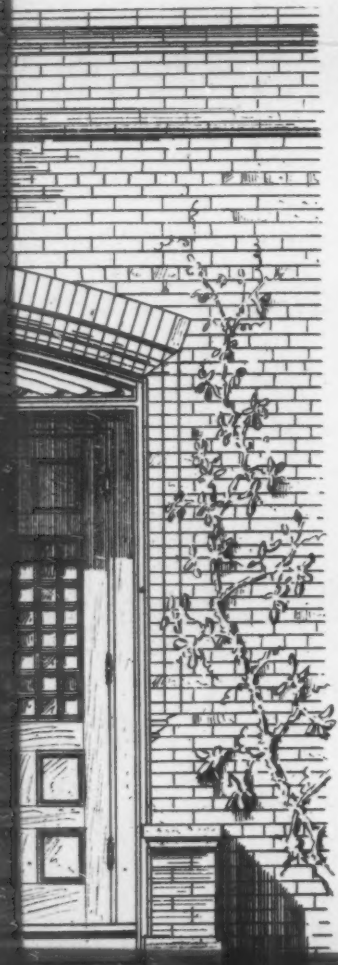
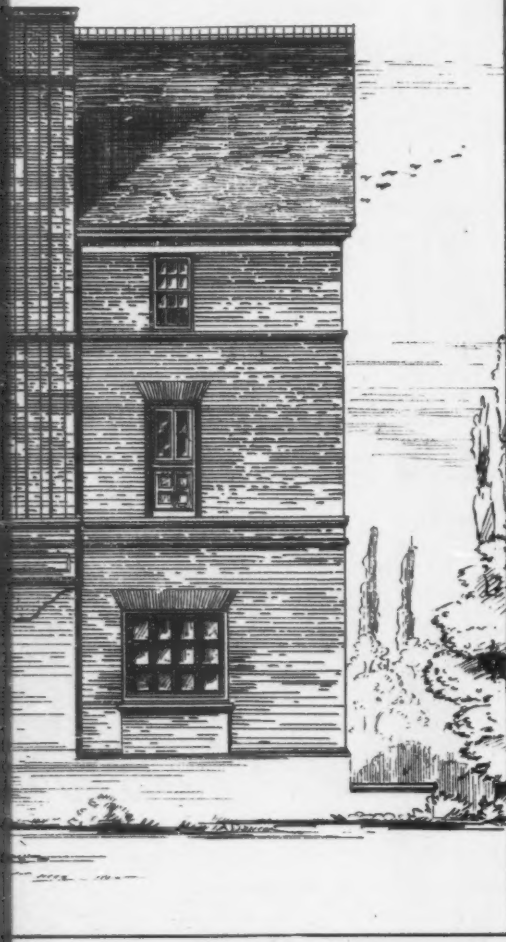
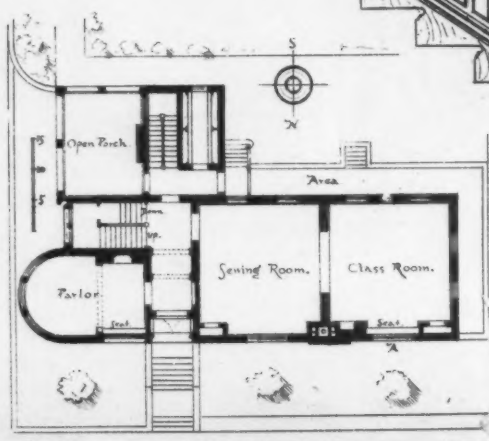
Open
porch
B

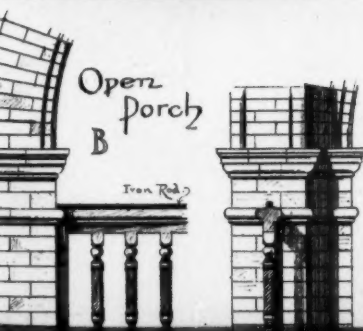
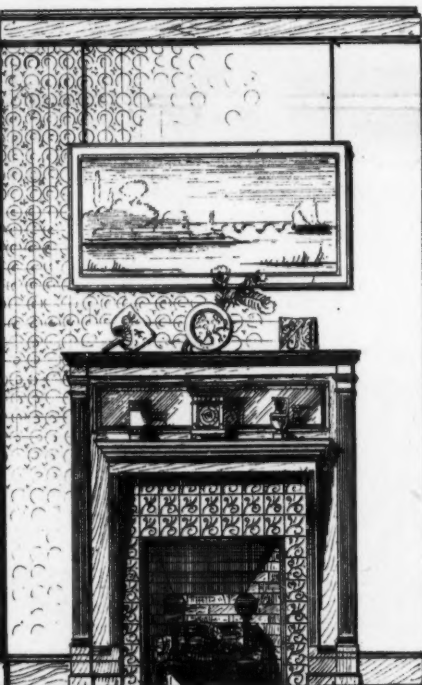
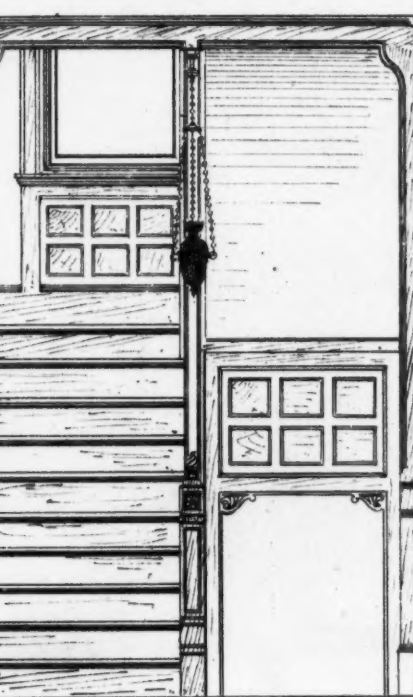
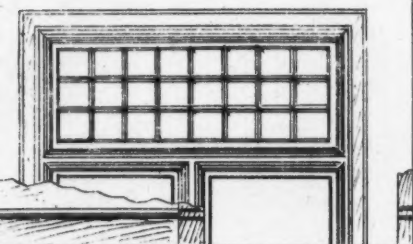


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Main
Stairway





Panel and Windows over Entrance

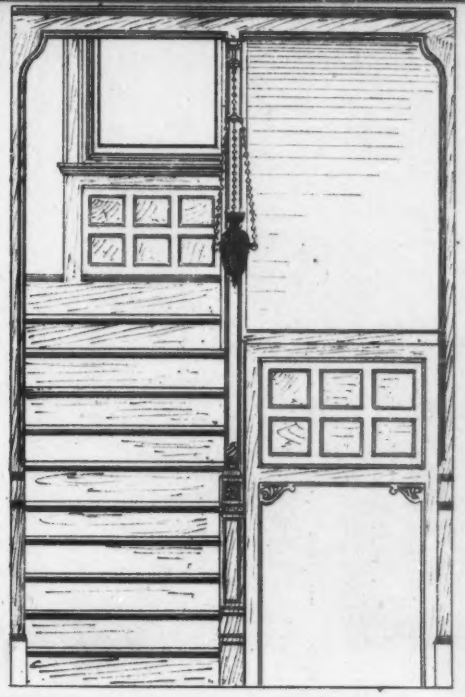
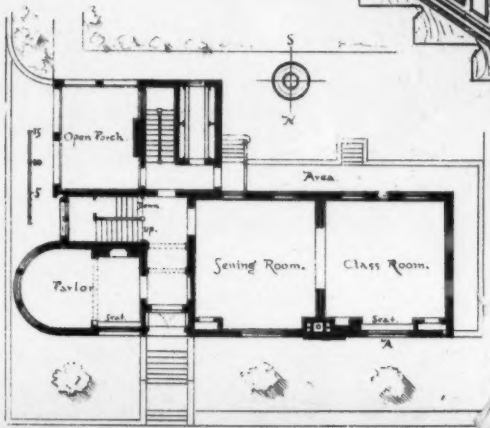


Elevation of Main Entrance.

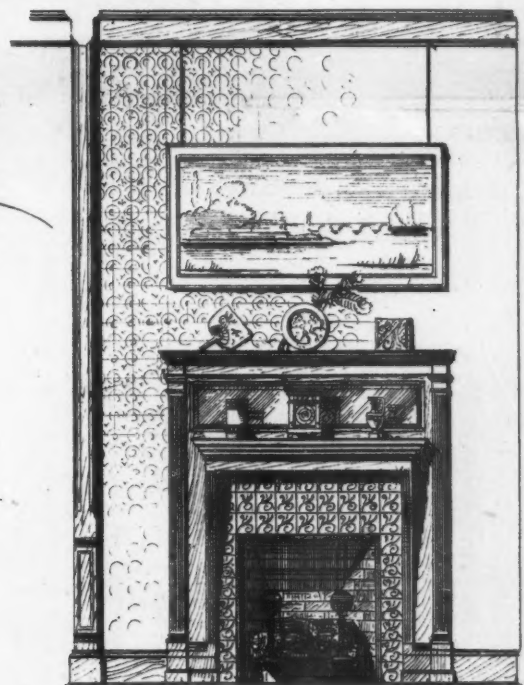
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and Do

DETAILS B-B.

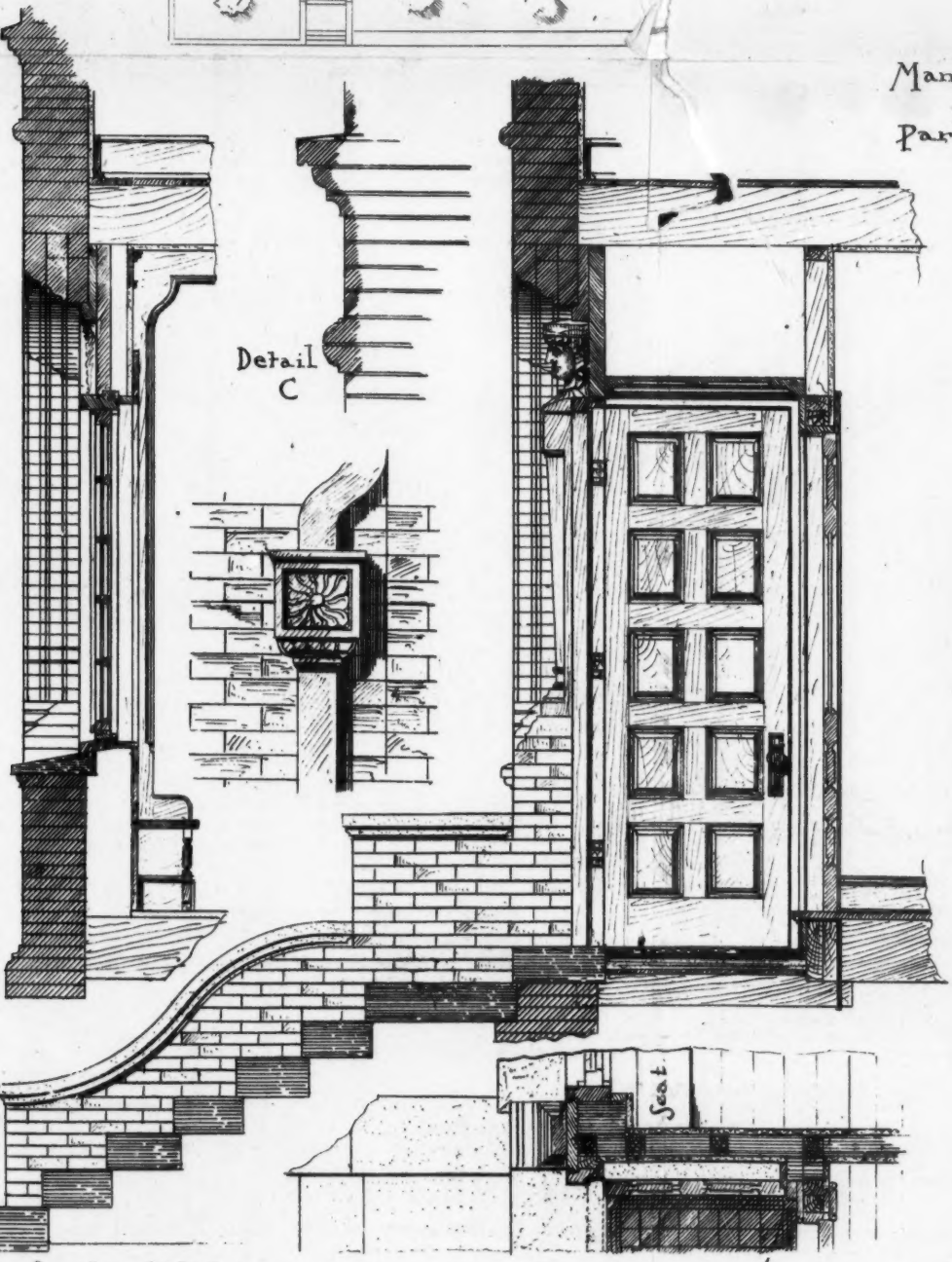
Main Stairway



Mantel in Parlor

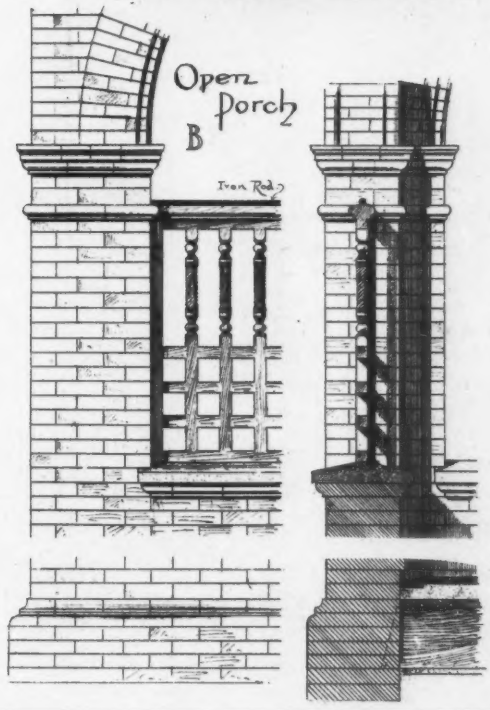


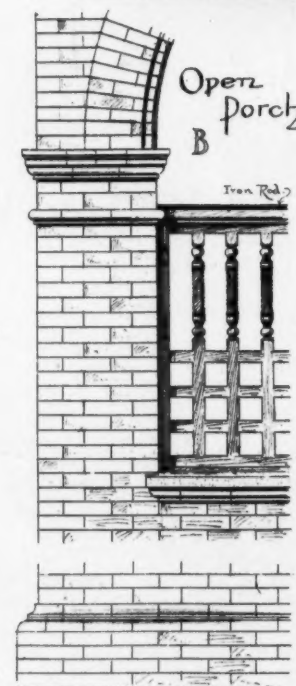
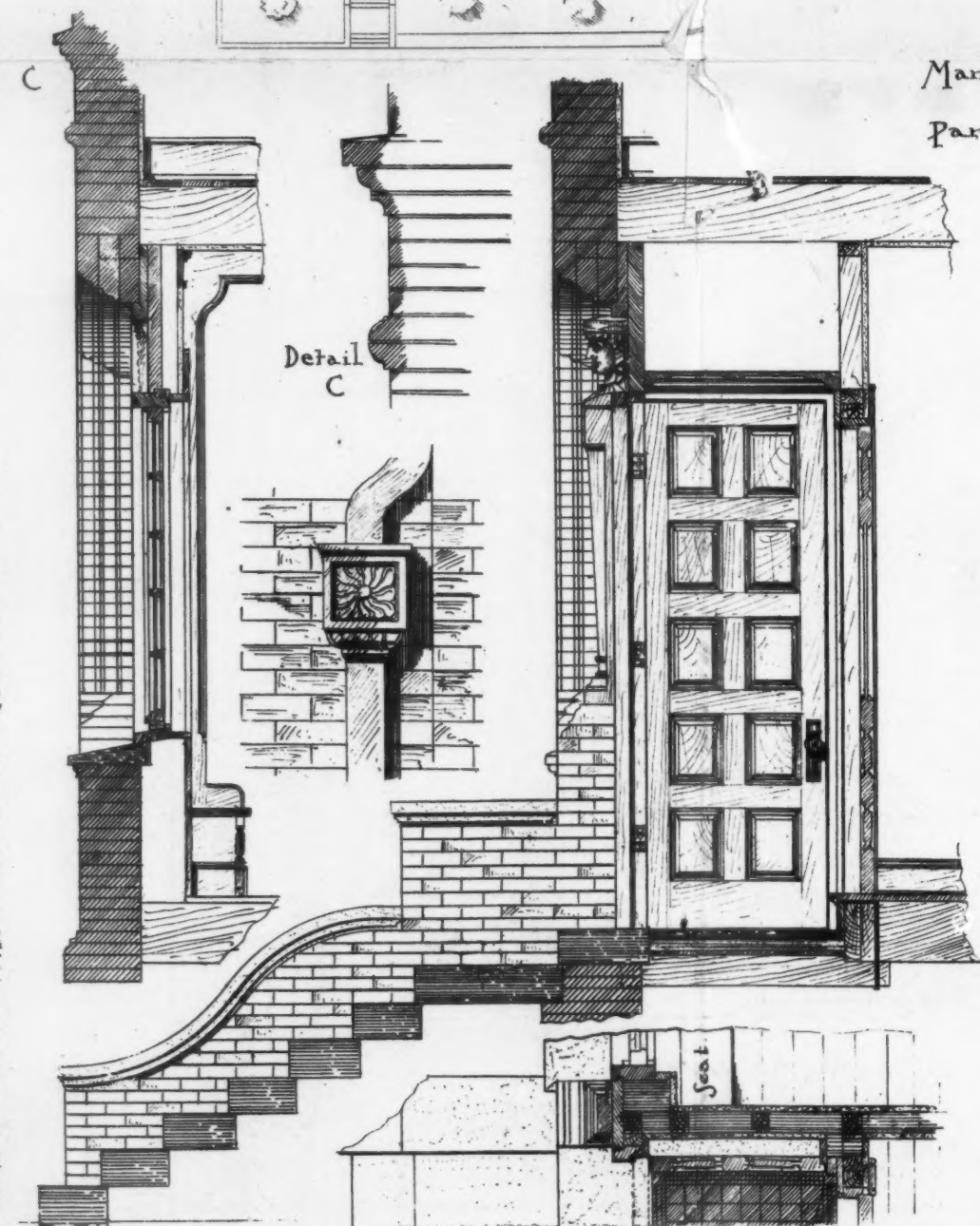
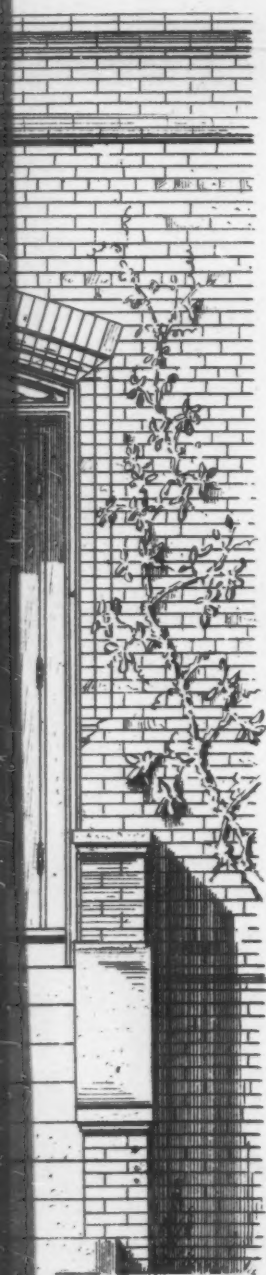
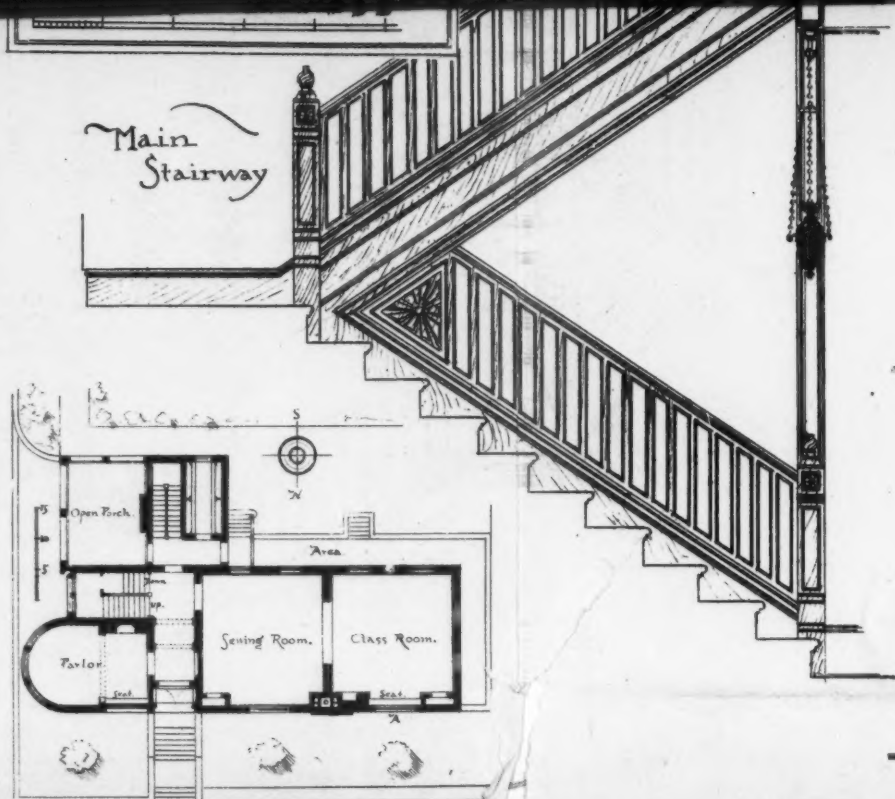
Detail C



