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CONTENTS

THE comments of the professional and other journals on the question of the reconstruction of the Venetian Campanile are extremely interesting. Undoubtedly, Mr. C. Howard Walker will prove to have been right in his opinion, that a considerable part of the lower portion of the shaft will be found still standing, and that the foundations are practically undisturbed; so that a reconstruction on the same spot seems to be justified, not only by the sentiment which wishes to see the Campanile, if restored at all, occupy the same spot on which it stood for more than a thousand years, but by considerations of economy. As to whether it should be rebuilt at all opinions differ. The Paris *Figaro* has interviewed a large number of artists on the subject, beginning with Ziem, the great painter of Venetian scenes. He, it appears, does not wish to see it reconstructed; and many other painters and sculptors agree with him. In particular, they fear that architects may be allowed to play their "antics" about the tower. Among the architects, who, naturally, look on the matter with less sentiment, and a calmer conception of the artistic relations of the Campanile, the opinion seems to be general that the long, low buildings surrounding the Piazza of St. Mark, made still lower in effect by the strong horizontal lines of their arcades, need, to give them picturesque effect, the contrast of the lofty vertical mass of the tower. Whether the Campanile should be rebuilt exactly as it stood before is, however, a question about which architects differ. The editor of the London *Builder* gives vigorous expression to the opinion, in which we cannot quite agree with him, that the "packing-box" story, as he calls it, between the arcaded loggia at the top of the shaft and the pyramidal roof, never was anything but an unstudied and ungraceful makeshift to gain extra height, and should not be repeated. It is true that this story, decorated only by a coarse inlaid panelling, was heavy and uninteresting in appearance, but it served to give to the upper part of the tower a silhouette which was not only, to our mind, pleasing in itself, but was so characteristic of Venice, that, merely as a matter of sentiment, it would be a pity to change it. We remember a considerable number of Italian bell-towers, from that at Florence to some in Rome, and while the detail and proportions of the shafts of many of them are much more beautiful than those of the Venetian Campanile, none have an outline so well suited to the picturesqueness and variety of the group of buildings surrounding the Piazza. At the same time it would be easy to preserve the outline, without reproducing the coarse ornamentation, and, notwithstanding the opinion of those who would like to have the Campanile not only rebuilt, stone by stone, and brick by brick, but painted over after completion to imitate the "patina" of age, we should not object to seeing the "packing-box" story made beautiful and interesting by sculpture or otherwise, as a memorial of the rebuilding. As to Sansovino's Loggetta, which could hardly be improved upon, it is, fortunately, quite possible to restore it exactly in its former shape, and, practically, out of its own fragments; so that there is no reason why our children should not see the Campanile substantially as we have seen it, but with added beauty and interest.

THE people of the United States might with advantage interest themselves in the South American States, which have utilized the long interval of peace that they have enjoyed to enter upon a career of internal and commercial development which promises to be a brilliant one. Several new railways have been begun, on both sides of the Andes chain, and, before long, the plains of the upper Amazon and the La Plata will undoubtedly be made readily accessible to us by railways from the Pacific Coast. As pieces of engineering, some of the new lines are of rather startling interest. The last one, which is to cross the Andes from Lima, by way of Matucana, has already been constructed to its highest level, in the Paso de Galera, where it penetrates the ridge dividing the Pacific from the Atlantic slope by means of a tunnel, two miles long, at an elevation of nearly sixteen thousand feet above the sea. It is not surprising to learn that there is a fine view from the summit of the pass, and that trains stop fifteen minutes at the station at the entrance of the tunnel, to give passengers an opportunity of enjoying it.

A FEW years ago, Colonel North, the "Nitrate King," as he was called, who had made an enormous fortune out of the Chilian deposits of nitrate of soda, undertook to build a mansion at Eltham, near London. He secured eighty-four acres of land, and built a house which is said to have cost, with the out-buildings, about a million dollars. For a time, the mansion and estate, which were known under the name of Avery Hill, formed the topic of endless illustrated articles in the professional newspapers. In the end, Colonel North quarrelled with his architect, Mr. Cutler, and their relations ended in a lawsuit, which turned out, we believe, in Mr. Cutler's favor. Not long afterwards, Colonel North died, and the property, after lying idle for some years, has at last been sold, for one hundred and twenty-five thousand dollars, to the London County Council, which will make a public park of the grounds, and will utilize the mansion in some way to be hereafter determined.

AN instructor in science at the College of the Sorbonne, in Paris, M. Fournier, has made a study of boiler explosions, a large portion of which he thinks to be due to the inefficiency of the safety-valves in common use. As he observes, a safety-valve which is held to its seat by a spiral spring, as is the case with those on small and cheap boilers, never shows at the valve, when open, a pressure so great, by many pounds to the square inch, as that which actually exists inside the boiler, for the reason that as soon as the valve opens in the slightest degree, the escape of a portion of the steam just under the valve reduces the pressure of the remainder. Supposing the safety-valve to be set to open, for example, at one hundred pounds to the square inch, while it will begin to leak steam at that pressure, it cannot be held open until the boiler pressure is far beyond that, as the pressure required to hold it open must be one hundred pounds to the square inch plus whatever is lost under the valve by the escape of a portion of the steam. Moreover, as, with a cheap valve, the force of the spiral spring increases greatly as it is compressed by opening the valve widely, while the wider opening of the valve reduces still more the local tension of the steam, it follows that to hold the valve up, so as to keep an annular opening around it equal in width to one-fourth the diameter of the valve, which is necessary to give free escape to the steam, requires a pressure inside the boiler far greater than that at which the safety-valve is set, the difference varying with the spring, the pressure and the size of the valve. In this country, the simple spring safety-valve is only used on the cheapest boilers, our engineers having long understood its defects, but M. Fournier's interesting paper will be useful, even here, as showing clearly the nature of the danger attendant upon its employment.

MR. LAURENCE HARVEY, who has just made a visit to Athens, writes to *La Construction Moderne* a letter which will interest architects, and, particularly, those American architects who have made a scientific study of the monuments on the Athenian Acropolis. Mr. Harvey, it may be remarked, belongs to the modern school of architects, in that he likes to compare the information furnished by poets and essayists in regard to architecture, with the evidence of his own senses, and, occasionally, with the conclusions which his trained intelligence suggests to him. Studying, before the ruins of the Propylæa, the rapturous description of Baedeker's *Guide*, he was surprised to read that the interior columns, of the Ionic order, were three feet two inches in diameter at the foot, and thirty-three feet seven inches high. This would make them nearly eleven diameters high, and, as a conscientious pupil of the École des Beaux-Arts, he was not prepared to admit that an antique example of the order could be so abnormally slender. Moreover, the height given by Baedeker would bring the capitals of the interior columns to a level with the cornice of the exterior order, and, as it is to be presumed that the portico was covered with marble slabs, like other structures of the kind at that period, it is obvious that the covering, with interior columns of the height given, would show from the front above the cornice. As this is hardly admissible, Mr. Harvey concludes that the interior columns, of which only the bases and a few fragments remain, were probably of the same height as the exterior ones, which would give them a proportion of nine diameters, and that they carried architrave blocks, at the same level with those of the exterior order, on which the marble ceiling slabs could rest safely; and this view is confirmed by the fact that an architrave block, apparently belonging to an interior order, still lies on the ground among the other fragments of the building.

MR. HARVEY, in speaking of other Athenian buildings, gives expression to a thought which has probably crossed the minds of many other architects, that the Greeks, notwithstanding their exquisite keenness of perception, and sense of beauty, did not always show that completeness of conception of their buildings which a modern architect regards as necessary, and which is so characteristic of the mediæval period. In the Theseum, as he points out, the columns of the porticos are laid out without any regard to the ceiling panels, and, in consequence, the marble slabs of the latter are sustained by stones placed almost at random, or, at least, corresponding neither with the colonnades nor with the walls of the cella; and, in order to find a support for some of these stones, it has been necessary to raise the ceiling of the western portico about eight inches above that of the lateral porticos. In the same way, the northern portico of the Erectheum, beautiful as every one acknowledges it to be, is longer than the front of the building behind it. The fact that this brings the opening between the two middle columns, and the door behind them, out of the axis of the main body of the temple would not, probably, disturb the Greeks, who did not care for exact symmetry; but, looking from the court of the Erectheum, which was open to every one, the misfit of the portico must have been painfully obvious.

THE University of Pennsylvania has come into possession of the first instalment of a collection of Babylonian inscribed tablets which promises to surpass in interest the famous collection of cones belonging to the British Museum. It seems that Professor Hilprecht, of the University, who has been making excavations at Nippur, in the Euphrates Valley, has come upon what seems to be a library, or storehouse of records, connected with the temple of the Sun in that city. These records are written on tablets, presumably made of soft clay, and burned, after being inscribed, like the cones used elsewhere in Babylonia; and Professor Hilprecht estimates that one hundred and fifty thousand of them are buried in the ruins of the temple. The tablets appear to date from the thirtieth to the fiftieth century before the Christian era, so that some of them, at least, must have been written long before Abraham was called from Ur of the Chaldees to the land of Canaan. In the case of the inscribed cones of the British Museum, nearly all the inscriptions so far deciphered are simply records of the transfer of real or personal estate, answering to our registries of deeds and mortgages, except that the Babylonians made records of transactions more trifling than those which usually appear in our registry-books; but the Hilprecht tablets may prove to contain matter much more interesting.

THE United States Bureau of Forestry is making rapid progress in systematizing the work which it has undertaken in response to the demand from citizens and municipalities for expert assistance. The former Section of Tree Planting has now been transformed into the Division of Forest Extension, and includes in its province the study of methods for encouraging the natural spread of forests. In certain portions of the West the timbered tracts, which occur mainly on the borders of the rivers, have extended two miles up the course of the stream within the past twenty-five years, and it is believed that a great deal can be accomplished by encouraging this natural forest extension. In the same way, forest tracts now sparsely covered with timber may, it is thought, be made more dense simply by preparing the barren soil between the trees for the germination and growth of the seeds which naturally fall upon it. Meanwhile, the interest of the public in the subject seems to have been thoroughly aroused, and the Bureau is busily employed in giving advice and assistance to people who wish to improve lands now barren. Among others, municipal Water Boards now show great interest in planting trees over the water-shed of their reservoirs. The Metropolitan Water Board of Massachusetts has already planted one hundred and seventy-five acres of new forest, and has young trees in readiness for planting a large additional tract this autumn. The Water Department of the city of Woonsocket, R. I., is also about to plant the territory under its control in the same way. As has been already noticed, several railroad companies have undertaken tree-planting on a great scale, and some of the Western colleges are setting a good example to the farmers of the neighborhood, as well as to their students, by experiments in forestry on their grounds.

ONE of the most interesting of modern engineering events is the definite opening of the electric railway from Le Fayet, or St. Gervais, to Chamonix. It is not long since Chamonix, although one of the most frequented spots in the High Alps, could be reached, except by pedestrians, only by a diligence journey of some fifty-seven miles from Geneva, or by carriage from Martigny or Vernayaz, over the picturesque but rather terrifying pass of the Tête Noire. Five or six years ago, the Paris-Lyons-Mediterranean Railway opened a line from Geneva, over the Chamonix road, as far as Le Fayet, the station for the Baths of St. Gervais. It will be remembered that a glacier torrent carried away, in the middle of summer, a portion of the great hotel of the baths, with its inmates, a few years ago, and a recurrence of the catastrophe was guarded against by the curious device of driving a tunnel, partly through the rock and partly through the ice, to draw off the glacier water harmlessly. From Le Fayet to Chamonix is only twelve and one-half miles, but the grades are so steep that it was impracticable to continue the railroad any farther, and omnibuses were provided by the Company to carry passengers the rest of the way. Now, the omnibuses have been superseded by the trains of an electric railway, which lands passengers at the lower end of the one busy little street of Chamonix, beside the path followed by parties ascending the Mont Blanc. So far as tourists are concerned, the two railways afford, perhaps, an agreeable change from the long and dusty diligence journey from Geneva, but those who have tried to find hotel accommodation in Chamonix during the busy season will understand that great changes must take place in the picturesque little town to provide for the increased travel. It is said that the electric road is to be extended through the valley to Argentière, and perhaps beyond, and this would do much to relieve Chamonix.

THE Prize of Rome in architecture of the Paris School of Fine Arts has been awarded to M. Prost, pupil of M. Lambert. M. Chifflot, pupil of MM. Daumet, Girault and Esquié, is First Second Grand Prize, and M. Coutan, pupil of M. Pascal, the Second Second Grand Prize. The programme called for a design for a National Printing Establishment, containing museums for specimens of books, printing-presses and so on; salesrooms for public documents and books on fine-art, which, it will be remembered, are usually published in France with Government assistance; a residence for the Director, with stables, state apartments and other dispositions suitable to an official of high rank; dwellings for the subordinate officials; and store-rooms, printing-rooms, binderies and other adjuncts of the manufacture of books.

DOMESTIC ARCHITECTURE IN ENGLAND DURING THE MIDDLE AGES.[1]—IX.

RECAPITULATION.

TO shortly recapitulate, on lines set out by Prof. Roger Smith, we may sum up the periods and characteristics marking the birth, development and decadence of mediæval architecture in England as follows: —

Romanesque and *Norman* prevailed during the eleventh and twelfth centuries, as previously illustrated and described at length in *American Architect*, No. 1328, page 76.

Characteristics: — Arches invariably semicircular. *Piers*, low, round and massive. *Windows*, very narrow and widely splayed internally only, as loop-holes for defence. *Doorways*, deeply recessed, becoming more and more enriched as the period advanced. *General construction*, essentially massive and wasteful of material, being hurriedly built for immediate defence against hostile surroundings.

Buttresses were broad, but of small and uniform projection. *Roofs* were low in pitch, covered with lead and used as a "fighting deck" for purposes of defence. Later in the period we find the *mouldings* enriched with the chevron or zigzag, the billet, chain, lozenge and nailhead; the capitals of the columns were decorated with incised ornamentation, made up of curved interlacing bands developed on a cushion-shaped bell; these enrichments are distinctive of the style and period, and entirely disappear on the advent of the pointed arch, they are never found on buildings erected subsequent to the close of the twelfth century.

Early English, or *First Pointed*, obtained during the thirteenth century, as previously illustrated and described at length in No. 1361, page 28.

Characteristics: — Arches, acutely pointed, lancet in form. *Piers*, slender in form, made up of clustered shafts, bound together by zones. *Windows*, broadly splayed internally, as before, but also splayed, slightly, externally; later in the period these single lights were grouped together in pairs under one arch, the pier between them being in still later cases reduced to a mullion (the inception of the Gothic window) and the overhead space filled-in with one stone, pierced with small circles (the inception of Gothic tracery), in which form it was called plate tracery. *Doorways*, deeply recessed, elaborately moulded, the dog-tooth and other conventional carving entirely replacing the decorations of the Norman period. In the capitals of the columns, a clear concave bell replaced the convex cushion, and was decorated by freely relieved conventional foliage of most distinctive character entirely replacing the incised decoration of the Norman period.

The *buttresses*, that before were plain, increased in projection by steps and stages and became prominent features. Gablets, carved finials and crockets appear as altogether new features. Flat wall-surfaces, as in spandrels, become decorated with relieved diaper patterns. *Roofs* gradually increase in pitch to the full equilateral triangle, the crenellated parapet forming the leading element of defensive architecture.

Decorated Geometric, or *Second Pointed*, flourished during the fourteenth century, as fully illustrated and described in No. 1364, page 52.

