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appointed, including, as representatives of the architects, Messrs. Arthur Rotch, R. D. Andrews and C. Howard Walker; with Messrs. E. C. Tarbell, A. H. Munsell and Frederic P. Vinton, from among the painters; Messrs. C. E. Dallin, H. H. Kitson and William Ordway Partridge, as representatives of the sculptors, and Bishop Lawrence, and Messrs. E. H. Clement, Laurence Minot, Stephen M. Crosby and Edwin D. Mead, and the Rev. F. H. Allen, as non-professional members. As is done in New York, the Society proposes to obtain subscriptions of small sums of money, which will be used to endow the city each year with some worthy work of art. With twelve hundred subscriptions of five dollars each, which ought to be easily obtained, a real treasure of art, although, perhaps a modest one, can be secured every twelve months. Considering the immense sums spent on pictures by rich American amateurs, six thousand dollars a year does not seem much for the endowment of a metropolitan district of nearly a million inhabitants; but the collection will grow, perhaps more rapidly than is now expected; and it will be entirely for the benefit and instruction of the public; while, as it may be well to remember, the manner of selecting the decorations to be ordered, joined with the knowledge and judgment of those who are to make the choice, will secure the acquisition of works whose merit is likely to be increasingly conspicuous, years after some of the hundred-thousand-dollar purchases of millionaire parvenus, abandoned by fashion, have dwindled in value to the cost of the frames.

MAJOR JOHN W. POWELL, director of the United States Geological Survey, and the head of the Bureau of Ethnology which has rendered such signal services to American science, has resigned the first position, on account of the increasing pain which he suffers from old wounds, and is to undergo a long course of treatment at the Johns Hopkins Hospital. His fellow-citizens will join in earnest hope that he may be restored to health, if not to the full exercise of those brilliant qualities which have made him one of the most conspicuous scientific men in the world. Without Major Powell, we should now have known little of the intensely interesting archaeology of our Southwestern country, to say nothing of the solid acquisitions in the shape of geological charts of the gold-bearing part of the Pacific slope, the coal and iron deposits, and the phosphate formation, with which the country has been enriched under his direction. His successor as head of the Geological Survey will be Mr. Charles D. Walcott, for many years his chief assistant.

THE good people of Philadelphia have discovered a new kind of pavement. According to the *Press*, the occupants of the offices on the lower part of Chestnut Street, in despair at the clouds of dust which filled the air, and settled on their books and papers, made an investigation the other day to see why the street was not sprinkled, and learned that the company which laid the "asphalt" pavement of the street objected to the application of water to it, and had notified the city authorities that they should refuse to be responsible for the repairs called for in their contract if the "flooding" of the street by the city watering-carts was not immediately stopped. The contract between the city and the paving company is said to require the company to keep the asphalt in repair for five years, and it is certainly a nice question whether this stipulation implies that the city shall not put any water on the pavement. What sort of asphalt pavement it is that will not stand water, those of our readers who know anything of pavements will be curious to know. The streets of Paris run like small rivers every morning, being, not merely sprinkled, but washed, with floods of water, just before the day's traffic begins, and are sprinkled at short intervals subsequently, until late in the evening; yet they suffer no injury whatever. In London, where it rains almost every day, the asphalt pavements are almost constantly wet, independent of the washing, yet they remain quite unchanged. In fact, it is generally considered that, in order to avoid the risk that horses may slip on it, which is, however well founded, the objection most commonly made to asphalt paving, it is necessary to keep it well washed, to remove the thin coating of mud which collects over it, and becomes converted into a greasy slime by rain. If the Philadelphians are bound by their contract to accept a pavement to which the precautions for making such a pavement safe for