Section thro Window and Doorway

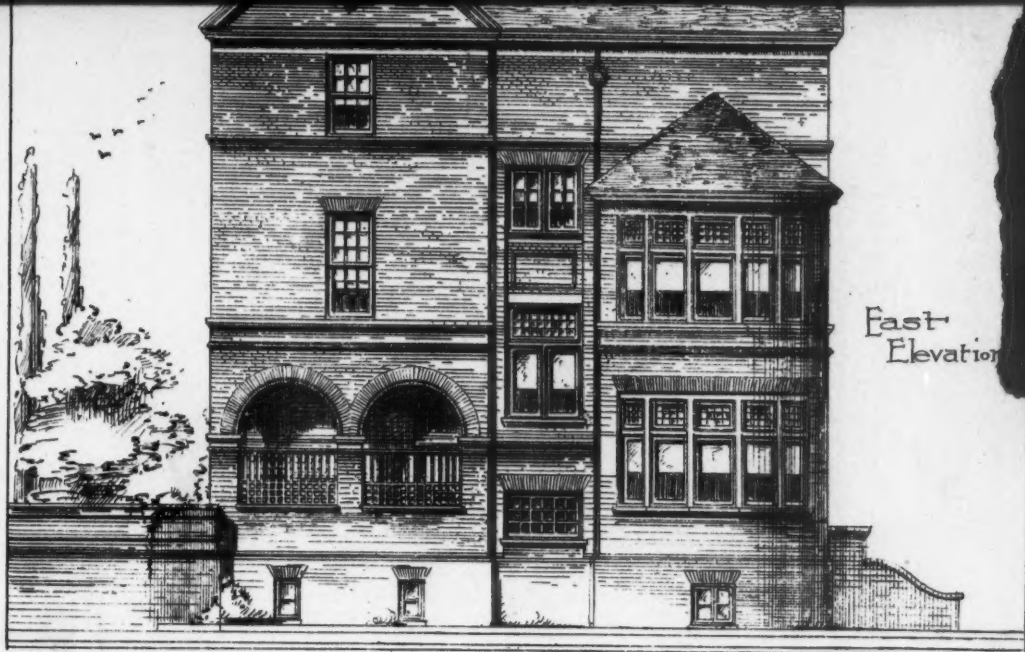
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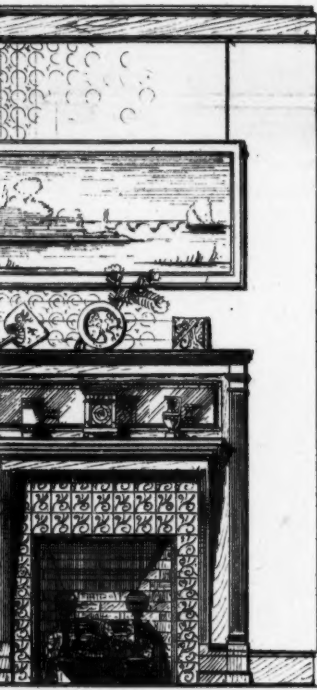


Sections thro Window and Doorway

Part Plan



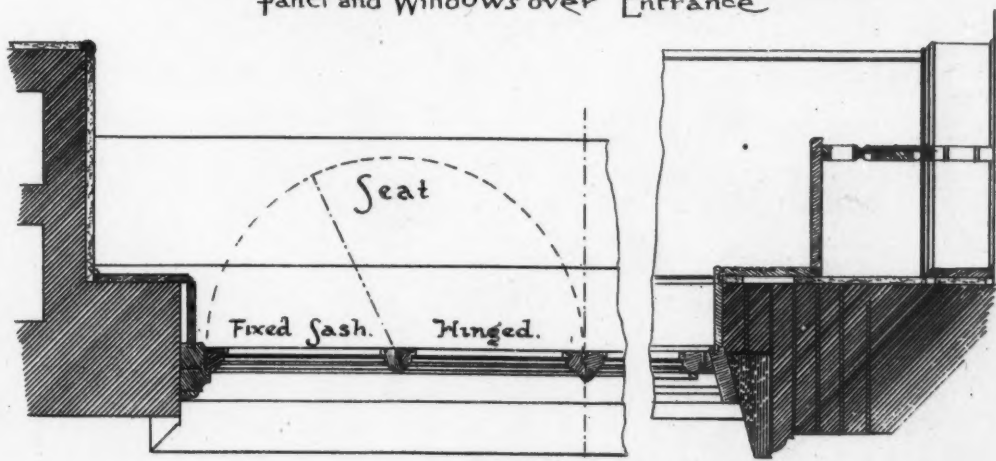
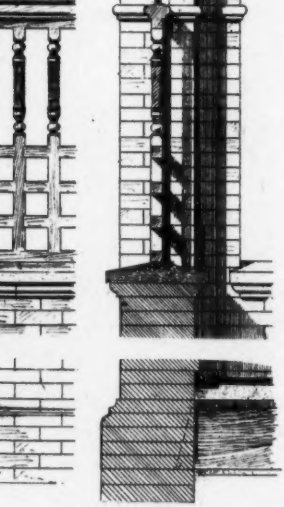
East
Elevation



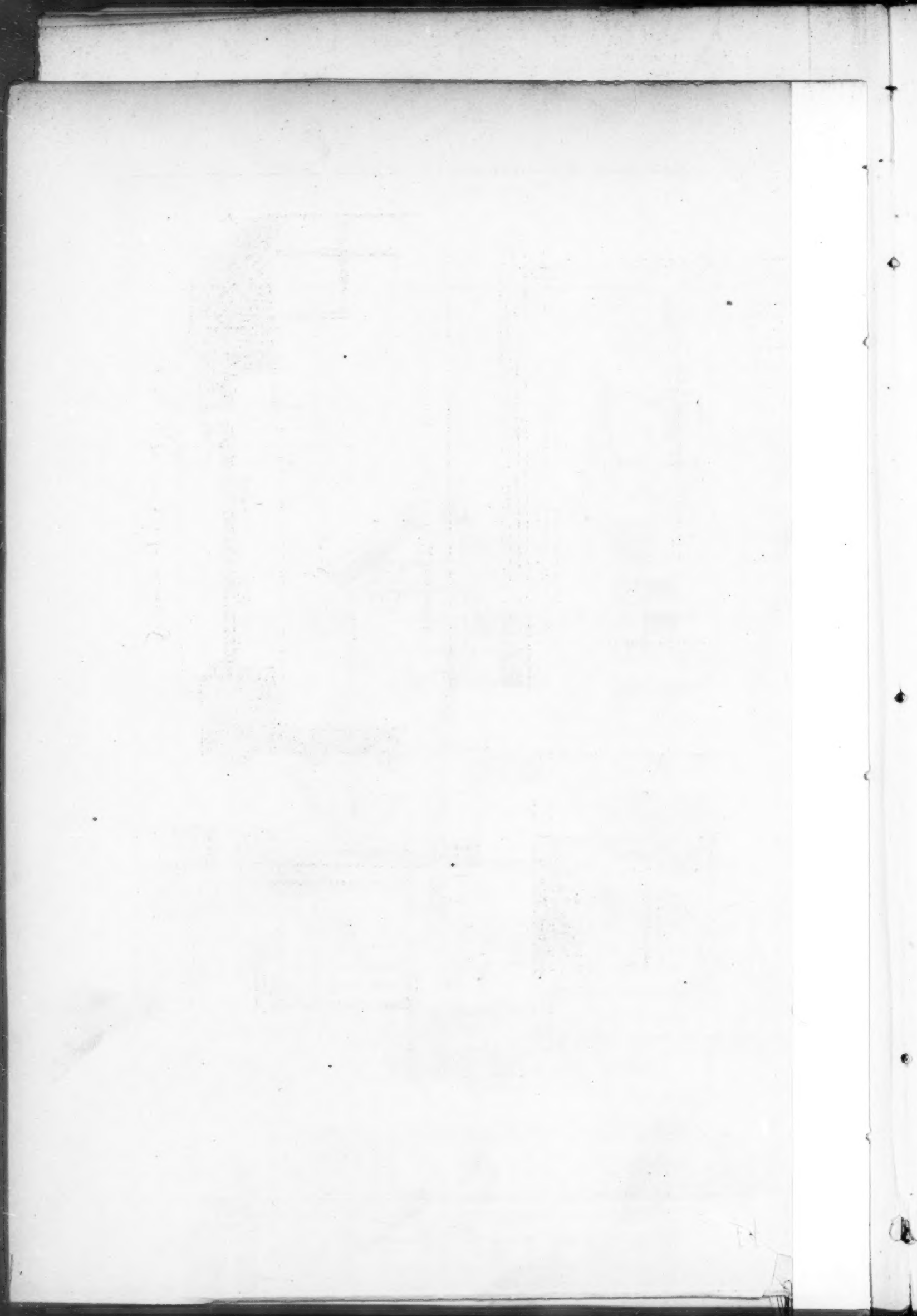
Panel and Windows over Entrance

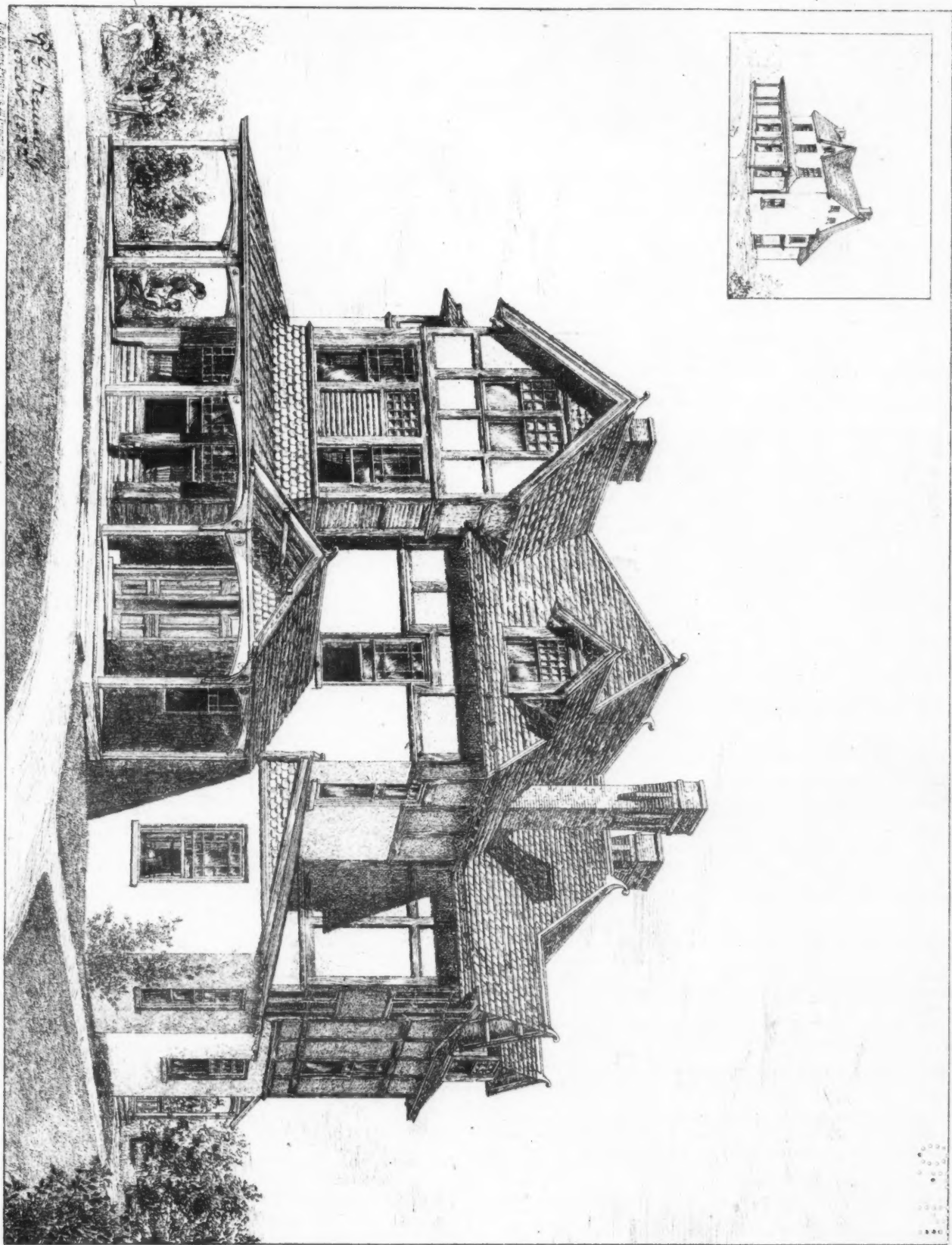
Open
Porch

Iron Rod



Sections of Window at "A" on Plan





ALTERATIONS ON HOUSE OF HARRY PEALE, ESQ.
NEAR DARBET, PA.

pounds, and on the last four of 36,800 pounds to 42,550 pounds. (The average load under which the first six broke was about 380,000, for the last four 250,000 pounds.)

From mill 3 there was one old oak column of whose history nothing was definitely known. Tested between the platform of the machine it broke under 6,147 pounds per square inch.

These eighteen were all the old oak columns tested. It will be noticed that in two cases a strength of a little over 6,000 pounds per square inch is obtained, but that in no other case does the strength exceed 5,000 pounds, and that in one case it fell as low as 2,943 pounds.

The next set of posts consisted of two white-oak posts, left untested from November, 1881. The first tested with even bearings against platforms of machine, gave a crushing strength of 3,219 pounds per square inch. A short block of much better quality gave 4,450 pounds per square inch. The second post, which was also a poor one, was tested with an eccentric load (2½ inches out from centre). Its diameter was 10.95 inches. It broke under a total load of 170,000 pounds, whereas it would have been 276,480 if it had possessed a crushing strength of 3,000 pounds per square inch.

The remaining blocks and posts were of yellow pine, furnished by Messrs. Stetson & Mosely, and were each four in number. A square yellow-pine post, about thirteen feet long and ten inches on side, with pindle at one end, broke under 5,220 pounds per square inch. A second square post, same length and about nine inches on side, tested with one flat end, one rounded end, and vertical axis 2½ inches eccentric, broke under 280,000 pounds total load. Two yellow-pine blocks, each two feet long of square section, respectively nine inches and ten inches on side, broke under 5,950 pounds per square inch and 5,452 pounds per square inch. A yellow-pine round post, twelve feet long and eight inches diameter, tested with one flat and one rounded end, had an ultimate strength of 4,662 pounds per square inch. A block two feet long, cut from end of this, broke under 3,604 pounds per square inch. A second round post, fourteen feet long and 7.9 inches diameter, tested with flat ends, broke under 4,254 pounds per square inch. A two-foot block, cut from the end of this, broke under 4,892 pounds per square inch. A third round block, two feet long and 10.9 inches in diameter, broke under 4,450 pounds per square inch.

After a brief statement in regard to the results obtained, Professor Lanza said "In concluding, I can only reiterate what I said in my former communication in regard to the importance to our mill corporations of having a thorough investigation made of these matters, involving complete series of tests in which the conditions of practice are approximated to as nearly as possible, and I would urge the importance of the same kind of investigation to those railroad companies which use wooden bridges."

Professor Lanza then described, by the aid of photographs projected upon the screen, the 50,000-pounds "testing-machine" recently acquired by the Institute. This machine is now so arranged as to be used either for measuring the tensile strength of materials, or the transverse strength. Its use is primarily for giving to the students an opportunity to acquire a familiarity with the principles and practice of testing the strength of materials, and each student makes several measurements with the machine. Specimens of boiler iron, iron rope, etc., broken in the machine were shown, and a number of pieces of spruce beams which had also been tested were exhibited.

The results of some of the students' work upon large spruce beams were given in a table upon the board. These beams were broken transversely, and were about twenty in number, varying in size from 4" x 12" and 20' long to 2" x 7" and 7' long. The average modulus of rupture for spruce as obtained from these is about 4,623 pounds per square inch. These are the first experiments made on full-sized beams, and it is, therefore, of interest to compare them with the figures given by various authors and now in general use among engineers:

Hatfield gives for spruce.....	13,365 lbs.
Lastett " "	12,210 "
Rankine " "	11,100 "
Rodman " "	6,100 "
Trautwine " "	8,100 "

The latter advises a deduction of one-third for knots, etc., which would leave 5,400 pounds, a result greater than all but two given by any of the tests described.

After some discussion upon the subject, the audience was invited to inspect the machine in the laboratory in the basement, and there to witness the breaking of a 4" x 12" spruce beam, 16' long.

THE ILLUSTRATIONS.

CHRIST CHURCH ORPHANAGE, BALTIMORE, MD. MESSRS. WYATT & SPERRY, ARCHITECTS, BALTIMORE, MD.

This building is being erected in memoriam by the family of George H. Williams, Esq.

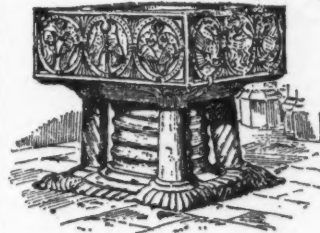
HOUSE AT NAVESINK PARK, N. J. MESSRS. LAMB & RICH, ARCHITECTS, NEW YORK, N. Y.

This house stands on a bluff overlooking the water, with Sandy Hook in front and New York in the distance to the left. The house is finished in pine stained cherry-red on first floor.

ALTERATIONS IN THE HOUSE OF H. PEALE, ESQ., NEAR DARBY, PA. MR. R. G. KENNEDY, ARCHITECT, PHILADELPHIA, PA.

CRUSHING STRENGTH OF MARBLE AND SANDSTONE.

Font - Winchester Cathedral - Eng.



R. F. E. KIDDER has just finished the following tests on the crushing strength of Vermont marble and brown sandstones, in behalf of the Committee on Building Materials of the Massachusetts Charitable Mechanic Association. The following description of the tests is taken from his report to the Committee:

These tests were made with the government testing-machine at the United States Arsenal, Watertown, Mass., and every precaution was taken to secure accurate and reliable results.

SUTHERLAND FALLS, VERMONT, MARBLE (White):—This marble is quarried by the Vermont Marble Company, Centre Rutland, Vt. The two specimens tested were exhibited at the recent fair of the Association.

Block No. 1. No. 1. quality, "V" layer. Weight, 180 lbs. per cubic foot. Size, 6" x 6.08" x 5.96". Sectional area, 35.9 square inches. Ultimate strength, 404,000 lbs. (11,250 lbs. per square inch).

The faces of the block were rubbed so as to fit almost perfectly the parallel plates of the testing-machine. This block commenced to crack around the edges under 350,000 lbs. pressure (9,750 lbs. per square inch), and failed suddenly under 404,000 lbs.

Block No. 2. Same kind and quality as No. 1. Size, 6" x 6" x 6.02". Sectional area, 36.12 square inches. Ultimate strength, 370,000 lbs. (10,243 lbs. per square inch).

This block did not crack at all until it gave away entirely under a pressure of 370,000 lbs.

According to a statement made by Mr. Hiram A. Cutting in the *American Architect* of December 3, 1881, the crushing strength of two-inch cubes of this marble as tested in the government testing-machine ranges from 12,250 lbs. to 20,000 lbs. per square inch, a much larger value than that obtained on the six-inch cubes. This stone is entirely disintegrated by crushing, so that the pieces can be reduced to a fine powder between the thumb and finger. It is interesting to note the mode of fracture of these blocks. When taken from the machine after having been crushed, the block was divided into two cones lapping by each other, the height of each being the thickness of the block, and the compressed faces forming the bases of the cones. The sides of the blocks all broke off, leaving the cones entirely separate. Both blocks fractured in the same way.

BROWNSTONE FROM THE BAY OF FUNDY QUARRYING COMPANY.—Samples of the three following varieties of brown sandstone were furnished for testing by the Boston agents of the Bay of Fundy Quarrying Company:

MARY'S POINT, N. B., STONE:—This stone is a fine-grain dark-brown sandstone.