Characteristics: — Arches, equilateral in form. *Piers*, light, graceful and moulded, showing a general and marked advance in the art of constructive masonry. *Windows*, large, divided up into several lights by moulded mullions. These were continued up into the heads in geometric patterns, forming true (or bar) tracery of wonderful beauty. *Doorways*, enriched with figure-sculpture and carvings of natural forms and foliage, fully relieved, the distinctive conventional "ball-flower" replacing the earlier "dog-tooth" decoration in the hollow mouldings. In the capitals of the columns we find natural reproductions of the ivy, oak, maple and the forms of birds of wonderful sharpness that cannot be excelled at the present time.

Buttresses increase in importance, as leading features, as the walls become less massive in construction and the thrusts from contiguous arches become more concentrated. They increase in projection by numerous offsets, and stand aloft as counterforts decorated with canopies and figures, gablets, finials, crockets, more or less elaborately moulded and carved.

Roofs became of less pitch than in the previous period and they are often open to the framing and are panelled and moulded and decorated with carvings.

The pointed pointedness of the first Gothic, that replaced the round roundness of the Norman, became noticeably moderated in acuteness and more refined and cultured in all its details.

Perpendicular, or *Third Pointed*, flourished during the fifteenth century, as described and fully illustrated in No. 1369, page 91.

Characteristics: — Arches, becoming more depressed or obtuse, always less than equilateral. *Piers*, lozenge-shaped on plan, moulded and panelled. *Windows*, greatly increased in size and much subdivided, the main mullions richly moulded, carried up perpendicularly through the head, also divided in the height by transoms, forming several stories of lights, filled-in with richly colored glass in leaded lights in heraldic devices. *Doorways*, richly moulded, the outside mouldings carried up and returned over the head, enclosing spandrels decorated with cuspated panelling charged with crowns, roses, shields and armorial bearings.

Panelling, as a salient feature, is found as a surface decoration or enrichment, more or less elaborated, wherever it can be introduced. Fan-tracery in vault-groining, though not found in ordinary domestic work, is seen in the cloisters, the private chapels and chantries of the period, and is one of the special and most characteristic glories of the age.

Buttresses become excessively prominent, being bold in projection and carried high up as counterforts finished with dome-shaped turrets highly ornamented with panelling, carved crockets and finials, and decorated with fully relieved crowns, portcullis and armorial devices.

Open-timber *roofs* of moderate pitch and of the characteristic hammer-beam construction appear for the first time towards the close of the period, the timbers moulded and carved and the spandrels filled-in with open panelling, the roof-trusses carried on carved-stone corbels low down in the walls.

The *Tudor* style of architecture obtained during the sixteenth century under the princes of the Tudor line, as fully illustrated and described in No. 1374.

Characteristics: —Arches, four centred, and, in the latter part of the period, three centred or semi-elliptical. *Windows*, wide, still divided by numerous mullions and transoms, the traceried heads, the glory of the past, finally disappearing in the square-headed light, or lintel.

Doorways, moulded and outlined as before, plainer and less pretentious, the Tudor rose, the portcullis and fleur-de-lis being the most common forms of ornamentation. The general features in panelling, buttresses and roof-construction remained, but the richness of detail gradually disappeared and the simple architectural treatment of mediæval forms and styles gradually faded away into rapid incongruity and coarse, meaningless vulgarity. By the close of the sixteenth century all trace of mediæval art, as a living style of architecture, had ceased to exist; and, as the Classic styles of the Augustine period expired in the Dark Ages before the birth of mediæval art, so the latter disappeared in the political and social chaos that succeeded the great revival of letters of the sixteenth century. *Tempora mutantur, et nos mutamur in illis!* THOS. C. SORBY.

[The end.]

[1] Continued from No. 1378, page 60.

"FIREPROOF WOOD," SO-CALLED.

FROM time to time during the last year several questions have been put to the undersigned and to Professor Norton in regard to fire-resistant materials on which our practice in dealing with slow-burning or mill-construction had given us no experience. From these questions originated the plan for the work in Insurance Engineering now in progress.

Among these questions were two upon which we now report.

The undersigned was asked, as President of the Boston Manufacturers Mutual Fire Insurance Co., what fire-resistant material would best serve for shelving a library. Professor Norton was consulted on the best method of constructing a fire-resistant and sound-proof partition for the separation of many rooms upon one floor, in each of which there might be constant practice in music, both vocal and instrumental, without such passing of sound as to be an annoyance or interruption. These two problems have been made the first subjects of investigation in Insurance Engineering.

Upon the question of shelving, which also covers door and window frames, dadoes, mopboards and other interior finish, much remains to be done. As yet our report must relate more to what is not fit to be used in a building which is otherwise constructed of incombustible material than of what is suitable and safe. On the negative side the evidence is conclusive that wood, whether treated chemically and called fireproof, whether painted with what are called fireproof paints, and unless covered with fire-resistant materials of considerable thickness, is unfit to be used for interior finish in buildings which are otherwise of incombustible materials.

We do not say fireproof buildings because the chief danger of destruction or great injury by fire comes from the burning of the contents of buildings of every type permitted under city building-ordinances, and not from the combustion of the material of the building itself.

Some of the so-called fireproof wood is less liable to rapid ignition and spread of fire from the immediate contact of flame than wood which has not been chemically treated. Wood which has not been chemically treated may also be in some measure protected from quick ignition and the rapid spread of fire by the so-called fireproof paints or, in warehouses for storage, by good whitewash or kalsomine. Wood or plastering of any kind, treated or untreated, when covered with any of the common varnishes, becomes a medium for the very rapid spread of fire originating from the smallest cause.

In dealing with shelving for libraries or museums, the new material known as uralite, not yet attainable, promises to be the most suitable and absolutely safe material at low cost yet known. It is hoped that large works corresponding to those now supplying Russia, where it was invented, and England, where a large supply is taken up for home use, will soon be established in this country.

The next feasible alternative seemed to be what is called "electric fireproof wood" or simply "fireproof wood." The undersigned had little confidence in the chemical processes to which wood is subjected in making it slightly fire-resistant or not quickly flammable, the treatment being old and well-known and, when revived under the name "electric," subject to greater suspicion, because electricity is not used in the treatment in this country. There is a process, of which we have information, now being applied in Germany in which an electric current is said to be applied for this purpose and of which we are promised samples.

In order, however, to remove all doubt, especially since these woods had been used in war-vessels and had been authorized under the somewhat stringent building-ordinances of the city of New York, it was decided to make the tests now reported.

A request was sent by the undersigned, as President of the Boston Manufacturers Mutual Fire Insurance Co., to the following six companies making so-called fireproof wood to supply shelves suitable for a library or museum of different kinds of wood: The Fireproofine Manufacturing Co., New York; American Wood Fireproof Co., Ltd., New York; New York Fireproof Wood Co., New York; The Electric Fireproofing Co., New York; Standard Wood Fireproofing & Chemical Co., Philadelphia; The Ignifuge Co. of America, New York.

Three companies complied with the request, namely: The Electric Fireproofing Co., New York; The Fireproofine Manufacturing Co., New York; Standard Wood Fireproofing & Chemical Co., Philadelphia.

Efforts have been made to induce the officers or agents to be present at the tests and to witness their impartial quality. This request was only complied with by one company.

Other experts in matters of insurance have been present and we have taken the opportunity to subject some other fire-resistant materials, which may be used for inside finish to the same tests at the same time.

We have been obliged to use rather small pieces in our present tests. As soon as we get the buildings up for the Experiment Station, a room of sufficient size within the walls of a concrete building will be placed at the disposal of the makers of fire-resistant material, where full-sized finish may be exposed to direct ignition from the contact of burning material; or, what is of much greater importance, to the high temperatures almost instantly generated from the combustible contents of mills, works and warehouses. The heat thus generated rises to the melting point of the fusible solder of the automatic sprinkler, 160 degrees Fahr., in 30 to 60 seconds; to the igniting point of fibres and untreated wood, 600 to 1,000 degrees Fahr., in two or three minutes; and often reaches the melting point of cast-iron, about 2,300 degrees Fahr., before the fire is extinguished.

Proofs of this report will be submitted to each of the three companies who have supplied the materials tested before going to press, in order to give them the opportunity to make any further suggestions that may be suitable, a final test after such submission being appointed for August 1, at 10 A. M., in No. 2½ Walker Building, Massachusetts Institute of Technology, at which final tests all the makers of so-called fireproof wood will be asked to be present in person or by attorney.

A doubt having been expressed by one of the principal promoters of the use of so-called fireproof wood, in regard to what he called our "theoretic methods" of dealing with the subject, he also stating that it was too late to question the "absolutely incombustible" quality of this product, as he had certificates to that effect from men of the highest scientific authority, I thought it best to make a practical test on my own behalf.

I therefore sent to my country house, where I have a large open fireplace, nearly half a bushel of blocks, split wood and shavings of all the types of fireproof wood yet submitted for testing, including black-walnut, poplar, pine and cherry wood. I first put upon the open grate a quantity of newspapers bunched up, in the hope of getting sufficient circulation to make newspaper burn. Upon this foundation we placed the fireproof material in the form of a cone, the preparation beginning at 8 P. M. We lighted the newspaper with a match, but found that the weight of the wood had crushed it together so that we could not get any good flame from the paper, the wood not being ignited. We then shoved more newspaper under the grate and used the bellows to keep the paper on fire, in which we succeeded, although it took some time. At 8 30 the fireproof wood was well ignited, showing a small flame of greenish-orange tint, from the distillation of the chemicals. At 8.45 the flames, first greenish and orange and then yellow, were from twelve to eighteen inches high, with a bed of hot coals underlying the flame. At 9 o'clock the flame had diminished. The mass constituted a very hot, glowing bed, burning more like coal than wood, with a little flame of the greenish tint upon the top, derived from small pieces which had fallen off at the beginning and had been placed upon the bed of coals. At 9 o'clock the mass was a bed of glowing material bearing no appearance to wood in the body of the fuel — much more like a hot coal fire. This form of combustion lasted until 9.30 P. M., when there was a small bed left about the size of the top of a hat. After that no further notes were taken. In the morning there was perhaps a pint or a little more of charcoal left upon the grate.

The theory of absolute freedom from combustion does not appear to be sustained by this practical test.

My own conclusion, from my observation of Professor Norton's work and the foregoing tests, is that the term "*fireproof*," applied to chemically treated wood, is a misnomer, tending to mislead persons not well informed upon the subject. The claim that any such wood is "absolutely incombustible" is without any warrant in fact. The chemical treatment works in some measure as a fire-retardent. The wood is less flammable from any direct contact with small quantities of burning material. Even if the heat from the burning of other substances partially ignites it, the fire goés out when the outside cause is withdrawn. On the other hand, if the so-called fireproof wooden finish of a building otherwise incombustible is exposed to a high temperature from the combustion of the contents of any room in the building, the chemicals will be speedily distilled; the so-called fireproof wood then becomes ignited and will continue to burn or the fire will go out substantially according to the kind of wood that has been treated. Many kinds of untreated wood, especially whitewood and other types of poplar, are difficult to keep on fire in their natural condition. The time and intensity of the continued burning in the case of both treated and untreated wood depends upon the kind of wood of which the finish is made and upon the draughts of air to which the burning material may be exposed. If any wood of any kind, treated or untreated, is used for the interior finish of a building otherwise of incombustible material, in the judgment of the undersigned, such wood should be encased in thin metal.

This conclusion is stated without consultation with Professor Norton on this point; he will give his own conclusions in his report without consultation with the undersigned.

During the progress of this investigation several materials have been brought to our attention which either are now made and offered for interior finish or soon will be. Preliminary tests of these materials will be made at the final test of the so-called fireproof wood, on August 1, which will be duly reported when the report of that final test is concluded. Respectfully submitted,

EDWARD ATKINSON, *Director.*

BOSTON, MASS., July 24, 1902.

SUPPLEMENTARY REPORT.

Copies of the foregoing report of July 24 and of Professor Norton's preliminary report of July 24 were sent by registered mail in proof-sheets subject to correction, to the representatives of the six companies named therein, with a request that they should make any suggestion, bring in new samples and be represented at the final tests, August 1, at 10 o'clock A. M.

In accordance with this notice, these tests were made and were witnessed by representatives of the Fireproofine Manufacturing Company, American Wood Fireproofing Company and the Ignifuge Company.

The following supplementary report is made, no reason having been given to change any part of the preliminary report made by the undersigned or by Professor Norton.

It should be stated that the only claim made, that the chemically treated wood is "absolutely incombustible," has been made in writing by only one company. The other makers of so-called fireproof wood do not claim absolute incombustibility, but only claim that their treatment makes the wood a fire-retardent.

Among others present were the following gentlemen: F. C. Schmitz, *General Manager*, the Fireproofine Mfg. Co., 66 Beaver St., New York, N. Y.; A. Eugene Kirby, *Secretary*, American Wood Fireproofine Co., Ltd. 156 Fifth Ave., New York, N. Y.; J. B. Peters, *President*, Ignifuge Co. of America, Holland House, New York, N. Y.; Perez M. Stewart, *Supt. of Buildings*, 220 Fourth Ave., New York, N. Y.; Rudolph P. Miller, *Chief Engineer*, Bureau of Buildings, New York, N. Y.; John Leo Jordan, *Ass't Supt. of Buildings*, 220 Fourth Ave., New York, N. Y.; Prof. Ira H. Woolson, Columbia University, New York, N. Y.; John S. Damrell, *Building Commissioner*, 14 Old Court House, Boston, Mass.; Greeley S. Curtis, Boston Fire Department, Boston, Mass.; Henry V. Thayer, *Inspector*, Boston Board of Fire Underwriters, 55 Kilby St., Boston, Mass.; C. J. H. Woodbury, 125 Milk St., Boston, Mass.; Franklin Webster, *Editor, Insurance Engineering*, 120 Liberty St., New York, N. Y.; Harry D. Cue, *Editor, Insurance Engineering*, 120 Liberty St., New York, N. Y.

All persons present were requested to take any exception to the methods employed, to suggest any other methods and to aid us in making this a final and conclusive trial on the merits of the wood. There was nothing developed which has led me to change any part of my own report previously given, or my own conclusions.

I should add that the fire-hazard of a steel-frame and concrete building is due to the high temperatures generated in the combustion of the contents of such buildings rather than in the flames which may be developed. It therefore follows that the greatest safety will be secured by not adding any combustible material in the construction of the building to the contents which are to be put into that building during its use. Therefore, while I might not, if asked as an underwriter, refuse to insure buildings finished with so-called fireproof wood at a suitable rate of premium, yet, if asked by the assured for advice in their construction, as we are asked by the prospective members of the Factory Mutual Insurance Companies how to construct their works and how to protect them, I should say that the building would be distinctly safer if no wood, treated or untreated, were used in the flooring or in the finish, or even in the doors.

We should, then, name several methods of covering the floors with incombustible material. We should, then, name several substitutes for wood, some of which can be moulded and made decorative for the interior finish of windows, doors, mopboards, etc. We should also name methods of making doors of a decorative kind which would be fire-resistant.

Time did not suffice to make even a preliminary test of several of these substitutes for wood which we have in hand. A complete test will hereafter be made of substitutes for wood for interior finish, of substitutes for boards or tiles for flooring, of fire-resistant doors moulded and decorated, of materials for shelving which will neither burn nor convey heat through their substance, and of outside applications for the treatment of wooden surfaces of various kinds. On all these subjects a separate report will soon be made.

There is also reason to believe that if some of these chemically treated woods, perhaps all, are exposed to a warm, humid atmosphere mould quickly gathers on the back of the finish, between it and the wall. This fungus may gradually destroy the cohesion of the wood and may be also of a very corrosive nature in respect to iron and steel. Tests will be made to determine these points which will require lapse of time for their development. Enough is known to warrant the caution not to permit any kind of a chemically treated wood to be placed in direct contact with any part of the steel-framing of a building.[1] The corrosive effect upon the carpenters' tools used in these tests bears witness to this danger.

