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CONTENTS.

SUMMARY:—

The Excavations at Olympia.—Possibility of their Discontin- uance.—Archæology of Central America.—Mr. Loril- lard's Expedition.—The Sale of the Demidoff Collection.— Elevated Railways in Boston.—Their Requirements and Fitness.—Labor Troubles in New York and San Francisco.	113
GOVERNMENT TESTS OF WROUGHT-IRON AND CHAIN-CABLES. II.	114
THIRTEENTH CONVENTION OF THE AMERICAN INSTITUTE OF AR- CHITECTS. II.	116
THE BACK BAY PARK IN BOSTON	117
ARCHITECTURE IN THE WEST. II.	118
THE ILLUSTRATIONS:—	
The Model-Room of the United States Patent Office.—Plan for the Back Bay Park, Boston, Mass.—House at Larchmont- on-the-Sound, N. Y.	119
COMMON SENSE IN CHURCH BUILDING	120
THE EIDER SHIP CANAL	120
PHENICIAN AND ETRUSCAN DECORATION	120
COMMUNICATIONS:—	
The Hypæthral Question.—Fires in Walls and Floors.—Archi- tectural Criticism	121
NOTES AND CLIPPINGS	122

WE hear with great regret, as will all persons who have any interest in archæology, the report that the German Government will not renew its provision for the excavations at Olympia, which expires by limitation this year. The excavations were undertaken five years ago at the instigation of the historian Curtius, who had for a quarter of a century treasured up the idea, inherited from Winckelmann, of searching under the deposits of the Alphæus for remains of the sacred structures of Olympia. Curtius, who was sent to Greece in 1874 to negotiate for permission to excavate under authority of the German Empire, arranged for the explorations, as may be remembered, on terms which dealt most handsomely with the Greek Government, leaving to it all the material results of the searches, and reserving for the Germans only the satisfaction of advancing scholarship, the right to casts of what should be found and to duplicates, and the glory of the undertaking, which was untransferable. The Reichstag voted about forty thousand dollars a year to the researches for five years, appointed a board of directors, and began work in October, 1875. The more or less hasty examinations of previous explorers had discovered the site of the great temple of Zeus, from which a French expedition had already, in 1829, brought back one or two of the metopes, this was made the centre of the new exploration, the first object of which was to trace the outline and contents of the sacred grove, or Altis, which enclosed the most revered buildings of the Greeks.

Of the splendid results of these researches the whole world knows. Since the discoveries of Layard, at Nineveh, nothing of the kind has made so great an impression on students or added so much to scholarship, or given such interesting verifications and explanations of the accounts of the ancient writers, especially Pausanias, whose minute account of the topography and architecture of Olympia has received many very curious elucidations in the course of the researches. Of these the most striking was the finding of the Hermes of Praxiteles, one of the noblest pieces of Greek sculpture ever discovered, which was found just in the part of the temple where the account of Pausanias led the explorers to look for it, and was identified beyond the possibility of doubt by its correspondence with his description. The many other valuable sculptures found, coming from the gables of the great temple and elsewhere, with the thousands of other objects, bronzes, inscriptions, coins, votive offerings, and architectural fragments, connecting themselves as they do with the very central traditions of Greek history and Greek art, have an interest which is absolutely unique. To these are to be added the architectural value of the discovered plans and the restoration of the sacred buildings; the great temple of Zeus itself, almost the largest in Greece, greatly exceeding the Parthenon in scale, though not in dimensions; the Heraion or temple of Juno, notable for its unusually elongated plan, a hexastyle temple with sixteen columns on the flanks; the circular Philippeion, the Metroön, the Treasuries, the remarkable semi-circular Exedra of Herodes Atticus, and other noteworthy

buildings of brick. The pedestal of Phidias's famous chryselephantine statue of Zeus has been identified, and even as we write we learn of the identification of the great altar of Zeus, and the discovery of what is called the tomb of Pelops. Much the greater part of the work of exploring has been done, but parts of the site still remain unexamined. The value of what has been found is an indication of the value of what may yet come to light. Now that the excavations have gone so far, and with the splendid results shown in the three superb volumes published by the authority of the German Government, as well as by the casts of discovered sculptures which have already travelled even to this country, it would be a grievous disappointment to scholars and archæologists if the work should be given over unfinished.

THERE is satisfaction for American archæologists, not unmixed with chagrin, in the announcement that Mr. Pierre Lorillard, of New York, proposes to bear the expense of an expedition to explore the antiquities of Central America, and that he proposes to do it under the patronage of the French Government, and with its assistance, giving everything of archæological importance that he may find and be able to remove to fill a museum at Paris, which will be called the Musée Lorillard. At the risk of helping to inflame minds that are suffering from the application of the Monroe doctrine to the isthmus canal, we must say that here is another case in which the French have shown themselves alive to interests which we have left lying neglected at our doors. Since the publications of Stephens and Catherwood, in spite of the efforts on a small scale of a few individual Americans and a few interested natives of Yucatan, no discoveries or examinations have been published which are complete enough to give much insight into the antiquities of Central America except the handsome series of photographs from the buildings of the country, issued two or three years ago by the French Government after the explorations of M. Charnaz, who, it is said, will take the lead in Mr. Lorillard's expedition. In point of fact Americans have on the whole been singularly indifferent to the archæology of their own continent, while the investigations which have been made up to this time, even the fruitful ones of Stephens and Catherwood, have been those of men unversed in architecture. So that the great buildings of Yucatan are yet to be studied on the spot by persons with an eye trained to their architectural significance.

PERHAPS for the present we may gracefully allow that the results of an exploring expedition will be put to better use in the hands of the French than in our own, and may solace ourselves for the loss as well as we can with this reflection. How much it may be found possible to carry to Paris for the Musée Lorillard is not to be easily foreseen. The authorities of Yucatan, though they are contented to let the antiquities of their country decay neglected before their eyes rather than take pains to collect or preserve them, have shown some sense of their value and unwillingness to let them go when they have seen them in the hands of more enterprising people. We know, at least, that Dr. le Plongeon, a recent enthusiastic explorer, after a long and bitter struggle with the Government found himself obliged to give up to it the relics which he had laboriously exhumed. Possibly an exploring expedition backed by the dignity of a powerful foreign government might fare better. With the countenance of our own Government and a reasonable interest on the part of some wealthy Americans, such as Mr. Lorillard has shown, we might, it may be, have enriched the Smithsonian and Peabody Museums, and encouraged the scholars who have them in charge, with valuable collections from Central America. Here was a field, which, it seems to us, the new Archæological Institute of America might profitably have entered instead of proposing to turn its first attention to the archæology of the eastern continent, at which so many and so able hands are already at work. An enterprising body of this kind, taking advantage of the private liberality which could, perhaps, have been aroused, might possibly have reserved to itself the creditable work of investigating and interpreting the remarkable architecture of Uxmal, Palenque, and Chichen-Itza.

THERE has been no such enticing opportunity offered to collectors for a long time as the sale of the Demidoff collection,

which was to take place last week. This collection, the work of the late Prince Demidoff, has for many years been famous among connoisseurs and visitors to the Villa Demidoff, at San Donato, near Florence, and is in its kind perhaps unequalled among private collections. It contains pictures, sculptures, and an enormous quantity of furniture and bric-à-brac; the work of Italian and French artists of the Renaissance and later years. The collection is notable for its Dutch and Flemish pictures; among them are several Ruysdaels, other pictures by Teniers and Terburg, with one or two Rembrandts, a Rubens, and a Van Dyck: many of them are said to have suffered at the hands of picture cleaners. There are also sculptures by Luca della Robbia, Donatello, and Giovanni di Bologna; bronzes, statuettes, reliefs, carvings, vases, and other ceramics; candelabra, terra-cottas, enamels, vestments, tapestries, embroideries, cabinets, caskets, clocks, ornaments, and relics innumerable, the accumulation rather of a luxurious amateur than of a systematic collector. Among the special rarities are the throne of Julian de' Medici, the sword of Francis I., some extraordinarily elaborate pictures in mosaic by Barberi, and an original portrait of Louis XVI., by Callet. The late prince seems to have been an ardent Napoleonist, and had filled rooms with memorials of the Napoleon family, of which he formerly kept a collection at Elba. These include portrait-statues, busts, and paintings of the great emperor at all stages of his career, and of the chief members of his family,—Canova's statue of his mother, and bust of his sister Pauline, are there,—with a great number of his personal effects, clothes, table furniture, ornaments, and, most curious of all, a relic incongruously suggestive of canonization, one of his milk-teeth, set in pearls. The sale has naturally made a considerable stir among collectors, and draws to Florence a concourse of curio-hunters, as well as emissaries from the great museums. The late numbers of *L'Art* have been full of descriptions and illustrations of the collection. An illustrated catalogue has been published in two forms, the ordinary edition sold for fifty francs, and an *édition de luxe* for one hundred; the proceeds of the catalogue are to be divided between the poor of Florence and the new façade of the Duomo.

THE question of elevated railways has worried the people of Boston this winter for the second time. It has been argued for some time before a legislative committee, and has taken no less than nineteen hearings to develop itself, with the probable result that those who have petitioned for the railways will have leave to withdraw. Those who have argued in their favor seem to have done so with but small recognition of the differences in cities which make such means of communication suitable to some and unsuitable to others. New York, indeed, where the roads were first adopted, is of a peculiar formation, out of which these means of communication naturally developed themselves, so that they were necessarily successful, and except for the iniquity of allowing them to injure private property without compensation to its owners, the injuries wrought by them were to be necessarily condoned for the sake of their benefits. New York is a long, narrow city, in which all the travel is in the same directions up and down the island. It has several parallel thoroughfares which may be used indifferently for the traffic to and fro, and are wide enough to endure a considerable amount of obstruction. The whole movement of the city is up and down these parallel streets, and it was easy to separate it into its elements, and distribute these into different channels.

In most cities the conditions are different,—in Boston especially so. There the traffic diverges in every direction from the centre: the suburbs, grouped round a reëntrant angle in the coast line, radiate through nearly three fourths of a circle about the business quarter. Although the current is greater on some of these main radiating lines than on others, there are none so subordinate that they could be left out of any such general scheme of communication as the introduction of elevated roads must necessarily lead to. There is also no such concentration of passengers along one or two lines as made some resource of this kind imperative in New York, nor can there be until Boston grows as large as several New Yorks. No doubt an elevated road in any direction would be convenient to those who travelled on it; but to accommodate the travellers to and from the city, as those of New York are accommodated, there would have to be so many roads running off in all directions from the centre as to be an intolerable annoyance, we should think. In fact, so

rapidly do the lines of travel diverge outwards, and so generally is the suburban population distributed over the circle, that nothing less than a complete spider's web of rails would give the people of the suburbs of Boston the quick and fairly equal access to the lines which is their recommendation to the people of upper New York. There is, for a like reason, no such system of avenues to choose from, as in New York. There is commonly but one great thoroughfare for each direction, and that not a wide one, and where there are two that are parallel, like Washington and Tremont Streets, they are so occupied and so important that it would be suicidal to give them up to the uses of an elevated road. Boston, in fact, is so built, and so used by her population, that she has almost no streets which lead anywhere that she could afford to give up to such purposes. Fortunately for her, she is exempt from the peremptory need that New York has been obliged to satisfy, at such great cost to herself and with scandalous injury to some of her inhabitants. Fortunately, too, she has, besides her many lines of horse railways, her nine steam railroads radiating to different parts of her expanding suburbs, and subdividing, as they spread apart, into many branches.

THE opinion given at one of the legislative hearings by the chief engineer of the New York Sixth Avenue road, albeit unexpected and somewhat disconcerting to those who elicited it, seems to us the reasonable one: that elevated roads should not be resorted to where any other satisfactory means of communication can be secured, and that Boston has no need of them. If it were necessary to pierce such a city by a road to run constant trains, the reasonable thing to do would be to avoid the streets and follow the example of London by putting it under ground. Unfortunately a great part of Boston is probably too near the sea level to allow of this. The necessary improvement of her suburban communications is to be sought rather, we think, in a better use of the railroads that already exist, and in the interpolation, at one or two wide gaps, of narrow-gauge roads, placed, not in the air, but where railroads naturally lie most comfortably, on the ground. It is always difficult to approach the busy parts of a city without making trouble by grade crossings. But there still remain one or two of these lines by which roads might be brought pretty well into the city without great inconvenience. One is the margin of the South Bay, so called; another might probably be found along the shore of Charles River.

THE expected lock-out among the piano-makers of New York has begun. The strikers from Steinway's factory persist in refusing the terms offered by the firm, and a dozen of the principal manufacturers in the trade have joined with Messrs. Steinway in the lock-out, which throws forty-five hundred men out of employment, in a struggle in which the masters are prepared to hold out a year if necessary, it is said. This is most unfortunate, and apparently unnecessary, for it appears that at the issue the dissatisfaction was more nominal than real, the Steinways having offered a scale of wages which was a substantial advance, and the men, being for the most part ready to accept, were only held back by the authority of the union. The condition of the building trades in New York is most unsettled, the men pressing everywhere for higher wages, and striking in case of resistance; while capitalists, deterred by the prospect of a great rise in prices, are beginning to make up their minds to put off building till the market is more favorable. The troubles among the manufacturing towns in New England are increasing. In San Francisco twenty or thirty thousand men are said to have enrolled themselves for protection, and there is a proposal to impeach the mayor, in the face of which Kearney and his followers have become quite tame. He has now been sentenced, to his great surprise, to six months' imprisonment and a fine of a thousand dollars for using obscene and seditious language in his speeches,—against which he has appealed.

GOVERNMENT TESTS OF WROUGHT-IRON AND CHAIN-CABLES. II.

WE come now to the cable. Its strength is only that of its weakest link. The cable-link consists of a round bolt, bent into an oval form, with its ends welded together. A stud or stay is introduced between the sides to keep them apart and to prevent kinking. In forming the link, the ends of the bolts are twice reheated and hammered,—once to make the scarfs, and once to make the welds; the

butt end of the link is also heated once for bending. The process of bending injures many irons, and the re-heating and forging of the ends lowers the elastic limit and the strength. The stud, being comparatively incompressible, alters the nature of the strains. The ideally perfect link should have twice the tensile resistance of the bolt from which it was made, and the nearer the tested link-strength approaches to this limit of 200 per cent of the bolt-strength the more suitable the iron, and the more perfect the manufacture. The weak part of the link is generally at the weld. In the rupture of 435 links, 333 broke at the weld end, 86 at the butt end, and 16 on the side. Experiments indicated that nothing was gained by changing the location of the weld. These results agree with what we should have anticipated. As far back as the building of the tubular bridge over the Menai Strait, a series of experiments led to the conclusion that welding was not to be trusted in bridges. In later pages of the report before us, this subject of welding is resumed and fully discussed, and the effect of various foreign elements, as carbon, copper, phosphorus, sulphur, is specially considered. It is stated that two per cent of copper will almost prevent a weld, and even one per cent of carbon greatly impairs welding power. A thin film of oxide of iron will prevent a weld. Welding by fusion is one thing, and welding at a plastic heat is quite a different thing. The term "welding-heat" is a very loose one, varying with different kinds of iron. Welding is ordinarily carried on in an oxidizing atmosphere; in a non-oxidizing atmosphere, the temperature might be indefinitely raised and a perfect weld effected. "The ordinary practice of welding is capable of radical improvements; the fact has been fully demonstrated; the means should be made the subject of complete experiments."

The next point, and it is one to which we would invite special attention, — believing, as we do, that it will upset the preconceived notions of most, if not all, of our readers, — is this: *that an unstudded link is stronger than a studded one.* Rankine, in his Manual of Machinery, says, "An unstudded chain has about two thirds of the strength of a studded chain of the same diameter of wire." John Anderson, LL. D., superintendent of machinery to the War Department, Woolwich, in a work published in 1872, says, "It is to be noted, whatever the explanation may be, that the stayed-link chain, when made of the same diameter of iron as the open link, is stronger than the other in the proportion of nine to six. The office of the stud is to prevent the collapse of the link, and thereby intercept the shearing action due to the wedge action of one link within the other." The truth of these statements has never, to our knowledge, been called in question, either in England or in this country, and we think that large cables are universally manufactured with the stud; yet Commander Beardslee does not hesitate to say, "Theoretically, it should not be stronger, actually it is weaker, than the open link." He argues that in the unstudded link the sides have a tendency to become parallel, and thus to place themselves in the best possible position to resist stress, while "the ends are so closed together that the stress is received and transmitted through bearing surfaces much greater than before the parts had yielded to stress." We should admit the force of this reasoning so far as the sides are concerned, but with regard to the ends we think there may be some question, and, in fact, as shown by the tables, none of the links gave way by weakness of the sides, — in other words, no links came up to the 200 per cent to which we have before called attention. It cannot be supposed that the stud was adopted, and such superior strength claimed for it by the authorities quoted, except after what were considered, at the time, satisfactory experiments; and we cannot resist the impression that the discordant results now noted are due solely to the differences in manufacture which the report itself points out. The English use for chain-cables iron of great tenacity, and the studs to their links are made of malleable iron. In the experiments here considered, although the iron was sometimes of high tenacity, and at other times of medium or low tenacity, but with great ductility and power of flexure, the studs were in every case of cast-iron.