WE have received a good many communications from architects in regard to the New York City-hall competitions, suggesting that we should assist in uniting the sentiment of competing architects in regard to the final settlement of the matter. In most cases, the letters have shown a spirit of honorable desire to promote the common interests of the profession which deserves to be cultivated, and, although we cannot yet quite see what is best to be done to bring the affair to a satisfactory conclusion, we think it is time, as a preliminary step, to invite all persons who submitted competitive designs for the building to send us their names and addresses. There is no longer any probability that any of the designs will be carried out, the Legislature of New York having passed an Act, which has just been signed by the Governor, repealing the statute of 1892, which permitted the erection of the new building on the site of the present City-hall; so that the gentlemen who have, according to current rumors, joined the Tammany Society, or arranged for the distribution of the contracts for the future building, as a stimulus to the appreciation, on the part of the city authorities, of the artistic merits of their designs, will not, apparently, profit much by their enterprise. Meanwhile, however, the task now confronts the competitors of seeing that their rights, as parties to the contract with the City of New York, established by the terms of competition which they accepted, are not infringed, whether unintentionally or not, and for this purpose united action, or, at least, concerted counsel, is likely to be valuable. Of course, the wish of any competitor to have such communications as he may make kept confidential will be respected. What will be the best course to take subsequently will depend on further developments, and, perhaps still more, on the number of competitors who do us the honor of responding to our invitation. Naturally, we could take steps, or make suggestions, as the representative of a large majority of the competitors, which would be out of the question if we enjoyed the confidence only of a select few; and it is for the competitors themselves to say how many of them we shall represent.

THE prospect for the formation of an efficient Municipal Art League in Boston is very bright. At a preliminary meeting, held a few days ago at the Art Club, a large number of the most noted artists, architects and lay connoisseurs were present, and a committee of organization was

horses, and tolerable for those who pass over it, or occupy offices near it, cannot be applied, we should advise them to invent a new form of contract for the next occasion.

THE great drainage-canal of the City of Mexico, which has been in process of construction for about ten years, is just completed, President Diaz having struck the last blow, with a silver pick, on the first of May. Every one knows that the City of Mexico is situated on a high table-land. The original inhabitants built their town in a depression of this table-land, and the modern city has retained the same site. As there are several lakes in the higher land surrounding the city, which, when overflowed by rains, poured their surplus water into the valley, Mexico has suffered from many inundations. Many years ago, an outlet was provided for flood-waters, by means of a canal, but the flow in the canal is sluggish, and, when sewers began to pour their contents into it, malaria and zymotic diseases took the place of the dangers from inundation. It has long been certain that the valley could only be effectually drained by means of a tunnel, to allow the water to escape through the encircling barrier of hills, but the estimated cost seemed to put the undertaking beyond the reach of a comparatively poor community. In 1883, however, the Government resolved to begin the work, whatever the cost, and its completion, at an expense of about ten million dollars, is a striking testimony to the energy and perseverance of the Mexican people. The drainage-canal itself is about thirty miles long, but the greater part of the expense was confined to the outfall end, which penetrates the hills by a tunnel seven miles long.

A SMALL law-suit was decided in England the other day, which affords a certain amount of instruction and warning, to architects as well as owners. An architect sued the vicar of a certain church for compensation for professional services in connection with a proposed restoration of the latter's church. It appeared that the architect was engaged on the restoration of another church, when the vicar happened by, and, finding the architect there, mentioned that he was thinking of making some improvements in his own church. Soon after, he wrote the architect, asking him to come and see him about the matter. The architect complied with the request, and the two went to see the building, and talked over the proposed improvements, as well as the methods of raising money to pay for them. The vicar said that he hoped to get some of it by subscription among the neighbors, and intended also to apply for grants from the Church Building Society, and the Diocesan Church Building Society. The architect said that, to obtain these grants, plans must be submitted to the societies, to which the vicar made no objection. Soon afterwards the architect went to the church again, to take measurements, and made sketch-drawings, which he showed to the vicar, and the latter asked him to make definite plans. This he did, showing work which he estimated would cost £350. When the plans were done, he wrote to the vicar, asking when the work would be begun, but could get no definite answer, although he wrote several times afterwards. His next step was to send a bill for £10 on account for services. No answer was made to this, and he finally sued for his full bill to the time of the suit, consisting of several items. The first item was one of one guinea for the preliminary interview; the next was for nine guineas for measuring, at the rate of two guineas a day. For his further trouble and skill in making the detailed plans, he charged three per cent on £350, his estimate of the probable cost, making ten guineas. He also charged five guineas for making the special sets of plans to be submitted to the societies; and one guinea for "incidental expenses."