In the body of this report I have suggested that if any wood is used for the interior finish of a steel-frame or concrete building, it should be encased in metal. I withdraw that suggestion in respect to the chemically treated wood, lest fungus or mould should be increased by the exclusion of the air. If wood in its natural condition is encased in metal it should be thoroughly seasoned, so that no ferment or dry rot, so-called, may occur. For a finish upon a wall the metal should be carried over the face, around the edges and ends and part way over the back of the finish.

The theory of the fire-door made of wood encased in tin which has long served as a fire-resistant in factory practice is, that while the wood may be slowly carbonized by the heat which passes through the metal, yet the exclusion of the oxygen prevents ignition and renders the door a heat-retardent so long as even the charcoal maintains its position, charcoal itself being a heat-retardent until ignited.

One architect in the city of New York has objected to the protection of wooden finish with a covering of thin metal, on the ground that, in case of a hot fire in the contents of such building, the metal would melt. The thin metal customarily used is a sheet of steel coated with tin, commonly called tin-plate. Any heat that would melt steel would consume unprotected wood in a few seconds, whether treated or untreated, and would wreck any steel-framed building protected by any covering yet devised.

Another architect objects to the wooden door encased in tin, on the ground that it will warp and curl, showing a strange lack of information in regard to common practice in factory construction and protection. The wooden door encased in tin has been adopted in order to overcome the danger of iron fire-doors, which almost invariably warp and curl. The wooden door encased in tin has invariably served its purpose in holding fire from passing from one room or one building to another until the fire-department could get the control of the fire in the building in which it has originated. The automatic fire-door of this description, first invented by the undersigned and since very much improved, is well known to all architects who have given attention to the prevention of loss by fire in factories and workshops.

EDWARD ATKINSON, *Director.*

BOSTON, MASS., August 6, 1902.

REPORT OF PROF. CHARLES L. NORTON.

The processes of "fireproofing" wood by saturating it with a solution which, on drying, leaves the pores more or less filled with crystals which, when heated, give out gases which retard the combustion of the wood, are not new. But the recent discussion as to the real value of such wood in modern buildings in case of fire, and as to the possibility of suitably sampling and testing the product before installing, has led to a series of experiments and examinations which it is proposed to report here. If "fireproof wood" were in any sense fireproof, this discussion would be unnecessary. It is not. It is similar to untreated wood except in three particulars: it is slightly less liable to be ignited by a brief and feeble application of heat; it is less likely to be ignited permanently by contact with a hot body, as an electric wire or a fragment of a projectile; and, further, it is not so likely to cause so rapid a spread of a fire in some cases, as it burns with less flame. "Fireproof wood" is almost identical with untreated wood in the following particulars: It smokes at about the same temperature. It can be ignited at about the same temperature. It will continue to burn in many cases. It is a good fuel. It makes a very hot fire.

The table of temperatures is given below: —

Kind of Wood.	Treatment.	Ignites at	Average.
1. Pine.....	None.	435° C. = 815° F.	
2. Whitewood.	None.	440° C. = 825° F.	
16. Cherry.....	None.	485° C. = 905° F.	840° F.
18. Maple.....	None.	440° C. = 825° F.	
19. Ash	None.	440° C. = 825° F.	
25. Pine.....	Electric Co.	505° C. = 940° F.	
3a. Cherry.....	Electric Co.	505° C. = 940° F.	940° F.
3. Maple.....	Electric Co.	505° C. = 940° F.	
4 and 4A. Whitewood.	Electric Co.	510° C. = 950° F.	
6. Pine..	Fireproofine Co.	500° C. = 930° F.	930° F.
5. Whitewood.	Fireproofine Co.	500° C. = 930° F.	
8. Ash	Standard Co.	470° C. = 880° F.	
7. Cherry.....	Standard Co.	440° C. = 825° F.	850° F.
10. Maple... ...	Standard Co.	450° C. = 840° F.	
15. Whitewood.	Standard Co.	455° C. = 850° F.	

When exposed to a blast of hot gases, the amount of the treated and untreated wood consumed is about the same.

The wood examined was furnished by Mr. Edward Atkinson, as indicated by him in the earlier part of this report. Since these three kinds are apparently possessed of essentially the same characteristic, it will be assumed that they are representative of "fireproof wood," but the writer will be only too glad to limit his statements if he finds that any of the manufacturers who have failed to send us samples have an essentially superior article.

Examination was first made to see to how much higher temperatures the treated wood could be exposed than the untreated without its igniting or beginning to glow.

It will be seen that the average ignition temperature of the six untreated woods in 840 degrees Fahr., while that of the four Electric Company's woods is 940 degrees Fahr., while the Standard Company's six samples average 850 degrees Fahr., and the Fireproofine Company's two samples 930 degrees Fahr.

The value of the treatment is, then, to raise the igniting point less than 100 degrees Fahr., while some of the treated specimens show no sensible improvement. The data were derived from pieces $\frac{1}{4}'' \times \frac{1}{4}'' \times \frac{1}{2}''$, heated at different rates in a small electrical muffle, and the agreement between different samples was within 20 degrees. Twenty samples of each wood were tested and the results averaged.

It cannot, in view of these results, be claimed that the treated wood is sensibly less likely to be ignited when a temperature of 1,000 degrees Fahr. is reached.

The temperature at which the treated and untreated wood "flash," or flame instantly, was ascertained by putting a brass plate $\frac{1}{4}$ inch into the electric muffle and raising the temperature at a rate of about 5 degrees a minute until it was found that a piece $\frac{3}{4}'' \times \frac{3}{4}'' \times 2''$ burst immediately into flame on being thrown on to the brass plate. The flash-points are given in the accompanying table: —

Specimen.	Treatment.	Flashes in Muffle at Degrees Fahr.
1. Pine.....	None.	975°
2. Whitewood..	None.	950°
3. Maple.....	Electric Co.	1,140°
3A. Cherry.....	Electric Co.	1,140°
4. Whitewood..	Electric Co.	1,130°
4A. Whitewood..	Electric Co.	1,130°
5. Whitewood..	Fireproofine Co.	950°
6. Pine.....	Fireproofine Co.	960°
7. Cherry.	Standard Co.	1,015°
8. Ash.....	Standard Co.	1,015°
10. Maple..	Standard Co.	1,015°
15. Whitewood..	Standard Co.	1,015°

It should be borne in mind that any of the glowing wood may be fanned into blaze by a suitable draught or the burning of adjacent pieces.

The smoking temperature is not of material importance, but serves to indicate the similarity of behavior of the treated and untreated wood at low temperatures. The smoke, when mixed with air, is explosive, just as is the smoke from untreated wood. Further, the smoke and gases from the treated and untreated wood are alike liable to be ignited by a flame or spark, and cause the wood to be ignited when the wood itself is not yet heated to the ignition-point. The treated wood is less liable to this action, though I have seen it happen a number of times.

The extent of the relative destruction of the treated and untreated wood on exposure to the action of a flame at varying temperatures was carefully studied, with the results that are given below. They show that, with a blast of gas at a temperature of from 1,700 degrees Fahr. to 3,000 degrees Fahr. for 1, 2 and 3 minutes, the loss of a cross-section of a small specimen is from 5 to 12 per cent greater in the case of an untreated wood than in the case of the treated wood.

The table given below shows the diminution in cross-section in 3 minutes of several specimens $\frac{3}{4}'' \times \frac{3}{4}'' \times 6''$ when exposed to the flame of a blast-lamp.

Specimen.	Treatment.	Percentage Area burned.	Average.
Pine.....	Untreated.	64	
Whitewood....	Untreated.	62	
Cherry	Untreated.	48	
Maple.....	Untreated.	64	60
Black Walnut.	Untreated.	71	
Ash	Untreated.	54	
Cherry	Electric Co.	41	
Maple.	Electric Co.	45	
Whitewood....	Electric Co.	54	48
Pine.....	Electric Co.		
Pine.....	Fireproofine Co.	49	
Whitewood....	Fireproofine Co.	64	56
Cherry.....	Standard Co.	58	
Ash.....	Standard Co.	62	
Maple.....	Standard Co.	62	51
Whitewood....	Standard Co.	42	

If exposed to a hotter flame or for a longer time, the untreated wood more nearly approaches the treated wood in the amount of unburned area.

When subjected to the action of a powerful flame from a blast-lamp, the *rapidity* of destruction of a small test-piece also serves as an index of the value of the fireproofing as a preventive of combustion. Specimens $\frac{3}{4}'' \times \frac{3}{4}'' \times 6''$ and $\frac{3}{4}'' \times \frac{3}{4}'' \times 12''$ were supported in a horizontal position by the ends and a large blast-lamp placed under the centre. The time elapsing before the stick burned and fell apart was noted. There is no great difference between the treated and the untreated wood in this particular, the table below giving the average time required for a number of the specimens to burn through. It was noticeable that all the untreated specimens furnished more flame than the treated.

[1] A partial test not yet complete shows the tendency to mould in a very positive manner. (August 16.)

Specimens.	Treatment.	Average Time for Specimen to burn through.
Pine..	Electric Co.	6 minutes 35 seconds.
Whitewood.	Electric Co.	
Cherry.....	Electric Co.	
Maple.....	Electric Co.	
Ash	Standard Co.	6 minutes 18 seconds.
Maple.....	Standard Co.	
Cherry.....	Standard Co	
Whitewood.	Standard Co.	
Pine.....	Fireproofine Co.	6 minutes 22 seconds.
Whitewood.	Fireproofine Co.	
Pine.....	Untreated.	5 minutes 52 seconds.
Whitewood.	Untreated.	
Ash	Untreated.	
Cherry.. ...	Untreated.	
Maple.....	Untreated.	

The variation between individual specimens is very large, and the data on length of time required by a specimen to burn apart is only of value in showing again the similarity of condition of the treated and untreated wood.

The "hot-plate" test was next tried and showed clearly the characteristic tendency of the treated woods, when in isolated pieces, to char without much flame and to extinguish themselves when taken from the plate. The glow and flame last only a few seconds in the case of any of the treated woods, while they may last from 1½ to 2 minutes or may last only a few seconds in the case of untreated woods. This test demonstrates the value of fireproof wood as a safeguard against ignition from electric-wires in a certain sense, yet no "hot-plate" can compare in intensity with the incandescent metal and metallic vapor of many a short circuit. It is a good demonstration of the added safety of warships when finished with "fireproof" rather than natural wood, since one great danger of ignition in war-vessels is, I believe, from hot fragments of metal. In its general application to buildings this test demonstrates very little.

The tests which appeal most strongly to the writer are those which follow, and they are those which any architect may make for himself and judge for himself. These tests were made with the wood from each manufacturer separately. A furnace made of a half-dozen bricks and a 6-inch square of wire lath serves to hold a double handful of "fireproof" kindling. A piece 2 inches long sawed off the end of a board and then cut into pieces varying from ⅛ inch to ¼ inch square answers admirably for the fine kindling, being better than shavings. Add further a second double handful of little blocks ⅞″ x 1″ x 2″ or thereabouts. Apply beneath the grate a crumpled-up newspaper and a lighted match, and add rolled-up balls of newspaper as the first ones burn out, for a minute or so. The so-called fireproof wood will be harder to light than untreated wood; but, when lighted, you will make a good, lasting fire. In such a furnace, using treated wood for fuel, I have melted up several pounds of lead in a ladle and have then added larger blocks of the wood, ⅞″ x 2″ x 6″, and burned them up. As a final experiment, I have lighted such a furnace without any newspapers for kindling, but by the successive applications of some half-dozen matches. The fire, like any other, lights more readily and burns better if it is provided with a draught by means of a chimney, which may well be made of a length of tile-pipe.

One of my assistants, an excellent mechanic, substituted a bundle of about twenty sticks, ⅞″ x ⅞″ x 12″, in the kindling to be used by his wife in lighting the fire with which to prepare their breakfast. Although the major part of her kindling was "fireproof," the unsuspecting housewife made no comment, but made the fire as usual and burned up all the wood.

Noting the comment on the part of the manufacturers who saw my furnace glowing and flaming, that large pieces could not be made to burn, the following experiments were made: In a large fireplace, between two hard, dry pieces of pear-wood, 4 inches in diameter and 12 inches long, there was built a fire of newspaper and "fireproof" kindling; over this were laid on edge four boards (6″ x 24″, 8″ x 30″, 14″ x 20″ and 14″ x 30″) of "fireproof" wood, two from the Electric Company and one each from the Standard and the Fireproofine Company. The fire spread up and along the boards, and in about 2 hours the whole contents of the fireplace, except the pieces of pear-wood, were consumed. The two logs were all afire, but went out after the "fireproof" wood had been consumed. The room, in the meantime, had been rendered unbearably hot by the fire, which resembled a good cannel-coal fire in appearance.

One other experiment was made, to show how misleading is the test made by taking the wood out of the fire and noting how long it glows. A box, or pipe, 3 inches square and 36 inches long, open at the ends, was made of four different kinds of fireproof wood. This was held vertically over a blast-lamp until well afire at the bottom. The lamp was then removed, but the wood continued to burn until the box was much more than half consumed and fell apart, breaking into a half-dozen pieces. No one of the boards would have burned by itself nearly as much as it did when there was other heat near it — a condition, of course, which a fire in a building nearly always provides.

In the light of the results of these experiments, it would not appear that more can be claimed for "fireproof" wood than this: that, when heated, it gives off a gas which makes it more likely to fail to keep burning than an untreated piece of wood; and that, when afire, it gives out less flame, and hence is not as likely to cause fire to spread. It is not incombustible; it is not uninflammable; it is a good fuel; it will, under many conditions, support its own combustion; it is destroyed by external heat nearly as rapidly as is untreated wood. It is not as easy to work at high speed; it may cause rusting (as do some of these specimens), and the mechanical strength of the wood is slightly impaired. While it may be said to be an added safeguard to use this treated wood in tall buildings, it is so slight a safeguard as to be, in my opinion, of questionable value.

It should be borne in mind, too, that these samples, direct from the manufacturers, are of a certain standard of excellence which would hardly be reached in general without most rigid and expensive examination. I can suggest no sure method of examination of the wood furnished for a building which would be satisfactory and yet not inordinately expensive.

In consideration, then, of the physical properties of such wood as has been examined and of the difficulty of assuring one's self of the nature of the product; and further, in view of the possible deterioration of the wood or the fastenings and finish, the use of such fireproof wood in ordinary buildings seems of very doubtful value.

C. L. Norton.

Boston, July 24, 1902.

SUPPLEMENTARY REPORT OF CHARLES L. NORTON.

On August 1 a public test of so-called fireproof wood was held at the Walker Building of the Massachusetts Institute of Technology to demonstrate publicly some of the phenomena described in my previous report.

Specimens ¾″ x ¾″ x 6″ were subjected to the action of gas-flames of different intensities, and the percentage of wood consumed in 2 minutes, as well as the time to burn wholly apart, was noted. Next, a fire of bits of "fireproof wood" was kindled in a furnace made of half a dozen bricks by a lighted newspaper. Wood from the Electric Company, the American Company, the Standard Company and the Fireproofine Company was treated in this way.

The time required for the destruction of a small "cob-house" of treated and untreated wood was next determined. The little houses were built of sticks ¾″ x ¾″ x 6″ laid in nine layers of five pieces each, the adjacent layers being at right angles.

Upon applying a blast-lamp for 5 minutes, the treated house burned without much flame and at the end of 10 minutes, after the withdrawal of the lamps, the house fell. The untreated wood, when lighted in a similar manner, burned with more flame and fell at the end of 5 minutes and 20 seconds, the scattered pieces burning for a longer time than did the fragments of the treated house.