When the iron was of a soft ductile type, the unstudded link had an excess of strength averaging fifteen per cent; in iron of a coarse, hard type it was about five per cent. The experiments are admirably planned to bring out the comparative merits of the two systems, and, however theories may differ as built up from them, the experimental facts lose nothing of their value. The links were arranged in sections, one open between two studded, with end-links of larger section but poorer iron. This system was pulled until one link broke, the pair remaining was again pulled until one broke, the unbroken remaining link was then broken. In every case where both open and studded links were connected the studded link broke. The open link frequently withstood the stress which broke the end-link of larger section, but of poorer iron, and twice that which broke the shackle-pin of steel. The unstudded link here exceeded the studded fifteen per cent, and the quality of iron was such that even the studded cable, of $1\frac{1}{8}$ inches, of which one hundred and fifty fathoms would weigh five tons, was superior to the contract-iron cable of $1\frac{7}{8}$ inches, weighing eight tons. It was frequently the case that a studded link became an open one, by the stud splitting and

flying out. There is no escape from the conclusion that, "From the facts recorded, we feel that we are justified in saying that, beyond doubt, when made of American bar-iron, with cast-iron studs, the studded link is inferior to the unstudded one in strength. Therefore we place the stud as next to the weld among the elements which tend to prevent the individual links from developing the utmost possible strength."

In testing cables, sections of five links were used, the first, third,

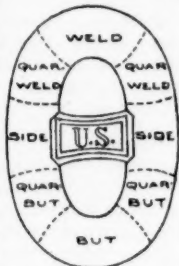


Fig. 2.



Fig. 3

and fifth open, the second and fourth studded. The shackle pins were oval, and made to correspond with the diameter of the links. The rupture of 229 sections showed that a variation of from five to seventeen per cent may be expected in the strength of ordinary cables, and unless care is used in the selection of the material the variation may rise to twenty-five per cent of the strongest. With iron of moderate tenacity and good welding properties the link should develop from 160 to 175 per cent of the strength of the bar. It is thought that the weight of cables may be reduced. Large bars are weaker than small ones, in proportion to their area, and less able to resist sudden strains. If we suppose links made from $1\frac{1}{8}$ inch and 2 inch bars to have 163 per cent of their respective bar strengths, the cable of $1\frac{1}{8}$ inch will have 71 per cent of the strength of the 2 inch, while its weight is only 65.4 per cent. By the substitution of open for studded links, a saving in weight is obtained which may be put into the bar. Thus an unstudded cable made of bolts of one eighth of an inch larger diameter, would have fully 20 per cent more strength and weigh very little more than the smaller studded cable.

Section VI. is devoted to proof-strains for chain-cables, and is so full of matter that we find it difficult to condense it within the limits of this paper. Every fifteen fathoms section is to be subjected to a tension which shall be great enough to detect any weak link, and not great enough to over-strain any cable, and thus produce a defect which did not previously exist. American manufacturers sell their cables with a guaranty that they have been proved in accordance with the standard proof-tables of the British Admiralty. The application of this English standard to American iron is objected to, and the objection is supported by sound argument. For every size of cable the stress is too great, and in its application to different sizes it is unequal. It is based upon the assumption of a tensile strength of 60,000 pounds per square inch in cable bolts of all diameters, whereas few bars of American iron have this strength, and if found in small bars it would not be found in large ones. Moreover it largely exceeds the elastic limit, and is therefore likely to weaken the cable. Six sections, of five fathoms each, and of various sizes, were "proved" by the Admiralty table, inspected after proof, and "passed" as sound; but when examined with a magnifying-glass 14 of the 487 links were found to be cracked. But if the present standard is abandoned, something must be set up in its place, which, while ordinarily sufficient, shall also afford a safeguard against inferior material and work. To the elaboration of such a standard the experimenters devoted themselves. After an examination of 210 sections of cables broken by tension, which were made of 15 different irons, and assuming the maximum possible strength of a link to be 200 per cent of that of the bar, the following was adopted as the standard of strength and welding qualities combined: 170 per cent for a maximum, 163 per cent for an average, and 155 per cent for a minimum. An iron which in the link form develops without great variation the average strength is to be regarded as *suitable*; if it falls below the average, or is very irregular in its results, it is *unsuitable*. The highest and most uniform percentage will generally be found in irons of low tensile strength. They have generally high welding value, and great resilience. In many cases not merely the percentage, but the actual strength of links made of bars of low tensile strength, exceeded that of links made from stronger bars. "There is a widely-spread and deeply-rooted prejudice in favor of the strong bar as best adapted to make strong links." It would be so, were it not that this strength comes either from a great amount of work which renders the iron too expensive for cables, or from the presence of some chemical elements which increase tenacity at the expense of welding power. The standard of strength is placed at 50,000 pounds per square inch in the two-inch bar. A table is formed beginning with this number, and as the diameters decrease by sixteenths of an inch, increments, not equal but in an ascending series, are made, until we arrive at 55,600 pounds per square inch for the one-inch bar. By means of this table, the strength of bars of any size may be computed from the tested strength of the smaller bar; then by the percentage belonging to its class we compute the probable strength of the cable. The safe proof-stress should be approximate to the elastic limit of the weakest link, and this is placed at 50 per cent of its ultimate strength. This rule guards against the probability of scant links, whereas, "should there, by accident, be a few links of $1\frac{1}{8}$ inches in a 2-inch cable, the Admiralty proof would strain the strongest of such links

to over 62 per cent, and the weakest to over 70 per cent of the actual strength.

Section VII. is divided into two parts. The first part consists of notes upon the various irons experimented upon, showing more in detail the effects of working; of reworking and piling; the relation between tensile strength and reduction of area from the pile; the welding properties and the resilience. The second part gives the chemical analysis of the irons, with a comparison of the chemical and physical results, and the effect of the interchanges and substitutions which occur in the various processes of manufacture.

Although this notice has extended much beyond our original limits, it presents but a feeble outline of the many topics treated in this report. The experiments are so illustrated by tabulated results that every one can form his own judgment as to the correctness of the conclusions drawn from them. In view of the recent bridge disasters these matters possess an interest not confined to cable-makers or users. We will not ask how many links are in use at this moment supposed to have 200 per cent of their bar strength; how many machines or structures trust in the strength of welded bars; how many main elements of the various trusses have their strength over-estimated by computations from small bars; we will content ourselves by simply recommending the report to every manufacturer or user of malleable iron.

PROCEEDINGS OF THE THIRTEENTH ANNUAL CONVENTION OF THE AMERICAN INSTITUTE OF ARCHITECTS. II.

SECOND DAY'S SESSION.

THE Convention met at ten A. M. The Auditing Committee reported that they had examined the accounts of the late Treasurer, Mr. R. G. Hatfield, up to the time of his death, and found them correct.

The accounts for the remainder of the year not being at hand, Mr. Le Brun was deputed to receive and examine them at some subsequent time.

After the appointment of a Nominating Committee, consisting of Messrs. Robertson, Stone, Longfellow, Scofield, and Ware, the report of the Committee on Education was presented by Mr. Ware, who read letters from Professors Babcock of Cornell University, and Ricker of the Illinois Industrial University, at Champaign, Illinois, describing their work in their respective institutions. A note had also been received from Professor Lindsey of Princeton.

It appeared that in Princeton, as in the College of the City of New York, architecture was taught, not as in a professional school, but rather as a part of the undergraduate course, the government thinking in both cases that in giving to the study of the arts of design its place in their scheme of liberal education, that of architecture offered qualities, both in itself and in its relations to history, philosophy, and common life, which adapted it better than painting or sculpture to its position in such a scheme, as well as to the minds of the generality of students. The committee had hoped to hear from the university at Syracuse, N. Y., and that of St. Louis. In the latter, they understood that the architectural course had been hampered by its close connection in times past with the engineering department, but in the recent increase of interest in, and means for study of, the fine arts in that city, it was hoped that the university would be able to share so far as to establish its architectural department on a firmer and more independent basis.

As to the architectural work now doing in the Institute of Technology in Boston, Professor Ware reported but little change. The number of students had slightly increased, thirty being now on the books, nine or ten of whom were pursuing the full four years' course of scientific and liberal instruction afforded by the institute, the remainder being special students, following the special short course only. The collection of casts, which formerly occupied one of the rooms of the institute, had been transferred to the Museum of Fine Arts, and its place was to be supplied by a technical collection of materials and appliances, many contributions to which had already been received. Some experiments had been tried, with success, in providing instruction for draughtsmen already employed in offices, with a view to promoting their efficiency in their own work.

The Secretary for Foreign Correspondence, Mr. Longfellow, reported that his official business for the year had been unimportant. The habit of communication with foreign architectural societies seemed to have for some years fallen into desuetude, and there had been no special occasion for renewing it.

Even the interchange of publications had virtually ceased, perhaps owing to the omission of our own publications for the past year, and to the discontinuance of the collections of the Institute, for want of a place to keep them together. He suggested that it was desirable to renew the habit of interchanging publications with other societies, beginning by sending them the Institute publications for the coming year.

The only matter of interest which had come within his province during the year was a letter from the Secretary of Foreign Relations of the new port of Batoum, in Russia, expressing the writer's admiration for American institutions, and of American architecture particularly, and asking for information as to the American methods of building, names of dealers in building materials and appliances, with examples and illustrations of our structures. He added a rather

embarrassing question, — to whom he should apply in this country for plans.

In reply to this letter, the Secretary had written that he thought best to request the Supervising Architect of the Treasury Department to send drawings of public buildings, as representing the American modes of construction, and in compliance with this request photographs, perspective drawings, and working plans were to be prepared at the Treasury Department for transmission to Russia. To supplement these Mr. Longfellow said that he knew of nothing better than files of the *American Architect*, and of the New York and Boston Sketch-Books, which he proposed to send with the government drawings. He had also sent the names and addresses of a number of prominent dealers and manufacturers of building appliances. As to the request for the name of an architect, he had referred his correspondent to the plates in the publications sent him, advising him to make his selection for himself from the authors whose names were appended to the designs. He suggested that if some one were wanted to take charge of actual work, it might be the best course to engage an architect to come out, at a fixed salary, and if desired, the Institute would do its best to assist in furnishing a satisfactory candidate.

The report of the Committee on Membership was then read by Mr. Ware, and a prolonged discussion took place in regard to two of its suggestions, one, that the relation now existing between the Institute and the Chapters should be changed, or rather abolished, making the chapters completely independent; the other providing for the reinstatement of former members of the Institute who had been dropped from the rolls for non-payment of dues.

In regard to the first proposition no definite proposal was made by the committee; they wished to obtain an expression of opinion on the subject from the Convention, leaving a plan of action to be drawn up, perhaps, by the trustees. Speaking for the committee, Mr. Ware argued that the condition of the Institute under its present constitution could not be called prosperous, while similar national societies in England and in this country which had adopted the plan of complete independence of the local organizations were found to flourish. The divided duty of members of the Institute under the present arrangement, part being owed to the national and part to the local organization, resulted in the main part of the allegiance of members being given to the smaller body, while their connection with the Institute was felt rather as an 'unnecessary burden.' With the two societies separated, duty to one could not be substituted for duty to the other.

On motion of Mr. Longfellow the matter was committed to the Board of Trustees, with the request that they would communicate with the Chapters upon the subject.

In regard to the reinstatement of members dropped from the rolls for non-payment of dues, the recommendation of the committee that such persons might be allowed, on making application to that effect, to have their past dues remitted, and regain their membership on payment simply of the semi-annual due payable at the time of their readmission, was on motion adopted, and the Secretary was instructed to notify delinquent members of this action.

It was also resolved that the Board of Trustees should be authorized to admit such persons as they might see fit without the formalities prescribed in the by-laws.

Mr. Stone made a report from the Finance Committee to the effect that the resolution passed by the Convention of 1878, laying a special assessment of \$8.00 on Fellows and \$4.00 on Associates, should be rescinded, and those who had already paid their assessments should be credited with the amount toward their next annual dues. The reason for this action was that, according to the Treasurer's report, the completion of the financial year showed a balance on hand of about \$200, and with the dues which might be expected to come in during the year, it was estimated that there would be enough to pay the current expenses, and still permit the refunding of these special assessments. The proposed resolution was put and adopted.

Another resolution presented by the Finance Committee, that the by-law prescribing the penalty to members for non-payment of dues should be appointed for discussion at the next convention, with a view to changing it if it were thought best, was also adopted.

The reading of papers was next in order, the first being by Mr. W. A. Potter, on 'Some Causes of Failure in American Architectural Design.' (See *American Architect*, January 24 and 31, 1880.) Mr. Potter wished, before reading his paper, to forestall the criticisms of those who might imagine from the title of his paper that he considered all American designs to be failures. What he understood to constitute American architecture was the general design of American buildings, taken as a whole, and in this sense the architecture of New York, for example, must be regarded as bad. If it were not so then he did not know in what bad architecture consisted.

After the reading of Mr. Potter's paper the Nominating Committee brought in their report, and the Convention proceeded to the annual election. After the ballots were cast, and pending the count, the Convention adjourned, to meet again at two P. M.

AFTERNOON SESSION.

On reassembling, pursuant to adjournment, the tellers reported the names of the officers elect as follows: President, THOMAS U.

WALTER, of Philadelphia; Treasurer, O. P. Hatfield, New York; Secretary, HENRY M. CONGDON, New York; Secretary for Foreign Correspondence, W. P. P. LONGFELLOW, Cambridge, Mass.; Trustees at Large, C. C. HAIGHT, R. M. HUNT, J. C. CADY, WM. A. POTTER, all of New York; Committee on Publications, E. T. LITTELL, A. J. BLOOR, and R. M. UPJOHN, New York, T. M. CLARK, Boston, J. MCARTHUR, JR., Philadelphia; Committee on Education, Prof. RUSSELL STURGIS, New York, Prof. WM. R. WARE, Boston, Prof. N. CLIFFORD RICKER, Champaign, Ill., JOSEPH M. WILSON, Philadelphia, H. H. RICHARDSON, Brookline, Mass.

Mr. Walter thanked the Convention for its renewed expression of confidence, and in a few remarks pointed out the change which had taken place in the position of architects before the world within a few years. They were now looked upon as the heads of the building world, the guards of the community against bad construction and bad taste. Their duty corresponded with the work expected of them; they should more than ever see to it that what they built did not fall down, and their designs should be prepared, not with a view of pleasing the popular taste of the moment, but as works of true art for all time.

After a vote of thanks to Mr. McArthur for his gift of models of work on the City Building in Philadelphia, the reading of papers was resumed, Professor Watson, of Boston, leading with an essay on Interesting Devices in Construction of Fire-Proof Houses in Paris.

Mr. Cady read a paper by Mr. T. M. Clark, of Boston, on the Typical Sanitary House, and Mr. Ware read one by Mr. E. T. Potter, on the Influence of the Shape of City Lots on the Houses built thereon.

Miscellaneous business was then in order. Mr. McArthur presented an invitation from the Philadelphia Chapter, that the Convention should meet next year in that city. The invitation was accepted, and the thanks of the Convention were voted to the Philadelphia Chapter.

Various resolutions were then offered; one by Mr. Bloor, providing for the appointment of a committee to report at the next convention upon the practice of American architects and builders during the colonial period, and the first fifty years of national independence, was adopted, and Messrs. Mason, of Newport, McKim, of New York, Cady, of New York, and Peabody and Longfellow, of Boston, were appointed as the committee; another, also by Mr. Bloor, providing for the appointment of a committee to consider and report on the best method of solving the tenement-house problem in New York, was adopted, and Messrs. Bloor and Robertson were constituted a committee. On motion of Mr. Stone the Board of Trustees was instructed to consider the matter of amending the by-laws so as to provide for the creation of a grade of non-professional members, and a further authority was given the Board, on motion of Mr. Ware, to print and send to members, from time to time, reports of their conduct of the Institute business. Votes of thanks were then passed to the Equitable Company for their courtesy, and to the Committee of Arrangements, and the Convention then adjourned *sine die*.

THE BACK BAY PARK IN BOSTON.

The fifth report of the Park Commissioners is a surprise. It relates chiefly to the Back Bay Park, so-called, that somewhat unpromising reservation of a hundred acres of mud-flats upon which so much ingenious and unprofitable labor was expended some two years ago, in the competition whose results were duly noted in your journal at the time. Your readers, at least that portion of them who live in this favored city, have not forgotten the remarkable array of plans exhibited in the City-Hall, plans which differed widely enough in everything except the conviction on which they were founded, that it was possible, without exhausting the resources of landscape-gardening, to convert that region into an attractive and even beautiful, if unambitious, park.