THE defence claimed that the whole affair was a very trifling one; that nothing was intended but to remove some old pews, and replace by slips, and lay some new flooring. Some other matters were mentioned, but only by way of conversation, and the whole cost of the work for which plans had been prepared would not exceed £150. Moreover, as the defence alleged, the architect had only been instructed to prepare a plan for the vicar's approval, and the latter had never approved of the plan. This last somewhat threadbare defence does not seem to have availed the vicar much. The judge took no notice of it, apparently, but occupied himself with examining the items in the architect's bill. The first, of a guinea for the preliminary visit, he struck out; the second,

of nine guineas for measuring, he said seemed to him reasonable and proper. As to the charge of three per cent on the estimated cost, for making plans, he said it would have been far better to have reckoned the amount in accordance with the time employed in making them, rather than by percentage. He thought that something was due, but considered that six guineas would be enough for this item. The charge for making plans for submission to the societies he declined to allow, saying that the plaintiff ought to have waited for instructions before preparing them; and he did not think that the charge for incidental expenses ought to be allowed. The architect's claim was therefore reduced to fifteen guineas, and judgment was given for this amount, with costs.

A QUEER piece of anarchy, or socialism, or collectivism, or Fabianism, or whatever else may be the newest name for the old trick of hoisting the members of a favored organization upon the shoulders of the unfortunate people who do not happen to be the pets of demagogues, has, apparently, been perpetrated by the London School Board. At a recent meeting of this eccentric body, as we are told, "the question of wages was discussed"; and, ultimately, it was resolved that all future contracts entered into by the Board for building work should contain a clause, compelling contractors "to pay the rates of wages mutually agreed upon by the London Building Association and the London Building Trades Federation." As the School Board for London does a great deal of building, it may be presumed that the Federation has lost no time in advancing the rates which are to be crammed down contractors' throats in this way; and, as usual, the people who pay small rents, and buy at retail, upon whom, in the end, the burden of public extravagance always falls, will have to foot the bills. There is a certain novelty, and not a pleasant one, in seeing the London authorities follow the lead of the Municipal Council of Paris. The Conseil Municipal has begun to appreciate the Anarchist logic which argued that if the "bourgeois" could be terrified by oratory into paying more for work than it was worth, they could be scared by dynamite into paying people to do nothing; and has somewhat relaxed its efforts to elevate the working classes by enabling them to stay drunk three days in the week instead of two. Whether the development of practical Fabianism in London will have a similar course remains to be seen.

A VERY novel method of making sugar has been patented in France by M. Pellegrini. Sugar is, chemically, a compound of carbon, oxygen and hydrogen, in such proportions that, if carbonic acid, water and certain kinds of illuminating gas could be persuaded to unite, in the proper quantities, the composition of sugar would be exactly imitated. Hitherto, no one has been able to make sugar by mixing water with two kinds of gas, but M. Pellegrini claims to have succeeded. The apparatus he uses consists of a large block of pumice-stone, cleaned by soaking, first in sulphuric acid, and then in water, which is set in an iron box, plated with nickel inside. The length of the box is three times that of the pumice-stone block, which is tightly fitted into the middle, and pipes are arranged to convey the ingredients to the empty ends of the box as required. Two of them enter from the sides, and serve to bring carbonic acid and hydro-carbon gas, while another pipe from above, branched so as to reach both empty portions of the box, conveys steam. All the pipes are fitted with valves and pressure-gauges. Another pipe, at the bottom of the box, serves as an outlet. At first this pipe is closed, as is also the steam-pipe from above, and carbonic acid is forced into one end of the box, while ethylene gas is forced into the other, under equal pressure, and in equal volumes. A few minutes later, the steam-valve above is opened, and steam forced in, under the same pressure. As the gases unite, the pressure falls, so that the supply of each must be kept constant. At the end of half an hour, the supply of gas is shut off, the outlet pipe is opened, and one of the chambers is found to be filled with syrup, containing twenty-five per cent of sugar. The syrup is drawn off for refining, and as soon as the apparatus is cool, it is ready for a fresh charge. The ethylene gas can be obtained by roasting rosin or grease, but M. Pellegrini's patent covers other hydro-carbons, such as petroleum products. The explanation is that the three gases are condensed in the pores of the pumice-stone, and there unite; but M. Maumencé, who has made some experiments declares this to be doubtful, and, in *Cosmos*, expresses doubt as to the success of the process.

STYLE.¹—IV.

The Royal Palace, Dresden.