Block No. 1 measured 4.04" x 4.04" x 8". Sectional area, 16.3 square inches. Ultimate strength, 127,600 lbs., or 7,828 lbs. per square inch.

The stone commenced to crack at the corners and along the edges under 108,000 lbs. pressure, and continued cracking until it suddenly broke into a great number of pieces under 127,600 lbs. pressure.

Block No. 2 measured 4" x 3.75" x 7". Sectional area, 15 square inches. Ultimate strength, 113,800 lbs., or 7,586 lbs. per square inch.

The stone commenced to crack near one corner under a pressure of 31,000 lbs., and under 77,000 lbs. it was very badly cracked. It flew from the machine in fragments when the pressure reached 113,800 lbs.

WOOD'S POINT, N. B., SANDSTONE:—This stone is of about the same color as the Mary's Point stone, but it has a much coarser grain and is not very hard.

Block No. 1 measured 4.03" x 4.03" x 8". Sectional area, 16.2 square inches. Ultimate strength, 80,000 lbs., or 4,932 lbs. per square inch.

Commenced to crack at 50,000 lbs., on the corners, and continued cracking along the edges and at the corners until it was crushed under 80,000 lbs. pressure.

Block No. 2 measured 4" x 3.98" x 7.25". Sectional area, 15.92 square inches. Ultimate strength, 62,500 lbs., or 3,976 lbs. per square inch.

This stone commenced to crack under a pressure of 44,000 lbs.

LONGMEADOW STONE.—The Bay of Fundy Quarrying Company also quarry a variety of the Longmeadow, Mass., sandstone, which is a reddish-brown in color.

Block No. 1 measured 3.80" x 3.87" x 7.42". Sectional area, 14.71 square inches. Ultimate strength, 200,000 lbs., or 13,596 lbs. per square inch.

This stone showed no cracks whatever until the pressure had reached 152,000 lbs., when it commenced to crack at the corners. When the pressure reached 200,000 lbs., the stone suddenly flew from the machine in fragments. This stone did not fit into the machine very perfectly.

Block No. 2 measured 3.39" x 3.97" x 7.5" Sectional area, 15.6 square inches. Ultimate strength, 142,300 lbs., or 9,121 lbs. per square inch.

The stone commenced to crack along the edges under a pressure of 47,000 lbs. Under 78,000 lbs., a large piece of the stone split off from the bottom of the block, and under 142,300 lbs. pressure the stone failed, cracking very badly.

BROWN SANDSTONE FROM EAST LONGMEADOW, MASS.:—Quarried by Norcross Brothers & Taylor, of East Longmeadow. This firm works several quarries, the stone differing in the degree of hardness, and a little in color, which is a reddish-brown. The different varieties take the name of the quarry from which they come.

SOFT SAULSBURY BROWNSTONE:—This stone is one of the softest varieties quarried by this firm, although it is about as hard as the ordinary brownstones. The specimens tested were selected by the foreman of the stone-yard without knowing the purpose for which they were to be used, and were rather below the average of this stone in quality.

Block No. 1 measured 4" x 4" x 7.58". Area of cross-section, 16 square inches. Ultimate strength, 141,000 lbs., or 8,812 lbs. per square inch.

Stone did not commence to crack until the pressure had reached 130,000 lbs.

Block No. 2 measured 4" x 4" x 7.58". Area of cross-section, 16 square inches. Ultimate strength, 129,000 lbs., or 8,062 lbs. per square inch.

There were no cracks in the specimen when it was under 100,000 lbs. pressure.

MCGREGORY BROWNSTONE:—This is one of the hardest and finest of the Longmeadow sandstones.

Block No. 1 measured 4.16" x 4.16" x 8". Sectional area, 17.3 square inches. Ultimate strength, 233,900 lbs., or 13,520 lbs. per square inch.

Stone did not commence to crack until the pressure had reached 220,000 lbs., almost the crushing strength.

Block No. 2 measured 4.15" x 4.15" x 8". Sectional area, 17.2 square inches. Ultimate strength, 252,000 lbs., or 14,650 lbs. per square inch.

This specimen did not commence to crack until the pressure had reached 240,000 lbs., or 13,953 lbs. to the square inch.

The following table is arranged to show the sectional area and strength of each specimen, and the average for each variety of stone. The cracking strength, so to speak, of the stone, is of considerable importance, for after a stone has commenced to crack its permanent strength is probably reached, for if the load which caused it to crack were allowed to remain on the stone it would probably in time crush the stone. In testing the blocks, however, some inequality in the faces of the block might cause one corner to crack, when the stone itself had not commenced to weaken.

Name of stone.	Sectional area.	Ultimate strength per sq. in.	Pressure per sq. in. under which stone commenced to crack.	Ultimate strength of specimen.
	sq. ins.	lbs.	lbs.	lbs.
MARBLE.				
Block No. 1.....	35.9	11,250	9,750	404,000
Block No. 2.....	36.12	10,243	10,243	370,000
Average.....		10,746	9,996	
SANDSTONES. — Mary's Point.				
Block No. 1.....	16.3	7,828	6,626	127,600
Block No. 2.....	15	7,586	2,066	113,800
Average.....		7,707	2,346	
Wood's Point.				
Block No. 1.....	16.2	4,932	3,014	80,000
Block No. 2.....	15.92	3,976	2,763	62,500
Average.....		4,454	2,903	
Longm-aw Stone (Bay of Fundy Quarrying Company's).				
Block No. 1.....	14.71	13,576	19,333	200,000
Block No. 2.....	15.6	9,121	3,012	142,300
Average.....		11,358	6,672	
Saulsbury Stone.				
Block No. 1.....	16	8,812	8,250	141,000
Block No. 2.....	16	8,062	6,500	129,000
Average.....		8,437	7,375	
McGregory.				
Block No. 1.....	17.3	13,920	12,716	233,900
Block No. 2.....	17.2	14,650	13,953	252,000
Average.....		14,085	13,334	

General Q. A. Gillmore, a few years ago, tested the strength of many varieties of sandstone by crushing two-inch cubes. The results obtained by him ranged from 4,350 lbs. to 9,850 lbs. per square inch. Comparing the strength of the stones tested by me with these values, we find that the specimens of McGregory sandstone had a strength far above the average for sandstones, and the other specimens have about the same values as those obtained by General Gillmore.

We would expect, however, smaller values from blocks 4" x 4" x 8" than from two-inch cubes, for, as a rule, small specimens of almost any material show a greater strength than large specimens.

It is interesting to note the mode of fracture of the blocks of brownstone, which was the same for each specimen. The blocks fractured by the sides bursting off, and when taken from the machine the specimens had the form of two pyramids, with their apexes meeting at the centre, and having for their bases the compressed ends of the block. The pyramids were more clearly shown in some specimens than in others, but it was evident that the mode of fracture was the same for all specimens.



POPLAR.

THIS tree is called whitewood and yellow poplar, from the color of its timber; canoe-wood, from the use made of it by the native Indians, and saddle-tree, from the form of its leaves. In Britain it is called virgin poplar, tulip-bearing lily tree and saddle-tree. In Kentucky and Tennessee it has the name whitewood and yellow poplar. In other parts of the United States it has been called the tulip tree, and the curious name of old-wife's-shirt tree. It is the tulip-bearing *liriodendron* of North America.

The poplar attains the greatest dimensions of all the indigenous deciduous trees of North America. With its perfect straightness, uniform diameter of trunk, regular distribution of branches, richness of foliage and flowers, it stands unrivalled, the most magnificent production of the temperate zones. It usually reaches a height of 60 or 80 feet, with a diameter varying from 18 inches to three feet, and in favorable localities it has been found rising to the height of 120 to 140 feet, with a diameter of more than seven feet. In 1842 a tree was felled on the estate of Mr. John Lewis, in Llangollan, Ky., which measured eight feet in diameter, near the ground, and five feet at 75 feet from the ground. The trunk was perfectly straight. In 1807 there was a tree in Hamilton, Adams county, Pa., which had a circumference of 36 feet, with trunk rising 30 or 40 feet to the forks. It is well authenticated that near the head of the Roanoke River there was a tree 39 feet in circumference at a distance of four feet from the ground, and it was a distance of 40 feet to the forks. The bark of the trunk, while the tree is small, is smooth and even; when it exceeds seven or eight inches in diameter it begins to crack, and presents furrows, which increase in depth in proportion to the age of the tree. . . .

The natural distribution of the poplar embraces a large part of the area of the United States. It is found in its natural state at the southern extremity of Lake Champlain, along the Connecticut River, reaching no farther north or east than these localities, and apparently avoiding the sea-coast, as it is not found indigenous in the eastern portions of the Atlantic States, or the southern portion of the states bordering on the Gulf of Mexico. It is multiplied in the Middle States, in the upper parts of the Carolinas and Georgia, and becomes still more abundant in the Western States, particularly in Kentucky, where it displays its greatest productiveness and most perfect development. It delights only in deep, loamy, and extremely fertile soils, such as are found in the rich bottoms along rivers, and on the borders of the great swamps occupied by forests. Its comparative rareness in maritime regions is due to the thin and dry soil, and to the excessive wetness of the swamps of the rivers. It is usually found mingled with other trees, such as hickories, black walnut, wild cherry and butternut, although at some places it alone constitutes considerable tracts of a forest.

Like the most of trees it will grow on soils of different qualities, the tree and its qualities clearly showing the effect of the surrounding circumstances. It has been introduced into Europe, and will variedly flourish in all parts not too far north. In dry, gravelly soil, and in exposed places, the dwarfing effects are plainly seen. It will not thrive even where there is a subsoil of clay. The introduction to England is said to have been made by the Earl of Norfolk, as far back as 1673. Now, it may be found in Germany, Italy, and France, in their gardens, and along avenues, where it is prized for its umbrageous magnificence. The most favorable situation is where it is sheltered from high winds, with sufficient exposure to light and air to admit of the maturation of its leaves on every side, and the perfect ripening of the wood to enable it to resist the frosts of winter. The oldest tree in England is estimated to be 150 years of age. It is at Fulham Palace, and is 50 feet high. The largest specimen is at Hestercombe, it being 100 feet in height, and three feet in diameter. Some have attained a large size at Vienna, but none will grow north of Warsaw or Moscow without careful protection. At Sewobber, near Hanover, there is a tree, in rich soil, over 120 years old, which is 80 feet high, and 30 feet in circumference. Seventy or 80 feet in height is attained in Italy. There is an account in history of the Empress Josephine's gardener attempting to gather seeds from a poplar at Lacken, near Brussels, and how he fell and broke his neck. It is successfully cultivated along our coast, from Newburyport, Mass., to St. Mary's, in Georgia.

The tree is propagated from the seeds which are planted in the

autumn and come up in the spring. As the roots are scanty in extending fibres, it does not admit of ready transplanting.

The timber is compact and fine-grained, with qualities rendering it easily polished. A cubic foot, when dry, weighs 25 pounds. The heart, when perfectly seasoned, resists well the influence of the air, and is rarely attacked by insects. Its greatest defect, unless carefully and properly seasoned, is the liability to shrink and warp by the alternations of moisture and dryness. The nature of the soil has a marked influence on the color of the wood, which is distinguished by the names white and yellow poplar, although at the present time both varieties are known by the common name whitewood. The white grows upon the elevated places where the tree abounds and may be recognized by the branchy summit. There is said to be some difference in the grain, but if so, it is too slight for consideration. In the early days of New York and Philadelphia this wood was extensively used in the construction of houses. It was used for rafters and joists in the upper stories, and was much esteemed for its lightness and strength. As the wood became scarce in the vicinity, pine very naturally took its place. In the Middle, Southern, and Western States, where the tree grows abundantly, it has been, and still is, extensively used, and is considered a good substitute for pine, red cedar and cypress, and serves well for the interior work of houses as well as for external covering. The panels of doors, wainscots, and mouldings of chimneys are made of the wood, and shingles have been made in some states. These shingles are preferred by some to pine, because they are more durable, and not liable to crack from the effects of intense frost and sunshine. Lumber sawed from this tree is used in all the principal cities for the panels of carriages. When perfectly dry they take paint well and admit of a brilliant polish. It enters largely into coach manufacturing, and is used in cars, wagon-boxes, sleighs, etc. The Studebaker Brothers Manufacturing Company, South Bend, Ind., contracted for 1,000,000 feet from one firm. It is particularly applicable to any work requiring soft wood easily worked, and not requiring great strength, especially if wide work is desirable. It was used years ago in large quantities in the manufacture of trunks, which were covered with cloth and skins. Large quantities of tables and bedsteads have been made from the wood. They are usually stained to imitate mahogany. It often enters into the construction of bureaus and general cabinet-work, particularly where it is the base for covering with veneer. It has been used also in the interior work of canal boats and steamboats. As it is easily wrought in the lathe, and is often used for bowls, brush and broom handles, and numerous other articles of turned wares. Farmers construct eating and drinking troughs for their animals of the wood, as it stands long exposure to the weather better than chestnut or butternut. It is used also in bridges in some places. The Indians were wont to make canoes from the big trees, and some of them had room for twenty or more persons. In some parts of the country long lines of fences may be seen that are made of rails from this tree. One-third of the lumber used in making coffins in New York city is whitewood, it being used for the sides and tops. Very large quantities are consumed in the backs and legs of pianos. Furniture manufacturers use it for ebonying, and in parts where great strength is not required. A manufacturer of bungs in New York uses 500,000 feet annually, and it is also used largely in the making of toys and pumps. It has been used to some extent for flooring, and quite extensively for mouldings and trimmings.

It is exported, but not extensively. Shipments are occasionally made of quantities of logs, sometimes reaching as high as 50 or 60. The shipment of lumber is rarely, if ever, made at the present time.

In consumption whitewood stands next to pine, and there are over 50,000,000 feet annually used in New York. Where good pine uppers are quoted at \$65 whitewood of the same grade is only \$40. As a matter of economy many will therefore use it, especially where it will supply well the place of pine.

It is a good wood for the production of charcoal, yielding 22 per cent.

And yet after all its importance in architectural art, this is not all: the bark has been long used as a medicine, and is considered by some scarcely inferior to cinchona. It is a domestic remedy for the intermittent fever, the bark, with equal parts of dogwood bark, being steeped in brandy for some days, and the tincture or decoction thus prepared taken freely. The bark is reduced to a powder by some, and used as a vermifuge. It was a favorite remedy among the American Indians in intermittents. — *Correspondence of the Northwestern Lumberman.*

CEMENT FACINGS.

196 BROADWAY, NEW YORK, JUNE 27, 1882.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—The best work in entire façade facings, ornaments, copings, etc., of Portland cement-concrete is done by Messrs. G. A. L. Schultz & Co., 13 a Bruecken Strasse, Berlin, S. O. The work is expensive, only the very best material being employed; but it stands hard like a rock, and if desired, can be given the color of granite. If "Subscriber" will favor me with a call, I can show him a catalogue of Messrs. Schultz, also a sample of their concrete for entire façades. I am, dear sir, yours respectfully,

GUSTAV GRAWITZ.

STRENGTH OF PORTLAND CEMENT-MORTARS.

NEW YORK, JUNE 27, 1882.

TO THE EDITORS OF THE AMERICAN ARCHITECT:

Dear Sirs,—In replying to my letter with regard to his tests on brick piers laid in different mortars, Mr. F. E. Kidder does not dispute the theory that Portland cement should not be mixed with lime. This theory is a thoroughly established fact in Germany, and the reason given in my first letter speaks also in its favor.

General Q. A. Gillmore, U. S. Engineers, says: "All attempt to cheapen a matrix of Portland cement by the substitution of common lime, for a portion of the cement, result in a sacrifice of strength in proportion to the extent of the adulteration, and the ratio of loss is not materially changed by the increased induration due to age. This is specially true in thick walls or larger masses of masonry, of which the portion which hardens by dessication and the absorption of carbonic acid at the surface forms a small portion of the entire mass."

The result of tests made with various bastard mortars were published in the "Deutsche Bauzeitung," and later in the "Zeitschrift des Architekten und Ingenieur-Vereins," at Hannover (1877, page 590), and some elaborate experiments were made by Mr. F. Kuhn, the engineer engaged in the construction of the bridge over the river Elbe at Dresden, and published in the last mentioned paper (1878, vol. XXIV. No. 4). Mr. Kuhn says: "There is an old custom still held in some favor, of mixing lime with Portland cement, a proceeding sanctioned by ancient rules and instructions for improving a lime-mortar by adding Portland cement. In some cases this compound realizes higher compressive results, and in all other directions it fails to command any beneficial influence whatever, but on the contrary, as the following table will show, tends to depreciate the value of all mortars, where such a combination is made."

TABLE OF BASTARD MORTARS PREPARED AND EXPERIMENTED UPON BY THE BOARD OF THE ALBERT BRIDGE, DRESDEN.

No.	Proportions of the Mortar-mixture.			Strength in lbs. per sq. inch, English.	
	Portland Cement.	Lime.	Sand.	Compressive Value.	Tensile Value.
1	2	1	2	1,422	196
2	2	1	3	1,280	128
3	1	1	1	996	117
4	1	1	2	1,280	124
5	1	1	3	1,138	139
6	1	2	2	213	87
7	1	2	3	213	98
8	1	None.	1	3,414	279
9	1	None.	2	2,703	259
10	1	None.	3	2,579	239
11	1	None.	4	2,205	242

These figures show that the increase of lime reduced the value, while an addition of sand, when the lime was omitted, increased the value of the mortar.

As there is a vast difference in strength between various Portland cements no person using them should neglect to test them thoroughly, the only way of procuring the very best and most reliable, the cheapest because larger proportions of sand can safely be added. Such proceeding would be more profitable than the concoction of illegitimate mortars.

Yours respectfully,

GUSTAV GRAWITZ.

THE SEWERAGE OF A SUMMER SETTLEMENT.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—Several families are about to establish themselves for summer living on half-acre lots upon a rocky knoll on the seashore. Sewers are impossible; wells are necessary. Is there any better way of guarding against the dangers from contamination, etc., than by turning all drainage, both night-soil and kitchen, etc., into cesspools lined with clay, deodorized by earth, and emptied periodically? Will pits simply stoned be safe in a knoll of granite covered by "drift" and boulders? I am yours, etc.,

T. W.

[We should wish to be certain that sewers were out of the question before recommending the adoption of a system of drainage so liable to become a nuisance through neglect as that by means of tight cesspools. However, if it is absolutely impossible to conduct waste liquids to lower ground, to be disposed of by irrigation or in other ways, the cesspools form perhaps the best resource for a rocky and uneven situation; but they should be lined with concrete or brickwork in cement. Clay, which can often be used, if of the proper kind, for lining cisterns kept always full, or nearly full, of water, would not do for a cesspool, where it would be dry for a time after the periodical clearing out, and would fail to pieces. The absolute tightness of the cesspools is an indispensable condition of safety, if wells are to be sunk anywhere in the neighborhood. Any chance of leakage, by which putrescent sewage might escape from the bottom, and reaching the ledge distribute itself in every direction over and through it, would endanger the whole settlement. This essential once secured, we should advise placing a pump in the cover of each cesspool, by which its contents could be pumped out every morning and used to water the grass. Unless situated very near a house, there would be little or no offence from this operation. The liquid, being comparatively fresh, would have but a slight odor, which the grass would absorb in a few minutes, while a handful of powdered sulphate of iron, thrown into the cesspool before pumping, would remove even that. Deodorization with earth is troublesome, filling up the cesspool with a mass of mud, which must be extracted again with great labor and annoyance, and can be disposed of only with difficulty. We hope our correspondent will on investigation find that a general and pure water-supply can be obtained for the settlement, without having recourse to the dangerous expedient of sinking wells. Judging from our own experience of such work in rocky seaside districts, the aggregate cost of a well for every one or two houses on half-

acre lots would be considerably greater, if there were a dozen houses or more, than that of supplying them from a reservoir, fed by a wind-mill from a large well at a safe distance. Enamelled iron pipe, at twenty or thirty cents a foot, is a cheap luxury, and there is no need of laying it underground for summer use, if laid so that it can be drained out in the autumn, while the cost of one well, a reservoir, a wind-mill and the street mains are to be balanced against that of a separate well and pump for every half-dozen persons, to say nothing of the other advantages. — *EDS. AMERICAN ARCHITECT.*

NOTES AND CLIPPINGS.