The present report tells us, however, that "serious difficulties" were encountered at the outset, in attempting to carry out the plan which the commissioners had in view, the most important of which related to the occasional ferocity liable to be developed by Stony Brook under the influence of spring floods, the damaging effect of unusually high tides on the turfed and planted slopes of the basin which occupied a considerable portion of the park territory, and the deposit on its surface of "the filthy slime which is usually found where the organic matter of fresh-water streams is first thrown into salt water."

These embarrassments were, after prolonged discussion, finally believed to be so serious as to determine the commissioners to abandon the idea of a park, and "to seek for a form of improvement of a less ambitious character." The first and most natural alternative was an open sheet of salt water as large as the territory in question would allow, reserving only sufficient space around the outer boundary for ample walks and driveways. This plan would, it was thought, meet the first and most troublesome of the difficulties above mentioned, but was finally admitted to be open to the other two. It was therefore modified by raising about one half the surface which the pond was to cover some few inches higher than the water, and making of the whole a sort of artificial marsh. In the words of Mr. Olmsted's report, of which the report of the commissioners is chiefly made up,—

"A covered conduit is to be formed within and near the southeastern boundary of the property, by which the waters of Stony Brook, when at an ordinary stage, and when the tide is not above the ordinary high-water level in Charles River, will be discharged. When the tide rises above the outlet of this conduit, it is to be self-closing.

"A basin is to be formed into which the waters of Stony Brook will flow whenever the mouth of the conduit is closed, and in which they will be held until the tide falls again below the outlet of the conduit.

"Within this basin there is to be a body of water nearly thirty acres in extent, with outlines as shown in the drawing, resembling those of a salt water creek with coves. This will be tide water, but with no more ebb and flow than is necessary to avoid stagnation, the efflux and reflux being regulated by a self-acting water-gate, the position of which is shown on the extreme right of the drawing. Its surface elevation, under ordinary circumstances, is to correspond with that of Charles River at mean high-water.

"There will also be within the basin a body of level land of nearly equal extent with the water, having an elevation of a few inches higher.

"When freshets occur in Stony Brook coincidently with easterly winds and spring tides, which temporarily prevent an outflow into Charles River, the water of the brook is to be turned into the basin, and the creek, rising, will overflow this level ground. Usually this occurrence could be anticipated, and by drawing down the water of the creek at the preceding ebb of the tide, a rise of more than a foot above the ordinary level avoided. Having when at this height a surface of more than fifty-two acres to spread over, a rise of more than four feet by reason of floods of Stony Brook will not be likely to occur under the most unfavorable circumstances. Even should special precautions be neglected it will not probably happen more than once in ten years, nor will the water ever be liable to stand more than two feet over the ordinary level longer than two hours at a time. As the lighter fresh water will not at once mingle perfectly with the salt, when the body of water is more than two feet above its ordinary level there will be an upper stratum of but moderately brackish water.

"The ground designed to be occasionally overflowed is to be formed of marsh mud with a superficial coating of sand or light gravelly loam through which salt sedges and grasses may grow. Besides the more common vegetation of salt marshes, there is a considerable variety of perennials to which an occasional wash of brackish water does no harm. There is also a good range of shrubs, including beach-plums, berberies, candleberries, cydonias, tamarisks, and the sea-buck thorn.

"Such shrubs and plants are to be grown along the foot of the slope on the margin of the basin and on the small points and islets by which, as will be observed on the drawing, the level ground is here and there broken.

"The wind having nowhere a long sweep upon the water, and the rushy vegetation acting to check wave movement, there will be no swell of importance, and no spray will be thrown beyond these marginal plantations, and immediately above them any desirable trees and shrubs may be safely grown.

"Just what can be accomplished on the level ground may be regarded as doubtful, but it is believed that at the worst it may in a few years be mantled with sedges, rushes, and salt-grasses, with slashes of such golden-rods and asters as are now found in profusion on the tidal banks of the Charles, and the salt marshes at the head of the bay."

Several points in this highly original scheme arrest attention. In the first place, the salt marsh is apparently a device for preventing the salt tide from working injury at its rise to the vegetation on the shores of the pond, and from exposing offensive mud banks at its fall. In another part of his report Mr. Olmsted observes, "The objection was apparent that as in extraordinary tides the water is liable to rise from four to eight feet above its usual high-water level, the sloping face of an earth embankment would at more or less distant intervals be in part submerged and in part washed by waves and spray, and that whenever this occurred any vegetation upon it would be liable to be drowned out or killed by salt."

Now as the surface of the marsh is intended to be raised only six or eight inches above the level of the water "under ordinary circumstances," it is evident that a rise of the tide which exceeded this would reach the slopes by which the marsh is bounded, while a fall of the tide would expose the mud-banks as surely on the low edge of the marsh as at the foot of the higher slopes. But the tide is to be controlled by self-acting gates at Charles River, so that there shall be "no more ebb and flow than is necessary to avoid stagnation." What this limit may be, is, we presume, as yet undetermined; it is not safe to assume it to be so little as to do away with either of the objections which were discovered in the original plan.

In the next place, the aspect of this thirty acres of marsh has evidently been a matter of some anxiety to Mr. Olmsted. Clearly it cannot be made amenable to the ordinary discipline of the landscape gardener, but, the mud once spread, must be left pretty much to nature to clothe as she will. Can she be depended on to do for this bit of journey-work what she does for her own? "Just what may be accomplished on the level ground," says Mr. Olmsted, with a reserve which does him credit, "may be regarded as doubtful."

"The effect would be novel, certainly, and there may be a momentary question of its dignity and appropriateness." And again, "It may still be questioned whether the bay would not be too much wanting in attractions of popular interest for a public property so near the heart of a city." But this question is answered by the assurance that an unequalled opportunity will be afforded for studying the habits of birds, especially of water fowl, which are expected to abound in great variety among the "rushy glades and bushy islands" of this favored spot.

There is another consideration which we can hardly suppose to have escaped the notice of so experienced a landscapist as Mr. Olmsted. The Charles, though a picturesque stream, is unfortunately not a very clean one, and is not likely to grow cleaner as population thickens along its banks. Its waters are to be admitted to our salt creek and dismissed from it through gates which are expected to repress and control any disposition to the tumultuous rush of a tide which is left free, and to compel a gentle elevation and subsidence of level between the edges of the marsh, while the waters of the streams which now find their outlet through the basin are diverted and led off through dark and secret ways. It follows that there will be no scour whatever in the proposed creek, and we must expect, therefore, a rapid deposit of more or less filthy silt at the bottom, which will require frequent removal at a formidable cost, and of which the portions on the shores left bare at low tide will not fail to make themselves emphatically conspicuous to at least one of the senses of neighboring citizens.

As regards the use of such a park as is here proposed, Mr. Olmsted does not affect to consider it as offering much inducement for anybody to enter upon its domain further than to walk, ride, or drive around its borders. He does, indeed, suggest that, conceding the impossibility of sailing or rowing on such a sheet of water, "a direct line of small omnibus boats could be run between the Back Bay Station of the Albany Railroad at Commonwealth Avenue, and the most distant landing (which is four hundred yards from Chapel Station, Longwood) on a course of a mile and a quarter, in ten or twelve minutes." This is a solemn possibility, whether suggestive rather of business or pleasure one is at a loss to determine; for it seems as likely that a person requiring transportation between these two regions would employ an omnibus boat on this line of travel, as that a pleasure party would choose these low wriggling waters on which to disport themselves. — and no more likely.

Mr. Olmsted has made the mistake — which would not surprise one in a beginner, but which is astonishing in a veteran landscapist — of undertaking to create in a small space, hemmed in narrowly by city streets, a great natural feature. In such a space, out of grass and water we may make a garden, a lawn, a stream, or a pond, and be reasonably certain that nature will not mock at our modest efforts. But a marsh is a feature of the natural landscape which needs, as much as any other, unlimited size. What is it that makes a marsh interesting but the play of light in broad masses, the broad reflections of sky and cloud in the water, the low light, the opposing rise of horizon lines, the opposing colors of horizon hills, seen afar against the sky, the far-reaching and repeated alternations of land and water? These are charms which make us forget or overlook the unloveliness of detail. Well, in Mr. Olmsted's marsh or "fens," as he sometimes prefers calling them, these effects, if they are to be had at all, must be got within a breadth varying from four hundred to nine hundred feet, and confined between close blocks of city houses, which may, perhaps, by great good luck be veiled in a generation or two by the thin foliage of city trees. It does not seem possible (even supposing the attempt at clothing the marsh with some sort of coarse growth, such as Mr. Olmsted permits himself to expect, should be successful) that the result should not be lamentably prosaic if not worse. That it should prove to be, in the words of the report, "positively, permanently, and constantly agreeable" is beyond belief.

If the marsh were already there, it might not be utterly foolish to dig out as much of it as is required to make the basin, and leave the remainder until experience should show it to be an eyesore and a nuisance. That would certainly not be long. But to fill up thirty acres where the tide now flows, and cover it with mud to make such a marsh as this now proposed, would be nothing less than childish. I am willing to believe that the arguments against filling the bulk of the territory to a high grade are sound. But none of them is of any force as against a sheet of water covering the entire sixty acres which Mr. Olmsted has given to his basin, marsh included. Such a sheet of salt water, enclosed by the driveways, the walks, the planted slopes with which Mr. Olmsted surrounds his marsh, would have a beauty and a refreshment of its own without pretence or affectation, needing no apology, — and it would be navigable, not only for Mr. Olmsted's "direct line" between Commonwealth Avenue and Chapel Station, but for swarms of row-boats, little and large, giving animation to the scene, and needed exercise and recreation to hundreds of persons.

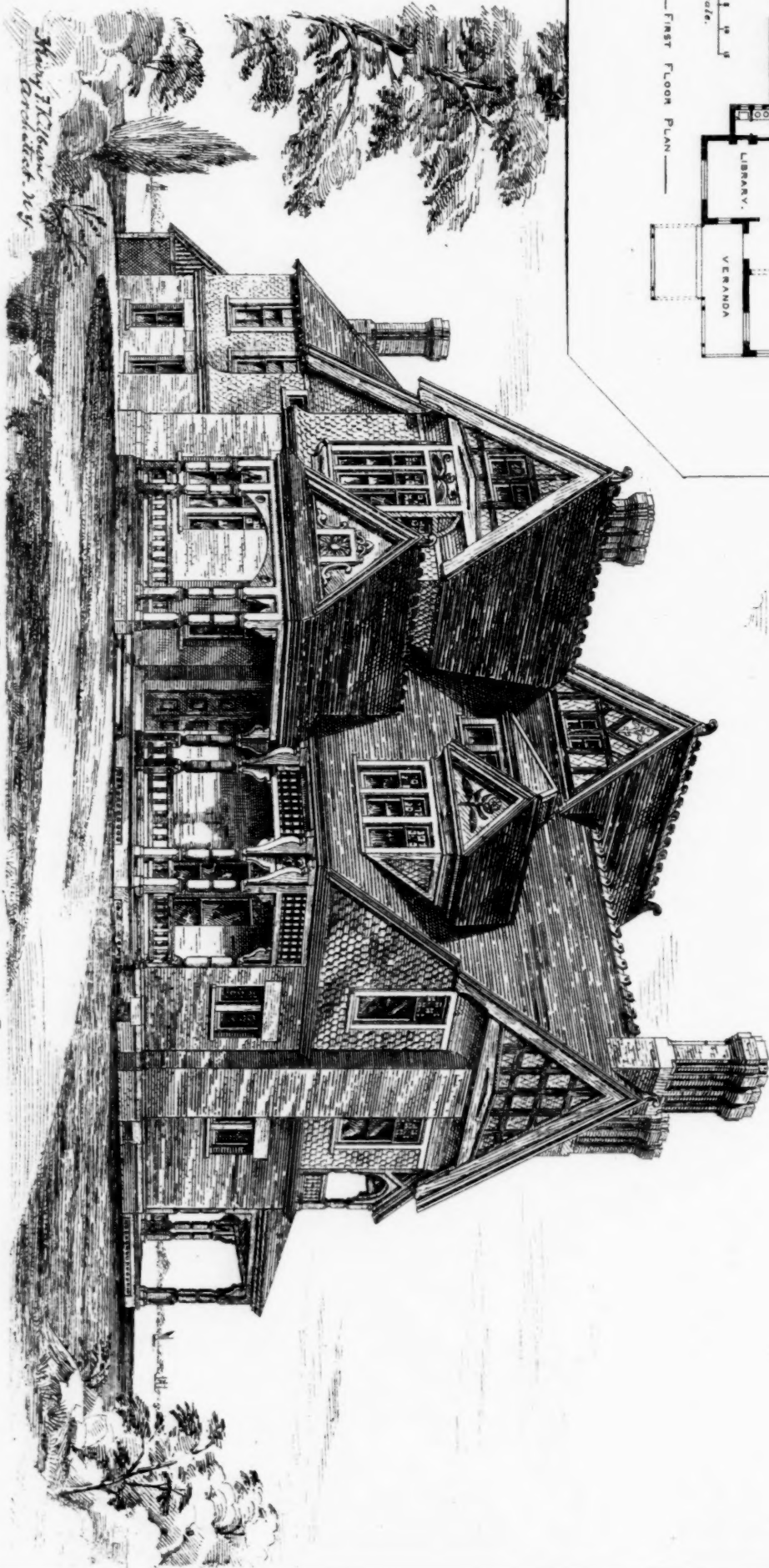
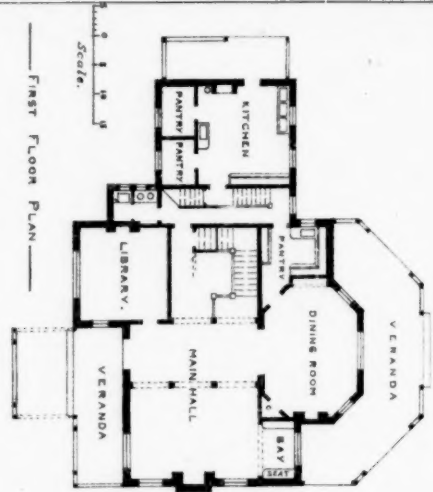
Mr. Olmsted's plan for varying the monotony of Commonwealth Avenue, between Chester Square and the Park, seems ingenious and in the main sensible; though it is doubtful if the occupants of houses on the north side of the avenue would be contented with a roadway of no more than twenty feet. That, however, is a detail, and will doubtless be modified if the plan is carried out. The arrangement of the driveways and bridges within the Park seems to be all that could be expected.

THE CONDITION OF ARCHITECTURE IN THE WESTERN STATES. II.

It is in the large cities that architectural examples are "seen and read." And in these the most predominant are private buildings. They may be broadly classified as business buildings and residences. Business buildings in the large Western cities have, until very recently, been copies of those in New York and Boston. Western architects have only copied the exteriors of the works of their Eastern neighbors. They have failed to adopt the thorough systems of building for which New York, especially, is justly noted. Their works have been showy shells, often covering rotten meat. They have copied only that which is least meritorious in their examples. Up to the time of the great fire in Chicago the stone buildings of that city and St. Louis, the largest, and, to travellers, most prominent of Western cities, were, as a class, constructed internally in a manner that no Eastern contractor would risk and no Eastern architect would accept, as to either materials or workmanship. A marked improvement in this respect has taken place in Chicago, but it is still far behind New York, except in one particular, the thickness of walls employed. St. Louis has improved but little. Cincinnati has always been the best built city in the West, and can now show more business structures of good construction and appropriate exterior design than either of the others mentioned. San Francisco, to which our eyes are so often turned for the development of American ideas, unaffected by foreign influences, is what Chicago was fifteen years ago, — a city of unsubstantial glitter.