Next, four boxes, or flues, 3″ x 3″ x 28″ inside, without ends, were placed vertically over a blast-lamp until lighted at the lower end. Some half-dozen blocks ¾″ x ¾″ x 6″ were dropped in and held near the hollow of the flue by a wire grate. Three out of the four boxes continued to burn after the lamp was removed until they were burned through in places a foot apart.

A very extensive collection of pieces of "fireproof wood" from buildings now under construction in New York City has been examined in the same way as have the samples already described. They behave in a manner much like the earlier samples, but are slightly more flammable, and they are not as uniform in treatment throughout.

Respectfully submitted,

Charles L. Norton.

Boston, Aug. 8, 1902.

A BRITISH REPORT ON OUR IRON TRADE.

THE phenomenal development of the iron and steel industry of the United States led the British Iron Trade Association to appoint a commission last year to inquire into the industrial conditions and competition of the United States. The report of that commission, which has been recently presented, is briefly reviewed by the *London Commercial Intelligence*, a copy of which has just reached the Treasury Bureau of Statistics. It says: —

"It is, indeed, a marvellous and, to the British manufacturer and trader, in some respects a most discouraging story. The British Iron Trade Commission gives details of the mineral resources of the United States as affecting that fundamental industry — the manufacture of iron and steel; shows the extraordinary richness of the principal fields of coal, iron-ore and kindred minerals and demonstrates by concrete examples how the natural inventiveness of the American has enabled him to apply to the operations of production and distribution a wealth of original ideas and methods that are as yet little known in Europe. It is also made manifest how on land, on lake, on river and on canal, the American people have applied their minds to the solution of the conditions and problems of cheap transport until they have at last attained a level of rates and charges such as we have hardly had any experience of on this side of the Atlantic. It is not, however, to be supposed that the triumphs of the American people in these matters have been achieved without effort. Much testimony is borne to the fact that in the conditions of organization and administration in their dealings with labor, in the confidence and enterprise with which they have embarked on industrial operations of great magnitude, in the efforts made to adapt themselves to new conditions, in the eagerness with which they have endeavored to create new demands both at home and abroad, and in the care and attention given to the successful cultivation of foreign markets, the American people have labored strenuously for many years, until labor, ingenuity and enterprise have become their most distinguishing characteristics. When one has appreciated all that the Americans have done for themselves, it is neither natural nor

reasonable to grudge them the success which has attended their labors."

Commercial Intelligence presents the following picture of the relative growth of the iron and steel industry in the United States and the principal countries of the world : —

PRODUCTION OF PIG-IRON IN THE UNITED STATES, UNITED KINGDOM, GERMANY AND ALL OTHER COUNTRIES, IN GROSS TONS.

Year.	Tons.			
	United States.	United Kingdom.	Germany.	All other Countries.
1865	832,000	4,819,000	760,000	2,839,000
1870	1,668,000	5,964,000	1,369,000	2,902,000
1875	2,024,000	6,365,000	1,997,000	3,510,000
1880	3,835,000	7,749,000	2,686,000	3,201,000
1885	4,045,000	7,415,600	3,629,000	4,439,000
1890	9,203,000	7,904,000	4,585,000	5,738,000
1895	9,446,000	7,703,000	5,379,000	6,376,000
1900	13,789,000	8,960,000	8,386,000	9,265,000
1901	15,878,000[1]	7,750,000	7,737,000[1]	9,042,000

[1] Iron and Steel Association figures.

CHRIST CHURCH CATHEDRAL, OXFORD.

ANTIQUITY, architecture, great traditions, distinguished alumni, and church music form a combination of characteristics which invest with peculiar interest the great College of Christ Church in the University of Oxford, says a writer in the *Musical Times*. In regard to antiquity, a Saxon church which formed part of the monastery of St. Frideswide, *circa* 727, stood on the site of the present Cathedral. Commenced in 1120, and consecrated sixty years afterwards, the buildings forming the Chapel of Christ Church, otherwise the Cathedral of the Diocese of Oxford, are rich in architectural development — the Norman of the main sanctuary, the Early English of the Chapter House, and the Perpendicular of the Refectory, now broken up with rooms, but preserving the exterior windows on one side. Its spire, though appearing somewhat dumpy in this "sweet city of dreaming spires," is one of the earliest — if not actually the first — built in England. The fact that Christ Church is one of the smallest of our cathedrals is partly due to Cardinal Wolsey, who chopped off, so to speak, three of the westernmost bays of the nave in order to make way for the celebrated Tom Quad.

In recent years the Cathedral has been lengthened by a new western bay forming an ante-chapel. The interior has several features of interest. The Lady Chapel and the Latin Chapel — a church within a church — both situated at the northeast of the choir, give the Cathedral a peculiar shape. Moreover, the choir and the nave are not separated. At the east end are three extremely rough arches, leading to three semicircular apses, of which the foundations still exist, discovered in 1888, and which remain as relics of the first stone church of St. Frideswide, one of the earliest stone churches in England. The thirteenth-century shrine of St. Frideswide attracts attention no less by its beauty than for its historical associations. In the choir may be seen traces of Ethelred's work in the large round pillars and the weathered columns above, that once formed part of the clerestory. One of the oldest Members of the House, Mr. T. Vere Bayne, has lately resolved to replace the curious corner turrets of the west end at his own private cost. The pulpit, surmounted by a pelican, and the organ case, are of the Jacobean period.

The reverent restoration of the Cathedral, first instigated in 1856 by Dean Liddell, included the successful rebuilding of the east end, said to be a reproduction of the original twelfth-century design, and is a testimony to the labor of the late Sir Gilbert Scott. As showing the utter lack of reverence in the "good old days," as they are so often misnamed, it may be mentioned that previous to 1870 one bay of the south transept served as the residence of the Dean's verger. This functionary, a Mr. Keys, kept his beer-barrel in a cupboard just below the pew in which the deanery ladies sat! Moreover, Verger Keys used to station himself at the entrance of the choir armed with a stout dog-whip, with which to belabor any of the canine tribe that not infrequently followed their undergraduate masters into chapel. If the chapter-books are not profuse in reference to the Cathedral, they furnish evidence of the rich ornaments that even survived the confiscation (*temp.* Henry VIII) of "monuments tending to idolatrie and popish or devill's service, crosses, censars, and such lyke fylthie stuffe."

One of the earliest chapter-orders enjoins that "the Orgaines in the Quire of this Church be taken downe." Father Smith built an organ of two manuals in the year 1680. The organ has occupied various positions at different times. In 1806 the organ-loft was "fitted up so that the singing boys and singing men may be removed thither for the future." The present organ — located at the west end of the nave, its key-boards approached by an iron spiral staircase — is a four-manual instrument, rebuilt in 1884 by Father Willis. In any scheme of reconstruction, now necessary after the wear and tear of eighteen years, the choir-organ should be restored to its original "in front" position, where it remained for nearly two centuries, in order that its stops may form a better support to the voices than is possible under the present arrangement.

SPANISH ARCHÆOLOGY. — The city of Barcelona offers a prize of $4,000, due in 1906, for the best work on Spanish archæology. It may be written in Latin, Spanish, Italian, French or Portuguese. —*Exchange.*

THE GERMANIC MUSEUM, NUREMBERG.

IN the New York *Evening Post* Kuno Francke says that "For more than twenty years Baron von Aufsess, the virtual founder of the Museum, wrote, labored, begged, and spent his own means for this project without obtaining any help or recognition from any quarter, without meeting with anything but ridicule or indifference, or at best half-hearted and lukewarm interest. And even when at last, in 1852, through the vote of the Historical Congress referred to, the establishment of this Museum, with Aufsess as its director, was decided upon and made a matter of common scholarly concern, the means at the disposal of the young institution were so slender that for years to come it was continually on the brink of disaster, and required constant financial sacrifices on the part of the director to be barely maintained.

"Until 1857, most of its collections were housed in a single tower of the Nuremberg city-wall, the Thiergärtner Thor, and the accommodations for accretions were so ridiculously insufficient that, for instance, when in 1853 the official records of the Frankfort Parliament were presented to the Museum, the twenty-three boxes containing this valuable gift had to be stored in the kitchen of a private house. It is to Aufsess's lasting credit that, in all these straits, difficulties, and disappointments, he never lost heart, always stood by the great ideal of his life, and thus weathered one crisis after another, until at last, through the acquisition of the old Carthusian monastery from the Bavarian Government, a proper housing for the growing collection was obtained, and popular and official interest in the national undertaking permanently secured. That this noble, patriotic man should have met with his death at the hands of a drunken student when, in 1873, he had gone to take part in the festivities attending the foundation of the University of Strassburg, gives to his life a touch of the irony of Fate.

"It was, however, not only the memory of the founder of the Germanic Museum which actuated the festivities of last month. They were also meant as a tribute to what the German people has done for this museum since it was once publicly recognized. It is not an empty phrase when, over the main entrance of the Museum quadrangle, there stands the inscription: 'Eigentum des deutschen Volkes.' Here we tread, indeed, in more than one sense upon national soil. Ever since 1857, when the institution was first housed in a manner suited to its intrinsic importance, it has stood before the public eye as a symbol of German greatness, as an embodiment of the most precious traditions of the German past, and as an appeal for maintaining these traditions in the present. Princes, states, cities, and private individuals have vied with each other in showering gifts of objects as well as of money upon it, the latter ranging from five florins collected by the pupils of a Bavarian seminary — the very first contribution made to the Museum — to the million marks which were given by two Nuremberg citizens a few weeks ago as an anniversary donation. And it would be hard to conceive of a more widely diffused popular interest in a scientific institution than that maintained in this museum by the network of so called *Pflegschaften*, or chapters of the Museum Association, covering all Germany, each of which is constantly disseminating, within its local boundaries, information regarding the needs as well as the most recent acquisitions of the Museum, and is thus stimulating ever new endeavors in its behalf. It is largely owing to this finely systematized popular propaganda that, apart from the running expenses of the Museum administration, which are covered by yearly appropriations from the German Empire, the Bavarian Government, and the city of Nuremberg, all other financial costs, for purchases, building alterations, special investigations, and so forth, are defrayed by voluntary contributions coming from every class of people and from every part of Germany."

ILLUSTRATIONS

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

UNITED STATES POST-OFFICE, ROME, N. Y. MR. JAMES KNOX TAYLOR, SUPERVISING ARCHITECT, WASHINGTON, D. C.

"THE PARKVIEW," CENTRAL PARK WEST, NEW YORK, N. Y. MR. ELLIOTT LYNCH, ARCHITECT, NEW YORK, N. Y.

HOUSE OF WILLIAM POWER WILSON, ESQ., GRANBY ST. AND BAY STATE ROAD, BOSTON, MASS. MR. J. PH. RINN, ARCHITECT, BOSTON, MASS.

[The following named illustration may be found by reference to our advertising pages.]

ST. MARY'S CATHOLIC CHURCH, DUNDEE, SCOTLAND. MR. T. MARTIN CAPPOM, F. R. I. B. A., ARCHITECT, DUNDEE, SCOTLAND.

THIS plate is copied from *Building News*.

[Additional illustrations in the International Edition.]

ENTRANCE: HOUSE OF WILLIAM POWER WILSON, ESQ., GRANBY ST. AND BAY STATE ROAD, BOSTON, MASS. MR. J. PH. RINN, ARCHITECT, BOSTON, MASS.

[NOTICE. — As the other subjects intended for this issue have been spoiled by the printers their appearance must be deferred to a later issue.]

NOTES & CLIPPINGS

THE BRITISH ACADEMY. — King Edward has granted a charter incorporating the new British Academy for the Promotion of Historical, Philosophical and Philological Studies. The charter names 49 original fellows, including Lord Rosebery, Prime Minister Balfour, Lord Dillon, President of the Society of Antiquaries; Lord Reay, President of the Royal Asiatic Society; James Bryce, William E. H. Lecky, John Morley, Sir Frederick Pollock and Leslie Stephen. This, together with the creation of the Order of Merit, is regarded as a striking experiment, and has provoked comparison to the French Academy, which has failed to enroll many of the greatest names in French literature. Members of the British Academy are to be called simply "fellows," instead of "immortals." Both Cambridge and Oxford are represented among the charter members, but a notable omission is Herbert Spencer.— *Exchange.*

AN ICELESS REFRIGERATOR. — An iceless refrigerator has been invented by an Oregon man, in which the principle of the evaporation of water to reduce temperature is used. According to the inventor, the iceless refrigerator presents much the same appearance as do ordinary refrigerators. The outer casing and door may be made of plain or expensive woods, as taste may dictate. The upper half and the top are closed tightly. The lower portion is formed of inclined slats, through which air may be freely admitted. The door is also made tight at the top, and provided with slats at the bottom. The interior frame is made entirely of galvanized iron to prevent shrinking and expanding or becoming mouldy with constant dampness, and it is also a good conductor of heat, and, therefore, assists in reducing the temperature lower than it could otherwise be maintained. Burlap or other fibrous material is fastened upon this inside frame so as to form an interior wall, which stands at a sufficient distance from the outer wall of the structure to form an annular space between the two. In the top of the inner structure is an opening covered with screen material. Through this and the slats around the bottom of the outer casing a constant draught of air passes, thus causing an evaporation of moisture, with which the fibrous material is saturated, so that the interior of the apparatus is maintained at a low temperature. All around the top of this frame is a strip of galvanized iron, with an inclined lip bent over. The edge of the burlap is fastened upon the face of the frame, one-eighth of an inch above the edge of the lip, so that the water which is discharged upon this inclined surface will not flow over the burlap, but will be directed against it, so as to be absorbed, thus saturating the burlap. The fastening for this burlap or other fibrous material consists of a double-pointed tack or holder, the head of which is soldered or otherwise secured to the face of the galvanized iron. The fibrous material being pressed over the points, they are folded down to hold it in place. This renders it easily removable for change or cleaning. Above the top of the frame is a tank for holding water. Projecting from the sides and ends of this tank, and at a suitable distance apart, are horizontal pipes having in the outer ends vertically disposed needle valves, which control the flow of water from openings in the lower parts of the pipes. These openings and controlling valves are situated in line above the slanting lips, so that water delivered from the openings falls upon the lip and flows down into the fibrous material, keeping it constantly saturated. — *N. Y. Evening Post.*

URALITE, A NEW FIREPROOFING MATERIAL. — Uralite, a new fire-resisting material for constructional purposes, originally invented by Colonel Inchenetski, a Russian artillery officer, and since greatly improved by the British Uralite Company, was subjected to somewhat severe tests on Wednesday at the Company's works, near Rochester, Kent. In its manufacture asbestos from Canada, the United States, and the Ural Mountains is ground to pulp, and mixed with about 30 per cent of chalk to fill up the interstices between the short fibres, and, after going through a number of chemical processes, appears in the form of tough, pliable strips. Finally, gelatinous silica is used for cementing purposes, about 20 per cent being required, and this combines with the 30 per cent of chalk, and some 50 per cent of asbestos, in making boards of uralite which are stiff, will stand a great amount of wear and tear, and, above all, are impervious to fire. A deed-box, constructed of wood, and lined with uralite, one soft layer of which separated two layers of wood, while two more layers, one soft and one hard, covered the inside and outside, was placed on iron standards inside an iron-framed hut, covered, and lined with uralite. A fierce fire was kindled, the temperature inside at one time reaching 2,030 degrees Fahr., and after being left over half an hour, an examination was made. It was found that the wood nearest the fire was charred right through, but the middle uralite was sound. The outer layers had porcelained, and were badly cracked. Papers placed inside were slightly discolored, owing to distillization, but were not charred. Sulphur and fusible metal placed within crucibles were unchanged, a portion of paraffine wax in another crucible alone having melted. Another test had for its object the trying of what various pattern doors fitted into a brick hut would stand. A fire was ignited inside, and the doors were closed, and left so, over an hour. The highest temperature at one time was 2,350 degrees Fahr. As a result, one door of two layers of uralite running throughout, and forming the panels, with a framework of timber on either side, was penetrated by flames after some time, which was not surprising, considering its slight structure, and most of the wood was charred off. The uralite, however, stood. Another door of two layers of oak, separated by uralite, with two layers of the same material without and within, proved impenetrable, the inner layer only being cracked and porcelained. This was intended to represent a warehouse door. Two other doors were equally successful, a sheet of tin in one only being slightly buckled. In the case of two sections of platform, one of wood only, and the other of wood cased with uralite, the former was rapidly eaten away by the flames, while the latter was, at the end, quite strong. Subsequently, the various processes were explained, and it was shown that uralite can be painted, and will take a wood veneer, which will not warp or crack, and is about one-fifth of the weight of its own size in corrugated iron. — *Insurance Observer (London).*