THE FALLACIES OF SMALL TEST-PIECES. — "The subject of tests for large members of metallic structures is now receiving our earnest attention. If I should speak of its necessity it would only be to repeat what is said in our memorial to Congress. I will only again call attention to one point; that is, that the process of manufacture of a large piece of iron or steel may be so different from that of a small piece, and therefore the quality of the two be so different, though both may be made from the same stock, that the strength of the larger cannot be inferred, but only guessed at, from the known strength of the smaller. In the larger there is more likely to be permanent opposing strains that destroy a large percentage of its strength. A remarkable instance of opposing strains, caused by treatment in manufacture, was pointed out some time ago by Colonel Paine. He found that wire coiled before it was set could not be even straightened without straining the sides beyond the limits of elasticity, and that such wire had nothing near the strength of that coiled straight. As the strength of a large metallic member of a structure cannot be tested by any machine within the reach of individual means, and as to obtain the best results requires the combined skill of several classes of experts, the aid of Congress is invoked to provide a suitable machine and to create a board of experts whose varied skill shall plan the best experiments." — *President Welsh's Address before the Am. Soc. Civil Engineers.*

REPLACING AN ADJOINING FOUNDATION. — In the construction of the new Montauk building on Dearborn Street, now rapidly approaching completion, an ingenious mechanical device was used for the purpose of avoiding a difficulty with which the architects were confronted. The building is, with the exception of the Taylor-street glucose works, the highest in the city, its walls being 132 feet in height, and is of immense weight. Just west of it is the new Crozer building, which has a good wall, but the foundations of which were defective. To build such a heavy structure as was contemplated close beside this would have seriously impaired the adjoining building. It was therefore decided to put a new foundation, identical with that of the Montauk block, under the other building. Screws were placed under the latter, the old foundations removed, and the new one put in. The pressure upon the Montauk foundations where they rest upon the ground is 4,000 pounds to the square foot, and it was calculated that the settlement would be about two inches. In order to prevent danger to the older building, instead of building its wall directly upon the new foundation, screws were placed between the two, so arranged that as fast as the new building and foundation settled the old wall could be kept in line by lengthening the screws. To prevent friction between the two walls building-paper was inserted. Those ingenious devices proved perfectly successful. When the new building is finished the spaces between the screws will be filled in with masonry, and the screws removed. The Montauk block settled uniformly, and the experiment has shown that the highest and heaviest class of buildings can be erected in Chicago without damage to adjoining property. Experimental borings to a depth of sixty feet showed that the subsoil beneath the new building is of one uniform clay. — *Chicago Tribune.*

A WORKMEN'S REPUBLIC. — In making the improvements on the Lehigh River, Pennsylvania, in 1817-20, under the charge of Josiah White and Erskine Hazard, eight hundred men were employed at once near Mauch Chunk, then in the wilderness, quite outside the bounds of civilization. It was not easy to control these men, many of whom, doubtless, had never been remarkable for good order. The sheriff of the county was unable to make an arrest; but the fertile genius of Josiah White and the strong good sense of Erskine Hazard soon found a remedy. Under their inspiration the men organized themselves into a republic, adopted a code of laws, which their backwoods poet put into rhyme, and these laws which they themselves had made were strictly enforced and universally submitted to. Punishment was inflicted by a good stout hickory stick as big as your finger, well laid on with a strong arm. The chief executive of this republic, called the lieutenant, was also the executioner. When all hands were called to witness punishment, they said or sang the part of the law which had been transgressed, and the lieutenant beat time on the offender's back. One of the gravest offences was for a man to take more on his plate or his shingle than he could eat. Punishment of this soon stopped the grabbing, and the provision bills were very much reduced. At any official announcement, the expression of loyalty to the supreme authority was not, as in England, "God save the King," or as in Pennsylvania, "God save the Commonwealth," but "Hurrah for Mr. White and all the rest!" — *President Ashbel Welsh, before the Am. Soc. Civil Eng.*

THE TOUR DE JEAN-SANS-PEUR, the sole relic of the Palace of the Dukes of Burgundy, and at the same time the only specimen existing in Paris of military architecture of the fourteenth and fifteenth centuries, is now being restored by the Commission of Historic Monuments. This tower, or rather donjon, which adjoins a communal school in the Rue aux Ours, has been fairly respected during the many building changes that have gone on around it, the only defacement it has suffered being the closing-up of a few windows and the roofing-in of the old crenelated tower. It is now intended to restore this interesting specimen of mediæval architecture to its primitive aspect, with the exception of the side which adjoins the neighboring buildings. — *The Architect.*

A GOOD SUGGESTION FOR RATING THE PRICES OF BRICKS. — A correspondent suggests that the market price of bricks should be rated according to their size, weight, and crushing strength. He instances two lots of bricks, sold at the same price per thousand. One lot averaged 21" x 31" x 7½" in size, 5 lbs. 2½ oz. in weight, and broke at 5,490 lbs. per square inch. The second lot ran about 21" x 4" x 8½" in size, weighed only 4 lbs. 8½ oz., and broke at 3,610 lbs. per square inch. The real values of these two lots of brick were obviously very unequal. As our correspondent says, it makes a vast difference to the builder of arch or pier if he calculates on bricks standing 500 tons to the square foot and gets them half as strong; or if he figures on 4,500 bricks per rod of 306 cubic feet, and it takes 5,500. He thinks that every brick-maker should guarantee a certain size, weight, and crushing strength — which they will probably do when (and not before) builders refuse to purchase bricks which fall short of a stipulated standard of size and quality, or make their contracts with the brick-maker or dealer contingent, as to price, upon the character of the materials delivered. — *Scientific American.*

REMAINS OF A CITY DISCOVERED UNDERGROUND IN FLORIDA. — For the past six months the work of digging the canal to connect Lakes Eustis and Dora, in order to open up the more southern lakes of the "Great Lake Region of Florida," has been prosecuted. The second cutting of the canal was finished last week under the supervision of Mr. T. H. Sprott, who has been from the commencement one of the foremen on the work. At the outlet of Lake Dora the sand-bar had already been cut to the depth of nearly or quite three feet on the previous digging, and was dug about two feet deeper last week. At a distance of over four feet below the old level of Lake Dora a mound was discovered. The first excavations revealed the existence of a clearly-defined wall lying in a line tending toward the south-west from where it was first struck. This wall was composed of a dark-brown sandstone, very much crumbled in places, but more distinct, more clearly defined, and the stone more solid as the digging increased in depth. The wall was evidently the eastern side of an ancient home or fortification, as the slope of the outer wall was to the west. About eight feet from the slope of the eastern wall a mound of sand was struck, imbedded in the muck formation above and around it. This sand mound was dug into only a few inches, as the depth of the water demanded but a slight increased depth of the channel at that point; but enough was discovered to warrant the belief that here on the northwestern shore of Lake Dora is submerged a city or town or fortification, older by centuries than anything yet discovered in this portion of Florida. Small, curiously-shaped blocks of sandstone, some of them showing traces of fire, pieces of pottery and utensils made of a mottled flint, were thrown out by the men while working waist-deep in water. A spear-head of mottled flint, five and a half inches long by one and a quarter inches wide, nicely finished, is now to be seen at the *Herald* office, which was taken from the top of the sand-mound and about four feet below the water-level of the lake. — *Travers (Fla.) Herald.*

COLORING WOOD. — The following process has been patented in Germany by A. Thimm, of Berlin: The wood is covered with solutions of metallic salts by means of a brush or otherwise. It is then left to dry for about twelve hours, and is then taken into an air-tight room, in which gases or vapors are introduced, such as sulphuret of hydrogen, ammonia, etc., according to the tint required to be obtained. By using sulphuret of hydrogen can be thus obtained — *Brown:* Sulphide of bismuth, formed from nitrate of bismuth. *Yellow:* The sulphide of cadmium, formed from solutions of cadmium sulphate. *Gold-Yellow:* Bismuthide of tin, from solutions of chloride of tin. *Iron-Gray to Brown:* Sulphide of lead, from solutions of acetate of lead. *Green:* Oxide of chromium, from solutions of chromic acid. *Red:* Trisulphide of antimony, from antimony solutions. This process is said to be cheap, and the wood can be colored to any design. The colors obtained are not affected by air, light, or water, and can be washed. A very cheap solution of hydroxide of iron in chloride of iron is used to impregnate the wood for floors, stair-treads, and other objects exposed to much wear, and then colored with ammonia. The wood in this case is less apt to burn than when painted in the ordinary way. — *Cabinet Maker and Art Furnisher.*

THE EX-EMPRESS EUGÉNIE vs. THE CITY OF MARSEILLES. — The suit brought by the municipality of Marseilles against the ex-Empress of the French has been won by the defendant, who gets a verdict, with costs. The suit was brought in order to recover possession of a large tract of land presented by the city to the Emperor in 1854 as the site for the construction of an imperial palace. In the papers Eugénie was described as "the widow Bonaparte, of no occupation." It was contended that the town gave the land, not to Louis Napoleon personally, but to him as the chief of the State, and that when the empire fell the contract implied in the gift was at an end. The court decided in Eugénie's favor on the following grounds: The gift and its acceptance constituted a contract, the only condition of which was that his Majesty should use the ground and build a palace upon it. This condition was fulfilled to the letter: the palace was reared at the Emperor's personal cost; it had been inhabited, and was still habitable. It was cited, also, that by the Sequestrian Commission appointed on the fall of the empire the land and buildings in question were included among the Emperor's personal property. Before the action was begun, it is said that the ex-Empress spontaneously offered to give the palace and grounds to the city of Marseilles, provided they were employed as an orphanage and school for the children of deceased soldiers. This offer the corporation rejected.

EARTHQUAKES. — In an article on earthquakes in 1881 in *Der Naturforscher*, it is stated that 244 are at present known to have occurred, of which eighty-six were in winter, sixty-one in autumn, fifty-six in spring, and forty-one in summer.

BUILDING INTELLIGENCE.

(Reported for The American Architect and Building News.)

[Although a large portion of the building intelligence is provided by their regular correspondents, the editors greatly desire to receive voluntary information, especially from the smaller and outlying towns.]

BUILDING PATENTS.

[Printed specifications of any patents here mentioned, together with full detail illustrations, may be obtained of the Commissioner of Patents, at Washington, for twenty-five cents.]

259,678. EXTENSION-LADDER. — James F. Flint, West Danvers, Mass.
 259,702. MACHINE FOR TRIMMING AND CUTTING LUMBER. — Frank McDonough, Eau Claire, Wis.
 259,716. HANGING DOOR. — Edwin Prescott, Arlington, Mass.
 259,729. APPARATUS FOR VENTILATING AND PURIFYING SEWERS. — James Stratford, Buffalo, N. Y.
 259,744. NON-CONDUCTING COVERING FOR STEAM-PIPES, ETC. — Henry C. Bradley, Milwaukee, Wis.
 259,762. SAFETY APPARATUS FOR PASSENGER AND OTHER ELEVATORS. — Merrill N. Hutchinson, New York, N. Y.
 259,764. JOINT FOR DRAIN AND OTHER PIPES. — Carl Japtok, New York, N. Y.
 259,768. ILLUMINATING TILE-PLATE. — William A. Lindsay, New York, N. Y.
 259,780. AUTOMATIC SPRINKLER. — Charles W. Talcott, Woonsocket, R. I.
 259,806. HEATING-FURNACE. — George R. Brown, Corning, N. Y.
 259,812. CONSTRUCTING BETON OR ARTIFICIAL-STONE CURBING. — James Burns, San Antonio, Tex.
 259,846. HYDRAULIC ELEVATOR. — Arthur Granville, New York, N. Y.
 259,863. MANUFACTURE OF ARTIFICIAL STONE AND MARBLE. — Henry C. Jewell, Georgetown, D. C.
 259,890. BRICK-MOULD. — Thomas McNicholas, Memphis, Mo.
 259,896. PIPE-TONGS. — Charles H. Miller, Erie, Pa.
 259,923. ELEVATOR. — John D. Richardson, New York, N. Y.
 259,929. FIREPLACE FENDER. — Isaiah W. Shoemaker, Rosston, Pa.
 259,951. SAFETY ATTACHMENT FOR ELEVATORS. — Frederick W. Voerde, Chicago, Ill.
 259,985. APPARATUS FOR FLUSHING WATER-CLOSURES. — James P. Hyde, New York, N. Y.
 259,986. PROCESS OF AND APPARATUS FOR DRYING LUMBER. — John Lynch, Portland, Me.

SUMMARY OF THE WEEK.

Baltimore.

REEREDS. — A memorial reeredos has just been erected in the chance of St. Barnabas' Church, cor. of Bidle St. and Argyle Ave., in memory of the wife of the rector, Rev. A. P. Stryker. It is entirely of oak, and early pointed in style; the design is by J. A. & W. T. Wilson, architects, and was selected in competition.
 CENTRAL POLICE STATION-HOUSE. — Additional improvements: cost, \$12,500.
 Three dwellings, for Dr. Eli Henkle, Harlem Ave.; cost, \$15,000.
 GREEN-HOUSE, Harlem Square; cost, \$3,000; Mr. Frank E. Davis, architect.
 HOUSE. — Mr. Thos. Hill, real estate broker of this city, has plans prepared for house and barn, which he will erect on large tract of land few miles out of the city; size of house, 40' x 50'; Palliser, Palliser & Co., architects, Bridgeport, Conn.
 BUILDING PERMITS. — Since our last report sixteen permits have been granted, the more important of which are as follows: —
 Baker, Bro. & Co., two-sty brick building, 50' x 65', in rear of Ostend St., bet. Eutaw and Warner Sts.
 Jacob Hartman, three-sty brick building, No. 190 Sharp St., bet. Hill and Lee Sts.
 Cotton Press Co., one-sty sheet-iron building, Wells Wharf, foot of Bond St.
 Gregory Stenger, two-sty brick front building, Chase St., bet. Ann and McDonough Sts.
 M. Campbell, two-sty brick stable, Central Ave., n of Bank St.
 Wehr, Hobelmann & Gottlieb, three-sty brick warehouse, n e cor. Hanover and Conway Sts.

Boston.

CHAPEL. — The First Baptist Society will build a chapel in Commonwealth Ave. in the rear of their church.
 BUILDING PERMITS. — Brick. — Mayo St., near Castle St., Ward 16, for Boston Building Association, four-sty tenement-house, 35' 6" x 42'; Albert West, builder.
 Pearl St., Nos. 19-21, Ward 12, for R. G. Whitney, four-sty mercantile, 34' and 39' x 121'; T. J. Whidden & Co., builders.
 East Sixth St., cor. of N St., Ward 14, for Henry B. Stratton, three-sty tenement, 25' x 48'; Henry B. Stratton, builder.
 Bromfield St., Nos. 1-3 and 5, cor. Washington St., Ward 10, for Alpheus Bigelow heirs, three-sty iron mercantile, 70' x —.
 Wood. — Washington St., rear of, near Keyes St., Ward 23, for M. Denman Ross, dry-house, 20' x 80'; Wm. Carpenter, builder.
 Wakulla St., near Rockland St., Ward 21, for John V. N. Stults, 4 two-sty dwellings, 21' x 50'.
 Greenville Pl., near Greenville St., Ward 21, for Wm. Barton, two-sty dwell., 22' x 34' 6"; ell, 15' 6" x 20' 6"; two-sty dwell., 26' 6" x 32' 6" and 34' 6"; Wm. Barton, builder.
 Webster Ave., near Brighton Ave., Ward 25, Emily J. Frye, two-sty dwell., 13' and 33' x 51'; two-sty

dwell., 13' and 20' x 51'; Jacob W. Berry, builder.
 West First St., opposite F St., Ward 14, for James Evans & Co., storage, 18' x 40'; James Evans & Co., builders.
 West Sixth St., near D St., Ward 13, for B. J. Hartigan, two-sty and mansard dwell., 22' x 40'; James Walsh, builder.
 Dorset St., cor. Dorchester Ave., Ward 15, for Richard G. Humphreys, two-sty dwell., 25' 4" x 29' 8"; George Harding, builder.
 West Sixth St., near D St., Ward 13, for Redmond J. Fitzgerald, three-sty dwell., 22' x 38'; James Walsh, builder.
 Culvert St., near Tremont St., Ward 19, for Daniel Sullivan, blacksmith shop, 25' x 50'.
 Curtis St., cor. Chaucer St., Ward 1, for Chas. Cooper, dwell., 16' x 26'; Geo. W. Adams, builder.
 Temple St., near Centre St., Ward 23, for Holland P. Myers, two-sty dwell., 26' 8" and 32' 8" x 45'; Wood & Weatherbee, builders.
 K St., No. 219, cor. Tenth St., Ward 14, for Arthur Deady, greenhouse, 13' x 60'; Arthur Deady, builder.
 Laramie St., rear of, near Green St., Ward 23, for Louis H. Mähm, manufacturing and wagon house, 16' x 32'; John Albrecht & Co., builders.
 Park St., near Felton St., Ward 23, for Horace Farrington, two-sty dwell., 21' and 25' x 30'; Geo. A. Spear.
 Maple St., rear of, cor. Schuyler St., Ward 21, for James A. Houston, 2 greenhouses, 18' x 70' and 25' x 70'; McNeil Bros., builders.

Brooklyn.

GOVERNMENT BUILDING. — The Senate Committee on Public Buildings and Grounds will report favorably the House Bill appropriating \$800,000 for a public building.

MONUMENT. — The Aldermanic Committee on Public Lands and Buildings has decided to report in favor of requesting the Board of Estimate to insert \$25,000 in the tax budget for a monument for the soldiers and sailors.

BUILDING PERMITS. — Hooper St., s s, 206' e Lee Ave., 3 three-sty brownstone dwellings; cost, \$10,000 each; owner, architect and builder, John F. Ryan, 187 Hewes St.

Jefferson St., s s, 400' w Bushwick Boulevard, two-and-one-half-sty frame dwell.; cost, \$4,000; owner, H. Oberhauser, North Twelfth St., near First St.; architect, John Platte; builders, Jacob Rauth and F. J. Berlenbach.

Graham Ave., n w cor. Seigel St., 2 four-sty frame stores and tenements; cost, \$5,500 each; owner, John Henry, Graham Ave., near Seigel St.; architect, John Platte; builders, Wm. Dafeidecker and John Rueger.

Quincy St., s s, 300' w Sumner Ave., three-sty brick dwell.; cost, \$3,000; owner, W. O. Thompson, cor. Putnam Ave. and Irving Pl.; architect, O. D. Thompson.

Twentieth St., s s, 125' w Sixth Ave., to Twenty-first St., 4 three-sty frame houses; cost, \$3,000 each; owner, architect and builder, James W. Wandell, Forty-ninth St., e of Third Ave.

Floyd St., Nos. 337 and 339, n s, 91' w Lewis Ave., two-sty frame dwell.; cost, \$3,000; owner and builder, Geo. Leffler, 82 Tompkins Ave.; architect, Theo. Engelhardt.

Conover St., w s, 70' from Partition St., three-sty brick store and tenement; cost, \$4,000; owner, A. Anderson, 212 Conover St.; architect, Jno. J. Kelley; builders, Peter Kelly & Son and Glerson & Siebrand.

Lefferts Pl., n w cor. Clason Ave., 3 four-sty dwellings, corner house brick, others brownstone; cost, \$10,000 each; owner and builder, Andrew Miller, 1527 Pacific St.; architect, Amzi Hill.

Lee Ave., s w cor. Heyward St., three-sty brick store and dwell.; cost, \$10,500; owner and builder, Richard Healy; architect, J. D. Reynolds.

Lee Ave., w s, 25' s Heyward St., 4 two-sty brick dwellings; cost, \$4,300 each; owner and builder, Richard Healy; architect, J. D. Reynolds.
 Boerum St., s s, 225' w Bushwick Ave., 2 three-sty frame dwellings; cost, \$8,500; owner, L. Cronnenwerth, Boerum St.; builders, Wm. Bayer and M. Metzner.

Congress St., s s, between Hicks and Columbia St., one and two-sty brick office and shed; cost, \$6,000; owner, J. P. Robinson, 6 Montague Terrace; architect, H. Turner; builders, D. Heavy and — De Witt.

Monroe St., n s, 265' e Lewis Ave., 3 two-sty brownstone dwellings; cost, \$5,000; owner, W. J. C. Miller, 299 Sumner Ave.

Central Ave., s e cor. Jefferson St., 2 three-sty brick stores and tenements; cost, each, \$6,500; owner, L. Kppig, Central Ave., near George St.; architect, J. Platte; builder, J. Zwing.

ALTERATIONS. — North Second St., No. 316, disconnect extension from main building and raise it two stories; cost, \$3,500; owner, Charles Kinken, on premises; architect, E. F. Gaylor; mason, John McQuade.
 Livingston St., No. 99, raise one sty; cost, \$5,000; owner, Polytechnic Institute, on premises; architect, J. Corrye; builders, J. De Mott & Son and W. H. Noe.
 Remsen St., No. 58, two-sty brick extension; cost, \$3,000; owner, Wm. G. Low, on premises; architects, Parfitt Bros.; builder, T. W. Rollins.

Chicago.

CHURCH. — The corner-stone of St. Stephen's A. M. E. Church was laid June 25.

HOUSES IN PROSPECT. — On Michigan Ave., s of Thirty-fifth St., a fine two-sty stone front residence, 52' x 68', for Mr. L. T. Rosenthal, to cost \$60,000, is to be built; Mr. W. H. Esterham, architect.
 On the cor. of Centre and Hurlburt Sts., 7 apartment houses, containing apartments for 21 families; pressed brick and stone front, 65' x 173', to cost \$40,000; Mr. J. H. Johnson, owner; Mr. C. O. Hausen, architect.