LET us make some investigations of our subject, with the aid of examples, either by *analysis*, in the order designated: study of general qualities, study of the laws of construction, examination of the laws of aesthetics, showing the dominant sentiment which must harmonize with the first two studies in order to draw therefrom the characteristic principle, the objective point of

all researches in style; or by *synthesis*, in the reverse order: a monument having been examined and the characteristics having been obtained from the dominant sentiment experienced in the presence of the structure, we will endeavor to determine by an examination of the laws of aesthetics whether the monument embraces concurrently the laws of construction and the general qualities in order to be sure of the presence of a style. This investigation, which comes within the realm of archaeology, receives its confirmation from history and serves to verify it.

In citing examples, we shall select those monuments whose constructive elements are the most typical, so as to take up architecture with the lintel, architecture with the arch, structures in stone and structures in brick. We will glance at the monuments of Egypt, Assyria, Greece and Italy, closing with those of France.

For the first example, let the synthetic method be adopted.

Without pausing at the Memphite civilization or the Ancient Theban Empire, we will come at once to the New Empire, the monuments of which present, like those which preceded them, all the resources of a complete art. We will pass by the tombs of Thebes, on the left bank of the Nile, and turn to the temple of the god Khonsu, on the right bank south of Karnak. Although of moderate size, especially in comparison with the neighboring temple to Ammon Ra, a gigantic edifice the largest of the kind in Egypt, the temple of Khonsu may be taken, on account of the unity of its plan, as a representative example of Egyptian temples. In front, towers the massive entrance pylon, formerly approached by an avenue bordered by sphinxes; it stands out in an imposing manner in the glowing sunlight against the blue sky. It measures 32 metres in length, 10 metres in thickness and 18 metres in height; within is a staircase leading to the terraces. It is of similar aspect to all pylons and comprises two truncated pyramids, connected by a lower section in which the entrance is pierced; the sides are adorned with hieroglyphics and figures. The walls slant and on the outer face, extending one-third of the way up, are four recesses designed for seated statues and flagstaves, to which streamers were attached on festive occasions. The angles are adorned with a torus which completely frames the mass, and the three distinct parts are each crowned by a widely-projecting cavetto. On that above the doorway is sculptured an egg, or globe, with a wing at each side. We enter the first court advancing from south to north, the direction in which the temple is set. On the north, east and west, this court is surrounded by porticos formed by two rows of columns, the shadows of which prepare one for the continually-deepening gloom of the series of halls. The floor of the temple slopes gently upward from the court toward the sanctuary, while the ceilings of the apartments are lower in proportion as they recede from the entrance; in this way the perspective is exaggerated and an effect of distance much exceeding the real distance is obtained; this impression is generally augmented also by the restricted dimensions of the rooms leading to the sanctuary.

We enter a hypostyle hall with eight columns, of which the four at the centre are taller than the others and divide the hall into three naves. The loftier central part admits the discreet

light of day at the sides through stone clerestories, and the three naves, like all the covered portions of the temple, once had stone roofs forming terraces. A sober twilight therefore pervades this hall; the middle columns are 7 metres high and are capped with campaniform capitals, while the others are but 5.50 metres in height with lotiform capitals. The bases of the columns are circular; the capital and the bottom of the shaft are embellished with leaves; heavy stone architraves, connecting the columns, once bore the ceilings. Beyond the hypostyle hall is the sanctuary, or *secos*; it is dark, and around it runs an isolating passage 3 metres in width; at the right and left, opening on the passage, are four rooms, which were used for storage, and a stairway. Behind the *secos* is another hypostyle hall, with four columns only and giving access to seven rooms devoted to the purposes of worship. The bas-reliefs are sculptured in the mass of the stone and have the effect of a very smooth modelling; the inscriptions are sunken and the proper names in them are surrounded by a closed line forming a cartouch; the whole possesses the characteristics of the majority of Egyptian monuments.

The *sentiment* which a visit to the temple of the god Khonsu discloses is a majestic simplicity, an imposing grandeur, a profound stillness and a stability as everlasting as was the idea that the Egyptians entertained of the divinity. As, according to the beliefs of the inhabitants of the Nile valley, the period during which the immortal soul was separated from the body was far longer than that of life, they built their dwellings of brick and clay, while their tombs were constructed of durable material; but with greater reason still, eternity, with its mysterious symbol, the struggle of day and night, of life and death, was the characteristic of the temple, the abode of the gods. This was manifest in the very aspect of the edifice, whose stability defied the revolutions of nature; man alone, after repeated devastations, has succeeded in wresting a little from it.