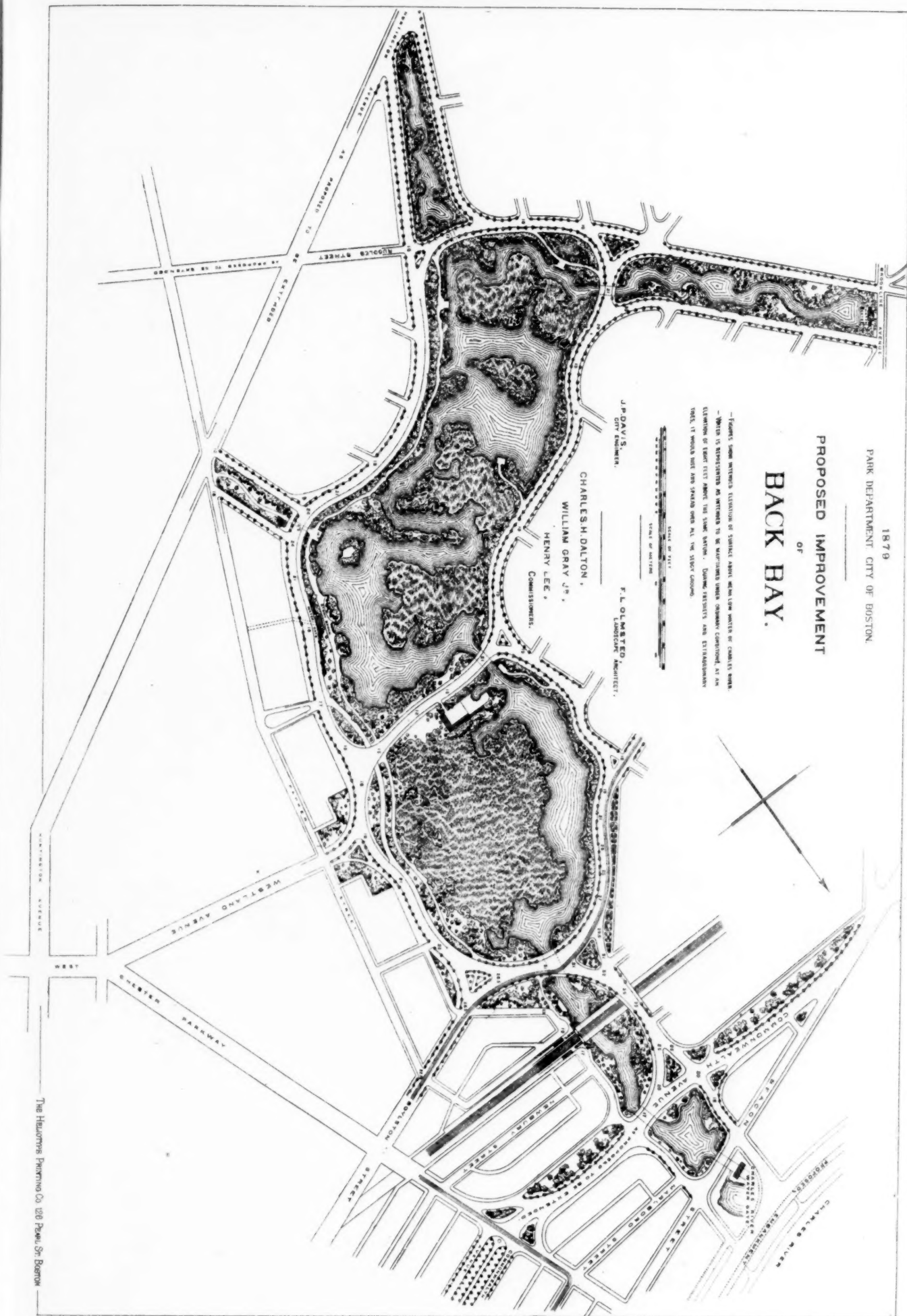
The constructive element is important in considering the development of architecture in business buildings, because the main desideratum to be considered in their erection is strength. Where this receives due consideration we may always see a tendency in the right direction. But strength, masked by bad art, as may be seen in so much of the business architecture of New York, contributes nothing to architectural progress. In strength made evident to the senses, we find the first dawn of architecture. The better it is expressed, the better the art. It is the artistic expression given to construction which distinguishes architecture from engineering. To decorate construction in a business building is a dangerous practice, but admissible to a certain degree. Moderation in this is the true architect's jewel. As elaboration in design has been the main fault in our business structures, simplicity is the condition to be sought for. Whatever tendency such buildings may have to express their fitness for their several purposes, by convincing us that they have been made strong enough in a natural way, is good so long as simplicity in ornamentation is adhered to. There are a few examples of such buildings in the Western cities, mostly in Cincinnati and Chicago. Their main characteristics are absence of all projections, except of window-sills and at the cornice, and the latter made very slight, squareness of openings, vertical lines of main piers made predominant, horizontal lines made by bond-courses, iron-work made very plain, and cornices of solid material. The style has been used in Chicago in many business buildings of moderate size and cost, and a few of greater pretensions. A store now erecting on the corner of Fifth Avenue and Monroe Street is a good example. Shillito's store in Cincinnati is the most important store-building of the kind that has been erected. Good examples may also be found in Detroit, Indianapolis, and Milwaukee.

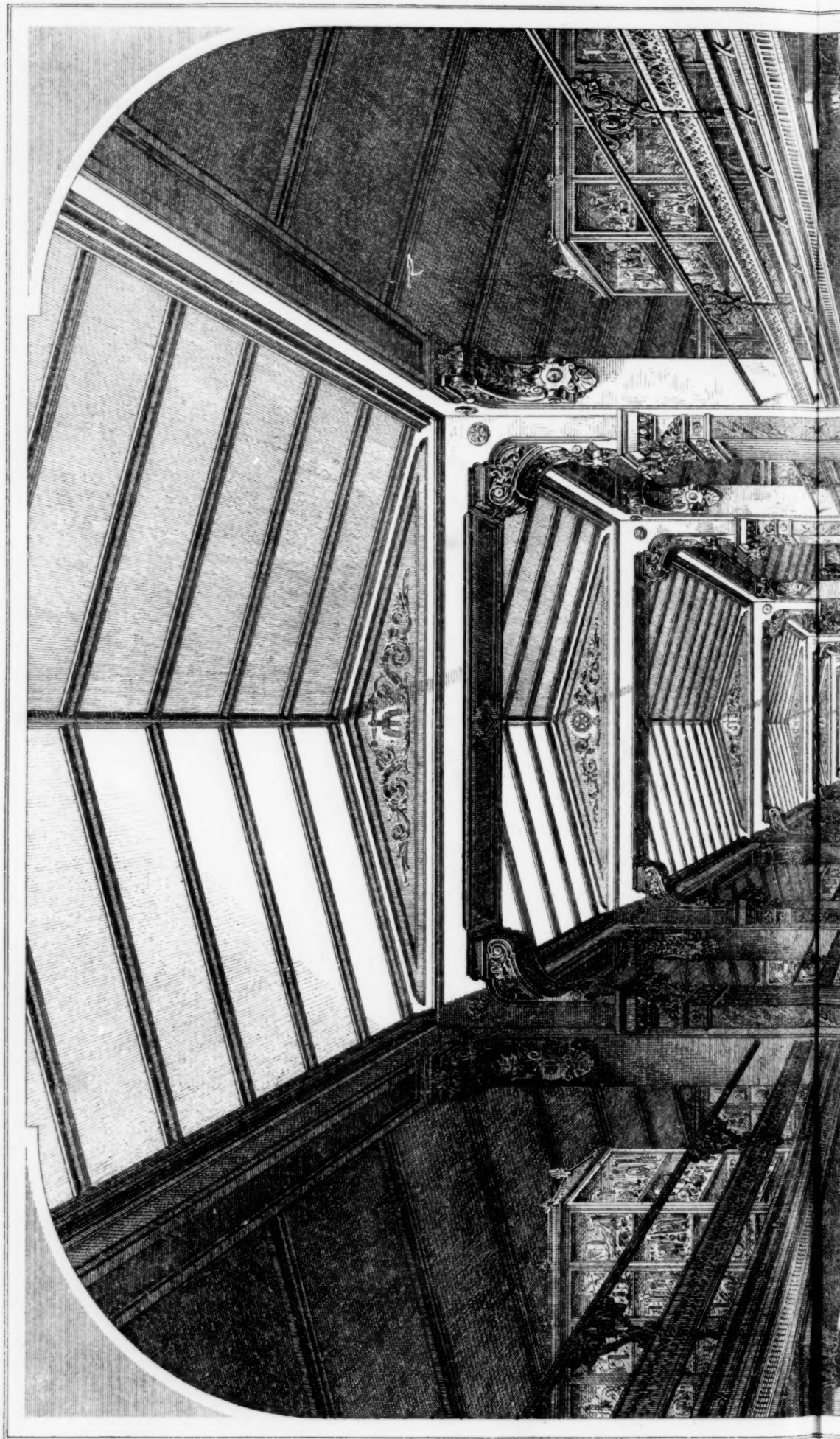
Dwelling-house architecture has only within a very few years made a departure from what the *American Architect* calls the "vernacular style." The conventional "brown-stone front" of New York, and the bald brick and marble front of Philadelphia, have had but little influence upon the dwelling-house architecture of Western cities. The "swell-fronts" of Boston have, however, been extensively copied. Used, as they have been in Chicago and St. Louis, on two-story houses, mostly, they present less objectionable street-perspectives than those of Boston, where such houses, three and four stories in height, are built in long rows, suggesting corrugated walls. In Western cities, even where land is dearest, the dwellings are lower and deeper than in those of the East; while to houses of any pretension there is generally allotted an air-space on one side or both. This willingness on the part of property owners to be more liberal in the use of land has given better opportunities for design in domestic architecture, while on the other hand, by reason of the increased cost of houses with exposed sides, the owners have been obliged to economize in the exterior expense. It is noticeable that, whenever parties build for their own use in solid blocks, the fronts are always more expensive in material and more elaborate in design. A man naturally expects to have a given amount of house for the same amount of money, whether his appropriation is expended on three fronts or one. It is evident, therefore, that the isolated house always gives greater opportunities for design. The existence of a great many in any one city conduces to variety, while monotony in design always accompanies the erection of houses in blocks. In the West a larger proportion of houses are built for their owners; and, as every one has either caprice, good taste, bad, or whatever his freak of fancy may be called, we find in this another reason for the variety in design in the houses of such cities. The speculative builder has never found such a field for his genius as in the East. Wherever he operates, he builds the maximum of house on the minimum of lot. In New York he actually sets the fashions, but in the West he has not yet become an autocrat. There he builds houses of moderate pretensions in dozens and half-dozens only. But, as in the

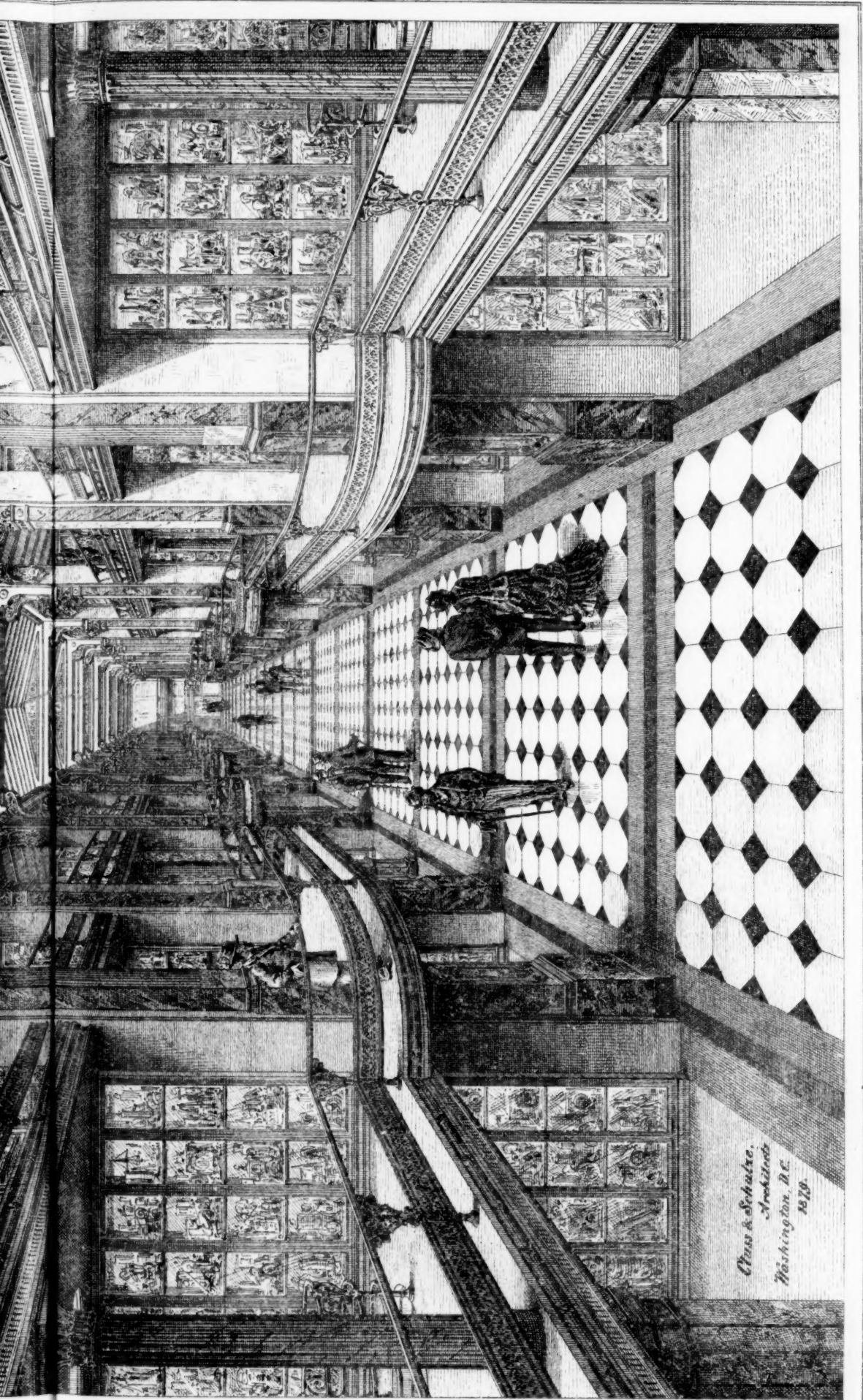


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East, they are always in solid blocks. He generally employs an architect, a practice almost unknown with such people in the East, where it is customary to borrow the copy of some architect's elevation used by himself or his friend in executing a contract. His fronts partake of the prevailing tendencies in design. His buildings only differ from those erected by contract, in that he taxes his ingenuity for cheap methods of doing his inside work. His influence upon architectural progress is as yet but slight.

Dwelling-house architecture in the West has partaken largely of the prevailing tendency to employ so-called Gothic details. A step in advance of this has, however, been made by some architects, in adopting a constructive style best adapted to the materials employed, and setting aside all precedents in the use of detail. The Gothic influence has been most largely felt in these works, but its details are not reproduced. The style is characterized by simplicity in treatment, the almost entire absence of projections from walls, the use of square openings spanned by lintels, and continuous sill and lintel courses. The most expensive and ornate dwellings show a more decided leaning toward the modern English Gothic style, both in general forms and in details. High roofs with gables and elaborate dormers are used, by which effective sky-lines are obtained. These buildings show a decided improvement in design over the two-story houses with "swell-fronts," mansard roofs, and dormer-windows. Formerly, when it was desired to provide a home for some wealthy householder, the only variation from the vernacular style just described consisted in placing rooms on both sides of an entrance hall, and making thereby a double "swell front."

While that indescribable style of house building which we term the "vernacular" still prevails to a great extent through the large Western cities, the attempts of the architects to emancipate themselves from it have, in some cases, led to the introduction of the modern French academic style, treated with considerable freedom. As a modification or improvement on the "vernacular," it is a step in advance, but has none of the characteristics of a natural style, suited to our necessities and adapted to our building materials. In interior decoration a greater improvement is seen than in external architecture. Eastern influences have prevailed through the introduction of Eastern work, which is transportable. But the quantity of imported work is inconsiderable, as the West is quite as quick in finding ways to do its own work as the East is. Its artists and artist-workmen are apt in receiving new ideas and developing them in new forms, and have even sent their products to Eastern markets.

In church architecture the West has made less progress than in any other branch of the art. It is safe to say that the development of church architecture in America has received encouragement from only one religious denomination, the Protestant Episcopal Church, and that denomination is less numerous, proportionally, than any other. It seems to be the only church that values architecture as an adjunct to religious teaching. Its clergy are intelligent amateurs. Its relationship to the Church of England makes dear to it all the hallowed associations of that church, and it claims mediæval architecture as its own. This denomination is not wealthy in the West, and consequently its buildings and its influence are not prominent. But wherever the latter has been felt, it has been attended with good results.

The average Western church of the better class is a combination of a lecture-hall, a school, and a club-house. It is a congregational home for social as well as didactic purposes. In one respect Western churches are more complete than those of other localities; and in this they give evidence of the advance of civilization, if not of æsthetics. They are always well heated and ventilated. They are thoroughly comfortable, and even luxurious. They are, as ministers have been proud to claim, homelike. And perhaps this is a good quality in a country where home ties are less firm than in the East, where the population is less permanent, and where there are so many persons whose homes are far away. It is natural, therefore, that among such congregations the value of architecture as an aid to religious inspiration should be little appreciated, and utilitarian matters should be of first concern. With these reflections, it seems hardly necessary to consider in detail the present condition of church architecture in the West, in its relation to the present condition of the art. It will in time develop new ideas which will be worthy of future consideration.