BUILDING PERMITS. — Henry Dreeschmidt, two-sty and basement brick dwell., 22' x 48', 449 W. Twelfth St.; cost, \$4,000.
 C. W. Partridge, 5 two-sty and basement brick dwell., 40' x 80', cor. Thirty-seventh St. and Stanton Ave.; cost, \$10,000.

J. Bruzek, two-sty and basement brick store and dwell., 21' x 70', 1117 Blue Island Ave.; cost, \$5,000.

B. P. Monilton, two-sty basement and attic brick dwell., 43' x 50', 1912 Prairie Ave.; cost, \$75,000; Trent & Folz, architects.

F. J. Dewes, brewery and ice-house, 76' x 113', cor. Chicago and Hoyne Aves.; cost, \$30,000.

M. D. Miller, three-sty brick dwell., 22' x 60', 198 Ontario St.; cost, \$6,500.

P. O'Malley, two-sty basement and attic brick dwell., 22' x 66', 117 Erie St.; cost, \$4,000.

Mrs. J. M. M. Cooper, two-sty and basement brick dwell., 24' x 34', 2562 Groveland Park Ave.; cost, \$2,600.

D. T. Sunderland, two-sty and basement brick dwell., 24' x 56', 2967 South Park Ave.; cost, \$3,000.
 Wm. Becker, two-sty and basement brick dwell., 22' x 43', 3741 Dearborn St.; cost, \$3,100.

Amelia Lehman, two-sty brick dwell., 25' x 62', 227 Loomis St.; cost, \$3,000.

Jos. McComb, two-sty brick dwell., 23' x 50', 534 Hurlburt St.; cost, \$3,500.

M. D. Ewart, four-sty and basement brick factory, 50' x 178, 11 to 23 South Jefferson St.; cost, \$40,000.

John A. Courcy, two-sty and cellar brick flats, 21' x 64', 45 Newberry St.; cost, \$4,500.

Wm. Brown, two-sty brick dwell., 40' x 57', 127 and 129 Wilcox St.; cost, \$5,500.

D. Sincere, two-sty and basement brick dwell., 24' x 65', Wabash Ave., near Thirtieth St.; cost, \$6,000.

Max Weinman, three-sty brick dwell., 40' x 68', 2544 Michigan Ave.; cost, \$30,000.

John Fauch, two-sty and basement brick dwell., 22' x 66', 654 West Eighteenth St.; cost, \$3,000.

C. Gruenewald, two-sty and basement brick dwell., 28' x 60', 740 Sedgwick St.; cost, \$8,000.

M. Haugb, two-sty brick dwell., 22' x 60', 2812 Bonfield St.; cost, \$4,000.

John Turnhole, two-sty and basement brick dwell., 24' x 46', 516 W. Jackson St.; cost, \$6,000.

Wm. Burke, two-sty and basement brick dwell., 22' x 68', 356 Fourteenth St.; cost, \$4,000.

John King, three-sty and basement store and dwell., 23' x 80', 426 Milwaukee Ave.; cost, \$7,000.

Karsberg & Rinn, three-sty planing mill, 76' x 112', Crosby, near Division St.; cost, \$15,000.

John Reitz, two-sty store and dwell., 23' x 75', 750 Twenty-second St.; cost, \$5,500.

D. Harry Hammer, 4 three-sty brick stores and dwell., 62' x 96', State and Thirty-sixth St.; cost, \$30,000.

Bemis & McAvoy, six-sty brick brewery, 60' x 138', S. Park Ave., near Twenty-fourth St.; cost, \$80,000.

T. A. Hoffmeyer, two-sty and basement brick dwell., 24' x 54', 258 Market St.; cost, \$4,800.

Cincinnati.

INFIRMARY BUILDING. — The city infirmary is to have a large addition built to it this summer, costing abt. \$35,000; Mr. E. Anderson is the architect in charge of the work.

WAREHOUSE. — J. F. Elliott is building a five-sty warehouse on Freeman Ave. and railroad, for the Singer Sewing Machine Co.; cost, \$16,000; S. E. Des Jardins, architect.

BUILDING PERMITS. — Since our last report the following permits have been issued:

S. L. Wilder, four-sty brick dwell., Sixth St., between Elm and Plum Sts.; cost, \$15,000.

H. Ketterer, one-sty brick dwell., Browne St., near Freeman Ave.; cost, \$2,200.

M. Fricker, three-sty brick dwell., cor. of Baymiller and Gest Sts.; cost, \$2,000.

J. W. Miller, repair five-sty brick dwell., Seventh St., between Main and Walnut Sts.; cost, \$2,500.

Dr. T. W. Gradon, 2 two-sty frame dwellings, Kemper Lane and Nassau St.; cost, \$6,000.

Henry Oliver, three-sty brick dwell., n e cor. Wade and Jones Sts.; cost, \$6,400.

C. M. Murch, two-sty brick dwell., George St., between Central Ave. and John St.; cost, \$2,500.

Mrs. M. Shon, two-sty brick dwell., Cross St., near Hamburg St.; cost, \$2,500.

Henry Allen, three-sty brick dwell., Hopkins St., e of Dalton Ave.; cost, \$5,000.

Jno. Stafford, two-sty frame dwell., Price Ave., near Summit Ave.; cost, \$6,000.

Stephen Gibson, two-sty brick dwell., Park Ave., between Warsaw and Price Ave.; cost, \$3,500.

Mrs. G. H. Koeffer, three-sty brick dwell., cor. of Cutter and Wade Sts.; cost, \$3,500.

Albert Young, 3 four-sty brick dwellings, Liberty and Jones Sts.; cost, \$15,000.

Mrs. R. Lohle, two-sty brick dwell., Purcell Ave., near Warsaw Pike; cost, \$3,500.

John Shott, two-sty brick dwell., s w cor. James and Fifth Sts.; cost, \$9,000.

Peter Aumba, two-sty brick dwell., Milton St.; cost, \$3,600.

A. Srefel, two-sty dwell., Spring Grove Ave.; cost, \$7,000.

John Janson, Sr., three-sty brick dwell., 13 Mulberry St.; cost, \$4,000.

John Kabell, two-sty brick, on Cross St.; cost, \$2,000.

Jos. Witz, two-sty brick, Neave St., near Gannon St.; cost, \$2,000.

Andrew Schneider, three-sty brick, 193 Barr St.; cost, \$5,000.

Lewis Coleman, three-sty brick, Denman St., bet. Liberty and Wade Sts.; cost, \$3,000.

Fred. Groneman, three-sty brick, State Ave. near Gest; cost, \$3,500.

Twenty-six permits for repairs; cost, \$10,400.

Detroit.

BUILDING PERMITS. — 112 permits have been granted during the three weeks ending June 24, amounting to \$335,055.

Those costing \$3,000 and over are as follows: —

Nappeman & Clark, brick store, Shelly St.; cost, \$3,000.

Stone dwell., on Woodward Ave., to cost \$28,000; W. Scott & Co., architects.

Brick dwell. on Third St., to cost \$3,500, Mason & Rice, architects.

Brick dwell. on Howard St., to cost \$13,000; Mason & Rice, architects.

Alexandrine St., brick barn; cost, \$3,800; owner, S. A. Buchanan.
 Brick barn, 142 W. Fort St., to cost \$6,000; owner, Gen. Ager; contractors, Nuppenan & Clark.
 Brick dwell., 37 and 39 Abbott St.; cost, \$6,000; J. V. Smith, architect.
 Brick dwell., E. Columbia St.; cost, \$5,000; J. V. Smith, architect.
 Fourth St., frame dwell.; cost, \$4,500; owner, J. S. Martin.
 Brick photograph gallery, Williams St.; cost, \$13,000; contractors, W. E. Armstrong & Co.
 Repairs to flouring mill on Woodbridge St.; cost, \$9,000; owner, W. H. Faxon.
 Campan Block, cor. of Larned and Griswold Sts.; cost, \$120,000; contractors, A. Chapoton and Nuppenan & Clark; architects, Smith & Brown.
 Brick shed and office on W. Woodbridge St.; cost, \$5,000; owner, F. Page.
 2 brick dwells., Nos. 641 and 643 Cass Ave.; cost, \$9,000; owners, McEnhill & Moore.
 Brick dwell., No. 579 Cass Ave.; cost, \$4,000; P. A. Keeler.
 Frame dwell. on Second St.; cost, \$6,000; owner, Thomas Payne.
 Brick dwell. on Jay St.; cost, \$6,500; owners, Caspar Waeshewald & Co.
 Brick planing mill on Croghan St.; cost, \$7,000; owners, Baker & Shefferly.
 Brick dwell., 36 Macomb St.; cost, \$5,000; architect, Julius Hess.
 Additions and alterations to brick brewery on W. Woodbridge St.; cost, \$10,000; owner, Patrick Deo.

New York.

FACTORY.—A brick factory, 50' x 85', six-sty, is to be built for Messrs. F. W. Devoe & Co., at the corner of Horatio St. and Jane St., to cost, \$25,000; Messrs. Kimball & Wissedell are the architects.
FLATS.—For Messrs. Jno. D. Crimmins & Co., 6 flats, five-sty, to cover a lot 100' x 108' 6" are to be built on Ninth Ave., cor. Ninety-second St. They are to be of brownstone and Philadelphia brick, and will cost about \$90,000; Messrs. D. & J. Jardine are the architects.
RESIDENCE.—For Mr. Jas. Britt, a frame dwell. is to be built on One Hundred and Fifty-second St., near Twelfth Ave.; Messrs. D. & J. Jardine are the architects.

ALTERATIONS.—An extension is to be made to the residence of Mr. Wm. Bryce, No. 40 W. Fifty-fourth St., from designs of Messrs. D. & J. Jardine.
BUILDING PERMITS.—Seventy-third St., s. s., 80' e Lexington Ave., two-sty brick stable and carriage-house; cost, \$60,000; owner, Robert L. Stuart, 151 Fifth Ave.; architect, William Schickel; mason, Marc Edlitz.
 Second Ave., n. e. cor. Seventy-first St., four-sty brownstone store and apartment-house; cost, \$20,000; owner, John C. Burne, 1531 Third Ave.; builders, Chenoweth & Bannon.
 Second Ave., e. s., 77' 2" n Seventy-first St., four-sty brownstone store and tenement; cost, \$16,500; owner and builders, same as last.
 Second Ave., e. s., 27' 2" n Seventy-first St., 2 four-sty brownstone stores and tenements; cost, each, \$16,500; owner and builders, same as last.
 Avenue A, w. s., 50' n Ninety-first St., two-sty brownstone dwell.; cost, \$4,000; owner, Thos. Osborne, East Eighty-ninth St.; architect, John Brandt.
 Ninety-seventh St., s. s., 100' w Second Ave., 8 four-sty brick and stone tenements; cost, each, \$13,000; owner, Samuel Simmons, 13 Sheriff St.; architect, Chas. Baxter; builder, M. J. Daly.
 Madison Ave., n. e. cor. One Hundred and Twenty-first St., one-sty brick and Corshill stone church; cost, \$45,000; owner, Trustees Harlem Congregational Church, T. M. Timpson, Franklin Ave., near One Hundred and Sixty-ninth St.; architect, L. B. Valk; builders, T. W. Hollins and V. Loebe.
 Fourth Ave., w. s., from Sixty-ninth to Seventieth St., six-sty brick and stone seminary; cost, \$262,000; owner, Union Theological Seminary, New York; E. M. Kingsley, Treasurer, 25 East Sixty-third St.; architects, W. A. Potter and J. B. Lord; builders, Robert L. Darragh & Co.

ALTERATIONS.—Roosevelt St., No. 15, building taken down to top of first story and rebuilt five-sty; also five-sty brick extension; cost, \$11,350; owner, Howard Conkling, exr. of estate of E. R. Conkling, 27 East Tenth or 3 Mercer St.; architect, B. McGurck.
 East Thirtieth St., No. 113, rear, altered internally, etc.; cost, \$2,500; owners, F. Grote & Co., 114 East Fourteenth St.; architect, L. A. Risse; builders, Vix & Son.
 Madison Ave., No. 31, four-sty brick extension; cost, \$2,500; owner, Jeremiah W. Dimick, 6 East Forty-first St.; architect and builder, J. H. White-nack.
 West Nineteenth St., No. 1, cor. Fifth Ave., three-sty brick extension; cost, \$10,000; owner, Henry Parish, on premises; architect, D. Lienau; builder, L. H. Williams.
 East Forty-fifth St., No. 21, three-sty brick extension; cost, \$2,500; owner, Mrs. S. J. Strong, by A. G. Hyde, att'y, 21 East Forty-fifth St.; builders, Sinclair & Wills.
 West Fifty-second St., No. 38, interior alterations, etc.; cost, \$3,000; owner, T. G. Strong, 41 Wall St.; architects, J. C. Cadv & Co.; builders, Sinclair & Wills and Smith & Bell.
 State St., Nos. 11 and 13, raised 9', five-sty brick extensions and internal alterations; cost, \$20,000; owner, George F. Johnson, 148 East Thirty-fourth St.; architect, A. B. Ogden; builders, D. & E. Herbert.
 Fifth Ave., s. e. cor. Twenty-ninth St., four-sty brick extension, front and interior alterations; cost, \$8,000; lessee, Daniel Neumann, 300 West Forty-second St., of Neuman & Co., 263 Fifth Ave.; architects, H. J. Schwarzman & Co.; builders, List & Lennon and T. J. Duffy.
 Broadway, No. 717, through to No. 12 Neilson Pl., repair damage by fire; cost, \$3,983; owner, James M. Varnum, 173 Fifth Ave.; builder, E. Smith.
 Fourth Ave., No. 77, two-sty brick extension; cost, about \$2,000; owner, Jas. H. Drake, on premises; builders, G. D. Hilyard and J. L. Smith.

East Seventeenth St., No. 15, two and three-sty brick extensions; cost, \$6,000; owner, Vincent Vigouroux, on premises; builder, J. W. Crawford.
 East Thirty-fourth St., No. 129, two-sty brick extensions; cost, \$2,000; owner, Laura H. Curtis, 129 East Thirty-fourth St.; architect, H. R. Marshall.
 Henry St., Nos. 17 and 139, to be made of same height; cost, \$4,500; owner, Harriet L. Leonard, in behalf of Trustees of Ursuline Convent, 139 Henry St.; architect, L. J. O'Connor; builders, J. Rooney and M. J. Newman.
 West Thirty-fifth St., Nos. 322 to 330, raised two stories; cost, \$2,500; owner, Decker Bros., 33 Union Sq.; architect, G. P. Pelham, builders, Van Dolson & Arnold and Jeans & Taylor.
 Fifty-sixth St., n. s., 20' w First Ave., three-sty brick extension; cost, \$8,000; owner, Walter Schriver, 163 East Seventy-first St.; architect, A. B. Ogden, builder, Geo. Dollinger.
 Sixth Ave., No. 879, one-sty brick extension; cost, \$4,000; owner, Alexander Kuh, 102 West Fifthieth St.; architect, J. B. Franklin.
 West Ninth Ave., No. 363, n. e. cor. Twenty-eighth St., one-sty brick, glass and iron extension; cost, \$3,000; owner, Nathalie E. Baylies, on premises; architects, Hamilton & Pistor.

UNIVERSITY PL.—No. 8, first-sty partitions removed, new store front and rear wall altered; cost, \$5,000; owner, John A. Hadden, 46 West Twentieth St.; architects, Wm. Field & Son; builder, J. Keleher.
 West Thirty-ninth St., No. 54, add one-sty to extension, front altered, etc.; cost, \$8,500; owner, Geo. Bliss, 54 West Thirty-ninth St.; architect, Jas. O'Hara; builder, Geo. Mulligan.
 Fifth Ave., n. e. cor. One Hundred and Twenty-sixth St., roof raised and made peaked; also two extensions; cost, \$25,000; owner, Lucien C. Warner, 372 Broadway; architect, A. B. Jennings; builders, White and E. Gridley.
 Sixth Ave., No. 517, and West Thirty-first St., No. 100, one-sty brick extension, front and interior alterations; cost, \$3,500; attorney for owner, John R. Platt, 265 Broadway; architect, O. S. Teale.
 Bridge St., No. 3, interior strengthened and plastered; cost, \$3,000; owner, American Emigration Co., 16 State St.; builders, J. B. Smith, Producers & Co., and Morton & Chesley.

Philadelphia.

FACTORIES.—Messrs. Folwell Bros. & Co. propose erecting on Third, Cambria and American Sts. the following manufacturing buildings: main building, five-sty, 47' x 400'; one-sty weave shed, 189' x 198'; two-sty dye-house, 80' x 180', saw-tooth roof. second-sty for manufacturing purposes boiler-house, 40' x 82'; engine-room, 16' x 64', all of brick; J. F. Stuebert, architect.
HOSPITAL BUILDING.—A two-sty clinic hall is being erected for the women's hospital, on North College Ave., to be of brick and brownstone, 54' x 60', with amphitheatre for 230 students.
BUILDING PERMITS.—Walnut St., No. 1300, front alteration and three-sty brick building, 20' x 68'; J. S. Wilson, contractor.
 St. John St., s. w. cor. Willow St., fifth-sty addition to tannery, 40' x 100'; Jas. McCartney, contractor.
 Cherry St., No. 2305, two-sty addition to factory, 31' x 100'; Townsend, Wilson & Hubbard, owners.
 Church St., near Hamilton St., three-sty addition to factory, 45' x 50'; Stafford & Co., owners.
 Maplewood St., n. w. cor. Green St., 2 three-sty dwells., 20' x 56'; E. McDermont, contractor.
 Queen St., e. s., of Green St., 3 three-sty dwells., 15' x 44'; E. McDermont, contractor.
 Fifth St., w. s., n. of Snyder Ave., 2 two-sty dwells., 16' x 42'; O. P. F. Fisher, contractor.
 Mascher St., e. s., n. of Huntington St., 6 two-sty dwells., 12' x 28'; Chas. Bassett, contractor.
 Sepirine St., No. 242, three-sty dwell., 18' x 42'; Jas. Crook, owner.
 Willow St., e. s., n. of Harrison St., 2 two-sty dwells., 16' x 44'; Jno. Shuttleworth, owner.
 C St., s. e. cor. Somerset St., 2 two-sty dwells., 16' x 38'; J. M. Peters, owner.
 Hedley St., s. s., between Indiana Ave. and Hart Lane, 2 two-sty dwells., 13' x 28'; J. M. Peters, owner.
 Eighteenth St., s. e. cor. Brandywine St., three-sty stable, 24' x 40'; A. A. Campbell, contractor.
 Woodstock St., e. s., between Brown and Parrish Sts., 20 three-sty dwells., 17' x 52'; Jno. McGill, owner.
 Cumberland St., n. w. cor. Leithgow St., three-sty store and dwell., 18' x 17'; W. Bartholomew.
 Fifteenth St., s. e. cor. Mt. Vernon St., two-sty school-building, 58' x 80'; A. H. Williams, contractor.

St. Louis.

BUILDING PERMITS.—Fifty-eight permits have been issued since our last report, but eleven of which are for unimportant frame houses. Of the rest those worth \$2,500 and over are as follows:—
 Mrs. C. Roentgen, one-and-one-half-sty; cost \$3,000.
 R. W. Lewis, 12 two-sty tenement-houses; cost, \$12,000.
 Henry Boening, 2 two-sty dwells.; cost, \$7,600.
 Peter Rick, 2 two-sty dwells.; cost, \$3,900.
 — Cary, 2 two-sty dwells.; cost, \$6,000.
 F. H. Logemann, four-sty factory; cost, \$1,600.
 St. Stanislaus Church, church; cost, \$13,000.
 Adolphe Busch, two-sty dwell.; cost, \$4,000.
 Anheuser-Busch Brewing Association, one-sty warehouse; cost, \$4,000.
 Excelsior Brewing Co., one-sty bottling-house; cost, \$2,500.
 Mallinkrodt Chemical Works, one-sty chemical works; cost, \$3,500.
 Geo. M. Rieder, dwell.; cost, \$3,000.
 Wm. Klasing, two-sty dwell.; cost, \$3,800.
 Mrs. Watkins, two-sty dwell.; cost, \$3,780.
 Mrs. Gausey, 2 two-sty dwells.; cost, \$3,000.
 J. Weinert, two-sty dwell.; cost, \$6,800.
 Sophia Kern, two-sty store and dwell.; cost, \$2,500.
 H. H. Witte, three-sty dwell.; cost, \$2,900.
 H. Danes, two-sty dwell.; cost, \$3,000.
 Anheuser-Busch Brewing Association, frame, grain elevator; cost, \$25,000.

Washington, D. C.