ALUMINIUM AS A SUBSTITUTE FOR COPPER. — The possible substitution of aluminium for copper in electrical work is a question which has been discussed from time to time in the press; frequently, we regret to say, by writers who apparently know very little about the facts. It has also been referred to by electricians, some of whom have been able to speak from actual experience. From the expert testimony it appears that aluminium can be and has been used for conducting purposes in power-plants and for the transmission of power from such plants. The most notable employments of the metal for the former purpose have been in some of the recent installations at Niagara and in some California plants; for the latter at Snoqualmie Falls in Washington, and the Blue Lakes power-plant in California. Notes of these uses of the metal have appeared in our columns from time to time; and its use at Blue Lakes was fully treated by Dr. F. A. C. Perrine in a paper read before the Institute of Electrical Engineers. The testimony of experts is that aluminium has given good results where it has been used; and that its lesser conductivity, as compared with copper, and its lower tensile strength, requiring the use of bars and wires of larger section, are so balanced by the low specific gravity of the metal that in the matter of cost aluminium at its present prices is about equal to copper at 16 to 17 cents a pound — that is, at present prices. For transmission wires there still seems to be some doubt whether, in a northern climate, aluminium wires will stand the stresses of snow, ice and high winds as well as copper. In a milder climate this consideration might be disregarded. It may be assumed, therefore, that it would be possible to substitute aluminium for copper in electrical work to a considerable extent — provided the metal can be had in sufficient quantities for the purpose. That is, after all, the most important question. For all immediate purposes the question seems to be answered by the fact that in 1900 the total production of aluminium in the world was 5,570 metric tons, of which the United States furnished 2 053 tons; while that of copper was 492,625 metric tons, of which 272,536 tons were supplied by this country — that is, the total output of aluminium last year was only 1.1 per cent of that of copper. Until these figures are greatly changed, the competition of aluminium is not likely to affect the copper market. The price of aluminium at present is — as above stated — about on a par with that of copper, allowance being made for the respective weights. The aluminium quotations, however, have not been regulated by those of copper, but have been based, as we understand, upon the cost of production. They have shown little change during the past year. There is no competition tending to lower them; but on the other hand it is to the interest of the producers to keep them as low as possible in order to dispose of their output. The main point to be considered, therefore, is to what extent the production can be increased. There is a general indefinite idea prevalent that as alumina is so abundant and so universal in its occurrence, it ought to be possible to extend the extraction of its metallic base indefinitely. That this is not the case is shown sufficiently — without going into details — by the fact that present production is so small, although the best metallurgical skill has been for years concentrated on the problem of separating the metal. We do not mean to say that cheaper and more expeditious processes of furnishing aluminium may not be discovered hereafter. That is a problem which may be worked out by some investigator to the great benefit of the world — and himself. It has not been done yet, and considering present conditions, as we must, we are unable to see any opening for the substitution of aluminium for copper — or for any other metal — on a commercially important scale. — *Engineering and Mining Journal.*

AN UNVERIFIED PREDICTION. — In the *Anti-Jacobin Review* (English) for 1800, may be found the following flouting of the new capital city of this country: "The seat of the Federal Government is this year to be removed into a wood in Maryland, called the city of Washington. From the 'Capitol' of this city, one wing of which is, we are informed, so far finished as to be fit to receive the Congress, the members must go 4 miles to a little place called George Town, to their lodgings! Some people suppose that when the Government retires into this desert, it will, like the Grand Lama, be adored, because it will never be seen; others suppose that the spot will soon be rendered rich and populous by the vast concourse of pilgrims who will, doubtless, flock to the tomb of General Washington, whose body is to be removed thither from Mount Vernon; there are, however, others who, far from having any hopes of this sort, scruple not to aver that if anything would hasten the downfall of this tottering fabric of a government, it certainly would be the ridiculous removal in question."

LANDSEER'S AMBIDEXTERITY. — Mr. Conrad Cooke, son of E. W. Cooke, R. A., tells me that he used to hold the paper while Landseer drew one animal with his right hand and a different animal with his left, writes Mr. J. A. Manson in "*Sir Edwin Landseer, R. A.*" This species of dexterity comes from practice, no doubt, and is akin to the adroit manipulation of the accomplished pianist, but is nevertheless extraordinary, and several cases are recorded in which Sir Edwin fairly astounded the onlookers by such displays of manual skill. — *Exchange.*

S. J. PARKHILL & CO., Printers, Boston, U. S. A.

The American Architect and Building News

ADVERTISERS' TRADE SUPPLEMENT

No. 244 SATURDAY, SEPTEMBER 6, 1902 Volume LXXVII No. 1393

HEATING BY HOT-WATER CIRCULATION.

For usual residence-work, hot-water heating-apparatus is without question most perfect. Because of the varying climatic conditions of this country, a comparatively small amount of heat is needed during the spring and fall months of the year, while an abundant heat is required in severe weather. In this range of temperature, from 50 degrees Fahr. down to zero and below, hot-water provides a corresponding range of heat. As the variation of temperature of the water is controlled directly by the amount of fire, it is evident that the greatest economy in operation is secured.

The hot-water system is noiseless in operation and provides a delightful and healthful heat.

Through lack of knowledge of the system of hot-water heating, there are many erroneous ideas in reference to dangers of freezing, leaking, rusting of pipes, pressure, etc. No damage could occur to the apparatus by freezing, unless, through negligence, it should be left full of water in a vacant building during the winter. Whenever a building does not require continual heating, the pipes can be arranged, by putting in valves and draw-off cocks, so that the water can at any time be emptied from radiators and pipes. This is a special convenience not so much in private residences as in public buildings, apartment-houses, etc. The apparatus is easily controlled and operated, the temperature being regulated to suit convenience and comfort.

In regard to fear of leakage from the pipes, this should not be entertained, as the apparatus, being open to the atmosphere through the expansion-tank, affords a safeguard against any undue pressure, as it can never exceed the weight of water in the pipes, which in the ordinary dwelling rarely exceeds ten or twelve pounds pressure per square inch.

There can be no rusting of the interior of the heater and piping during the summer months, as the apparatus should be kept full of water, thereby excluding the air and preventing all oxidation and rusting.

The conditions determine positively whether steam or hot-water is the more desirable system of heating. It is a fact that in the great majority of cases hot-water circulation is the more economical and the most desirable. Steam-heating, however, possesses advantages for many classes of buildings, such as churches, halls, auditoriums, etc., which are occupied only occasionally and require to be heated quickly and intermittently in severely cold weather.

GURNEY HEATER MFG. CO.,
BOSTON, MASS.

THE DIXON ADVERTISEMENTS ARE FAR-REACHING.

MARSOVAN, June 16, 1902.

Dear Sir, — I have read your advertisment in a newspaper, that your reputation is extended to the uttermost parts of the world, and became very interested of your work, and now I wish to buy from you Graphite Pencils to our store. If you please send me some of your pencils for sample, if it seems to me pleasant I will admonition two or three boxes. And write me your discount, also send your catalogue and price-list. Awaiting your answer. Yours truly,

MILTEADES KYRIAKOW.

MARSOVAN, VIA CONSTANTINOPLE, TURKEY-IN-ASIA.

THE "TAYLOR OLD STYLE" ROOFING-TIN.

It is the only tin now sold that has really stood the test of time.

It has always been made in the same way.

It has had a host of imitations in its time. Those that remain have only had a life of a few years, while scores of its former imitations are dead and forgotten.

It takes thirty-five minutes to make a sheet of the "Taylor Old Style" brand. It takes ten seconds to make a good extra-coated Terne.

It is assumed that a tin roof is intended to last, and not be a temporary covering. Durability is a part of the "Taylor Old Style" brand. Do not specify the best tin along with inferior tin. If you wish to specify the inferior, omit the best.

We warn you against the imitations of the "Taylor Old Style" brand. We like the flattery of imitation, but we do not want our patrons to suffer by it. The genuine has stamped on each sheet the name of the brand and our firm name and address as manufacturers. It also contains the thickness.

There are roofs in Philadelphia covered with this same kind of Tin that are just as good to-day as when they were put on seventy years ago. With reasonable care, it will outlast the life of the building.

It is made at our works in Philadelphia the same as in 1830, seventy-one years ago, and sold by us at that time.

N. & G. TAYLOR CO.,
PHILADELPHIA, PA.

ZINC-WHITE.

The use of white-lead is officially prohibited in France, the substitution of Zinc-white therefor being prescribed by direction of the health authorities.

Before proceeding to this extreme, the question was carefully canvassed both by hygienic and technical experts, the former reaching the conclusion that the substitution would be in every way desirable on sanitary grounds, and the latter that it would have no inconvenience but some decided advantages from the technical point-of-view.

The specifications for municipal work in the city of Paris read as follows: —

Art. 15. Oil-paints shall be composed in conformity with the architects' orders without any power to demand an advanced price.

For exteriors the oil shall be linseed and always used without turpentine.

For interiors the first coat, very thin, shall be composed exclusively of white oil, called poppy, and zinc-white; for the other coats, the white oil shall be mixed with about one-third of turpentine and manganese or litharge oil, called siccative.

A further proviso forbids the use of lead for exteriors without special permission.

The matter has been so thoroughly canvassed in France, and of recent years in America, that it seems unnecessary to-day to argue in favor of the use of paints containing at least a large proportion of Zinc-white in preference to pure white-lead and oil. Not only are they superior on hygienic grounds, but they are more durable and more economical than the latter, and — an important consideration for the architect — they preserve the original brilliance of the oil and the purity and delicacy of their tints far longer.

We have here no intention to prescribe formulas, which is the legitimate business of the paint manufacturer; but we hope, by laying before you the decree of the French Governmental authorities, to awaken your interest in the subject. Despite the prejudices of those who should be better informed, we are confident that a little study will convince you that Zinc-white is essential to good painting in white or tints at the present day. In consequence of a presentation of the facts in a very limited territory, the consumption of Zinc-white in this country has doubled within a few years, and we confidently expect the time in the near future when, through the conscientious effort of architects and others to secure beauty, durability and protection in painting, its consumption will again be doubled.

The subject is treated more fully in our

(*Continued on page 4.*)

pamphlets "Paints in Architecture" and "The Paint Question," which we shall be pleased to forward to you on request.

Very respectfully,
The New Jersey Zinc Co.,
11 Broadway, New York.

THE SUPERIOR COUNCIL OF PUBLIC HYGIENE OF FRANCE.

The Minister of Public Works having submitted to this body a series of questions concerning the advisability of substituting Zinc-white for white-lead in all Government works, the Council formulated the following conclusions: —

"The substitution of paints based on oxide-of-zinc for white-lead paints is entirely desirable from the point-of-view of hygiene.

"This substitution appears to be feasible in the great majority of painting-work; and consequently the State executives would set a salutary example and would perform a very useful service to hygiene in ordering, wherever it may be possible, the substitution of Zinc-white for white-lead in work executed on account of the administrations."

The Consulting Committee of Hygiene and Utility of France, on March 20, 1901, issued an edict that the use of white-lead be prohibited, an edict with which all the Government departments and most of the municipalities have complied.

NOTES.

The lengthening list of establishments which have been "sprinkled," as the term is, with the automatic sprinklers installed by the International Sprinkler Company is interesting proof of the headway that this simplified and useful protective apparatus is making in different parts of the country.

As the main establishment is in Philadelphia, it is but natural that the largest number of establishments protected by the "International" sprinkler should be Pennsylvania. But the list includes many other States as well, and it is peculiarly significant that one of the States which affords one of the longest lists of references is the State of Rhode Island, which one of the oldest sprinkler companies has long looked on as peculiarly its private property.

"Good stock needs good lighting" is a truth realized this season as never before by the leading merchants throughout the country, as evidenced by their orders for reflectors to the well-known house of I. P. Frink, 551 Pearl St., New York. Among the many contracts for Frink's Special Patent Window Reflector and show-case lighting in hand or recently filled we are advised of the following: Gimbel Bros., Philadelphia; also their Milwaukee store; Bloomingdale Bros., N. Y. City; Siegel Cooper Co., N. Y. City; the handsome new buildings of Saks & Co., and R. H. Macy & Co., N. Y. City, two stores which because of their location have attracted general attention; Derby Desk Co., Boston; L. Hammill & Co., Mobile, Ala., who are conceded to have one of the finest store-buildings in the South; J. N. Mockett, Toledo, O.; Hannifin Dry Goods Co., Milwaukee, and "The Leader," Minneapolis, Minn. It might be mentioned that in addition to their special line of reflectors for window and case lighting this concern manufactures a full line of cluster-reflectors, mirror-shades, etc. The former are well adapted to the lighting of store interiors, being preferred by many to the enclosed arc. The Wadleigh High School, N. Y. City, about completed, has some 800 "Frink" clusters which are the standard type of the N. Y. Board of Education. The additional fixtures in this building, consisting of ceiling coronas with bent-glass domes and arch reflectors, were all furnished by this firm. Their catalogue fully illustrates and describes their fixtures and is intended to reach every architect who has occasion to specify lighting-fixtures for stores, churches or public buildings.

We are in receipt of a sample Red Cedar Shingle from the Hastings Shingle Mfg. Co., Ltd., for which the makers claim many excellent qualities: that they will not shrink, swell, curl or check, and will lie flat under all weather conditions.

The sample is a beautiful piece of workmanship, and we are assured by Mr. F. R. Stevens, Eastern Sales Agent for the Hastings Co., that it is taken from a package of Shingles purchased at a local lumber yard, and is only the average No. 1 Heart Shingle.

The names "HASTINGS" on a package of Shingles in a practical guarantee that the contents is first class in every respect.