It may be said in conclusion, that, notwithstanding the crudities and abominations which exist everywhere, as it is perfectly natural that they should, among new communities, like those of many of our Western cities, the present condition of architectural art in them is healthy. Though but few examples of good work may be seen, we may judge best of the present tendencies by that which is now going on and projected. The popular mind in the West seems more inclined to consider that architecture is an art in which the comfort, well-being, and æsthetic education of all is concerned, and not as a matter which cannot be understood, and is therefore to be treated with indifference. The daily papers give it great prominence, and have done much to make its importance known. The fact that the *Chicago Times* of November 2, 1879, devoted an entire page to a carefully written essay on architecture, in which the prevailing faults of the buildings of that city were freely criticised, is a recognition of the value and importance of popularizing the art, which should be applauded by all its votaries. Heretofore architectural criticism has been almost unknown. When the daily

press treats the subject in a popular way, and with discrimination, architectural development in the West will be subject to another potent influence, which cannot fail to be fraught with good results. — *P. B. Wight in the American Art Review.*

THE ILLUSTRATIONS.

INTERIOR OF THE MODEL-ROOM OF THE PATENT OFFICE, WASHINGTON, D. C. MESSRS. CLUSS & SCHULZE, ARCHITECTS, WASHINGTON.

AFTER protracted discussions on the reconstruction of the Patent Office, it was decided by Congress that the external architecture should not be changed; that the reconstruction should, as nearly as possible, approach absolute fire-proof work, and that there should be full latitude given in the disposition of the space, as well as in the architecture and decoration within. Footing on these premises, Congress adopted the plans of Messrs. Cluss & Schulze, architects, of Washington, and the work, under the superintendence of the architects, controlled by a board of supervision, whose members are Mr. W. E. Paine, Commissioner of Patents, Lieutenant-Colonel T. L. Casev, U. S. A., and Mr. Edward Clark, the present architect of the Capitol, approaches completion very rapidly. Absolute fire-proof construction was construed to imply the absence of all combustible matter and the protection of all exposed metal-work by thick casings of fire-proof material. In explanation of the illustration of the new design, it is necessary to state that the windows in the old side walls do not reach above half the height of the model-rooms, since they are arranged to suit the exterior architecture of the building. This necessitated recourse to skylights. Hence, continuous double skylights are provided along the centre of the halls, with an intermediate space from which side-light is thrown on and through the galleries. The outer skylight is covered with heavy hammered glass, laid on ropes and cork, the inner one with ribbed glass. The space between the skylights is ventilated so as to prevent sweating by condensation of vapor. The objects on exhibition requiring close inspection, alcoves were arranged on the main floor and on two galleries, with well-holes in the centre of the gallery-floors for the transmission of light to the darker portions of the rooms. False ceilings were carefully avoided. Safety and hygienic advantages were insured by the use of roofing arches formed of hollow fire-proof blocks. By such construction the whole cubic contents of the rooms were secured for useful occupation, and two galleries are introduced where formerly there was but one. To obviate the injurious effects of expansion and contraction experienced with metal roofs of wide span, the halls have been arranged for a central nave and two aisles, by two rows of solid piers which are carried up for the support of the roofs. These piers are spaced transversely, as well as longitudinally, to suit the *points d'appui* in the lower stories, and are built of bonded brickwork laid in Portland cement. The piers are tied, in pairs, by fire-proof wrought-iron girders stretched across the central nave; these are surmounted by decorated pediments. The wide spaces between the piers of each row are subdivided by double wrought and cast iron columns, with intermediate fire-proof filling; these support the galleries, which are constructed of rolled-iron beams with ceilings formed of hollow, fire-proof blocks, and floors of huge slabs of slate. In order to retain the entire space between the middle piers and outside walls, for the fire-proof model-cases, balconies were designed on the first gallery, which project into the nave. The floors of the balconies have not the full thickness of the gallery floors, and even their reduced thickness has been lightened by panels in their underside, seen from below. The interior architecture of the model-room is in modern Renaissance.

The floors of the central naves and communicating passages are laid with marble tiles. The ceilings of the galleries are kept plain, since the model-cases abut against them, and all the spaces between the cases are again relieved by the light-wells. Style is imparted to the piers along both sides of the central nave by facings of the fire-proof equivalent of statuary marble — Keene's marble cement. Substantial pilasters, with raised work, are formed of Egyptian and verd-antique marble under the first gallery. Upon the floor of the first gallery a tier of loftier and more elaborate pilasters is raised with pedestals of verd-antique, fluted shafts of polished Sienna marble, and capitals with superincumbent consoles of Parian marble, the effect of which is enhanced by a moderate amount of gilding for the prominent parts. The merits of Keene's cement have induced an extensive use of it for plastering and floors under the model cases. The ceilings of the halls rest upon coved cornices, and mark the rafter construction of the roof by sunk compartments between moulded styles. The whole coloring of the halls, with the exception of the prominent features in polished and plain marble, is kept in gray; the ceilings in shades of cold gray, the side walls and plain parts of piers in greenish grays, and the finish of windows, doors, and galleries, in warm grays, all with sparing applications of gold. The balustrades of the galleries, as well as the railings of the well-holes and stairs, are bronze. The outside window sashes — the only wood in the halls — are of mahogany. It is to be noted as evidence of the fire-proof condition of the work that no carpenter was on the pay-rolls, nor was any carpenters' work furnished under contract up to the time of hanging the sashes. The fire-proofing is intended to be carried to its legitimate consequences by building the model-cases of light rolled-iron frames and doors, with shelvings of

heavy fluted glass. Thorough work, satisfactory to the most critical taste, has been attained by expenditures within the appropriations, based upon the revised estimates of the architects.

On March 3, 1879, the funds necessary for the reconstruction were appropriated; they netted \$245,800. The sudden revival of the iron industries made it difficult to obtain the heavy quantities of rolled-iron required, but still the building will be restored to its uses by the early part of next summer. Nearly 1,100 tons of iron were consumed; it required twenty-two tons of copper to cover the roofs; the skylights require about 21,000 square feet of hammered or fluted heavy glass; the galleries will be floored with 40,000 square feet of rubbed slabs, and the main floor with 33,000 square feet of marble tiles and Keene's cement.

THE PLAN FOR THE BACK BAY PARK, BOSTON, MASS. MR. F. L. OLMSTED, LANDSCAPE ARCHITECT.

See article elsewhere in this issue.

HOUSE FOR MR. B. F. CARVER, LARCHMONT-ON-THE-SOUND, N. Y. MR. H. F. KILBURN, ARCHITECT, NEW YORK, N. Y.

The walls of the first story are of brick laid in red mortar. The walls above are of wood covered with red-wood shingles, oiled. The roofs are covered with red slate, and the ridges with red terra-cotta cresting. The principal rooms of the first story are to be finished in hard wood, the remainder of the building in white pine oiled and varnished. The upper part of the windows to have stained glass. Owing to the nature of the ground, the first floor of the kitchen part is placed about five feet below that of the main house.

COMMON SENSE IN CHURCH BUILDING.¹

THERE is a great deal of common sense in this little book of Mr. Gardner's, as there has been in his previous books. He takes up the question of church building in the light of to-day's experience, — we should rather say of one phase of to-day's experience, — and works out his answers for it, to the satisfaction of certain positive conditions of utility which he finds applicable, and to the neglect of prescriptive forms, fixed associations, and the old habits of church building. His resulting conclusions are in favor of a kind of church the requirements of which have gradually developed themselves in the United States of late years; he decides for an auditorium square, or approximately square, not high, and with a flat ceiling, the pulpit on the longer side and the seats amphitheatrically arranged, to which he adds the Sunday-school room, vestry, parlors, and kitchens which it is becoming a custom to add to churches built for Congregational societies. The book, like the others, is cast in epistolary form. It contains a series of letters from an architect, and others written to him by persons who are interested in the church he is called upon to design, and have their theories, traditions, sentiments, or practical requirements to urge. The theories, traditions, and sentiments are mostly brushed away with little ceremony by the architect, who urges in a lively way the claims of common sense and the practical requirements which he enumerates, as well as the futility or hollowness or triviality of the common predilection for arched churches, long naves, open-timbered or vaulted roofs, and stained windows or pictured walls, illustrating his views by several ground-plans of buildings to suit different conditions of site.

There are two natural objections to this way of deciding so general a question. In the first place the traditions of building are not based altogether on sentiment or association or past habit. They contain the teachings of much practical experience, the outcome of a great deal of common sense which is as suited to one age as to another. To throw them all one side and begin, *de novo*, with a fresh enumeration of practical conditions is to run the risk of overlooking the best solution of many difficulties, or of uselessly experimenting with ideas that have been tried and found wanting. In the second place, common sense alone is not a sufficient guide to church building. There are indeed many architectural problems for which it does not reach far enough. In building a warehouse, a factory, or a railway station an architect may work out a satisfactory solution by taking account of practical conditions and nothing else; but when it comes to building a monument, a church, or even a dwelling-house, there are many things besides common sense that actually do influence men, and that properly may, — many feelings, associations, sentiments, that are not individual, but belong to classes and that there is no good reason for ignoring. The architect may properly cast his influence against associations and sentiments that seem to him foolish or misleading, he may resist those that stand in the way of essential things; but when the affections of people are so directly concerned as they commonly are in church matters, he will make a mistake if he takes counsel of common sense alone: practically, an architect who has any heart in his work never does this. Mr. Gardner's architect does not. He turns away from many or most of the devices which are beloved by the sentiments or fashion or caprice of to-day, not with the indifference of the practical man, but with a very decided counter sentiment which he displays in language that is far from unimpassioned, while he shows on his own side prepossessions that are quite apart from questions of common sense.

¹ Common Sense in Church Building, illustrated by Seven Original Plates. By E. C. Gardner, Author of *Homes and How to Make Them*, *Illustrated Homes*, and *Home Interiors*. New York: Bicknell & Comstock. 1880.

Mr. Gardner's book will be better described than by its title, if we call it *Common Sense in the Building of one Kind of Churches*. The kind, as we have indicated, is that toward which the Congregational churches of the northern United States have for some years been tending, and which is fast developing into a definite type, quite different from anything that is known in history. The central idea, as set forth in this little book, gives the key to Mr. Gardner's treatment, thus: "The chief object in building your church is to afford convenient opportunity for a large number of people to listen to the voice of one man." — or sixty pages further on, more briefly, "to build the most safe, convenient, and commodious room in which to hear a sermon." This does not express the aim of all the people who build churches, nor of the majority of them; but it is that of a large class of congregations, and those who agree in it will find in Mr. Gardner's book a lively and intelligent discussion of the ways of attaining it, while those who think this object important, but not supreme and exclusive, may find many sensible suggestions amusingly set forth with shrewd observation and a rather pungent criticism. The author, indeed, or his architect, having a ready vocabulary and a vivacious way of writing, is a little addicted to what one might call the *argumentum ab adjectivo*, — a little apt, when he has a comparison to decide, to try the question of superiority with one or two brisk adjectives, and treat the matter as settled off-hand.

The book is written rather for a public interested in church building — for country parishes, clergymen, and building committees, we might say — than for architects. It offers no designs, but concerns itself almost entirely with questions of planning and building, and these in an altogether untechnical way, making no account of purely architectural questions. Indeed, it not only avoids technical descriptions, but even shuns the architect's point of view with singular success, so that so far as internal evidence shows, and but for the air of convincing authority ascribed to the architect, it might be the work of an amateur inspired by his experience on building committees, or by a lively popular preacher, or even a builder with a literary turn, rather than by an architect. The architect, however, as well as the persons to whom the book is more directly addressed, will find it easy and entertaining reading.

THE EIDER SHIP CANAL.

THE revival of the Eider Canal recalls to mind the once famous Sound-dues which Denmark used to collect from all vessels that passed Elsinore, and which Americans were the first to refuse. The subject was afterward compromised, this country paying to Denmark \$408,731, while the other maritime nations paid \$17,389,480, Denmark agreeing to keep the lighthouses in order and superintend the pilotage. The Sound has been a free highway ever since; yet Germany proposes to make herself altogether independent of it, commercially and in a military sense, by deepening the old Eider Canal. The latter was constructed from 1777 to 1784; it follows the Eider from Tönning on the German Sea to Rendsburg, and from there runs into the roadstead of Kiel, on the Baltic. The canal proper is not twenty miles in length, about twelve feet deep, a hundred feet wide, and has six locks. It is used chiefly by coasters, about 4,000 a year. It is now proposed to make the canal available for the largest ships bound from the Baltic to the German Sea, and *vice versa*, and particularly for the German war vessels. These objects are of general interest.

The German navy contains over twenty ironclads, among them vessels with an armor ten inches in thickness, with engines of 8,000 horse-power, and with thirty-ton guns. The naval service includes 6,000 men. The war ports are Danzig, Kiel, and Wilhelmshaven, the latter two being the most important and almost directly connected by the canal about to be enlarged for heavy service. The function of Wilhelmshaven is to defend the canal, the Elbe, and the Weser. The place was purchased in 1853 as a mere wilderness, and the port was opened in 1869, having been transformed into one of the best establishments of that kind in existence. It is built of granite, and comprises five separate harbors, dry-docks, ship-yards, and magazines, all that is necessary to build the largest men-of-war. The unhappy "Grosser Kurfürst" was built there. Kiel is almost as important as Wilhelmshaven, and the German Government has expended many millions upon them, intending to defend the empire at all hazards. It will be remembered that the French fleet in 1870 did not dare to attack the German coast. The canal is indispensable if Germany wishes to assure the full efficiency of her navy, and for that reason the execution of the plan is merely a question of time. The advantages to the outside merchantmen bound for the Baltic are equally apparent, the run through the Sound involving numerous delays, while the Eider Ship Canal will naturally result in a more liberal management of the whole Sound navigation. — *Boston Daily Advertiser*.

PHENICIAN AND ETRUSCAN DECORATION.

MR. NEWTON has bestowed on the system of ornamentation, both of the painted pottery and of the metal objects discovered at Mycenæ and Zalryos, the name of floral decoration, in contradistinction to that of geometrical decoration, which had long been supposed the oldest style of ornamental art in Grecian countries, but which now appears to have succeeded the floral, at all events in the Archipelago and Peloponnesus. The admirable discoveries made by Di Cesnola

in Cyprus seem to have afforded definite proof of geometrical decoration having been, at a certain period, an importation from Phœnician Asia, a thesis recently upheld by M. Helling, and which I had already put out. Floral decoration, on the contrary, was an indigenous and original attempt, though a coarse and imperfect one, at an ornamentation borrowed from nature, from the plants and animals that the dwellers on Grecian shores had constantly under their eyes. But I am not quite satisfied with the above designation, on account of its expressing a portion only of the essential features of this ornamentation, and neglecting its most original aspect; the share given in it to the imitation of certain classes of the animal world which are not in sequence with the ordinary elements of decoration in the classic ages, as, for instance, butterflies, and, above all, marine productions — fish, cuttle-fish, mollusks — not only copied as to their shells but in themselves. And here may be inserted a very ingenious observation made quite recently by Alessandro Castellani. This distinguished artist has discovered that the typical arrangement of granulae generally covering plain surfaces in Etruscan ornaments and in those of ancient Grecian style was originally suggested by the protuberances in the sea-urchin's shell. When, in the cases of the departments of Italian jewelry at the exhibition, we compare these shells themselves with copies of antique ornaments exquisitely executed by his brother and himself, the demonstration is complete and doubt impossible. But of these granulated arrangements, that the Etruscans with their fidelity to archaic art continued longer than did the Greeks, we indubitably find the earliest germ — very imperfectly executed — in some of the objects found at Mycenæ and Spata. Thus, then, we have a legacy of primitive civilization, and taste for ornamentation, revealed by these monuments, a last vestige of the period when the Greeks — essentially sailors and fishermen as they were — delighted to copy marine creatures. When the Hellenes, enlightened by the progress of their own taste and by Asiatic models as to the true conditions of artistic ornamentation, had given up imitating the strange and flaccid shapes of soft-bodied mollusks, they still continued to look for copies in the defined and precise lines of their shells. Jewellers no longer imitated, as at first, cuttle-fish, medusæ, nautili, with their inhabitants, but they continued to seek directly for types of regular and elegant granulation in the shell of the sea-urchin, and made frequent use of the form of the scallop-shell in ornamentation. And thus it is that this last vestige of the habits of an anterior period has descended alone through the ages, perfected by a purer feeling for art and a greater technical skill. — *The Contemporary Review*.

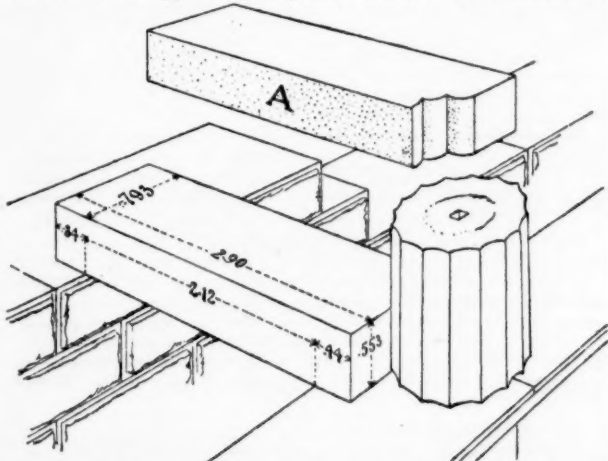
THE HYPÆTHRAL QUESTION.