BUILDING PERMITS.—The following are the permits issued since last report:—

Mrs. M. Read, brick dwell., 22' 9" x 62', three-sty and cellar, Nineteenth, bet. N and Dupont Circle, n w; cost, \$10,000.
 J. T. Stevens, brick dwell., 24' 10" x 50' 7", three-sty and basement, N. J. Ave., bet. B and C, s. e.; cost, \$18,000.

G. F. Graham, 2 brick dwells., 16' 8" x 35', two-sty and cellar, Kingman, bet. Thirteenth and Fourteenth Sts., n w; cost, \$3,200.

R. Stead, 2 brick dwells., 19' x 47', three-sty and basement, Seventeenth, bet. R. I. Ave. and N Sts., n w; cost, \$16,000.

Helen R. Tindall, frame dwell., 22' x 32', two-sty county; cost, \$2,000.

Ed. Temple, 3 brick dwells., 16' x 32', two-sty and cellar, Tenth and Va. Ave., s w; cost, \$6,500.

Laurence Sands, brick dwell., 21' 5" x 33', three-sty and basement, near cor. R and Nineteenth Sts., n w; cost, \$3,600.

W. E. Prall, brick dwell., 40' x 50', three-sty and basement, Sixteenth, bet. I and K, n w; cost, \$35,000.

G. W. Utermuhle, 2 brick dwells., 12' 6" x 42', two-sty and basement, Fourteenth, bet. F and Q Sts., n w; cost, \$2,500.

Thos. E. Waggerman, 3 brick dwells., 15' 9" x 28', two-sty and cellar, F, bet. Twenty-first and Twenty-second Sts., n w; cost, \$5,000.

Hannah Engle, 2 brick dwells., 18' x 36', two-sty and basement, Second, bet. C and D, n e; cost, \$5,000.

D. B. Groff, 2 brick dwells., 19' x 44', two-sty, Eleventh bet. T and U, n w; cost, \$4,000.

Rudolf Goldsmith, 4 brick dwells., 18' x 33', three-sty and cellar, Mass. Ave. and H, n w; cost, \$11,000.

E. C. Halliday, 2 brick dwells., 23' x 34', three-sty and basement, N, bet. Eighteenth and Nineteenth, n w; cost, \$14,000.

Riggs & Co., rebuild rear wall and make repairs at 1326 Seventh, n w; cost, \$2,000.

Mrs. S. S. Kall, remodel and repair at 728 Seventeenth St., n w; cost, \$3,000.

John Sherman & Co., 2 brick dwells., 43' x 45', three-sty and basement, Mass. Ave., near Fourteenth St., n w; cost, \$16,000.

Henry Stopsack, brick dwell., 20' x 38', two-sty and cellar, Pa. Ave., bet. Sixth and Seventh, s. e.; cost, \$2,500.

R. C. Johnson, brick dwell., 40' x 52', three-sty and basement, I, bet. Seventeenth and Eighteenth, n w; cost, \$20,000.

Daniel Murray, 3 brick dwells., 17' 6" x 36', three-sty and basement, Twelfth, bet. N and O, n w; cost, \$7,500.

Smith Pettit, brick dwell., 18' x 36', two-sty and basement, 1822 Fifteenth St., n w; cost, \$3,800.

A. F. Barker, 2 brick dwells., 20' x 26', two-sty and cellar, B, bet. Ninth and Tenth, s w; cost, \$7,500.

L. C. Bailey, brick dwell., 18' 6" x 34', two-sty and basement, Eighteenth, bet. L and M, n w; cost, \$2,600.

General Notes.

BANGOR, ME.—Two-sty frame house, 38' x 40', eight rooms, for W. L. Morse; Palliser, Palliser & Co., architects, Bridgeport, Conn.

JEWETT CITY, CONN.—Mr. Geo. H. Jennings is building for himself a house and barn; cost, about \$2,500; Palliser, Palliser & Co., architects, Bridgeport, Conn.

LAKE MAHOPAC, N. Y.—Cottage, 20' x 30', building by Sela Buckbee; plans by Palliser, Palliser & Co., architects, Bridgeport, Conn.

NEW HAVEN, CONN.—Plans were received by Army Commission, June 21, for building, 111' x 270'; cost, \$38,000. The principal architects in the State were invited to compete.

STOUGHTON, MASS.—Messrs. Lamb & Stanton have the contract for building the dwell. for Henry H. Davis, on Elm St.

WATSONVILLE, MICH.—W. L. King is to greatly change his house; plans by Palliser, Palliser & Co., architects, Bridgeport, Conn.

Industrial.

BROCKTON, MASS.—F. E. White will make extensive additions to his factory.

CEDAR RAPIDS, IOWA.—The Harvester Works contemplate several new buildings, at a cost of \$25,000.

CHAMBERSBURG, PA.—The Taylor Locomotive Company has begun work on its new buildings.

COLERAINE, MASS.—Shattuck's cotton mill is to be enlarged by an addition, 12' x 18'.

CRAGIN, ILL.—Cragin Bros. & Company, of Chicago, will soon build two frame buildings, each 50' x 80'; also a two-sty brick building, 98' x 200'.

FRANKFORD, PA.—The Frankford Boiler-Works is making an addition, 45' x 70'.

GARFIELD, ILL.—The Washburn & Moen Manufacturing Company will soon build a large warehouse upon the large tract of land recently purchased by them.

The Garfield Locomotive Works, with a capital of \$500,000, will build at once, machine-shop, 83' x 453'; foundry, 82' x 200'; blacksmith shop, 82' x 200'.

GLEN MILLS, PA.—Additions will soon be made to Wilcox & Company's paper mill.

HOLYOKE, MASS.—The Worthington & Judd Paper Company will enlarge its works.

LEBANON, PA.—The Pennsylvania Bolt and Nut Works will build the following buildings: a rolling-mill, 60' x 120'; nut and bolt factory, 80' x 120'; boiler-house, 30' x 40'; burring-room, 40' x 60'; machine-shop, 60' x 120'; warehouse, 50' x 150'.

MARQUETTE, MICH.—The Iron Bay Foundry is building a boiler-shop, 45' x 90'.

MATTEAWAN, N. Y.—H. B. Schenck is about to enlarge his machine-works by a foundry, 40' x 70', a machine-shop, 50' x 150', and a pattern-room, 40' x 40'.

MIDDLETOWN, N. Y.—Large additions are about to be made to the Orange County Furnace and Machine Shop.

SANDY HILL, N. Y.—The Iron and Brass Works Company are building a foundry, 32' x 70'; also a machine-shop, 40' x 100'.

(Continued in Supplement, page 3.)

THE AMERICAN ARCHITECT AND BUILDING NEWS

ADVERTISERS' TRADE SUPPLEMENT.

No. 5.]

SATURDAY, JULY 1, 1882.

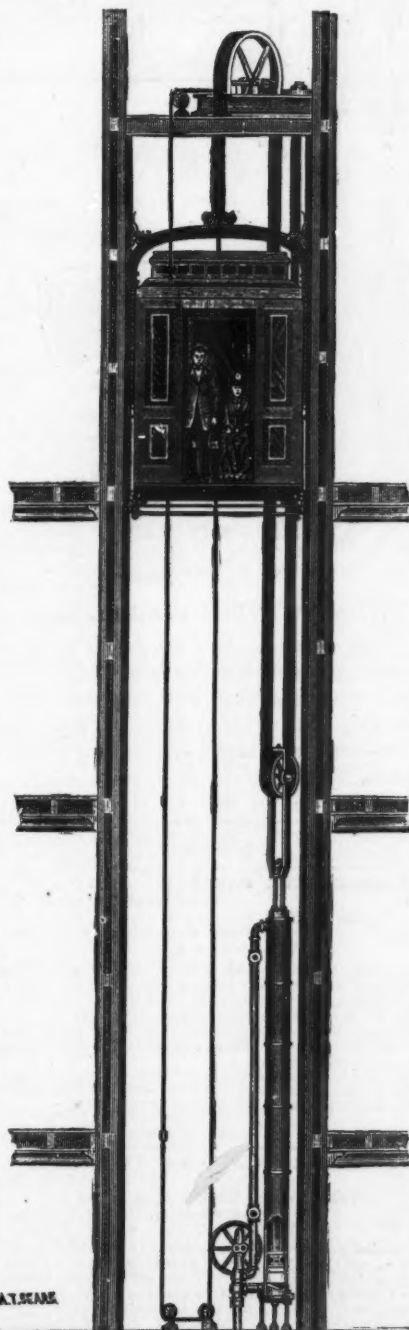
OTIS ELEVATORS.

AN experience of twenty-five years exclusively devoted to the manufacture of the various styles of elevators, and hoisting machinery, and to the study of that branch of mechanics, has given us opportunities to judge of the merits of the various hoisting devices employed, and has made us fully acquainted with all the requirements of those using elevators for any purpose. Our success in meeting these requirements during all these years has been uniform and complete, and so well known that special proof of it need not be here presented. The proof may be found in hotels, warehouses, stores, mills, factories, blast-furnaces, iron-works, etc., all over the country. Our experience had accustomed us to a certain uniformity of demand, and a regular rate of production, which regular rate continued until the introduction a few years since of the Standard Hydraulic Elevators. This elevator was adopted by us (and the patents purchased) after a careful and exhaustive investigation (aided by all of our acquired knowledge and experience) had convinced us that for passenger machines it was incomparably the best elevator ever invented or made.

Its success, and the rapidity with which it has been adopted have been unprecedented, and in striking contrast to the old, comparatively slow rate of demand and production. Its claim to be the best has been subjected to the most rigid examination in hundreds of instances, and in every instance the claim has been sustained. These examinations have been made by engineers, architects, and mechanics generally.

A notable instance of such thorough examination occurred when the United States Government invited bids for the elevators in the Custom-House, at Chicago. As Chicago is in the territory managed by our Associates, Messrs. W. E. Hale & Co., the bid for the Standard Hydraulic Elevators was submitted by these gentlemen. The Government, desiring to know definitely which elevator was best, appointed a Board of Experts to examine and report. The result of the examination of the several bids, and of their report, was the acceptance of our bid, and the execution of the work. A further result has been that we have furnished a large number of elevators required by the Government, including the substitution of the Standard Hydraulic Elevator in the New York Post-Office, for the old telescopic hydraulic elevators, which were the occasion of so much trouble and expense.

The superiority of the Standard Hydraulic Elevator over any and every form of steam-elevator, has been shown to be so great, that



ATLANTA

we have not sold, or been asked to sell more than two or three steam passenger-elevators in the past three years. This superiority is

shown in many points, especially in greatly increased speed, greater smoothness of motion, and low cost of running. Every passenger riding on the elevators in the United Bank Building, Boreel Building, Morse Building, Post Building, (Hanover Street), Liverpool & London & Globe Insurance Company's Building, and many more will testify as to the truth of this statement, relating to speed and smoothness, and the owners will bear pleasant testimony to the low cost of running. The amount of coal used in the Morse Building, Boreel Building, and the other buildings mentioned above, is not more than two-thirds, and in many cases not more than one-half the quantity which would be used by the best steam-elevators doing the same amount of work, to say nothing of quality. The importance of this remarkable fact will be easily seen by those who are paying for the coal used by steam-elevators, by whomsoever made.

It should be explained here that in places where power can not be obtained by connection with the street mains, because the pressure is unreliable, or because too much is charged for the water, it is obtained among other ways by the use of a pump which forces water to a tank placed on the roof, and the fall from the tank supplies the required power. If the work be large a steam-pump is used.

Correspondence is respectfully invited with those wishing further information. Any desired information will be gladly furnished to those desiring it, and copies of the report of the Board of Experts referred to above will be sent.

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348 BROADWAY, NEW YORK.

WORKS AT YONKERS, NEW YORK.

RENDLE'S PATENT SYSTEMS OF GLAZING WITHOUT PUTTY.

THESE systems have now been in practical use in the United States for more than a year, and have scored a decided success. Several railway companies have adopted the systems for depot skylights, etc., amongst which are the New York Central and Hudson River Railroad (which was the first to introduce the systems in this country, for its new Buffalo depot, viz.: a skylight 30' x 460'), Chicago, Burlington & Quincy Railroad, New York, Pennsylvania & Ohio Railroad, Flint and Pere Marquette Railroad, etc.

A large number of manufacturing concerns have adopted the systems for top lighting, as

follows: Yale Lock Manufacturing Company, Stamford, Conn., fifty-two skylights, 3' x 4'; Renfrew Manufacturing Company, Adams, Mass., one hundred and thirty-two skylights, 4' 6" x 12', for their new weaving factory; Barnaby Manufacturing Company, Fall River, Mass., continuous skylight, 20' x 220', for their new weaving factory; Hamilton Web Company, Wickford, R. I., continuous skylight, 12' x 150'; Messrs. Poole & Hunt, of Baltimore, Md., the well-known manufacturers of mill gearing, continuous skylight, using nearly 5,000 square feet of glass; Messrs. Wm. Skinner & Sons' Silk Mills, Holyoke, Mass., skylight, 6' x 45'; Messrs. S. A. Greene & Sons, Clyde Bleachery and Print Works, Riverpoint, R. I., skylights, 6' x 32'; Straight Line Engine Company, Syracuse, N. Y.; the Washburn & Moen Manufacturing Company, Worcester, Mass., six large skylights; the Holly Manufacturing Company, Lockport, N. Y., skylight, 12' x 100'; Messrs. Walcott & Campbell, New York Mills, N. Y., seven skylights; N. W. Gardner, Esq., architect, Buffalo, nine skylights; Miami Soap and Oil Works, Cincinnati, O.; Messrs. Weaver & Seligman, East Saginaw, Mich.; Lawn Tennis Association, New York, twelve large skylights, 9' x 10', etc., etc.

The systems are especially adapted for roofs of conservatories, plant-houses, etc., and it is expected that they will very soon supersede the old unsatisfactory method of putty glazing. In England more than five hundred conservatories, etc., have been glazed on Rendle's systems, and experience by work done in this country for more than a year shows that they are as well adapted for this climate as in England.

A large conservatory, 150 feet long, is now in process of erection for the Columbus (Ohio) Asylum for the Insane, under this system, and conservatories, etc., have already been erected in different parts of the country, amongst which is a conservatory, 20' x 50', for W. B. Storey, Esq., proprietor of the "Times" newspaper, Chicago, which has given entire satisfaction; conservatory, 20' x 100', George Westinghouse, Jr., Esq., Pittsburgh, Pa.; Mrs. Robert Pitcairn, Pittsburgh, Pa., 20' x 55'; Napoleon Hill, Esq., Memphis, Tenn.; Messrs. Muschowitz Bros., corner Fifth Avenue and Thirty-first Street, New York, etc., etc.

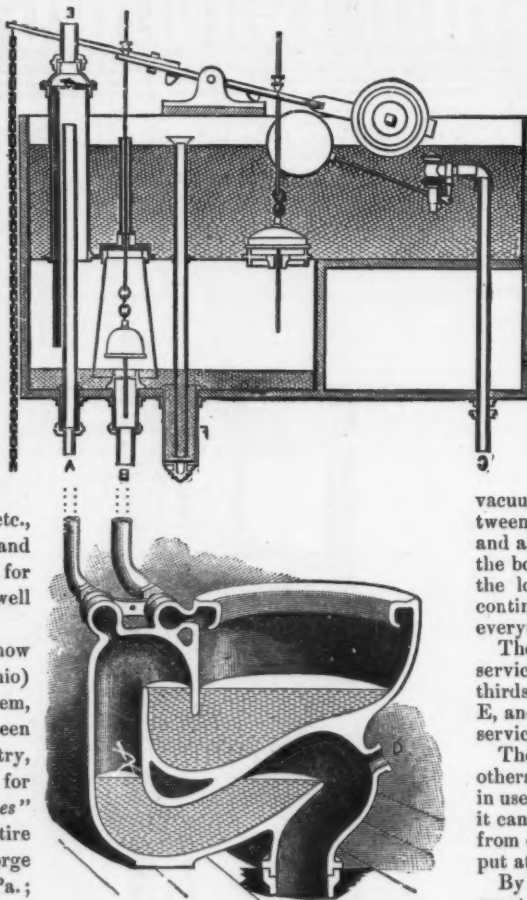
The systems have taken first premium at Cincinnati Exposition; Boston, Massachusetts Charitable Mechanic Association, silver medal; Pittsburgh, bronze medal. In addition to these, three medals have been awarded

in England, and one in Paris.

Some of the largest railway stations in the world have been glazed on Rendle's system, for instance, the Carlisle Citadel Station, 322,000 square feet of glass; Gordon Street Station, Glasgow, 130,000 feet; Bridge Street Station, Glasgow, 100,000 feet; Dundee Station, 100,000 feet, etc., etc.

Architects and others can send for the new illustrated catalogue containing 40 cuts and 44 pages. Sent free on application.

ARTHUR E. RENDLE,
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TIDAL WAVE WATER-CLOSET.

This closet is made of one piece of earthenware, and its construction is entirely new in principle, dispensing with all mechanical working parts, as plugs, soil-valves, floats and float-chamber; it is free of putty and cement-joints.

A glance at the sectional view, illustrated

above, will show that a large body of water is retained in the bowl by a trap of unusual dip which cannot be reduced under any circumstances, while a second trap, directly under the bowl, in connection with the vent at D, forms an additional safeguard against sewer-gas and renders the closet perfect in a sanitary point of view.

The closet is supplied from a water waste-preventing cistern of the usual construction, and can be operated by lever and chain attached to the closet seat, or by a bell-pull, or by an ordinary closet-pull.

The seat-attachment is preferable for the reason that the operation becomes strictly automatic, and is thus specially adapted for the use of children and persons too thoughtless to make use of mechanical devices.

A. 2 inch air-pipe. D. Vent.
B. 1 1/2 inch flushing-pipe. E. Coupling for air-pipe.
C. Supply-pipe. F. Overflow.

We adopt the seat-attachment in explaining the operation.

The section shows the closet at rest. When the seat is depressed the position of the valves in the cistern are changed, and the service-box fills, the water expelling the air from the service-box into an air-flue connected at E (top of tank). Relieving the seat rechanges the position of the valves, closing the supply, and opening the outlet valve to the flushing-pipe B. The water rushing down to the flushing-rim of the bowl, creates a partial vacuum in the service-box, causing the air between the two traps and air-pipe A to rarely, and as a natural consequence the contents of the bowl are instantaneously discharged into the lower trap, starting at the same time a continuous four-inch siphon, which carries everything with it into the soil-pipe.

The vacuum is broken after the water in the service-box has run off to the extent of two-thirds, when air is admitted from the air-flue at E, and the remaining portion of water in the service-box is reserved to refill the bowl.

The dimensions of the closet conform to all others, so that it can be substituted for any one in use without change of soil-pipe connections; it can be reversed to be conveniently supplied from either right or left. The tank can be put at any desired height from the floor.

By the invention of this closet, no doubt a great point has been achieved by the adoption of means governed by natural laws, to take the place of those mechanical working parts of a water-closet which cannot be relied upon, and are causing constant trouble and annoyance, and for such reasons alone, preference should be given to the "Tidal Wave" in every instance wherever a first-class, reliable sanitary closet is wanted.

HENRY HUBER & CO., MANUFACTURERS,
85 BEEKMAN ST., NEW YORK.

PROPOSALS.

SCHOOL-HOUSE.

[At Owatonna, Minn.]

OWATONNA, MINN., June 15, 1882.

I will receive sealed proposals until July 4, 1882, to build a brick school-house in Owatonna according to the plans and specifications to be seen in my office on and after June 21. Full particulars and terms given upon application to the undersigned. The right is reserved to reject any and all bids. W. A. DYNES, Clerk of the Board of Education. 340

SCHOOL-HOUSE.

[At California, O.]

Sealed proposals will be received at the office of the Clerk of the Board of Education of Anderson Township, California, Hamilton County, O., until 12 o'clock, at noon, on the 8th day of July, 1882, for building a school-house, on a lot situated in Sub-division Number 10, according to plans and specifications on file in this office. Each bid must contain the name of every person interested in the same, and be accompanied by a sufficient guarantee of some disinterested person that if the bid is accepted a contract will be entered into and the performance properly secured. The bid for each kind of material called for by the specifications must be stated separately, and the price given, and the price of labor must also be separately stated.

None but the lowest responsible bid will be accepted.

The Board may reject any and all bids.

By order of Board of Education.

340

E. R. VAN RENSSELAER, Clerk.

PROPOSALS.

DECORATIVE PAINTING.

[At Washington, D. C.]

OFFICE OF BUILDING FOR STATE, WAR AND NAVY DEPARTMENTS,
WASHINGTON, D. C., June 21, 1882.

Sealed proposals and designs for the decorative painting of the walls, ceilings and iron finish of six rooms, large and small, in the north wing of the building for State, War and Navy Departments, in this city will be received at this office until 12 M., on July 13, 1882, and opened immediately thereafter in presence of bidders.

Specifications, general instructions to bidders, and blank forms of proposal, will be furnished to regular decorative artists on application to this office.

THOS. LINCOLN CASEY,
Lt.-Col. Corps of Engineers.

340

IRON FURRING AND LATHING.