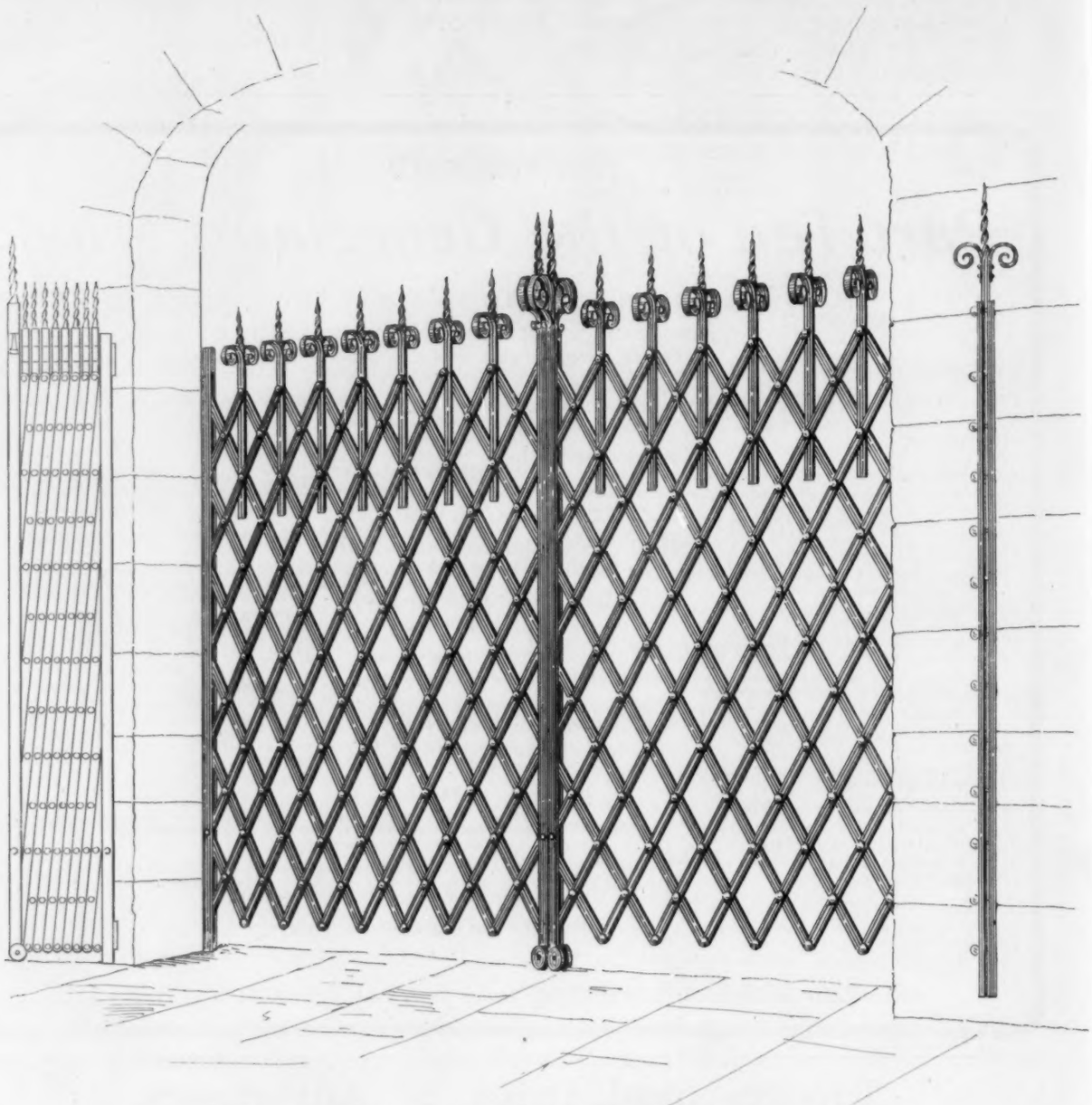
The American Architect and Building News

A WEEKLY JOURNAL OF CONSTRUCTIVE AND DECORATIVE ART

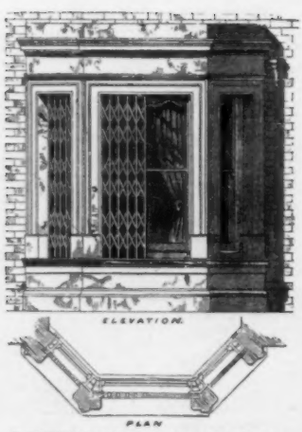
VOL. LXXVII. — No. 1393.] SATURDAY, SEPTEMBER 6, 1902. PRICE, { INTERNATIONAL ISSUE, 50 CTS / REGULAR " , 15 "

Topographical Index of Advertisers.

[*For pagination, see Alphabetical Index on Cover* 2.]



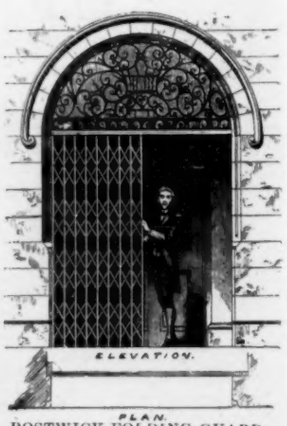
No. 1254, PITT FOLDING GATE FOR STORES, OFFICE BUILDINGS AND THEATRES, Etc.
Patent Jan. 13, 1891.



BOSTWICK FOLDING GUARDS FOR WINDOWS.

The Wm. R. Pitt Composite Iron Works, 111 Fifth Ave., N. Y.

Manufacturers of the "Pitt," "Bostwick," Novelty and Composite Patent Folding Gates and Guards, in Brass, Bronze, Steel or Iron, for Store Fronts, Vestibules, Elevator Enclosures and Cars, Bank Vaults, Windows, Bridges, Ferry-boats, Cars, Etc. Also Architectural and Ornamental Iron, Brass and Bronze Work for Buildings, Railings, Driveway and Entrance Gates, Window Grilles, Marquees, Bank and Office Grille Work, Stairs, Lanterns, Special Hardware, and all Artistic Wrought Work. Estimates Furnished.



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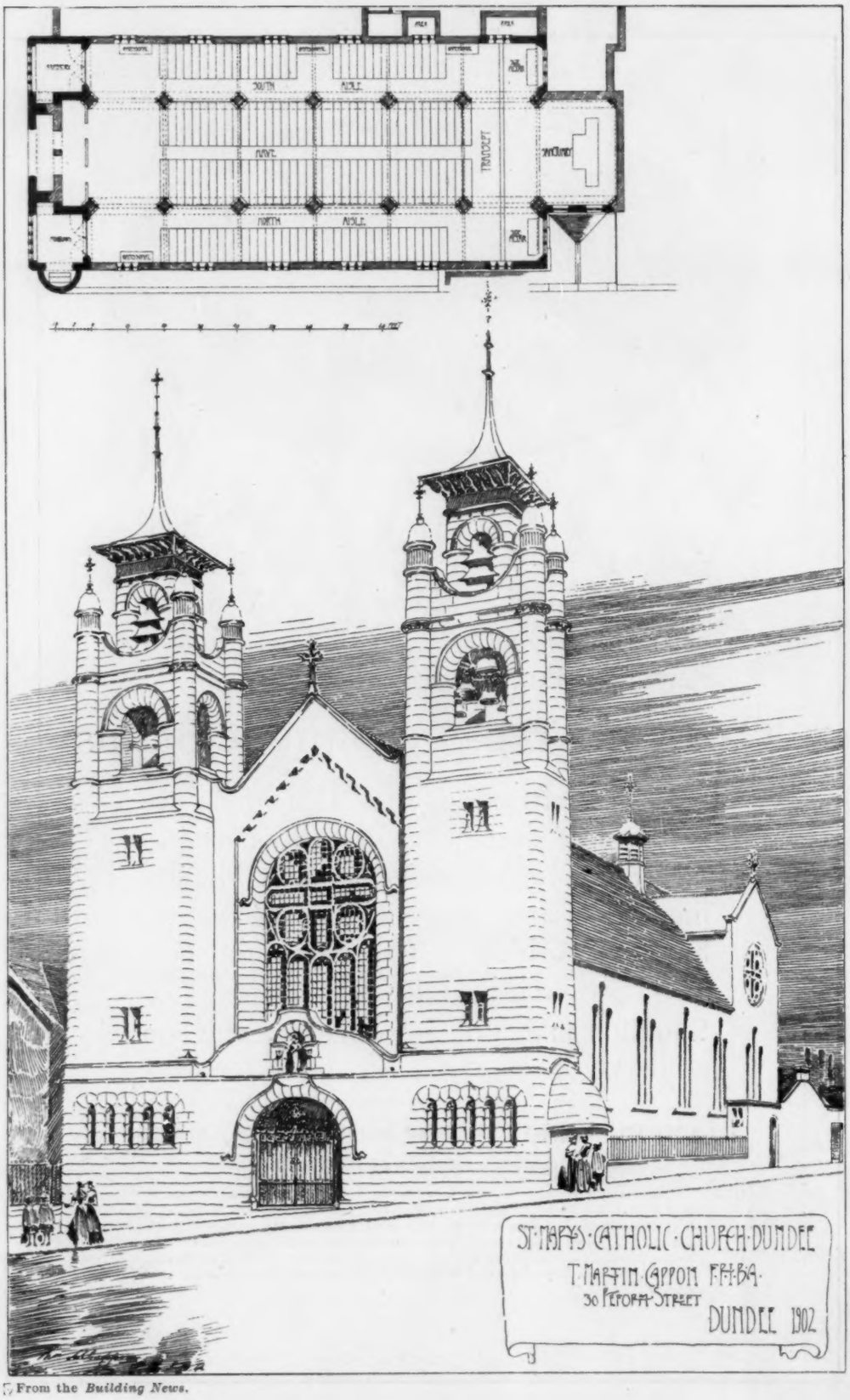

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Advertising Rates: For "wants" and "proposals," 15 cents per line [8 words to the line], each insertion. 50 cents the least charge. Other rates on application.

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.*]

ADVANCE RUMORS.

Buffalo, N. Y.—Mugler & Umlauf are to erect a three-story brick warehouse at 543 Seneca St., to cost $16,000.

The Buffalo Foundry Co. is to erect a two-story brick building, 146′ x 320′, to cost $100,000.

The Society of Natural Sciences is to erect a $60,000 building on Elmwood Ave. south of the park line.

Camden, N. J.—It is stated that certain architects will submit competitive plans for a court-house to cost $350,000. Irving Buckle, Chmn. Bldg. Com.

Plans are reported as being prepared by Henry D. Dagit, 435 Chestnut St., Philadelphia, Pa., for a convent to be erected at 1500 Haddon Ave. for the Dominican Sisters of the Perpetual Rosary, to cost about $40,000.

BUILDING INTELLIGENCE.

(*Advance Rumors Continued.*)

Chicago, Ill.—C. W. Van Keuren has designed plans for a two-story building to be used as vaudeville theatre, stores, office and flats, and to cost about $25,000. It will cover 40′ x 110′, and will be erected at Cottage Grove Ave. and 38th St. Will be built of pressed brick and stone and have steam heat.

A two-story Colonial style residence will be erected in La Grange for R. V. Thomas from designs by Architect George H. Grussing, 59 Clark St. It will cover an area of 30′ x 50′, and will be constructed of stone and wood, with shingle roof, hardwood finish, etc. It will cost about $15,000.

Concord, N. H.—Plans for the new city-hall will be ready for inspection in a few days.

Denver, Col.—Plans have been drawn by Marean & Norton, Equitable Building, for a four-story brick warehouse, 75′ x 120′. Owner, N. B. McCrary. Cost, $35,000.

Des Moines, Ia.—Proudfoot & Bird were appointed architects by the Marengo School Board for two school-buildings to be erected in that city this year. One will be a frame building of eight rooms, to cost $12,000; the other a high-school building to cost $28,000. The school district has voted $40,000 bonds.

Eaton, O.—The City Council is considering the construction of a sewerage system. A rough estimate places the cost at $45,000 per mile.

Fairmont, W. Va.—The grand lodge of Odd Fellows is stated to have selected a site here for a home for the aged and indigent members. The buildings will cost about $60,000.

Fall River, Mass.—Plans have been drawn by Architect Louis Destremps for a new club-house for the Bowling Green Club.

Fitchburg, Mass.—Excavations are being made for the brick and stone dormitory to be erected at the State Normal School. The plans were drawn by Architect J. Philip Rinn, 7 Water St., Boston.

Fort Worth, Tex.—It is reported that City Engr. John B. Hawley will superintend the work of constructing a sewerage system in the 5th, 6th, 7th and 8th Wards, at an estimated cost of $30,000.

Grossepointe, Mich.—The Township Board has awarded the contract for macadamizing Mack Ave. to Gilbert Moran & Co. for $34,000.

Hartford, Conn.—The armory commission are considering the site for the new armory and arsenal to be erected in this city, and are now ready to consider plans. Commission: Adjt. Gen. Geo. M. Cole, Q. M. Gen. Geo. B. Newton, Gen. John P. Harbison, Gen. A. L. Goodrich and Maj. Thos. M. Smith.

Architects are invited to submit plans in competition for the new engine-house to be erected on Smith St. An appropriation of $30,000 has been made for site, building and equipment.

Holyoke, Mass.—The general contract for the erection of the new brick parochial school, 85′ x 125′, for the Church of Our Lady of the Rosary has been awarded to Toomey & Shea. Cost, $30,000. John W. Donohue, Springfield, architect.

BUILDING INTELLIGENCE.

(*Advance Rumors Continued.*)

Jennings, La.—The plans of W. L. Stephens have been accepted for a $75,000 hotel to be erected here. M. C. Mahaffey is interested.

Joliet, Ill.—It is stated that plans are being prepared for a $60,000 warehouse to be erected on Van Buren St. and Eastern Ave. John Healherwick and L. M. Rubens are interested.

Knoxville, Tenn.—The Y. M. C. A. has decided to erect a $50,000 building. R. H. Sanson, sec'y.

Koochiching, Minn.—C. J. Rockwood, of Minneapolis, and others, propose the erection of a power dam here to develop the water power and the establishment of pulp and paper mills here. The total investment will be about $1,500,000.

Lake Placid, N. Y.—A syndicate supposed to represent leading railroad interests is negotiating for the Stevens House, one of the oldest and best known Adirondack Hotels. No definite announcement of the price has yet been made, but it is generally understood to be $360,000. If the proposed sale is made, Geo. A. Stevens, one of the present owners, will doubtless still be identified with the management of the hotel. The building will be greatly enlarged and will be made one of the finest summer places in the country.

Marion, Ind.—It is stated that the Pan Handle R. R. will erect a $20,000 freight depot on Railroad Ave. Thos. Rodd, Ch. Engr., Pittsburgh, Pa.

Middletown, Conn.—Charles Scott, of Philadelphia, is announced as the donor of the new $15,000 physical laboratory, which is to be erected at Wesleyan University. Plans for the structure are being drawn up by G. A. Rice, of New York City. The laboratory will probably be ready for use next year.

Milwaukee, Wis.—Leenhouts & Guthrie, architects, have prepared plans for alterations and repairs to the Miller Block, after the fire. Cost, $20,000.

Minneapolis, Minn.—The Daniels Linseed Co. are getting the foundation in for their oil mill on the Chicago Great Western Ry. tracks and 29th Ave. S. E. The main building will be 70′ x 451′, of solid brick and cut stone, mill construction throughout, gravel roof; cost, $40,000.

Mississippi City, Miss.—Torgerson & Harkness are reported to be preparing plans for a $50,000 court-house and jail for Harrison County.

Mt. Angel, Ore.—J. Jacobberger, of Portland, has drawn plans for an addition to the building of the Benedictine Fathers, which will cost $65,000.

New Milford, Conn.—Plans by Architect C. J. Birdsall are being figured for a three-story brick block, 60′ x 85′, to contain three stores and six apartments, to be erected for T. F. Young. Cost, $11,000.

New York, N. Y.—Plans have been filed by C. P. H. Gilbert for the dwelling house to be built for Jos. R. De La Mar on a plot 50′ x 100′ at the corner of 37th St. and Madison Ave. It will cost about $400,000. The architectural treatment will be in the style of the French Renaissance. In vaults under the sidewalk will be an automobile storage room and a charging station. The exterior of the building will be of light gray granite, and the roof and towers will be covered with red tile.

An old landmark in lower Broadway is to be torn down to make way for a modern building. The landmark is 51 Broadway, one of the oldest buildings in the commercial district. The new building will be erected by Wells, Fargo & Co., who have obtained a ground rent lease for twenty years to the property, which extends from Broadway through to Trinity Pl.

North Adams, Mass.—Architect J. M. Vance, of Pittsfield, has completed plans for a three-story brick normal school dormitory, 44′ x 156′, to be erected here.