MUNICH, February, 1880.

TO THE EDITOR OF THE AMERICAN ARCHITECT:

Sir, — Though I do not desire to enter into a controversy concerning the hypæthron which Mr. Clarke has himself publicly declined, I would yet beg for a word concerning another point on which "Mr. Davidson has permitted himself to make positive and incorrect statements." That critic first writes that we have no proof that there were galleries in any temple, save one, Olympia, and existing remains rather discourage than countenance the fact of their having been at all common. More than one fourth part of his second reply is a reaffirmation of this, and amounts to saying that there is no positive proof to the contrary.

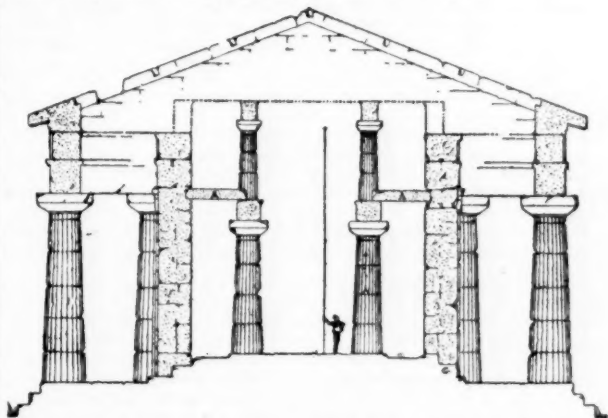
But positive proof is where it might naturally be first sought, — in the best preserved ruins of a Greek temple with interior columns. The ceiling of the lower side aisles of the great temple of Pæstum, the floor of the hypæroin gallery, was formed of stones which have



been accurately published in the authoritative work of Delagardette, with a chapter of description, page 40. (See my *Geschichte des Dorischen Stils*, pages 54 and 72, where a summary of the publications and the ruins is given. The standpoint of the book has, however, in many respects, become incorrect and insufficient by recent advances.) Those abutting upon the upper columns were of the form and of the dimensions shown above.

Seven of these stones, A, have been found. Their peculiar cut fits exactly upon the channels of the shafts. Mr. Davidson, ignorant or neglectful of so conclusive testimony, does away with an objection of Mr. Clarke which, I presume, refers to these well-known stones, by saying that he, Mr. Davidson, examined the ruins of Pæstum with all the care of which he was capable, and yet failed to discover any trace of galleries, which is much the same kind of argument as that urged against the galleries of the Parthenon: they were not mentioned by Pausanias. The passage of Labrousse which he quotes by no means disproves the existence of galleries at Pæstum, and only questions the decided probability of the stone staircases having led to them, on the weak ground that in other temples which could have had no galleries from their lack of interior columns, similar means of ascent are found. It is strange if the writings of Labrousse upon Pæstum, which I am unable to consult, make no mention of the unquestionable existence of these galleries, and it is inexcusable in Mr. Davidson to make so positive statements without taking into consideration the most important authority upon the subject. The quotation from Beulé does not remotely refer to Pæstum, much less to these blocks of the hypæroin.

The temples of the Greeks developed so regularly and logically in their constructive features, that it cannot be taken for granted that the superposed interior columns of the Parthenon (where there are other historical reasons for assuming galleries), the temples of Selinus and Tegea (Paus. viii. 45), were unwarranted and functionless members, while we thus have unquestionable proof that those of Olympia and Pæstum supported the galleries they naturally presuppose. The division of the columns by an entablature at half height would have had no signification if some horizontal tie did not strengthen the tall and tottering mass at this point. The side aisles, if not divided by a floor, would have had a height out of all proportion, and entirely at variance with the clear disposition of the interior space shown by the temple plan and section.



This may be seen by a glance at the above transverse section of the Pæstum temple in its present condition, with the blocks at A restored to their proper place. It is not necessary to refer to the parallel of the ancient basilicas, lying so near at hand, where side galleries existed even when, as in the case of Fanum, there was but one order of interior columns. In justification of Mr. Clarke's original statement, it is finally to be remembered that there were interior columns in all those temples formerly considered hypæthral on the supposed authority of Vitruvius.

I have restricted myself to this one point, not because it was the only misstatement in Mr. Davidson's attack which needs correction. Mr. Clarke's paper upon the hypæthron has attracted much attention, especially after its more accessible republication in England, and Dr. Reber's shorter essay in the *Repertorium für Kunstwissenschaft*. The opinion of competent judges here strongly inclines to its theory of artificial light for the temple interior.

I would close by referring to the weighty indirect support brought by the third and fourth years' excavation in Olympia.

Respectfully yours, DR. P. F. KRELL.

FIRES IN WALLS AND FLOORS.

BOSTON, March 10, 1880.

TO THE EDITOR OF THE AMERICAN ARCHITECT:

Dear Sir, — If your correspondent "A Lay Woman" desires information that may perhaps be applied to dwelling-house construction, with a view to avoiding wooden flues in which fire and vermin may freely range, we shall be glad to explain to her various plans, and to give her the address of one of our best mill constructors who has built his own house in accordance with our rules. We have not yet worked out any general specification for house construction, as our young men are now fully occupied in making plans and specifications for a large number of mill buildings.

Very truly yours, E. A.

ARCHITECTURAL CRITICISM.

TO THE EDITOR OF THE AMERICAN ARCHITECT :

Dear Sir,— Since your paper was first started I have been an admiring and earnest reader of it, as well as a subscriber, and my interest in its success as well as my own wants have prompted me to write and make a request.

Like most others who have not had the benefit of a metropolitan training, I find my ideas and knowledge exceedingly vague as to what is meant by "balance," "treatment," "proportion," and a thousand other things which belong to the artistic portion of an architect's practice. I suppose that this uncertain feeling comes from the study of examples, etc., without being able to know whether they were good or bad, or what in them was worthy and what not.

It has occurred to me that if you would yourself (or have some competent person do so) take up each week one of your weekly illustrations and critically analyze the design from an artist's standpoint (expressing yourself as if none of your readers knew anything of the subject and you were trying to teach them), showing what were beauties and how obtained, what good proportion and why it is so, what were defects and why they were so, it would be of immense benefit to me, and I feel sure that there are thousands who would hail such a thing with joy. I have done my best to find such things in books, but hitherto have obtained no satisfaction, although I have bought all that I could afford to buy. You may possibly be able to tell me just what I want and where to find it. If you can I will be very much obliged to you.

H.

[The want to which our correspondent refers is one which has exercised the editors more than a little. It is just as clear that our American architects need criticism as that they, for the most part, detest it and will not tolerate it. Where architecture is systematically studied—in France, for instance—criticism is habitual. Its principles are understood; it is taken as a matter of course, and accepted as instructive. Americans are thin-skinned, and resent criticism as personal affront, though they take praise kindly enough. Therefore, although it has been suggested to us before that we should print criticisms of the designs that are given us for illustration, we have never dared to undertake it, feeling reasonably sure that under such a system we should soon find ourselves without contributors. We will say, confidentially, to our correspondent that in occasional cases where we have responded to requests of our contributors for criticism of their own performances, our judgments, as honest and considerate as we could make them, have almost uniformly been received with resentment, and commonly with accusations of favoritism. We have made an exception in the case of the designs offered for our competitions, which, being the work of students, and submitted to us for judgment, obviously gave fit occasions for criticism. We have also, from time to time, criticised noteworthy buildings as they have been finished, but our correspondent will, we trust, see the difficulty in the way of offering comment on our ordinary illustrations.]

We will, however, take his request to heart, and, so far as we can find opportunity, will try to meet the want which he points out, and of which we recognize the reality. Architectural criticism of real value is, in truth, hard to find, and any clear exposition of its principles harder still. In literature, such as there is found scattered piecemeal through a variety of writings, according as examples bring out one or another side of it; and a great deal of it, we are sorry to say, is the work of persons who know little of architecture, the easy application of dogmas and theories that are developed out of morals, religion, convenience, or anything rather than a knowledge of art. The best technical criticism that we know of, in a form accessible to readers of English, is to be found in Viollet-le-Duc's Discourses on Architecture. A translation of the first volume of these Discourses, by Mr. Henry Van Brunt, architect, has been published by Messrs. Houghton, Osgood & Co. Both volumes, we believe, have been translated by Mr. Bucknall, an English architect, and published in England. We know of no book of its kind so full of information and suggestion for the architectural student. — EDS. AMERICAN ARCHITECT.]

NOTES AND CLIPPINGS.

THE COST OF THE HARTFORD CAPITOL.—The final report of the capitol commissioners, submitted to the legislature, show total receipts of \$2,481,518, and total expenditures \$2,465,542. The funds still available are \$91,077, which covers the amount yet to be paid. They have disagreed with J. G. Batterson, the contractor, who claims \$128,943 more than they allow him. Mr. Batterson protests against the report, which he calls pregnant with errors, and says that of the total appropriation but \$1,824,607 have gone through his hands, the rest having been expended by the commissioners in violation of the contract. He asks that the legislature appoint a tribunal to decide his claims.

A MEXICAN MUMMY.—At the Hotel Drouot, in Paris, there was sold by auction, two weeks ago, an interesting piece of archaeology in the shape of a mummy, which proves to be that of a prince of the ill-fated imperial family of Montezuma. The body, encased in a large crystal box, was purchased for 2,375 francs by the South Kensington Museum. The Montezuma in question was the uncle of the illustrious cacique of that name. Taken prisoner by the Spaniards, he was for many months confined with his daughter in the Mexican convent of San Isidro, and then walled up in a cell by order of the inquisitors. The body now presents the aspect of a dark, yellow wooden statue. As it stands in its glass case, one can understand the terrible sufferings which the poor man underwent in dying. The hands are crossed and contracted, the cheeks hollowed, the eyelids closed and wrinkled, and the hair nearly all gone. The girl, who was about twelve years old, is in a perfect state of preservation. Her face is calm, and a sweet smile seems to play about her lips, in strange incongruity with her horrible fate. The papers telling this strange story are fully authenticated. — Exchange.

THE DUCAL PALACE AT VENICE.—An architect writes to the *Athenaeum* that "The attention of the public in England has been so much absorbed with the proposed restoration of the west front of St. Mark's at Venice, that there is danger that the scarcely less important operations in progress and in contemplation at the Ducal Palace, immediately adjoining the famous church, may escape observation. Extensive works in the way of repair and substitution have been going on there for some time past, and have been carried out in a manner which has not escaped severe criticism. It is now proposed to restore the celebrated Porta della Carta, the lovely doorway leading to the Giant's Staircase, down whose steps rolled the head of Marino Faliero. The lintel of this doorway, a most exquisite piece of work, is cracked, but in no danger of falling, nor does it even need to be shored up. It is, however, to be removed, and a new lintel, copied from the original, put in its place. The work has been delayed in consequence of the difficulty of finding a stone of sufficient size for the purpose; but it is much to be feared that unless some serious remonstrance is made, the substitution will be effected, with the approbation of a majority of the Venetians, — the original lintel being, perhaps, preserved in the Correr Museum, which is a kind of *hortus siccus* to which displaced fragments of antiquity are relegated by the Municipality. There is not the slightest excuse for this work, which will destroy the authenticity of a most interesting monument; a simple bar of copper, or a small T-shaped girder, cut into the stone-work of the lintel, and tightly wedged up to it, is all that is required to keep it in its place; and any further work to the doorway is perfectly unnecessary. The Venetians have, however, the impression that it is perfectly justifiable to remove old work and to replace it with new, provided the new work be an exact reproduction of the old; and the architect who has directed the works of restoration at St. Mark's has carried this doctrine so far as to assert publicly that a portion of the pavement in that basilica which has been recently taken up and relaid under his direction is, in his opinion, superior to the original. There can be, therefore, but little hope that the Porta della Carta will be spared the indignity of being made what those gentlemen would consider as good as new, or better. The *Fanfulla* of the 18th of January contains a poem, by Victor Salmini, eulogizing the action of the English in the matter of the west front of St. Mark's, and imploring them to continue their efforts for its preservation."

IRON BRIDGES OF LONG SPANS.—Speaking of the recent unexplained bridge disasters, a St. Louis journal remarks that half a century ago such spans as the fallen ones of the St. Charles and Tay bridges, for such loads as they were calculated to support, were impossible. Now they are far from being of the first magnitude. There are ten truss-bridges across the Mississippi above St. Louis, which are not regarded as very wonderful structures, and yet seven of them have spans as long as those of the Tay Bridge. The bridges at Winona, La Crosse, Dubuque, Keokuk, and Hannibal have spans of 240, that at Rock Island of 250, and that of Louisiana of 256 feet. The span which gave way at St. Charles was 320 feet in length, yet the same bridge has two spans 406 feet long. Over the same river is a truss-bridge, at Leavenworth, with three spans 340 feet, and another at Glasgow with five of 315 feet. Across the Ohio there is a truss-bridge, at Steubenville, with a span of 320 feet, one at Parkersburg of 320 feet, one at Cincinnati with a span of 515 feet, the longest truss yet built, and one at Louisville with a span of 400 feet. The truss bridge over the Kentucky River, on the Cincinnati & Southern Railroad, has three spans 375 feet in length, resting on iron piers 175 feet high. The bridge over the Hudson at Poughkeepsie has five spans of 500 feet, with piers 135 feet above high-water. In Europe there is a truss-bridge over the Vistula at Grandenz with twelve spans of 300 feet. The truss-bridge of Lessart, in France, has a span of 314 feet, and was pushed across from one abutment to the other after being put together. The bridge over the Rhine at Wesel has four spans of 313 feet. The Kullenburg bridge in Holland, which was the monarch truss before the construction of the Cincinnati bridge, has a span of 492 feet. From these examples it would seem that the St. Charles and Tay bridges, instead of being risky engineering ventures, are entirely within the domain of experience. But, nevertheless, the fact remains that, notwithstanding the boldness with which the engineers of the present day meet the exactions of the locomotive, they are comparatively novices in the use of iron. The first iron bridges were of cast-iron, and soon proved to be too lightly proportioned. The first suspension-bridges were similarly defective. Does it remain to be proved that the wrought-iron work of the past twenty years betrays too great a confidence in the material? Were the St. Charles and Tay disasters unaccountable accidents, or were they fair tests of current engineering theories? These are questions which engineers would do well to discuss.

MARINE RAILWAYS.—M. Danborg, a French engineer, claims that he has devised a means for transporting large vessels over isthmuses, however steep, and an experiment is shortly to be made at Argenteuil by lifting a ship of 2,000 tons from the river Seine and taking it on rails to another point on the river.

A LARGE BLOCK OF SANDSTONE.—At the Dark Hollow stone quarry, near Bedford, O., one of the largest stones ever blasted in this country was "lifted" a week or two ago. The stone is forty by fifty feet square and about thirty feet thick, and it required one hundred and eighty-five slip wedges to make a successful blast. When cut up into pieces, it will make nearly three hundred car-loads of building stone. Immense blocks of stone are frequently taken out of the quarries here which would make the stones in Solomon's Temple mere pebbles in comparison. Its weight was estimated to be about 6,000,000 pounds.

AN OLD ENGLISH INN.—Houses often tumble down here before they are 1,000 hours old; but a house which lately tumbled down at Belper, England, had at least the excuse of being 1,000 years old. It was occupied up to last month, and 400 years ago was the only inn in Belper. It was one-storied, with a thatched roof.

A SYMPHONY IN BLUE AND WHITE.—One of Mr. Whistler's "symphonies in blue and white," for which the artist received two hundred guineas, was recently sold under the auctioneer's hammer at Glasgow for twelve pounds ten.

BUILDING INTELLIGENCE.

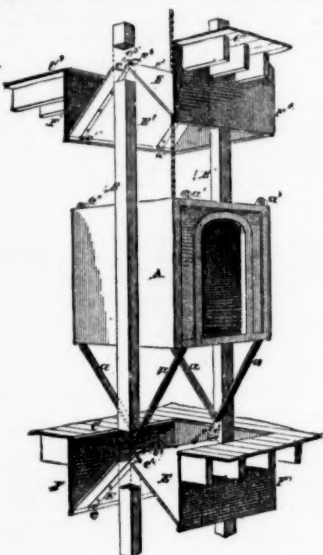
[Reported for the American Architect and Building News.]

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

BUILDING PATENTS.

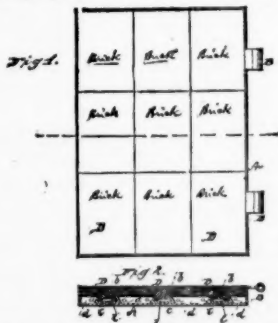
[Printed specifications of any patents here mentioned, together with full detail illustrations, may be obtained of the Commissioner of Patents, at Washington, for twenty-five cents.]