[At Albany, N. Y.]

OFFICE OF THE SUPERVISING ARCHITECT,
TREASURY DEPARTMENT,
WASHINGTON, D. C., June 10, 1882.

Sealed proposals will be received at this office until 12 M., on the 26th day of June, 1882, for furnishing and fixing in place complete all the iron furring and lathing, corrugated-iron arching and iron partitions, etc., required for the United States custom-house and post-office at Albany, N. Y., in accordance with drawings and specifications, copies of which and any additional information may be had on application at this office or the office of the Superintendent.

339

JAS. G. HILL,
Supervising Architect.

PROPOSALS.

FIRE-PROOF SHUTTERS, BOXES, ETC.

[At Boston, Mass.]

OFFICE OF SUPERVISING ARCHITECT,
TREASURY DEPARTMENT,
WASHINGTON, D. C. June 20, 1882.

Sealed proposals will be received at this office until 12 M., on the 14th day of July, 1882, for furnishing and putting in place complete the Fire-Proof Shutters, Boxes, etc., required for the United States Post-Office and Sub-Treasury Extension at Boston, Mass., in accordance with drawings, specification and schedule, copies of which and any additional information may be had on application at this office or the office of the Superintendent.

JAS. G. HILL,
Supervising Architect.

WATER-SUPPLY AND SEWERAGE.

[At Niteroy, Brazil.]

NEW YORK, June 15, 1882.

By order of the Brazilian Legation at Washington, the undersigned makes public that the Government of the Province of Rio de Janeiro calls for proposals for the works of water-supply and sewerage of the City of Niteroy, capital of the province. The proposals, addressed to the Brazilian Legation at Washington, must be sent until 3 o'clock in the afternoon of the 4th day of July next, to the Brazilian consulate-general, No. 42 Broadway, New York, where copies of the general conditions and specifications can be obtained, as well as any information in relation to this matter.

SALVADOR DE MENDONÇA,
Brazilian Consul-General in the United States.

340

The American Architect and Building News.

PUBLISHED EVERY SATURDAY BY
JAMES R. OSGOOD & COMPANY,
211 TREMONT STREET, BOSTON, MASS.

An illustrated Journal of Constructive and Decorative
Art, devoted to the Interests of Architects,
Builders, Decorators, etc.

15 cents per copy; \$7.50 per year; \$6.00 in advance;
12 Monthly Numbers with Detail Sheet, \$1.75.

The "Advertisers' Trade Supplement" is maintained in the interest of advertisers in the *American Architect and Building News*.

PERSONAL.

IF Thos. H. Greene, draughtsman, formerly in St. Louis, will send his address to Room 10, McLean's Block, St. Louis, Mo. (care A. L. Mills), he will learn of something to his advantage. 340

WANTED.

PARTNER.—An architect who received his professional education in Europe, and who has filled for over five years responsible positions in this country, would like an active or silent partner with means, or would accept a responsible position. Besides the ordinary professional acquirements, he is able to design in perspective, to write minute specifications, and superintend the erection of buildings. He is also a good civil engineer. Address A. N., *American Architect*. 337

WANTED.

POSITION.—By a first-class draughtsman—a position with an architect or builder of good standing and established business, with whom his fourteen years' experience as above, and active service as superintendent and clerk of works—and also as manager of workmen—can be made available.

This advertisement is directed only to the attention of architects and builders who are desirous of procuring the services of a reliable man, and who will be willing to pay reasonably for the service rendered and will make a permanent position to a satisfactory party. References given if desired.

Address R. P. S., Post-office Box 74, Baltimore, Md. 341

J. C. ALDRICH, JOHN PARKIN, SAM'L KEYS,
Chairman. Secretary. Manager.

Star Encaustic Tile Company, LIMITED,

P. O. Box 56, PITTSBURGH, PA.
Manufacturers of all Designs and Colors of

PLAIN, GEOMETRIC AND ENCAUSTIC TILE

For Floors, Halls, Hearths, Vestibules, etc., in Depots, Hotels, Churches, Hospitals, and other public buildings and private residences.

Works, Cor. Gist and Bluff Sts., Pittsburgh, Pa.

Quality warranted equal to the best imported tile.
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ROMAN and VENETIAN MOSAIC

Marble Tiles for Flooring, Venetian Enamels for Walls, Ceilings, Mantels, Hearths, etc.

The attention of architects is called to our stock of above, which has been selected in Italy by ourselves.
PASQUALI & AESCHLIMANN,
Prices very moderate. 376 2d Ave., New York.

PROPOSALS.

CUT-STONE WORK, BRICKS, CEMENT, LIME AND SAND.

[At Toledo, O.]
OFFICE OF SUPERVISING ARCHITECT,
TREASURY DEPARTMENT,
WASHINGTON, D. C., June 16, 1882.

Sealed proposals will be received at this office, until 12 M., on the 7th day of July, 1882, for furnishing and delivering ready for setting, all the cut-stonework required for the Basement and Area Walls and Piers of the United States Court-House and Post-Office at Toledo, O.; also for supplying and delivering all other materials required, bricks, cement, lime and sand, in accordance with drawings and specifications, copies of drawings and specifications for stone-work, and copies of schedule and specification of materials, together with any additional information may be had on application at this office, or the office of the Superintendent. 340

JAS. G. HILL,
Supervising Architect.

PUMPS.

[At Hoboken, N. J.]

Sealed proposals for the furnishing and erecting of a pump or pumps sufficient to keep dry that portion of the meadows lying adjacent to the Ravine Road sewer and Ferry Street, and also the cost of operating the same for a term of one year from the completion of the necessary works will be received at the office of the City Clerk until Tuesday evening, July 4, 1882, at 7 1-2 o'clock.

Proposals to be addressed "The Mayor and Council of the City of Hoboken," endorsed "Proposals for the furnishing and erecting of a suitable pump or pumps," etc.

All proposals must be made out on blanks furnished by the City Clerk, and accompanied by a bond signed by two responsible freeholders in a penal sum equal to the amount of the bid.

All bids not in due form will be thrown out. The Mayor and Council reserve the right to reject any or all bids if deemed in the interest of the city so to do.

By order of the Council.
L. H. KENDRICK, City Clerk. 340

A Delightful Summer Book.

HOW TO MAKE PICTURES.

By HENRY CLAY PRICE.

50c. per Copy.

It contains in easy lessons full instructions in Amateur Photography.

Outfits for the Amateur

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PEARSON E. CRUGER, ARCHITECT,

634 DIAMOND STREET, 25 S. QUEEN STREET,
PHILADELPHIA, PA. LANCASTER, PA.

Specialist in Cemetery Work.

Mausoleums, Vaults, Gateways, &c.
Accurate estimates of quantity, labor, etc., and close personal supervision of work given when desired. Refer by permission to R. V. Sallada, Esq., Germantown, Pa.; Hon. Samuel H. Reynolds, Lancaster, Pa.; Hon. John B. Warfel, Lancaster, Pa.; Col. W. M. McClure, Columbia, Pa.

"Pioneer" Building Paper.

WATER-PROOF, AIR-TIGHT, DURABLE, STRONG
Better and stronger than plaster; clean, odorless and does not stick.

Used for lining, roofing, ceiling, plastering.
SCOTT PAPER COMPANY, Limited,
Manufacturing Paper Dealers,
No. 27 North Sixth Street, PHILADELPHIA, PA., U. S. A.
Write for sample and prices.



The Great Church LIGHT.

FRINK'S Patent Reflectors give the Most Powerful, the Softest, Cheapest and the Best Light known for Churches, Stores, Show Windows, Parlors, Banks, Offices, Picture Galleries, Theatres, Depots, etc. New and elegant designs. Send size of room. Get circular and estimate. A liberal discount to churches and the trade.
I. P. FRINK, 551 Pearl St., N. Y.

PROPOSALS.

BRICK, CEMENT, LUMBER, ETC.

[At Rock Island, Ill.]
ROCK ISLAND ARSENAL, ILL., June 6, 1882.

Sealed proposals are invited to furnish, delivered on cars or wagons at the arsenal, the brick, lime, hydraulic cement, coke, coal (bituminous, anthracite and blacksmith), lumber and glass, that may be required at this arsenal from date of contract to June 30, 1883. Bids of the materials with approximate quantities, specifications as to the quality and other requirements, can be obtained from the undersigned.

The successful bidder will be required to enter into contract and give good and sufficient bond for the faithful performance of the same. Bids for bituminous coal delivered on cars in the city of Rock Island will be accepted. The government reserves the right to reject any or all bids; the quantities of materials to be furnished depend upon appropriations for buildings yet to be made by Congress, and after contracts are awarded, only such materials will be furnished as may be required and are ordered from time to time by the commanding officer of the arsenal.

Proposals should be in triplicate, sealed and endorsed "Proposals for materials." Bids will be opened at 10 A. M., July 5, 1882. Bidders are invited to be present at the opening.

D. W. FLAGLER,
Lt.-Col. of Ord. Commanding.

COURT-HOUSE.

[At Saginaw, Mich.]

Consolidated sealed proposals will be received by me until 12 M., July 19, 1882, for the furnishing of material and the erection of a stone and brick Court-House for the county of Saginaw, at the City of Saginaw (estimated cost not exceeding \$100,000). The building to be constructed according to plans and specifications drawn by F. W. Hollister, architect, Saginaw, Mich., which may be seen at the office of the County Clerk of Saginaw County. Each bid must be accompanied by a deposit of \$300 in cash, or a certified check for that amount, as a guaranty that the party bidding will, within 10 days, if his bid be accepted, enter into a contract for the completion of said work, and give a satisfactory bond for the faithful performance of the work awarded him. Work to be commenced immediately upon the execution of the contract, and the building completed on or before January 1, 1884.

Payment will be made in cash upon estimates made by the architect, or person appointed to superintend said work, as the work progresses, the City reserving 20 per cent upon each payment until the completion and acceptance of the building.

The right to reject any or all bids is hereby reserved.

By order of the Common Council of the City of Saginaw.
D. C. DIXSON, Comptroller. 342

PROPOSALS.

CANAL LOCKS.

[Canada.]
DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, May 22, 1882.

Sealed tenders, endorsed "Tender for Trent Navigation," will be received at this office until the 5th day of July next, for the construction of two lift locks, bridge-piers, and other works at Fenelon Falls; also, the construction of a lock at Buckhorn Rapids, and for the construction of three locks, a dam, and bridge-piers at Burleigh Falls.

The works at each of these places will be let separately.

Maps of the respective localities, together with plans and specifications of the works can be seen at this office on and after Wednesday, the 21st day of June next, where printed forms of tender can be obtained. A like class of information relative to the work at Fenelon Falls will be furnished at that place, and for those at Buckhorn and Burleigh information may be obtained at the resident engineer's office, Peterborough.

Contractors are requested to bear in mind that tenders for the different works must be accompanied by an accepted bank check as follows:

For the Fenelon Falls work, \$1,000.

For the Buckhorn Rapids work, \$500.

For the Burleigh Falls work, \$1,500.

By order. F. BRAUN, Secretary.

SEWERAGE SYSTEM.

[At Pietermaritzburg, Natal, Africa.]

The Town Council of Pietermaritzburg, Natal, invite plans and specifications, with approximate estimate of cost, of a complete system of sewerage suitable for the city. A premium of £100 (one hundred pounds) sig. will be awarded to the author of the selected plan, such plan to become the absolute property of the Corporation, all others being returned free of expense. Plans under motto or *nom de plume* (competitor's real name to be inclosed in envelope), addressed to Mr. E. Wilshire, Town Clerk, Town Office, Pietermaritzburg, Natal, and indorsed "Plans for Sewerage of City," will be received at the Town Office up to 12 noon on the 4th September. A plan of the city can be seen and further information that may be required obtained on application any day during office hours to Walter Peace, Esq., Natal Emigration Agent, 21 Finsbury-circus, London, E. C.; John A. Roos, Secretary, Town Council, Cape Town; W. P. Perin, Esq., Town Clerk, Port Elizabeth; John A. Boag, Esq., Town Clerk, Kimberley; and the Town Clerk, Pietermaritzburg. 340

ELEVATOR.

[At Cincinnati, O.]

AUDITOR'S OFFICE, HAMILTON CO., O.,
CINCINNATI, June 17, 1882.

Sealed proposals will be received at the office of the County Commissioners of Hamilton County, until 12 o'clock, M., July 12, 1882, for the building of two passenger-elevators in the Court House, as per general specifications on file in the office of the County Commissioners. Also, bids for the building of two towers, to receive said elevators, according to plans and specifications on file in said Commissioners' office. Bids for said elevators and towers may be joint or separate, and all bids for elevators must be accompanied with full drawings, plans and specifications, and must designate the safety attachment that will be used on the elevators proposed. The work to be completed within ninety days from date of contract.

The right to reject any or all bids is reserved.

341 W. S. CAPELLER, County Auditor.

JAIL.

[At Rio Grande City, Tex.]

Sealed proposals, with plans and specifications fixing time of commencement and completion of work, with terms of payment, will be received for the erection of a county jail in Starr County, Tex., two st'ys, walls of brick and mortar, foundation of brick and cement, 28' x 30', and 24' from top of foundation to wall-plate, to have an iron cage or cell large enough to hold ten prisoners. The upper and lower stories to be divided into the necessary offices, corridors, lock-ups, etc., in that will best insure security, proper ventilation and convenience, and where necessary the openings to have iron doors and gratings, in addition to wooden shutters.

Bids will be opened in presence of the commissioner's court July 5, 1882, at 12 M., the county reserving the right to reject any or all bids.

There is now in the county treasury, for the above purpose, \$4,500, which it is hoped will be sufficient, but if not, bonds will be issued for the balance, the whole cost of jail not to exceed \$8,000.

For further information address the county judge, at Rio Grande City, to whom bids will be directed, endorsed "Proposals for Building County Jail."

JAMES I. NIX, Clerk C. C. S. C.

By order of the Court.

IRON ROOFS, ETC.

[At Topeka, Kan.]

OFFICE OF SUPERVISING ARCHITECT,
TREASURY DEPARTMENT,
WASHINGTON, D. C., June 20, 1882.

Sealed proposals will be received at this office, until 12 M., on the 12th day of July, 1882, for furnishing and fixing in place complete the iron roofs, etc., required for the United States Court-House and Post-Office at Topeka, Kan., in accordance with drawings and specifications, copies of which and any additional information, may be had on application at this office or the office of the Superintendent.

JAS. G. HILL, Supervising Architect.

IRON BRIDGE.

[At Sycamore, O.]

AUDITOR'S OFFICE, HAMILTON CO., O.,
CINCINNATI, June 15, 1882.

Sealed proposals will be received at the office of the Butler County Commissioners, Hamilton, O., until Friday, July 21, 1882, at 12 o'clock, M., for an iron superstructure over Irvin's Run, east of Charles Krauskopf's, on the County Line Road, in Sycamore Township. Length in clear, 38 feet; requisite strength, 90 pounds to the square foot; clear width, 18 feet. Five will be used at a factor of safety. Ultimate compression, 42,000 pounds to the square foot. Ultimate tension, 60,000 pounds to the square foot. Three panels, 14 feet each. Height of truss, 8 feet.

N. B.—Bidders will also bid on a plate-girder bridge, giving on strain sheet number and size of I-beams used. A full and complete strain sheet must accompany each bid.

The Commissioners reserve the right to reject any or all bids. Proposals should be indorsed as above, and addressed to the Commissioners of Butler County, Hamilton O.

W. S. CAPELLER,
County Auditor.

follows: Yale Lock Manufacturing Company, Stamford, Conn., fifty-two skylights, 3' x 4'; Renfrew Manufacturing Company, Adams, Mass., one hundred and thirty-two skylights, 4' 6" x 12', for their new weaving factory; Barnaby Manufacturing Company, Fall River, Mass., continuous skylight, 20' x 220', for their new weaving factory; Hamilton Web Company, Wickford, R. I., continuous skylight, 12' x 150'; Messrs. Poole & Hunt, of Baltimore, Md., the well-known manufacturers of mill gearing, continuous skylight, using nearly 5,000 square feet of glass; Messrs. Wm. Skinner & Sons' Silk Mills, Holyoke, Mass., skylight, 6' x 45'; Messrs. S. A. Greene & Sons, Clyde Bleachery and Print Works, Riverpoint, R. I., skylights, 6' x 32'; Straight Line Engine Company, Syracuse, N. Y.; the Washburn & Moen Manufacturing Company, Worcester, Mass., six large skylights; the Holly Manufacturing Company, Lockport, N. Y., skylight, 12' x 100'; Messrs. Walcott & Campbell, New York Mills, N. Y., seven skylights; N. W. Gardner, Esq., architect, Buffalo, nine skylights; Miami Soap and Oil Works, Cincinnati, O.; Messrs. Weaver & Seligman, East Saginaw, Mich.; Lawn Tennis Association, New York, twelve large skylights, 9' x 10', etc., etc.

The systems are especially adapted for roofs of conservatories, plant-houses, etc., and it is expected that they will very soon supersede the old unsatisfactory method of putty glazing. In England more than five hundred conservatories, etc., have been glazed on Rendle's systems, and experience by work done in this country for more than a year shows that they are as well adapted for this climate as in England.

A large conservatory, 150 feet long, is now in process of erection for the Columbus (Ohio) Asylum for the Insane, under this system, and conservatories, etc., have already been erected in different parts of the country, amongst which is a conservatory, 20' x 50', for W. B. Storey, Esq., proprietor of the "Times" newspaper, Chicago, which has given entire satisfaction; conservatory, 20' x 100', George Westinghouse, Jr., Esq., Pittsburgh, Pa.; Mrs. Robert Pitcairn, Pittsburgh, Pa., 20' x 55'; Napoleon Hill, Esq., Memphis, Tenn.; Messrs. Muschowitz Bros., corner Fifth Avenue and Thirty-first Street, New York, etc., etc.

The systems have taken first premium at Cincinnati Exposition; Boston, Massachusetts Charitable Mechanic Association, silver medal; Pittsburgh, bronze medal. In addition to these, three medals have been awarded

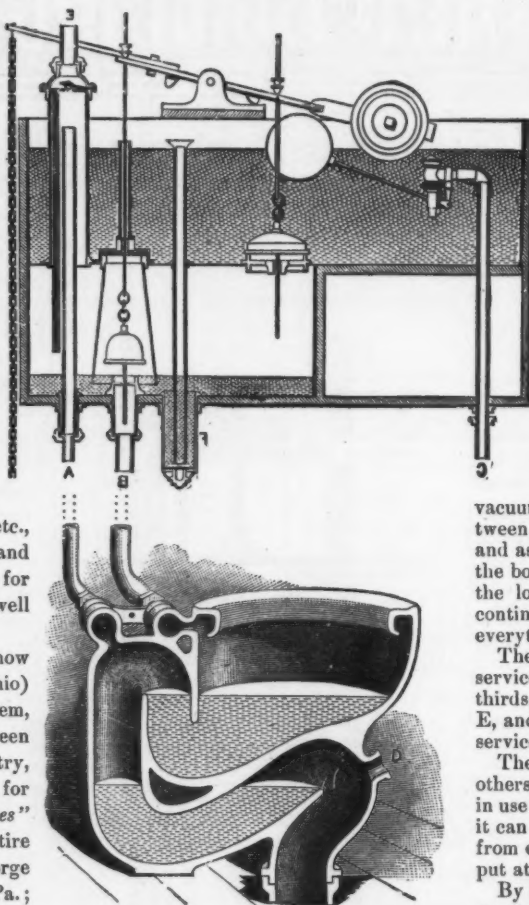
in England, and one in Paris.

Some of the largest railway stations in the world have been glazed on Rendle's system, for instance, the Carlisle Citadel Station, 322,000 square feet of glass; Gordon Street Station, Glasgow, 130,000 feet; Bridge Street Station, Glasgow, 100,000 feet; Dundee Station, 100,000 feet, etc., etc.

Architects and others can send for the new illustrated catalogue containing 40 cuts and 44 pages. Sent free on application.

ARTHUR E. RENDLE,

RENDLE'S HORTICULTURAL AND SKYLIGHT WORKS,
7 WARREN STREET, NEW YORK.



TIDAL WAVE WATER-CLOSET.

This closet is made of one piece of earthenware, and its construction is entirely new in principle, dispensing with all mechanical working parts, as plugs, soil-valves, floats and float-chamber; it is free of putty and cement-joints.

A glance at the sectional view, illustrated

above, will show that a large body of water is retained in the bowl by a trap of unusual dip which cannot be reduced under any circumstances, while a second trap, directly under the bowl, in connection with the vent at D, forms an additional safeguard against sewer-gas and renders the closet perfect in a sanitary point of view.

The closet is supplied from a water waste-preventing cistern of the usual construction, and can be operated by lever and chain attached to the closet seat, or by a bell-pull, or by an ordinary closet-pull.

The seat-attachment is preferable for the reason that the operation becomes strictly automatic, and is thus specially adapted for the use of children and persons too thoughtless to make use of mechanical devices.