Pasadena, Cal.—The plans of C. F. Driscoll, of Los Angeles, have been accepted for an edifice for the Baptist Church, to be erected on Marengo and Union Sts., to cost $30,000.

Philadelphia, Pa.—The Germantown Cricket Club has awarded to Ashton S. Tourison, 6805 Germantown Ave., contracts for two new buildings on the Manheim Cricket Grounds, at Morris and Manheim Sts., Germantown, to cost $75,000.

Jesse R. Pharoah, 1638 N. Carlisle St., has the contract for erecting the Bethlehem Evangelical Lutheran Church on Diamond and 30th Sts., for about $55,000.

San Francisco, Cal.—Bids will soon be wanted by the Bd. of Pub. Wks. for the reconstruction of sewers in the district bounded by 5th, 7th, Howard and Brannan Sts. Estimated cost, $50,000.

BUILDING INTELLIGENCE.

(*Advance Banners Continued.*)

Tabor, S. D. — The corner-stone was laid for the parochial school of the Bohemian Catholics. Cost complete, $30,000.

Waltham, Mass. — An important addition will be made to the Waltham Hospital this fall in the shape of an additional ward building. The subject has been under consideration by the corporation for about a year. Construction will be begun as soon as the contract is awarded, and the structure will be completed early in the spring. The building will cost about $20,000, and is the gift of a philanthropic person whose name is withheld.

Washington, D. C. — Certain architects have been invited to submit competitive plans for the Municipal Building, to cost not more than $900,000. Plans must be submitted by December 8.

Waterbury, Conn. — It is stated that an appropriation of $95,000 has been made for a new post-office building to be erected here, and plans will be started at once. J. Knox Taylor, treas. dept., Washington, supervising architect.

Winnipeg, Man. — Parties from the United States are said to propose the erection of a modern hotel to cost $500,000.

APARTMENT-HOUSES.

Boston, Mass. — *Boylston St.*, nr. Hereford St., five-st'y bk. & st. apart., 31′ x 52′, composition roof, steam heat; $40,000; o., Hereford Trust; a., Parker & Thomas, 1 Somerset St.; b., F. L. Whitcomb, 113 Broadway, Cambridge.

HOUSES.

Boston, Mass. — *River St.*, nr. Blue Hill Ave., two-st'y dwell., 25′ x 26′, shingled roof, furnace heat; $4,500; o., Ellen M. Brennan; b., F. J. Farquaharson, 1815 Dorchester Ave.

Judson St., Roxbury, No. 8, two-st'y dwell., 28′ x 53′, shingled roof, furnace heat; $5,500; o. & b., C. A. & A. R. Rice, 10 Judson St.

Hewins St., Brighton, No. 32, two-st'y dwell., 31′ x 33′, shingled roof, furnace heat; $5,000; o., Charlotte A. Powell; a., F. A. Powell. Contracts not let.

Walk Hill St., Mattapan, two-st'y dwell., 24′ x 43′, shingled roof, furnace; $4,600; o., Mrs. Anastasia Leahy, 80 Hyde Park Ave.; a., Jas. Hutchinson; b., E. R. McLane, 43 Tower St., Forest Hills.

MERCANTILE BUILDINGS.

Boston, Mass. — *Pitts St., Nos.* 47-49, five-st'y mercantile building, 30′ x 74′, comp. roof, steam; $25,000; o., Bernard Sperling, Wilmington; a., B. D. Crowell, Bar Harbor, Me.

TENEMENT-HOUSES.

New York, N. Y. — *E. Thirteenth St., Nos.* 334-336, six-st'y bk. tenements, 46′ x 90′ 3″; $50,000; o., Chas.

BUILDING INTELLIGENCE

(*Tenement-Houses Continued.*)

I. Weinstein, cor. 104th St. & Madison Ave; a., Geo. F. Pelham, 503 Fifth Ave.

Avenue D, cor. 4th St., six-st'y bk. tenements, 35′ 2 2-5″ & 50′ x 73′; $40,000; o., Louis Lippmann, 168 E. 103d St.; a., Bernstein & Bernstein, 111 Broadway.

E. Sixth St., No. 611, six-st'y bk. tenement, 25′ x 77′ 10½″; $30,000; o., L. Block, 83 E. 113th St.; a., Bernstein & Bernstein, 111 Broadway.

E. Eighth St., Nos. 322-324, six-st'y bk. tenements & stores, 39′ 6″ x 61′ 5″; $45,000; o., Max Katzen, 52 Broadway; a., Bernstein & Bernstein, 111 Broadway.

First Ave., cor. 66th St., five-st'y bk. tenement, 25′ x 89′, slate roof; $32,000; o., Emanuel Doctor, 410 E. 66th St.; a., John Hauser, 1961 Seventh Ave.

Prince St., cor. Thompson St., six-st'y bk. tenement, 44′ 9″ x 85′ 4½″; $40,000; o., Bender & Baum, 167 Rivington St.; a., Bernstein & Bernstein, 111 Broadway.

Rivington St., cor. Chrystie St., six-st'y bk. tenements & stores, 25′ ½″ x 90′ 2″; $40,000; o., Julius Weinstein, 199 Broadway; a., Bernstein & Bernstein, 111 Broadway.

MISCELLANEOUS.

Cambridge, Mass. — *Mt. Auburn St. and Miflin Pl.*, six-st'y bk. & st. dormitory, 62′ x 79′; $32,000; o. & b., Henry Green.

New York, N. Y. — *One Hundred and Second St.*, n s, 100′ w Columbus Ave., three-st'y bk. & st. engine house, 50′ x 80′, tile & copper roof; $60,000; o., City of New York; a., Horgan & Slattery, 1 Madison Ave.

COMPETITIONS.

MUNICIPAL BUILDING. [At Sewickley, Pa.]
The Boro. Council will receive competitive plans for the erection of a municipal building, to cost not more than $40,000. For particulars address D. H. CAMPBELL, Boro. Engr. 1394

PROPOSALS.

SEWERS. [At Washington, D. C.]
Sealed proposals will be received at the office of the commissioners **until September 13** for constructing sewers in the District of Columbia. Specifications and blank forms of proposals may be obtained at this office. HENRY B. F. MACFARLAND, commissioner, D. C. 1393

ADDITION TO GUARD-HOUSE. [At Fort Greble, R. I.]
Office of Constructing Quartermaster, *Daily News* Building, 209 Thames St., Newport, R. I. Sealed proposals for constructing frame addition to guard-house, Fort Greble, R. I., will be received here **until September 17, 1902.** Information furnished on application. CAPTAIN THOMAS H. SLAVENS, quartermaster. 1393

BARRACK. [At Elizabeth City, Va.]
National Soldiers' Home, Elizabeth City County, Va., Treasurer's Office. Sealed proposals will be received at this office **until September 12, 1902,** for building a frame barrack at Southern Branch, National Home for D. V. S. Plans, specifications and printed instructions can be examined at this office, and blank proposals supplied on application thereto. W. H. H. PECK, treasurer. Approved: Wm. Thompson, governor. 1393

VIADUCT. [At Mansfield, O.]
Sealed bids will be received at the office of the city clerk **until September 13, 1902,** for building a steel viaduct, on concrete masonry; length, 320 feet; width, 30 feet; maximum elevation, 25 feet. Plans in accordance with general specifications, on file in office of city clerk. D. S. KOONTZ, city clerk. 1393

SCHOOL. [At Washington, D. C.]
Sealed proposals will be received at the office of the commissioners, D. C., **until September 15, 1902,** for constructing an eight-room school-building on lots 8, 9, 7 and 10, square 938, southeast corner 9th and D Sts., northeast. Blank forms of proposals and specifications, together with all necessary information can be obtained upon application therefor at the office of the inspector of buildings after September 3, 1902, and bids upon these forms only will be considered. By order of the Board of Commissioners of the District of Columbia. WILLIAM TINDALL, secretary. 1393

RIPRAP STONE. [At Reedy Island.]
U. S. Engineer Office, Witherspoon Building, Philadelphia, Pa. Sealed proposals for furnishing and depositing riprap stone for protecting timber bulkhead in Delaware River near Reedy Island will be received at this office **until September 15, 1902.** Specifications, blank forms and all available information will be furnished on application to the office. S. COSBY, captain, corps of engineers. 1393

SEWERS. [At St. Louis, Mo.]
Proposals are wanted by the Board of Public Improvement **until September 16** for the construction of sewers in Rock Spring joint sewer district. Items: 10′ x 12′ concrete and brick sewer; 1,020 feet of 10.5; 310 feet of 10 foot, 1,540 feet of 8 foot and 1,630 feet of 7.5 foot brick sewers with all necessary appurtenances. HIRAM PHILLIPS, president. 1393

WAREHOUSE. [At Dallas, Tex.]
Bids are wanted for moving our warehouse or tearing down and rebuilding same. Call for particulars. DALLAS COOPERAGE CO. 1393

HEATING PLANTS. [At Fort Logan, Col.]
Denver, Col. Sealed proposals will be received here **until September 15, 1902,** for installing steam heating plants in barrack buildings and officers' quarters at Fort Logan, Col. Information furnished on application to the undersigned. COLONEL J. W. POPE, chief quartermaster. 1393

HOSPITAL. [At Texarkana, Ark.]
Bids will be received **until September 15** by R. M. Milligan, architect, 1201 Chemical Building, St. Louis, Mo., for erecting a hospital for the St. Louis Southwestern Ry. Co. of Texarkana. Separate bids will be received as follows: On all work excepting plumbing and sewering, gas fitting, electric wiring, steam heating, marble and tile work, finishing hardware and refrigerators; on gas fitting, sewering and plumbing; on marble and tile work; on electric-light wiring. 1393

SEWERS. [At Cleveland, O.]
Bids are wanted **September 17** for the construction of sewers in several streets. CHAS. P. SALEN, Dir. of Pub. Wks. 1393

SEWERS, ETC. [At Two Rivers, Wis.]
Bids will be received by the Bd. of Pub. Wks. **until September 17** for furnishing material and laying 20,985 feet of 8 to 20-inch pipe sewers, 15 manholes, 29 manhole flush tanks, 18 manhole catch basins, 48 inlets and 2 outlets, 4 catch basins, including connections, etc. EUGENE ALLIE, chmn. 1393

PROPOSALS.

PAVING. [At Cincinnati, O.]

Bids are wanted **September 18** for repairing a portion of Race St. with asphalt; also for improving Huron St. by paving with brick. GEO. F. HOLMES, Clk. Bd. of Pub. Service. 1393

Treasury Department, Office of the Supervising Architect, Washington, D. C., August 28, 1902. Sealed proposals will be received at this office until 2 o'clock P. M. on the 9th day of October, 1902, and then opened for the construction (except heating apparatus, electric wiring and conduits) of the U. S. Custom-house and Post-office at Newport News, Virginia, in accordance with the drawings and specification, copies of which may be had at this office or at the office of the Custodian of the Site (Collector of Customs) at Newport News, Va., at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1394

LIBRARY. [At Beatrice, Neb.]

Sealed proposals for the erection and completion of a library building at the City of Beatrice, Neb., will be received **up to 12 o'clock, noon, September 23d, 1902**, by A. H. KIDD, secretary, at his office in Beatrice, Neb. 1394

HOSPITALS. [At Columbus, O.]

Bids will be received by the Bd. of Trus. of Columbus State Hospital **until September 25** for furnishing material and erecting Awl Hospital and Greer Hospital. E. G. CARPENTER, M. D., sec'y. Frank L. Packard, archt., New Hayden Building, Columbus. 1394

PROPOSALS.

BOILER. [At National Military Home, Kan.]

Bids will be received at the office of W. W. Martin, treas., **until September 23** for an additional boiler at the Western Branch, N. H. D. V. S. J. G. ROWLAND, governor. 1394

LATTICE WORK. [At New Braunfels, Tex.]

Bids are wanted **September 22** for the removal of iron railing in front of cells in the Co. jail and for replacing same with full proof crown steel lattice work. R. BODEMANN, Co. Judge. 1394

Treasury Department, Office of the Supervising Architect, Washington, D. C., August 21, 1902. Sealed proposals will be received at this office until 2 o'clock P. M. on the 19th day of September, 1902, and then opened for the installation of a conduit and electric wiring system for the U. S. Custom-house and Post-office at Brunswick, Georgia, in accordance with the drawings and specification, copies of which may be obtained at this office or at the office of the Superintendent of Construction at Brunswick, Georgia, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1393

COURT-HOUSE. [At Ruston, La.]

Sealed proposals will be received **until September 12** for the erection of a court-house at Ruston, La. The contractors may submit proposals in regular form. Plans and specifications can be seen at the office of the parish clerk in Ruston, La., at the Builders' Exchange, Louisville, Ky., and at the offices of the J. Riely Gordon Co., 32 Waverly Pl., New York City, and Vicksburg, Miss. J. L. BOND, president police jury, Ruston, La. 1393

PROPOSALS.

CHURCH. [At Beaumont, Tex.]

Bids are wanted **September 12** for erecting a Catholic church. J. B. Brechin, architect, Beaumont. 1393

SCHOOL. [At Cincinnati, O.]

Sealed proposals will be received **up to and including September 15th, 1902**, for the erection of a brick school-house in Cincinnati, Appanoose County, Ia., according to plans and specifications of J. C. & W. Woodward, Council Bluffs, Ia. For plans and specifications address the architects or the undersigned secretary. L. H. ATHERTON, secretary. J. M. STURDIVANT, president. 1393

INTERIOR FINISH, ETC. [At Chicago, Ill.]

Treasury Department, Office of the Chicago Building, Washington, D. C. Sealed proposals will be received at this office **until September 24, 1902**, for the interior finish and completion of the post-office, court-house, etc., Chicago, Ill., in accordance with the drawings and specifications, copies of which may be had on application at this office. Henry Ives Cobb, architect, U. S. Government Building at Chicago, Treasury Department, Washington, D. C. 1393

Professional Ethics.

The following . . .
. . . CODE OF ETHICS . . .
Prepared in Conformity with the Best Standards of Practice, and Recommended to its Members by the Boston Society of Architects, was . . . . . .

ADOPTED BY THE SOCIETY, FEBRUARY 1 . . 1895. . .