223,284. HATCHWAY. — Elliott E. Furney, St. Louis, Mo. This invention relates to an improved construction for closing the hatchways of an elevator-shaft save when the car is passing. A represents the elevator-car, B B' are the guides, and C C' portions of floors of successive stories of the building. E E' E' are the hatches, hinged at e e e' to brackets F F' F', which depend from the floors C C', respectively, the level of the hinges being sufficiently low and the hatches of such size as, when closed, to be inclined together, as shown, and when opened, by either an ascending or a descending car, to be turned back against the brackets F F'. The hatches are cut



away at their corners e e' to fit around the guides C C'. The brackets F F' form close partitions or walls. At their upper edges, e e', the hatches are furnished with flanges e e', which extend upward from the edges e e', and flare from each other, as shown. The car A, on its under side, at points opposite the lips e e', is furnished with wedge-shaped projections a a. On its top are projections a' a', in the form of rollers, which are arranged to encounter the under side of the hatches as the car rises. The operation is as follows: As the car rises the rollers a' a', coming against the hatches overhead, cause the latter to turn on their hinges and open sufficiently for the car to pass. As soon as this has occurred the hatches fall together again. As the car descends the projections a a enter between the diverging lips e e', causing the hatches to be turned back toward the brackets, and permitting the car to pass down between them. The hatches then close together again, as before. The principal advantage is, that the floors do not need to be cut into to provide room for the hatches when opened, and no space is occupied by the hatches that is needed for other purposes. Moreover, the hatches do not open downward by any object falling upon them, and do not open at all unless a wedge is inserted between the edges e e'.

223,401. FIRE-PROOF SHUTTER. — Walton D. Smith, Prophetstown, Ill. This invention relates to fire-proof shutters, built of iron and brick. A represents the body of the shutter, made of sheet iron, with the hinges B B. On the outside of the shutter A are fastened sheet-metal strips, C C, running the entire length of the shutter, which, at



suitable distances apart, have their edges turned outward, to form inclined flanges, making dovetailed grooves, a a. D D represent bricks, built into the shutter, so as to fill the entire outer face, the edges of the shutter being turned to hold the bricks. Each brick D is formed with a longitudinal dovetailed tongue, b, to fit in the dovetailed groove

formed by the side flanges, a a, of the strip C. Longitudinal air-chambers, d, are formed by the shutter and the bricks, between the strips C C; and additional air-chambers, i, are formed in the strips C by the tongues b of the bricks being made concave, as shown. These concavities also allow the bricks to pass the rivet-heads by which the strips are fastened to the sheet-metal body A. When the shutter is closed the bricks are on the outside, thus presenting to the fire a surface of brick instead of iron.

225,208. STOVE. — Charles H. Blanchard, St. Louis, Mo.

225,234. HEATING STOVE. — John P. Oeth, Canton, Mo.

225,237. WATER-CONDUCTOR. — George K. Reber, Pittsburgh, Penn.

225,240. STEAM-STOVE. — Samuel Silsbee, Cincinnati, O.

225,265. EXPANSIBLE REAMING BIT. — Adolph Arntz, Muskegon, Mich.

225,283. BRICK-MACHINE. — Collier V. Hemenway, Frank W. Bennett, Thomas W. Kirk, and William H. Bennett, Wellington, O.

225,291. METAL-BORING TOOL. — Lee C. Little, Pittsburgh, Penn.

225,294. HYDRAULIC ELEVATOR. — James R. McPherson, Beloit, Wis.

225,305. SCREW-CUTTING MACHINE. — Benjamin Stott, South Chester, Penn.

225,317. STEAM-COOKING APPARATUS. — John Ashcroft, Brooklyn, N. Y.

225,338. POTTERY SHAPE FOR BUILDING BLOCKS. — Augustine Campbell, Perth Amboy, N. J.

225,339. ADJUSTABLE WINDOW-CORNIC. — James W. Campbell, New York, N. Y.

225,362. WATER-CLOSET. — Moses F. Gale, Brooklyn, N. Y.

225,370. DOOR-CHECK. — Clark Hooper, Caro, Mich.

225,385. SERVICE-PIPE BOX. — Eli H. Hummer and Joseph S. Gemmill, York, Penn.

225,403. ROD AND PIPE CUTTER. — Francis I. Maule, Philadelphia, Penn.

225,415. METAL-BENDING TOOL. — Samuel Patterson, Altoona, Penn.

225,418. BRICK-MACHINE. — James A. Reeder, Corinth, Miss.

SUMMARY OF THE WEEK.

Baltimore.

BUILDING PERMITS. — The following building permits have been issued since our last report: Harry Revin, two-story cooper-shop, rear of 134 Eager St., 26' x 45'.

Peter Ringsdorf, 1 three-story and 4 two-story brick dwellings, Gough St., from intersection of Central Ave.

Mary Duffin, two-story brick building, East Sterrett St., between Columbia Ave. and Ramsay St.

Andrew Hamilton, 5 three-story brick buildings, Cumberland St., near Carey St.

John B. Breitschewir, 2 three-story brick buildings, Lancaster St., near Broadway.

Union Fire Co., two-story brick building, North St., between Eager and Chase Sts.

B. & O. R. R., three-story brick warehouse, cor. Fort Ave. and Harper St., 80' x 317'.

Mrs. E. J. Joyce, three-story brick building, Charles St., between Biddle and John Sts.

H. Heise, three-story brick warehouse, Portland St., near Green St., 40' x 76'.

DISSOLUTION OF PARTNERSHIP. — The old established firm of Dixon & Carson, architects, of this city, has dissolved by mutual consent. Mr. Thos. Dixon will continue the practice of his profession at the old place of business, 18 North Charles Street, and Mr. Charles L. Carson at the corner (southeast) of Charles and Lexington Streets.

STORE AND DWELLING. — Mr. Wm. F. Weber, architect, is preparing a drawing for a new store and dwelling for Mr. Wm. L. Stork, to be built on the corner of Madison Avenue and Wilson Street, of brick, with terra-cotta and Cheat River stone finish, and finished in hard wood, with stained glass windows.

Boston.

BUILDING PERMITS. — Since our last report the building permits granted are as follows: —

Brick. — 131 Marlboro' St. for C. W. Freeland, 1 dwell., 30' x 65'; three stories; I. & H. M. Harmon, builders.

249 Marlboro' St. for O. Norcross, Jr., 1 dwell., 25' x 57'; T. J. Willden, builder.

54 Albion St., 1 dwell., 20' x 40'; J. Graham, owner and builder; three stories.

221 Newbury St., 1 dwell., 23' x 51'; three stories; S. W. Merrill, owner and builder.

Bristol St., 1 workshop, 60' x 60'; five stories; J. S. Blair, owner.

216-230 D-vonshire St., cor. Franklin, for Estate of I. Rich, 1 office building, 107' x 117'; five stories; A. R. Estey, architect.

Vale St., Ward 21, for Dennison & Co., 1 factory, 35' x 80'; three stories.

Columbus Ave., cor. Berwick Park, for G. B. Taylor, 1 tenement-house, 25' x 87'; four stories; S. Stubbs, builder.

91 Federal St., for G. T. Bigelow, 1 warehouse, 60' x 172'; four stories; I. & H. M. Harmon, builders.

Wood. — R-ver St., Ward 21, 1 shop, 24' x 30'; two stories; H. Sullivan, owner and builder.

Brighton Ave., for J. W. Hollis, 2 dwells, 23' x 33'; J. W. Berze, builder.

478 Albany St., for S. B. Morse, 1 storehouse, 60' x 115'; McKenzie & Campbell, builders.

Cor. Devon and Fourth Sts., for B. & A. R. R., 1 storehouse, 30' x 90'; A. H. Glover, builder.

93 Longwood Ave., for Lang & King, 1 stable, 40' x 60'.

Cor. Dove and F Sts., for E. G. Pond, 1 lumber-house, 82' x 80'.

Cambridge St., Ward 25, for K. Whittemore, 1 dwell., 32' x 34'; J. E. Cahill, builder.

Cor. Augustus and Clarendon Aves., for L. Schenck-becker, 1 dwell., 22' x 28'; A. Schmitt, builder.

Vernon St., Ward 19, for P. Diehl, 1 dwell., 22' x 83'; J. Luipold, builder.

Brooklyn.

BUILDING PERMITS. — Fulton St., Nos. 1580 and 1582, 2 one-story brick stores, 20' x 50'; owner, S. B. Chapman, Herkimer St.; architect, Amel Hill; builder, S. C. Phillips. Herkimer St., 5 two-story frame dwellings, 20' x 30'; owner, C. W. Peard; architect, A. Hill; builders, T. S. Denike and G. F. Stults.

Third Ave., 3 two-story frame stores and dwellings, 20' x 40'; owner, James Carroll; builders, A. Willison and Charles Thompson.

Forest St., cor. Flushing Ave., 1 two-story frame dwell., 25' x 40'; owner and carpenter, Henry Loeffler, 1924 Stockton St.

Fifth Ave., No. 328, 1 two-story frame dwell., 16' 8" x 36'; cost, \$2,000; owner, S. E. Blott, 225 Fifteenth St.; builder, Peter Van Dyke.

Bainbridge St., 1 two-story brown-stone dwell., 18' 9" x 45'; owner, Margaret C. Given, 55 Canton St.; carpenter, Robert Given; mason, Edward Mullin.

Sumpter St., No. 184, 1 two-and-one-half-story tenement, 25' x 32'; owner, Charles Hartung, 115 McDougal St.; builders, C. Bauer and H. Hess.

Withers St., 3 three-story frame tenements, 16' 4" x 32'; owner, Mathilde Conrad, 121 Withers St.; architect, John Platte; builder, Jos. Frisse.

North Fourteenth St., 1 one-story brick factory, 75' x 100'; cost, \$5,500; owner, James Stokes, Jr., 37 Madison Ave., New York; architect, Fred Webber; builder, Jas. Rooney.

Gates Ave., 3 four-story brown-stone dwellings, 18' x 42'; owner and carpenter, Jas. A. Thompson, 310 Quincy St. CHURCH. — The Nostrand Avenue M. E. Society proposes to build a church on the corner of Nostrand Avenue and Quincy Street. About \$25,000 will be expended. Messrs. Parrott Brothers are the architects.

Chicago.

BUILDING PERMITS. — Rumsey St., Nos. 131 and 133, two-story dwell., for John Clark; cost, \$4,000.

Cass St., near Indiana, 3 two-story dwellings, for Thomas Mackin; cost, \$10,000.

Monroe St., cor. of Greene, 3 two-story dwellings, for the Foss Estate; cost, \$30,000.

State St., near Thirty-sixth, store and dwell., for M. Fahy; cost, \$3,000.

North La Salle St., No. 595, two-story dwell., for J. H. Waters; cost, \$6,000.

CORNER IN BRICK. — The North Side Rolling Mills and a "paper car-wheel company" having bought all the brick in the city, amounting to some 5,000,000, the operations in buildings are retarded considerably, the owners suspending action until the arrival of new brick, about May 1.

New York.

BUILDING PERMITS. — Fifty-ninth St., 2 brown-stone front five-story apartment-houses, 30' x 88' 5"; F. Heerlein, owner; Wm. José, architect; cost, \$40,000.

Fifty-ninth St., 2 brown-stone front five-story apartment-houses, 20' x 88' 5"; F. Heerlein, owner; Wm. José, architect; cost, \$30,000.

One Hundred and Twenty-first St., 2 brick four-story tenements, each 18' 6" x 60'; Cowen Kays, builder; cost, \$18,000.

Forty-third St., No. 506, W., 1 brown-stone front five-story French flat, 25' x 58', 19' extension; Eliz Pfeiffer, owner; Hendricks & Bros., builders; cost, \$15,000.

Eighth Ave., between Forty-ninth and Fiftieth Sts., three-story brick stable; Eighth Ave. Railroad, owners and builders; Jno. Correja, architect; cost, \$125,000; 200' x 450' and 120'.

One Hundred and Seventeenth St., for A. W. Jenny, 3 brick flats, 16' 8" x 60', and extension of 10'; J. H. Valentine, architect; J. Hardwick, builder; cost, \$18,000.

Fifty-first St., Nos. 641 and 643, W., for J. Schwarz-walder & Son, brick stable, 60' x 30'; cost, \$3,000; S. Holgint, architect; List & Linner, builders.

Sixty-Eighth St., for S. L. Bradley, brown-stone dwell., 22' x 56'; cost, \$25,000; and adjoining, same owner and architect, 1 dwell., 28' x 86' 4"; cost, \$40,000.

Thirtieth St., No. 620, W., dwell., for D. W. Brick-well, 25' x 40'; brick; cost, \$2,000; W. Schmalz, builder.

Thirtieth St., No. 622, W., dwell., with shop, for Geo. Enser, 25' x 50'; cost, \$2,000; W. Schmalz, builder.

ALTERATIONS. — Fifteenth St., No. 48, W., 1 four-story brick dwell., additional story and a five-story brick extension, 25' x 45'; internal alterations; cost, \$10,000; owners, De-graf & Taylor; architect, George E. Harding.

Eighth Ave., four-story brick store and dwell., internal alterations; cost, \$20,000; owners, Vogel Bros.; architect, Charles Baxter.

Fifth Ave., 2 one-story brick stores, to be increased to four stories and fitted up for tenements; cost, each, \$4,000; owner, C. Gre; architect, Andrew Spence.

Falmsade Ave., cor. River Ave., two-story frame dwell., to be raised to three stories; cost, \$3,500; owner, W. S. Duke; architect, F. C. Withers; masons, J. & G. Stewart; carpenter, S. Francis Quick.

Wall St., No. 66, three-story brick office building, to be made four stories; cost, not estimated; owners, Howard Fire Ins. Co.; architect, George E. Harney.

One Hundred and Sixty-ninth St., two-story frame dwell., internal alterations, cost, \$1,800; owner, H. J. Duckhardt, Third Ave. and One Hundred and Sixty-ninth St.; architect, W. W. Gardiner; builder, Ernest F. Dunn.

Broadway, Nos. 924 and 926, 2 four-story brick stores, three-story brick extension built on rear, 40' x 35'; also, new store front; cost, \$10,000; owner, Wakefield Rattan Co.; builders, Robinson & Wallace.

Ninth Ave., No. 575, four-story brick store and tenement, two-story brick extension, 20' x 27'; also, internal alterations; cost, \$2,000; owner, Peter Schmidt; architect, John M. Forster.

Fourteenth St., No. 143, five-story brick factory, one-story brick extension, 32' x 25'; cost, \$1,500; owner, Mrs. F. Snow; architect, Joseph M. Dunn; builder, M. E. De-gan.

Thirty-fifth St., No. 231, W., four-story brick tenement and stable, one and two-story brick extension on rear, 22' x 30'; cost, \$2,000; owner and builder, Thomas O'Gara.

Second Ave., No. 799, two-story brick tenement and stores, to be raised to four stories, and new store front; cost, \$5,000; owner, W. H. H. Moore; builder, W. H. Vanderhoof.

Wall St., No. 48, seven-story brick and stone office building, interior alterations; cost, \$20,000; owners, Bank of New York; architects, Vaux & Radford; builder, Linus Scudder.

Eighteenth St., No. 36, E., six-story brick factory, six-story brick extension on rear, 21' 6" x 20'; cost, \$2,000; owner, W. H. Jackson; builder, W. A. Hankinson.

BUILDING MATERIALS. — The Hudson navigation being now open we can gather some information as to the probable ruling of prices for the spring. Rosendale cement is

firm at \$1.10 per barrel, by the cargo, and the price will no doubt be sustained. Bricks are quoted at \$9.50, but without firmness; the market in this article will probably fluctuate considerably. Should the price be high in May it will be very low in the latter part of the summer, as the market would be flooded.

COMPETITIONS.—Nothing has yet been decided in regard to the two large buildings on which competition was invited. The Liverpool and London and Globe Insurance Company has, it is reported, thrown out all except three plans, and it is rumored that a Boston firm are likely to get the building for the Bank of the Republic.

HOUSES.—On Fifty-fifth Street, between Fifth and Madison Avenues, a first-class house is to be built for Mr. Chas. Kneeland. It will cover a lot 25 by 100 feet, and will be of brick and stone; cost is estimated to be about \$40,000. Mr. Charles C. Haight is the architect.

Messrs. Stillman & Farnsworth, architects, have drawn the plans and are now receiving estimates for a house to be built for Dr. Thomas on Lexington Avenue and Fifty-second Street. The building will be 26 by 90 feet, six stories high, of brick, terra-cotta, and stone, in the Queen Anne style, and will cost about \$40,000.

Messrs. Stillman & Farnsworth are also preparing plans for a dwelling on the adjacent lot, in addition to an apartment-house to be built on Lexington Avenue and Fifty-sixth Street.

LABOR.—There is no doubt that masons and all mechanics in the building interest will demand higher wages on or about April 1. The masons will no doubt obtain \$3.00 per day, which was their rate last summer; but should they demand more, there will be trouble. Capital appears ready to make a fair advance when business opens, but any attempt at extortion will be resisted.