A. 2 inch air-pipe. D. Vent.
B. 1 1/2 inch flushing-pipe. E. Coupling for air-pipe.
C. Supply-pipe. F. Overflow.

We adopt the seat-attachment in explaining the operation.

The section shows the closet at rest.

When the seat is depressed the position of the valves in the cistern are changed, and the service-box fills, the water expelling the air from the service-box into an air-flue connected at E (top of tank). Relieving the seat rechanges the position of the valves, closing the supply, and opening the outlet valve to the flushing-pipe B. The water rushing down to the flushing-rim of the bowl, creates a partial vacuum in the service-box, causing the air between the two traps and air-pipe A to rarefy, and as a natural consequence the contents of the bowl are instantaneously discharged into the lower trap, starting at the same time a continuous four-inch siphon, which carries everything with it into the soil-pipe.

The vacuum is broken after the water in the service-box has run off to the extent of two-thirds, when air is admitted from the air-flue at E, and the remaining portion of water in the service-box is reserved to refill the bowl.

The dimensions of the closet conform to all others, so that it can be substituted for any one in use without change of soil-pipe connections; it can be reversed to be conveniently supplied from either right or left. The tank can be put at any desired height from the floor.

By the invention of this closet, no doubt a great point has been achieved by the adoption of means governed by natural laws, to take the place of those mechanical working parts of a water-closet which cannot be relied upon, and are causing constant trouble and annoyance, and for such reasons alone, preference should be given to the "Tidal Wave" in every instance wherever a first-class, reliable sanitary closet is wanted.

HENRY HUBER & CO., MANUFACTURERS,
85 BEEKMAN ST., NEW YORK.

PROPOSALS.

SCHOOL-HOUSE.

[At Owatonna, Minn.]
OWATONNA, MINN., June 15, 1882.

I will receive sealed proposals until July 4, 1882, to build a brick school-house in Owatonna according to the plans and specifications to be seen in my office on and after June 24. Full particulars and terms given upon application to the undersigned. The right is reserved to reject any and all bids. W. A. DYNES, Clerk of the Board of Education. 340

SCHOOL-HOUSE.

[At California, O.]

Sealed proposals will be received at the office of the Clerk of the Board of Education of Anderson Township, California, Hamilton County, O., until 12 o'clock, at noon, on the 8th day of July, 1882, for building a school-house, on a lot situated in Subdivision Number 10, according to plans and specifications on file in this office. Each bid must contain the name of every person interested in the same, and be accompanied by a sufficient guarantee of some disinterested person that if the bid is accepted a contract will be entered into and the performance properly secured. The bid for each kind of material called for by the specifications must be stated separately, and the price given, and the price of labor must also be separately stated.

None but the lowest responsible bid will be accepted.

The Board may reject any and all bids.

By order of Board of Education.

340

E. R. VAN RENSSLAER, Clerk.

PROPOSALS.

DECORATIVE PAINTING.

[At Washington, D. C.]

OFFICE OF BUILDING FOR STATE, WAR AND NAVY DEPARTMENTS,
WASHINGTON, D. C., June 21, 1882.

Sealed proposals and designs for the decorative painting of the walls, ceilings and iron finish of six rooms, large and small, in the north wing of the building for State, War and Navy Departments, in this city will be received at this office until 12 M., on July 12, 1882, and opened immediately thereafter in presence of bidders.

Specifications, general instructions to bidders, and blank forms of proposal, will be furnished to regular decorative artists on application to this office.

THOS. LINCOLN CASEY,
Lt.-Col. Corps of Engineers.

340

IRON FURRING AND LATHING.

[At Albany, N. Y.]

OFFICE OF THE SUPERVISING ARCHITECT,
TREASURY DEPARTMENT,
WASHINGTON, D. C., June 10, 1882.

Sealed proposals will be received at this office until 12 M., on the 26th day of June, 1882, for furnishing and fixing in place complete all the iron furring and lathing, corrugated-iron arching and iron partitions, etc., required for the United States custom-house and post-office at Albany, N. Y., in accordance with drawings and specifications, copies of which and any additional information may be had on application at this office or the office of the Superintendent.

JAS. G. HILL,
Supervising Architect.

339

PROPOSALS.

FIRE-PROOF SHUTTERS, BOXES, ETC.

[At Boston, Mass.]

OFFICE OF SUPERVISING ARCHITECT,
TREASURY DEPARTMENT,
WASHINGTON, D. C., June 20, 1882.

Sealed proposals will be received at this office until 12 M., on the 14th day of July, 1882, for furnishing and putting in place complete the Fire-Proof Shutters, Boxes, etc., required for the United States Post-Office and Sub-Treasury Extension at Boston, Mass., in accordance with drawings, specification and schedule, copies of which and any additional information may be had on application at this office or the office of the Superintendent.

JAS. G. HILL,
Supervising Architect.

WATER-SUPPLY AND SEWERAGE.

[At Nietheroy, Brazil.]

NEW YORK, June 15, 1882.

By order of the Brazilian Legation at Washington, the undersigned makes public that the Government of the Province of Rio de Janeiro calls for proposals for the works of water-supply and sewerage of the City of Nietheroy, capital of the province. The proposals, addressed to the Brazilian Legation at Washington, must be sent until 3 o'clock in the afternoon of the 4th day of July next, to the Brazilian consulate-general, No. 42 Broadway, New York, where copies of the general conditions and specifications can be obtained, as well as any information in relation to this matter. SALVADOR DE MENDONÇA, 340 Brazilian Consul-General in the United States.

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PERSONAL.

IF Thos. H. Greene, draughtsman, formerly in St. Louis, will send his address to Room 10, McLean's Block, St. Louis, Mo. (care A. L. Mills), he will learn of something to his advantage. 340

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PROPOSALS.

CUT-STONE WORK, BRICKS, CEMENT, LIME AND SAND. [At Toledo, O.]

OFFICE OF SUPERVISING ARCHITECT,
TREASURY DEPARTMENT,
WASHINGTON, D. C., June 16, 1882.

Sealed proposals will be received at this office, until 12 M., on the 7th day of July, 1882, for furnishing and delivering ready for setting, all the cut-stonework required for the Basement and Area Walls and Piers of the United States Court-House and Post-Office at Toledo, O.; also for supplying and delivering all other materials required, bricks, cement, lime and sand, in accordance with drawings and specifications, copies of drawings and specifications for stone-work, and copies of schedule and specification of materials, together with any additional information may be had on application at this office, or the office of the Superintendent. JAS. G. HILL,
340 Supervising Architect.

PUMPS.

[At Hoboken, N. J.]

Sealed proposals for the furnishing and erecting of a pump or pumps sufficient to keep dry that portion of the meadows lying adjacent to the Ravine Road sewer and Ferry Street, and also the cost of operating the same for a term of one year from the completion of the necessary works will be received at the office of the City Clerk until Tuesday evening, July 4, 1882, at 7 1-2 o'clock.

Proposals to be addressed "The Mayor and Council of the City of Hoboken," endorsed "Proposals for the furnishing and erecting of a suitable pump or pumps," etc.

All proposals must be made out on blanks furnished by the City Clerk, and accompanied by a bond signed by two responsible freeholders in a penal sum equal to the amount of the bid.

All bids not in due form will be thrown out. The Mayor and Council reserve the right to reject any or all bids if deemed in the interest of the city so to do.

By order of the Council.
340 L. H. KENDRICK, City Clerk.

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PROPOSALS.

BRICK, CEMENT, LUMBER, ETC. [At Rock Island, Ill.]

ROCK ISLAND ARSENAL, ILL., June 6, 1882.

Sealed proposals are invited to furnish, delivered on cars or wagons at the arsenal, the brick, lime, hydraulic cement, coke, coal (bituminous, anthracite and blacksmith), lumber and glass, that may be required at this arsenal from date of contract to June 30, 1883.

Bills of the materials with approximate quantities, specifications as to the quality and other requirements, can be obtained from the undersigned.

The successful bidder will be required to enter into contract and give good and sufficient bond for the faithful performance of the same. Bids for bituminous coal delivered on cars in the city of Rock Island will be accepted. The government reserves the right to reject any or all bids; the quantities of materials to be furnished depend upon appropriations for buildings yet to be made by Congress, and after contracts are awarded, only such materials will be furnished as may be required and are ordered from time to time by the commanding officer of the arsenal.

Proposals should be in triplicate, sealed and endorsed "Proposals for materials." Bids will be opened at 10 A. M., July 5, 1882. Bidders are invited to be present at the opening.

D. W. FLAGLER,
340 Lt.-Col. of Ord. Commanding.

COURT-HOUSE.

[At Saginaw, Mich.]

Consolidated sealed proposals will be received by me until 12 M., July 10, 1882, for the furnishing of material and the erection of a stone and brick Court-House for the county of Saginaw, at the City of Saginaw (estimated cost, not exceeding \$100,000). The building to be constructed according to plans and specifications drawn by F. W. Hollister, architect, Saginaw, Mich., which may be seen at the office of the County Clerk of Saginaw County. Each bid must be accompanied by a deposit of \$300 in cash, or a certified check for that amount, as a guaranty that the party bidding will, within 10 days, if his bid be accepted, enter into a contract for the completion of said work, and give a satisfactory bond for the faithful performance of the work awarded him. Work to be commenced immediately upon the execution of the contract, and the building completed on or before January 1, 1884.

Payment will be made in cash upon estimates made by the architect, or person appointed to superintend said work, as the work progresses, the City reserving 20 per cent upon each payment until the completion and acceptance of the building.

The right to reject any or all bids is hereby reserved.

By order of the Common Council of the City of Saginaw.
342 D. C. DIXON, Comptroller.

PROPOSALS.

CANAL LOCKS. [Canada.]

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, May 24, 1882.

Sealed tenders, endorsed "Tender for Trent Navigation," will be received at this office until the 5th day of July next, for the construction of two lift locks, bridge-piers, and other works at Fenelon Falls; also, the construction of a lock at Buckhorn Rapids, and for the construction of three locks, a dam, and bridge-piers at Burleigh Falls.

The works at each of these places will be let separately.

Maps of the respective localities, together with plans and specifications of the works can be seen at this office on and after Wednesday, the 21st day of June next, where printed forms of tender can be obtained. A like class of information relative to the work at Fenelon Falls will be furnished at that place, and for those at Buckhorn and Burleigh information may be obtained at the resident engineer's office, Peterborough.

Contractors are requested to bear in mind that tenders for the different works must be accompanied by an accepted bank check as follows:—

For the Fenelon Falls work, \$1,000.
For the Buckhorn Rapids work, \$500.
For the Burleigh Falls work, \$1,500.
By order. F. BRAUN, Secretary.

SEWERAGE SYSTEM.

[At Pietermaritzburg, Natal, Africa.]

The Town Council of Pietermaritzburg, Natal, invite plans and specifications, with approximate estimate of cost, of a complete system of sewerage suitable for the city. A premium of £100 (one hundred pounds) stg. will be awarded to the author of the selected plan, such plan to become the absolute property of the Corporation, all others being returned free of expense. Plans under motto or *nom de plume* (competitor a real name to be inclosed in envelope), addressed to Mr. E. Wilshe, Town Clerk, Town Office, Pietermaritzburg, Natal, and indorsed "Plans for Sewerage of City," will be received at the Town Office up to 12 noon on the 4th September. A plan of the city can be seen and further information that may be required obtained on application any day during office hours to Walter Peace, Esq., Natal Emigration Agent, 21 Finsbury-circus, London, E. C.; John A. Roos, Secretary, Town Council, Cape Town; W. P. Perin, Esq., Town Clerk, Port Elizabeth; John A. Boag, Esq., Town Clerk, Kimberley; and the Town Clerk, Pietermaritzburg. 340

ELEVATOR.

[At Cincinnati, O.]

AUDITOR'S OFFICE, HAMILTON CO., O.,

CINCINNATI, June 17, 1882.

Sealed proposals will be received at the office of the County Commissioners of Hamilton County, until 12 o'clock, M., July 12, 1882, for the building of two passenger-elevators in the Court-House, as per general specifications on file in the office of the County Commissioners. Also, bids for the building of two towers, to receive said elevators, according to plans and specifications on file in said Commissioners' office. Bids for said elevators and towers may be joint or separate, and all bids for elevators must be accompanied with all drawings, plans and specifications, and must designate the safety attachment that will be used on the elevators proposed. The work to be completed within ninety days from date of contract.

The right to reject any or all bids is reserved.
341 W. S. CAPPELLER, County Auditor.

JAIL.

[At Rio Grande City, Tex.]

Sealed proposals, with plans and specifications fixing time of commencement and completion of work, with terms of payment, will be received for the erection of a county jail in Starr County, Tex., two st'ys. walls of brick and mortar, foundation of brick and cement, 28' x 30' and 24' from top of foundation to wall-plate, to have an iron cage or cell large enough to hold ten prisoners. The upper and lower stories to be divided into the necessary offices, corridors, lock-ups, etc., in that will best insure security, proper ventilation and convenience, and where necessary the openings to have iron doors and gratings, in addition to wooden shutters.

Bids will be opened in presence of the commissioner's court July 5, 1882, at 12 M., the county reserving the right to reject any or all bids.

There is now in the county treasury, for the above purpose, \$4,500, which it is hoped will be sufficient, but if not, bonds will be issued for the balance, the whole cost of jail not to exceed \$6,000.

For further information address the county judge, at Rio Grande City, to whom bids will be directed, endorsed "Proposals for Building County Jail."

JAMES I. NIX, Clerk C. C. S. C.

By order of the Court.

IRON ROOFS, ETC.

[At Topeka, Kan.]

OFFICE OF SUPERVISING ARCHITECT,

TREASURY DEPARTMENT,

WASHINGTON, D. C., June 20, 1882.

Sealed proposals will be received at this office, until 12 M., on the 12th day of July, 1882, for furnishing and fixing in place complete the iron roofs, etc., required for the United States Court-House and Post-Office at Topeka, Kan., in accordance with drawings and specifications, copies of which and any additional information may be had on application at this office or the office of the Superintendent.

JAS. G. HILL, Supervising Architect.

IRON BRIDGE.

[At Sycamore, O.]

AUDITOR'S OFFICE, HAMILTON COUNTY, O.,

CINCINNATI, June 15, 1882.

Sealed proposals will be received at the office of the Butler County Commissioners, Hamilton, O., until Friday, July 21, 1882, at 12 o'clock, M., for an iron superstructure over Irvin's Run, east of Charles Krauskopf's, on the County Line Road, in Sycamore Township. Length in clear, 38 feet; requisite strength, 90 pounds to the square foot; clear width, 18 feet. Five will be used at a factor of safety. Ultimate compression, 42,000 pounds to the square foot. Ultimate tension, 60,000 pounds to the square foot. Three panels, 14 feet each. Height of truss, 8 feet.

N. B.—Bidders will also bid on a plate-girder bridge, giving on strain sheet number and size of I-beams used. A full and complete strain sheet must accompany each bid.

The Commissioners reserve the right to reject any or all bids. Proposals should be indorsed as above, and addressed to the Commissioners of Butler County, Hamilton O.

W. S. CAPPELLER,
County Auditor.

FIRE! FIRE! FIRE!

In the fire that occurred at my place May 17th, a number of copies of the valuable work "Cummings' Architectural Details" (contents given below), were injured by water, smoke, and some by fire. In all cases the plates are perfect, but the book is marred in appearance; in consideration of which I have concluded to offer it in 3 lots, as follows:

- 1st. Copies slightly soiled by smoke, \$4.00
 2d. Copies soiled by smoke and water (Some in Portfolio), 3.00
 3d. Copies damaged by fire and water (Some in Portfolio), 2.00

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LIST OF PLATES.

Plate 1.—Front Elevation of the Troy Times Building, Troy, N. Y.

Plate 2.—Designs for Cornices for City Buildings and Street Fronts. Four Figures.

Plate 3.—Designs for Cornices for Street Fronts and for Suburban Buildings. Six Figures.

Plate 4.—Designs for Cornices for Street Fronts and Suburban Buildings. Nine Figures.

Plate 5.—Brick Cornices. Four Figures.

Plate 6.—Designs for Cornices for Country Houses. Ten Figures.

Plate 7.—Designs for Cornices for Store Fronts, and for Steep and French Roofs. Eleven Figures.

Plate 8.—Elevations of Fronts for City Dwelling-Houses. Three Figures.

Plate 9.—Designs for French Roofs and their Finish. Two Figures.

Plate 10.—Designs for French Roofs and their Finish. Four Figures.

Plate 11.—Designs for Gable Finish and Cornices for Cottages. Nine Figures.

Plate 12.—Designs for Cottage Cornices and Gable Finish. Six Figures.

Plate 13.—Designs for Cornices and Gable Finish. Nine Figures.

Plate 14.—Designs for Front Entrance Doors. Three Figures.

Plate 15.—Designs for Front Entrance Doors for Dwelling-Houses. Four Figures.

Plate 16.—Front Elevation and Plans for Dwelling-Houses. First and Second Stories.

Plate 17.—Design for Front Entrance Doors and Bay Window. One Figure.

Plate 18.—Design for Front Doors and Bay Window. One Figure.

Plate 19.—Designs for Single Windows, having Outside Casings or Architraves. Nine Figures.

Plate 20.—Designs for Windows with Arched Heads. Nine Figures.

Plate 21.—Designs for Double or Mullion Windows. Nine Figures.

Plate 22.—Designs for Exterior Finish of Windows. Five Figures.

Plate 23.—Designs for Bay Windows. Two Figures.

Plate 24.—Front Elevation and Plans for Dwelling-House. First and Second Stories.

Plate 25.—Designs for Bay Windows.

Plate 26.—Designs for Dormer Windows in French Roofs. Four Figures.

Plate 27.—Designs for Dormer Windows in French Roofs. Nine Figures.

Plate 28.—Designs for Dormer Windows in French and High Pitched Roofs. Five Figures.

Plate 29.—Designs for Window Caps and Sills. Details A to E.

Plate 30.—Designs for a Tower. Three Figures.

Plate 31.—Designs for a Tower. Two Figures.

Plate 32.—Front Elevations of Two Brick Buildings.

Plate 33.—Design for a Tower. One Figure.

Plate 34.—Designs for Porches. Three Figures.

Plate 35.—Designs for Porches. Three Figures.

Plate 36.—Designs for Piazzas. Six Figures.

Plate 37.—Designs for Piazzas. Five Figures.

Plate 38.—Designs for Piazzas. Three Figures.

Plate 39.—Designs for Balconies and Railings. Nine Figures.

Plate 40.—Elevation and Plan of Dwelling-House. First and Second Stories.

Plate 41.—Designs for Railings and Canopies. Nine Figures.

Plate 42.—Designs for Belt-Courses. Water Tables and Corner Boards. Nine Figures.

Plate 43.—Designs for Stairs and Outside Steps. Five Figures.

Plate 44.—Designs for Fronts of Stores. Two Figures.

Plate 45.—Designs for Store Fronts. Two Figures.

Plate 46.—Designs for Wainscoting. Four Figures.

Plate 47.—Designs for Inside Doors. Wainscoting and Inside Finish for Doors and Windows. Seven Figures.

Plate 48.—Front Elevation and Plans for Court-House. First and Second Stories.

Plate 49.—Designs for Chimney-Caps. Six Figures.

Plate 50.—Designs for Ceilings and Stucco Cornices and Ribs. Four Figures.

Plate 51.—Designs for Fences and Mantels. Nine Figures.

Plate 52.—Mouldings. Nine Figures.

Plate 53.—Mouldings. Twenty-two Figures.

Plate 54.—Designs for Inside Casings for Doors and Windows, and for Base-boards. Thirty-six Figures.

Plate 55.—Front Elevations and Plans of Three Cottages. First and Second Stories. Three Figures.

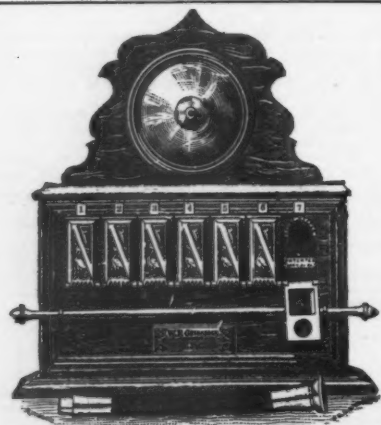
Plate 56.—Three Designs for Houses of Moderate Cost. Three Figures.

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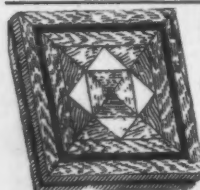
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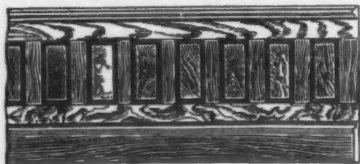
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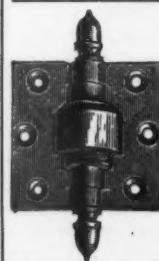
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