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

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

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

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

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

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

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

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

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

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

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

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

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

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

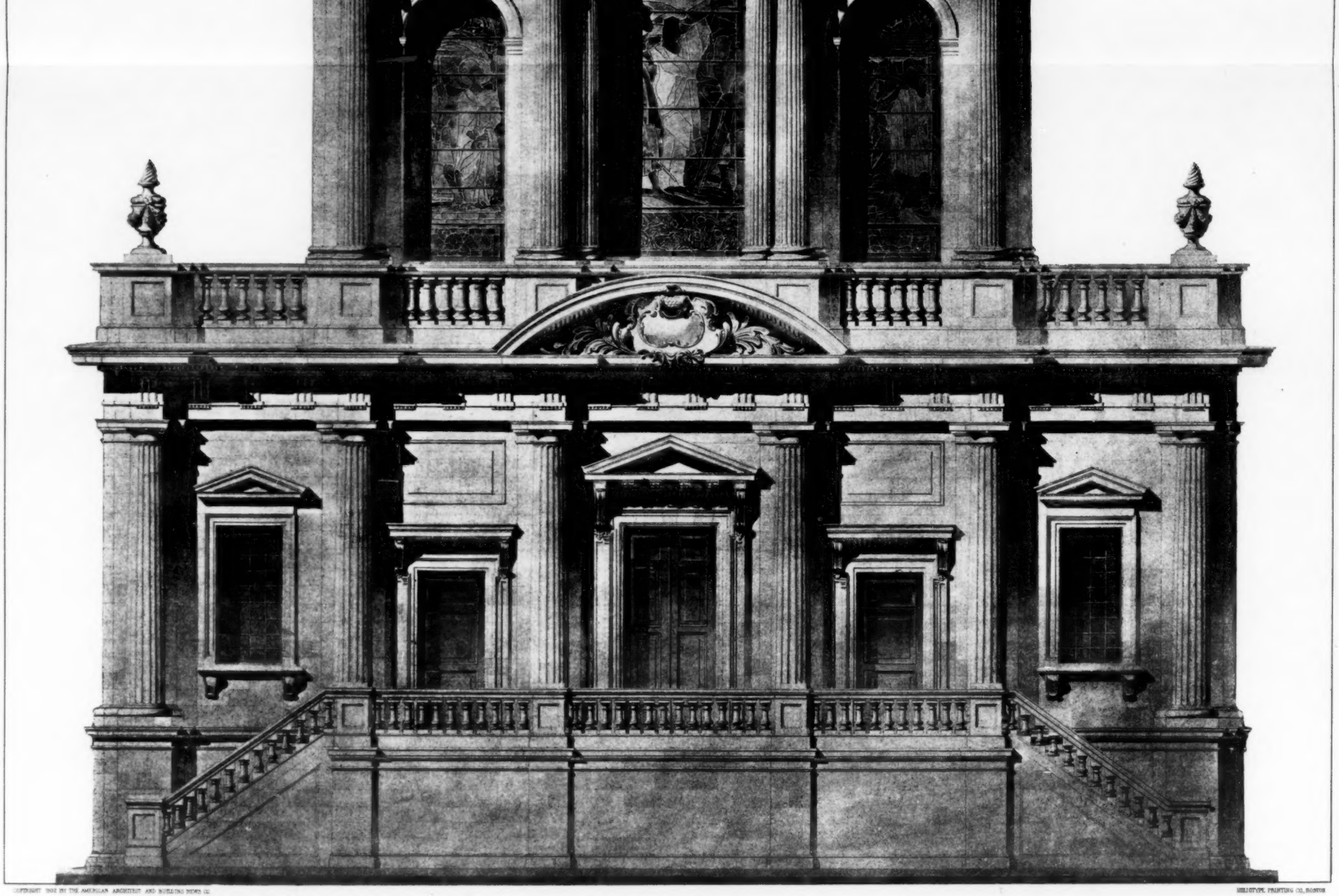
SECTION 15. The assumption of the title of "Architect" should be held to mean that the bearer has the professional knowledge and natural ability needed for the proper invention, illustration and supervision of all building operations which he may undertake.

SECTION 16. A Member should so conduct his practice as to forward the cause of professional education and render all possible help to juniors, draughtsmen and students.

[See Alphabetical Index on Cover 2 for Pagination.]

CLASSIFIED ADVERTISEMENTS.

[Advertisers can be indexed only under a single head free of charge.]

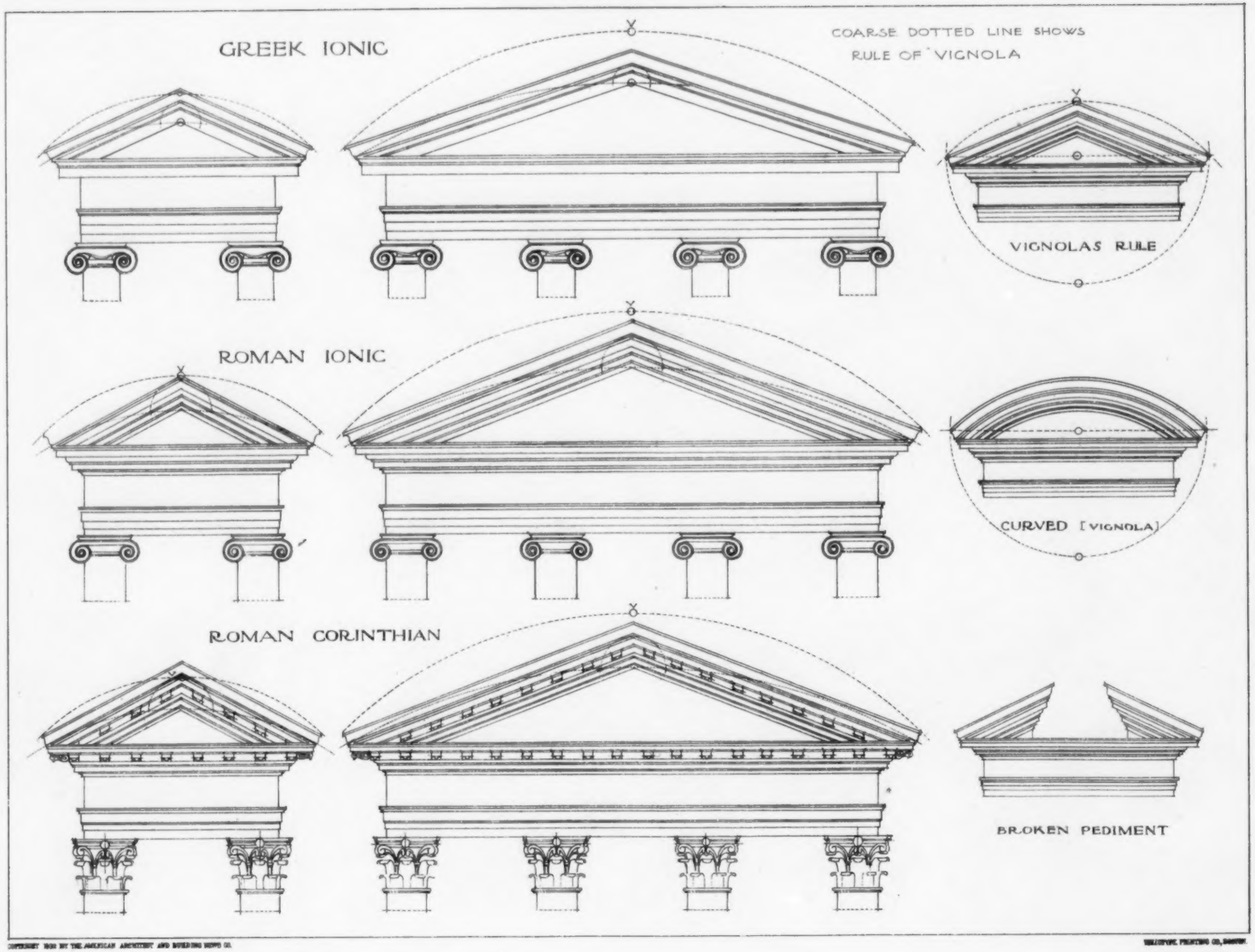


ROMAN CATHOLIC CHURCH, NEW YORK, N. Y.

ELLIOTT LYNCH, ARCHITECT.

The American Architect
Sept. 13, 1902.
No. 1394.

PEDIMENTS



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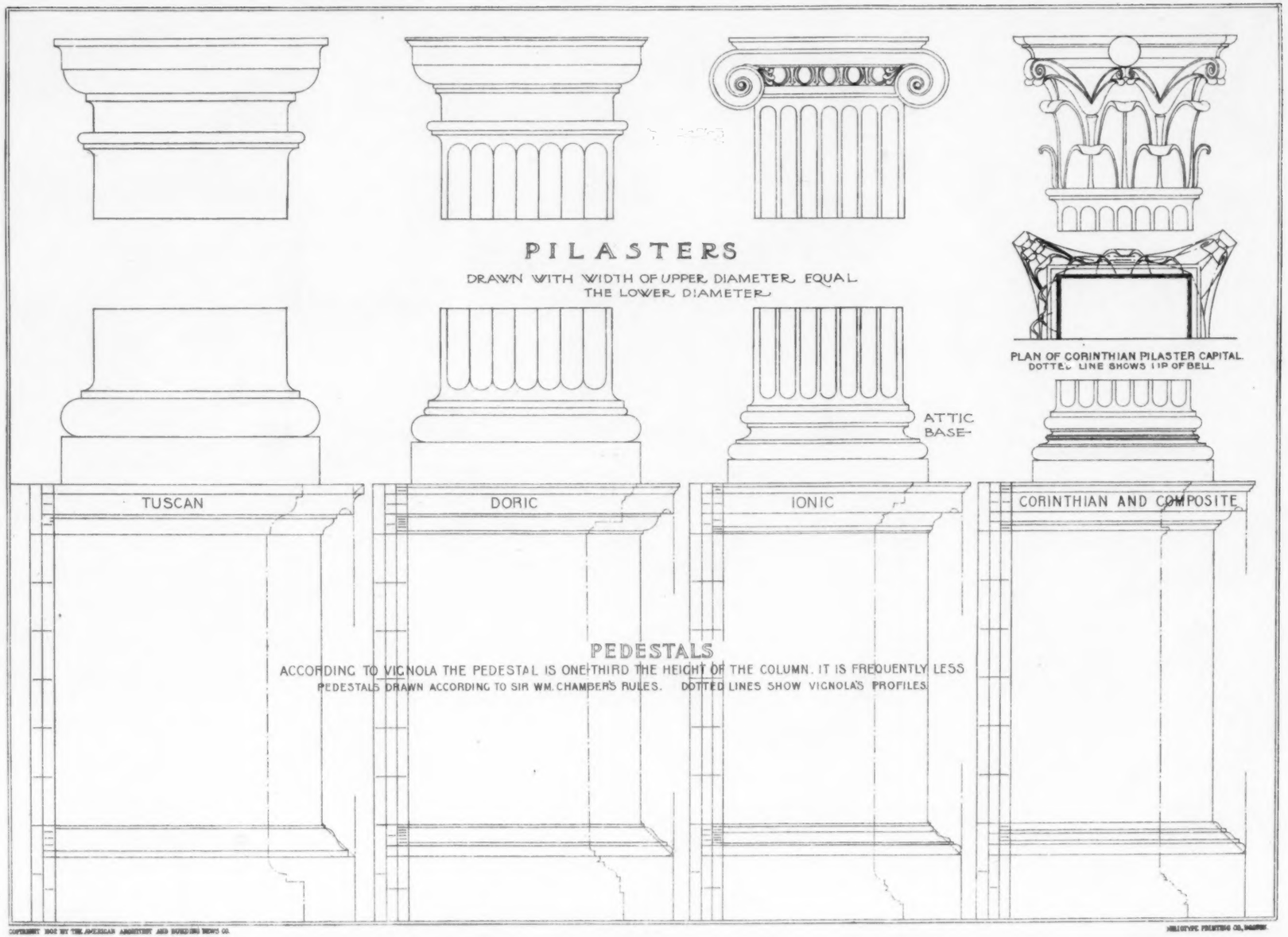
PEDESTALS AND PILASTERS



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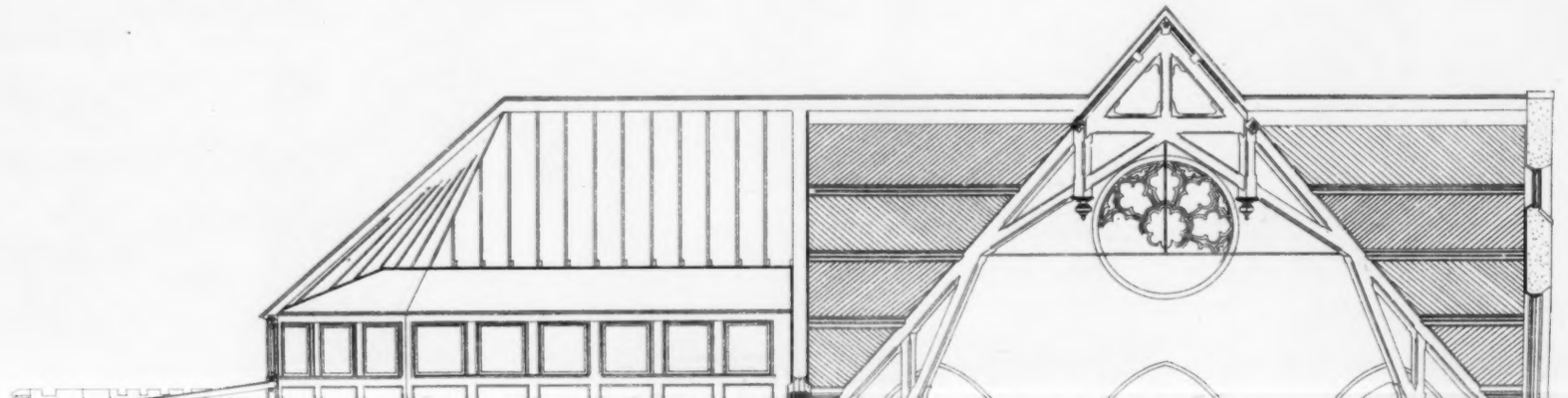
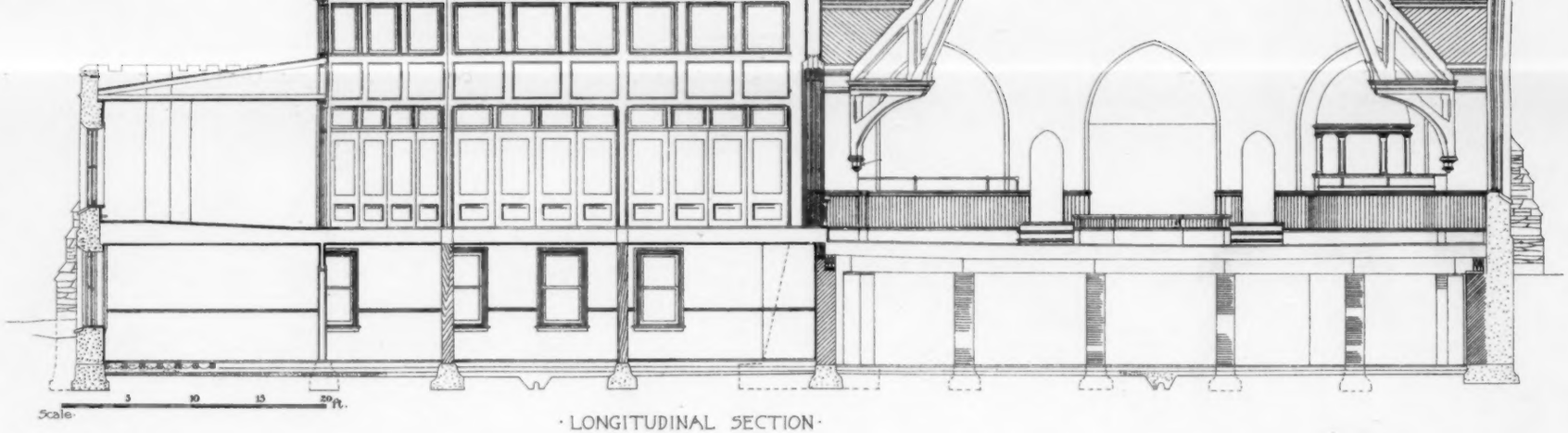
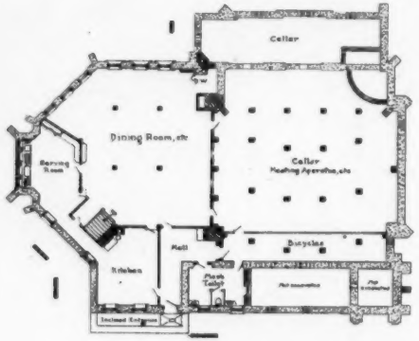
NORTH ELEVATION





LONGITUDINAL SECTION



Basement Plan

EAST ELEVATION

THE CENTRAL BAPTIST CHURCH, WAYNE, DELAWARE CO. PENN.

D. K. BOYD AND L. V. BOYD, ASSOCIATED ARCHITECTS.

The American Architect
Sept. 13, 1902.
No. 1394.