SCHOOL-HOUSE.—The trustees of St. Boniface's Church are to build a brick school-house at Nos. 312 and 314 East Forty-seventh Street. The building will be 50 feet in front and 75 in depth, and will be four stories in height. The building is designed by Frederick Jeuth, architect, and will cost, when completed, \$20,000.

STORES.—Messrs. Vogel Brothers will have built on the southwest corner of Forty-second Street and Eighth Avenue a four-story store and workrooms, to cost about \$25,000. The building will be of brick, with stone finish.

Philadelphia.

HOUSES.—Sixteenth and Jefferson Sts., four-sty brown-stone house, 22' x 90'; day's work; owner, J. H. Smaltz; cost, \$16,000; J. C. Sidney & Son, architects.

Fiftieth and Fitzwater Sts., 1 three-sty brick dwell., 18' x 50'; owner, Robert Johnson; cost, \$3,200.

1117 Sherkamazan St., 1 three-sty dwell., 20' x 58'; brick and stone; contractors, Cook & Fannan; cost, \$4,800.

STORES.—2664 Kensington Ave., 1 three-sty store, 22' x 80'; owner, J. Torrey; cost, \$5,000.

1520 Chestnut St., 2 four-sty stores, 28' x 163'; owner A. G. Baker; contract not awarded.

South Lane, cor. Main St., three-sty store and dwell., 20' x 60'; Thomas Haggerty, contractor; cost, about \$4,000.

FACTORIES.—2340 Boudinot St., 1 two-sty factory, 34' x 24'; owner, Wm. Jamison; contract not given.

Linn St., near Twenty-third, four-sty factory, 40' x 60' (addition); owner, J. B. Nelson; cost, about \$2,000.

SCHOOL-HOUSE.—Green Lane, corner Branchtown Road, one two-story school-house, 45 by 44 feet; owners, city; contractor, C. O'Neill.

STABLE.—760 South Broad Street, addition to stable, 17 by 63 feet; owner and builder, P. Reeves; cost, not given.

EXPRESS OFFICES.—The Adams Express Company have purchased the south-west corner of Seventeenth and Chestnut sts., and will erect a fine building thereon.

St. Louis.

BUILDING PERMITS.—Forty-five permits have been issued since our last report, two of which are for frame structures of slight importance. Of the rest, those worth \$2,500 and over are as follows:—

Owners.	Use.	Stories.	Rooms.	Cost.
Mr. R. W. Sive.	Store.	3	3	\$9,000
A. Frail.	Dwelling.	2	18	9,000
Mrs. W. Patterson.	Dwelling.	3	18	9,000
M. Sells.	Store.	2	8	3,300
J. Peters.	Furniture factory.	4	4	4,900
Louis Miller.	Dwelling.	2	7	2,800
J. A. Bailey.	Dwelling.	3	9	4,800

General Notes.

ATLANTA, GA.—The Gate City Guards have decided to build a memorial armory.

BLAUVELTVILLE, ROCKLAND CO., N. Y.—Mr. Wm. José, of New York, has prepared designs for an orphan asylum, 50 by 100 feet. It will be of brick with fire-proof stairways, heated by steam, and will cost about \$30,000. Mr. De Baun is the contractor.

CHAMBERSBURG, PENN.—Mr. F. E. Davis, architect, Baltimore, has just completed the drawings for a new jail, to cost \$20,000.

CHICOPEE FALLS, MASS.—Rev. P. D. Stone is planning to build a parochial school-house at this place.

CHURCHVILLE, MD.—An effort is about to be made to build a Lutheran church in Stony Forest, about two miles from Churchville, Harford County.

CINNAMONSON, N. J.—J. C. Sidney & Son, of Philadelphia, are architects for a three-story, 22 by 90 feet, brick house for Miss Susan Lippincott; cost, \$6,000.

The same architects are building one three-story brick dwelling, 33 by 58 feet, for Wm. Parry; contractor, C. R. Pancoast; cost, \$6,500.

DETROIT, MICH.—It is a question whether the new school for the blind will be located here or in Adrian.

ENGLWOOD, N. J.—Messrs. Stillman & Farnsworth, architects, of New York, have drawn plans for a house for Robt. Baylies, Esq., of same city, president of the Market Bank. It will be of stone, in the Gothic style, and will cost about \$15,000. Estimates are now being received.

FAIRFAX COUNTY, VA.—Work has commenced on the new Episcopal Theological Seminary in Fairfax County, Va. The building will be 55 feet 2 inches by 73 feet 7 inches, of brick, trimmed with terra-cotta and Hummelstown brown-stone, and will cost \$10,000. Mr. C. E. Caswell, of Baltimore, is the architect, and Joshua Harrison, of Alexandria, Va., the contractor.

FORTORIA, O.—Brick and stone dwelling, for L. J. Hissong; cost, \$4,000; N. B. Bacon, architect, Toledo.

FREDERICKSBURG, VA.—Work has commenced on the French Memorial Chapel. It will be 50 by 70 feet, and will cost \$16,000. Mr. C. E. Cassell, of Baltimore, is the architect, and E. J. Labour and A. M. Garner are the contractors.

GLEN COVE, L. I.—Mr. J. C. Cady, of New York, is drawing plans for a frame house to cost \$15,000.

HAVERTHILL, MASS.—A house in old-fashioned style is building for Mr. Thomas Saunders. Work is done by the day, under superintendence of Mr. J. P. Littlefield. Mr. Wm. R. Emerson, of Boston, is the architect. The building measures 75 by 117 feet.

HILLSDALE, MICH.—Two stores, 50 by 90 feet, for L. Gugenheim; brick and stone; to cost \$5,000; N. B. Bacon, architect, Toledo.

HOLYOKE, MASS.—A new school-house, to cost about \$12,000, is to be built by the city the coming season.

JAMAICA PLAIN, MASS.—Two houses are to be built this summer on the Greenough estate. Mr. Wm. R. Emerson, of Boston, architect.

LA FAYETTE, IND.—Competitive plans for the new court-house for Tippecanoe County were submitted March 9 by seven architects. The building will cost \$200,000.

LANCASTER, PENN.—Episcopal school, 35 by 65 feet; brick; day's work; cost, \$7,000; architects, J. C. Sidney & Son.

LAYSVILLE, KY.—J. C. Lindenberger, three-sty brick and stone dwell., Fourth St., between Ormsby and Weissinger Aves.; cost, \$15,000.

B. L. Swope, two-sty frame factory on Sixth St., between Breckinridge and Kentucky Sts.; cost, \$4,000.

MILTON, MASS.—A house measuring 40 by 112 feet is building for Mr. Robert Stephenson. F. M. Severance is the builder; cost, \$15,000; Mr. Wm. R. Emerson, of Boston, is the architect. The stils are now in place.

A stable, measuring 80 by 97 feet, is also to be built on the same estate.

Mr. Emerson is also designing extensive interior alterations in Mr. J. Huntington Wolcott's house. J. H. Burt will carry them out.

MR. GILEAD, O.—A new brick block is to be built by D. G. Poland.

NEWTON, MASS.—A house will be built this summer for Mr. Hatch, from designs of Mr. W. R. Emerson, of Boston.

OAKLAND, CAL.—The architects here are doing very little at present. There is talk of several building improvements of importance for this season but there is small chance of much activity until the labor question is somewhat settled.

New work started since last report is as follows:—

Two-sty frame residence, with attic and basement, for S. Richards. S. Babson, architect; cost, \$20,000.

Two-sty dwelling for Mrs. W. Smith. J. C. Mathews & Son, architects; cost, \$2,300.

Number of frame houses of cost less than \$2,000, five.

Combined cost, \$6,500.

Number of alterations and additions, ten. Cost, \$3,200.

Frame house for Mrs. A. Smith. Otto Kleemann, architect; cost, \$2,150.

ORTONVILLE, MINN.—An Episcopal church is to be built here this season.

PAWTUCKET, R. I.—Mr. L. B. Darling is to build an opera-house here.

It is understood that Messrs. Stone & Carpenter, architects, of Providence, will furnish the plans.

Mr. F. Carpenter is building a new house on Summit Street. Carpenter's work, Wilmarth & M. Killip; mason's work, Henry Tinkham; architects, Walker & Gould, of Providence; cost, \$7,000.

PROVIDENCE, R. I.—Mr. Daniel B. Waite is building a two-story building, to be used for stores and tenements, on the corner of Prairie Avenue and Lockwood Street. John F. Pitts is the contractor; Geo. C. Cady, architect; cost, \$5,000.

Mr. Wm. A. Dudley has just commenced a new French roof dwelling on High Street, near Brigham. Mr. Albert N. Parker is the architect and builder.

ROCKFORD, ILL.—An effort is making among the members of the city council to build a city-hall, city court, and central police station. Negotiations are in progress for the purchase of a lot.

SABULA, IO.—Geo. O. Heberling, Esq., is preparing to remodel and enlarge his house; F. D. Hyde, architect, Dubuque.

STATEN ISLAND, N. Y.—Messrs. Wilton Bros. & Co., architects, of New York, are drawing plans for a fine house for Mr. A. Hegewich. It will be of brick, stone, tile, and terra-cotta, with upper portion timber; Queen Anne style.

STAUNTON, ILL.—A proposition has been adopted to build a \$10,000 school-house.

TOLLEDO, O.—C. L. Reynolds is remodeling his dwelling; cost, \$2,000; N. B. Bacon, architect.

Masonic Temple, same place, to cost \$40,000; D. W. Gibbs, architect, Toledo.

WAUSEON, O.—City-hall and engine-house; brick and stone; to cost \$25,000; D. W. Gibbs, architect, Toledo.

WILLIAMSTOWN, MASS.—The site of the new gymnasium has been staked out, and work will begin on it as soon as possible.

XENIA, O.—City-hall and engine-house; brick and stone; to cost \$18,000; D. W. Gibbs, architect, Toledo.

Industrial.

ASHLAND, N. H.—Ambrose Scribner is to put up a large woolen-mill on the site of Penikeseet paper-mill, burned in 1875.

AUGUSTA, GA.—N. E. McCoy is building a new yarn mill.

The Sibley Manufacturing Company, who propose to build a cotton mill of 24,000 spindles, are getting proposals for machinery.

ERIE, PENN.—Ground was broken in February for a large malleable iron manufactory, which will cover an acre of ground. Prescott Metcalf and John Clemens are the heads of the enterprise.

FALL RIVER, MASS.—The Adams Manufactory contemplates building an addition, which will probably be larger than the present mill.

FISHERVILLE, N. H.—The Contocook Cotton Company proposes to build a new mill.

HAWLEY, PA.—Dexter Lambert & Co., of Paterson, N. J., have purchased the lands and water power along the Paupack Falls, and are to build a factory 500 feet in length, 150 feet wide, and three stories high.

HOLYOKE, MASS.—The new paper-mill, the principal owners of which are J. S. McElwain, of this city, and Aaron

Bagg, Jr., of West Springfield, will contain a rag-engine department, 146 by 40 feet, two stories and basement; a bleach boiler department, 83 by 36 feet, two stories and basement; boiler-house, 37 by 34 feet, one story; size-house, 18 by 20 feet, two stories; shavings-room, 16 by 20 feet, two stories; tower, in connection with rag-room, and stock-house for elevator and stairs, 18 by 21 feet; paper machine-room, 144 by 34 feet, with screen-room, 17 by 32 feet, each one story above basement; finishing department, 106 by 44, two stories, with tower 18 by 8 feet in connection for elevator and stairs; stock-house, 106 by 40 feet, two stories. L. P. Bosworth has contract for brick and stone work; Watson Ely does the carpenter-work. Buildings are of brick, with slate roofs, brown-stone finish. D. H. & A. B. Tower are the architects.

Messrs. D. H. & A. B. Tower, mill architects, have nearly finished the plans of the new paper-mill for the Southworth Manufacturing Company of Mittenague. The buildings are as follows: Engine-room, 106 by 32 feet; bleach-house, 33 by 32 feet; finishing department, 90 by 44 feet, all of two stories and a basement, and machine-room one story and basement.

Mr. W. H. Mayberry is about to build a three-sty block on High Street, of brick, with marble or brown-stone trimmings. It will be used for stores on first floor, and offices above. Cain & Kilburn, architects; Jones Bros., contractors.

LENOX, MASS.—The Smith Paper Company will build their new pulp mill on the old site at Lenox Furnace.

MANCHESTER, N. H.—The Amoskeag Company of Manchester are to build a new gingham mill 400 feet long, four stories high, also a new dye-house 300 feet long, and two stories high.

MAYNARD, MASS.—The Assabet Manufacturing Company has broken ground for a new building, 60 by 90 feet, two stories high.

NEWBURYPORT, MASS.—The Ocean Mills have made contracts for building another large mill, besides a picker-house, boiler-house, and engine-house.

Messrs. E. P. Dodge & Co. will make a very large addition to their shoe manufactory.

A new Bagley hat factory has been contracted for.

PROVIDENCE, R. I.—James E. Crandall is putting up a new building, to be used as a carriage manufactory by him. The building is 37 feet 6 inches by 106 feet, two stories and mansard roof, located on Union Street, between Fountain and Worcester Streets. The drawings were furnished by Leslie Langworthy (with Thompson & Nagle); A. N. Parker, contractor.

RUTLAND, VT.—The Rutland Scale Works are building two new buildings, each 50 by 100 feet.

SHELTON, CONN.—The Shelton Company is preparing to enlarge the bolt works here.

THOMASTON, CONN.—The Plume & Atwood Manufacturing Company has begun work on its new buildings, and the clock company is soon to add 100 feet to the machine shop.

WASHBURN, ME.—Wilson & Shaw are preparing to build a steam sash and blind factory near the starch factory. Building will commence early in the spring.

WATERBURY, CONN.—The Waterbury Brass Company is preparing to build a new brick building same size as the rolling mill, to be used as a wire mill. Another building is to be added on the west of the rolling mill.

WEST AUBURN, ME.—J. Monroe & Co. advertise for proposals for a new shoe factory, 35 by 85 feet, three stories in height, with an engine-house attached.

Public Buildings.

CHARLESTON, W. VA.—Congress has appropriated \$75,000 for a public building in this place.

GOVERNMENT BUILDINGS RECOMMENDED.—The many reports from the Committee on Public Buildings recommending the purchase of a site and the construction of buildings in various cities do not carry any appropriation with them. This is left for the Committee on Appropriations to take into consideration. Among the places where the committee recommend public buildings are Toledo, Portsmouth, Mayville, Paducah, and Louisville.

MANITOBA, CAN.—It is said to be the intention of the Canadian government to commence the construction of provincial buildings at Manitoba immediately.

PORTSMOUTH, O.—The House Committee on Public Buildings has, upon the representation of Mr. Neal, agreed to recommend an appropriation of \$50,000 for beginning a government building in this city.

Bids and Contracts.

DENVER, COL.—Mr. W. H. J. Nichols, architect, has let the contract for building six two-sty houses for Dr. J. M. Walker to Messrs. Hallick & Howard for \$23,500.

FRANKLIN, O.—Wm. Burdick, contractor, of Lebanon, O., has received the award for all the repairs to the Court-house except the brick and cut stone, which goes to Wm. O. Hendrickson & Co. of this city. The whole cost is \$8,524.

JEFFERSON, WIS.—The contract for building the new Jefferson County court-house has been let to B. Stevens, of Madison, at \$30,850, the work to be completed by December 1 next.

MIDDLETOWN, O.—The contract for the new city buildings has been awarded to J. Margerum & Son. The masonry is to be done by Smith & Wilson.

ONANCOCK, VA.—Mr. L. W. McUser has been awarded the contract for the new Alma House for Accomack County, Va., for \$5,750. Wm. F. Weber, architect, of Baltimore.

PHILADELPHIA, PA.—Mr. G. W. Watson has contracted with the Adams Express Company to build a new stable, 150 by 145 feet, four stories high, on the west side of Twenty-second Street, below Market Street, at a cost of \$42,000.

TRENTON, N. J.—A rubber mill for Magowan, Fordan & Alpaugh is to be built on line of Pennsylvania Railroad, near Trenton, N. J. Size of main building, 80 by 150 feet. Brick, plastered. Contract price, \$6,800. John V. Snediker, mason, and William Mutchler, carpenter; J. H. Whitaker, architect.

Eight three-sty brick dwellings for Edward H. Stokes, Esq., to be built on the corner of Ferry and Warren Streets. Contract price, \$7,066. Carpenter, Amos A. Randall; mason, John M. Rue; John H. Whitaker, architect.

VERMILION, N. J.—The contract for the stone house, of which Mr. J. C. Cady of New York is the architect, has been awarded to Messrs. Smith & Crane of New York, for the masonry, and to Messrs. W. & T. Lamb, Jr., of Brooklyn, for the carpenter-work. The contract price is \$25,000.