This *characteristic, eternity*, was indeed the dominant need, the chief solicitude of the Egyptians; traces of it are discovered everywhere in their architecture, their sculptures and their paintings. It is the sentiment of immortality that strikes us, and, the characteristic responding to it is a material eternity, the *aesthetic conditions* of which furnish the conception of a robust beauty. The Egyptian temples were reared with materials of great size, and frequently precious. These were utilizable for spanning broad spaces and the architects of the period were therefore led to adopt the lintel and the column as a point of support; the object of terraced roofs in a country where rain never falls is evident, as is also the cause of the comparative darkness of the dwellings, under a blazing sun and with the excessive heat of the climate; therefore, the laws of stability, as the edifices have proved, satisfied the very rational laws of construction that prevailed in Egypt. In the arts, the Egyptians, whose civilization had far outstripped that of other peoples, cannot have borrowed the expressions; hence, their great *purity*. The influence that presided at the origin of this temple architecture was the idea of profound gratitude to Nature and of the absolute immortality of the gods; this idea was never modified, even by contact with neighboring peoples, so that the same influence appears in all ages, and constitutes the peculiar property, or *propriety*, of Egyptian religious architecture. As has been said, the choice of construction with lintels and columns was imposed upon architects by the very nature of the materials furnished by the soil; and their use answered in a *clear* manner the well-defined demands of worship, in *ensemble* and details alike. The moral and material needs were both deeply rooted in the heart of these dwellers in the valley of the Nile; they had grown out of their observations of Nature and their spiritual aspirations toward another existence; under their action industry had risen to the level of an art, but an art that always derived its principles from the *natural* order of facts, after a careful survey of the end and the means. The Egyptians were by nature too reflective not to insist upon, in the general disposition and in the coordination of details, that *appropriateness* which is indispensable in a work like a temple; in fact, in examining the structure reared in honor of the god Khonsu, whether it be the plan, the elevations or the construction and ornamentation, we are impressed with the complete harmony of all the parts. This temple possesses all the requisite *principal qualities*, and we may conclude that it is a monument of *STYLE*.

Archæology, by classing the general indications noted above, confirms the known facts of history. It teaches us that in

¹ From the French of Léon Labrousse, in Planat's *Encyclopédie de l'Architecture et de la Construction*. Continued from No. 990, page 72.

sculpture and painting symbolical decoration, depicting the sources of terrestrial life and celestial power, was summed up in Ammon Ra Karmakhis, the omnipotent sun, the victorious day of Apap, the night, and in his wife Isis, the beneficent earth, foster mother of the human race; the immortality of the soul was figured by a hawk-winged genius; the death of the body was typified in Anubis, a man with the head of a jackal; lastly, the emblem of physical rebirth was the scarabee. These symbols, accompanied by scenes from private life, occur with legends in the tombs, while, in the temples, the decorations represent the kings sacrificing to the god and acting as mediators between the divinity and mankind. The decorations are expressed everywhere, though with varying degrees of skill. Bodily strength, rendered with simplicity and joined with a certain delicacy, is one of the characteristic features of Egyptian sculpture; at Memphis there is an admirable accent of truth about it, while at Thebes, down to the fifteenth century, B. C., when it is full of beauty and dignity — there is a departure from Nature on certain points. The horse is not pictured until the time of the wars against Assyria, under the eighteenth dynasty; lastly, the works following the twentieth dynasty are purely conventional. At Memphis, the zenith of art was reached under the fifth dynasty; at Thebes, during the First Empire, under the twelfth dynasty, and during the Second Empire under the eighteenth; then came a sort of Renaissance at Sais, under the twenty-sixth dynasty. The Egyptian style slowly degenerated during the space of nearly a thousand years, though foreign invasions wrought no perceptible change in artistic notions. Figure painting was, in general, conventional while decorative painting attained remarkable excellence. The wonder of travellers in the presence of monuments of such high antiquity is not to be marvelled at, when we consider edifices like the Temple of Ammon at Karnak — on which the Pharaohs worked for nearly three thousand years — with seven successive pylons preceded by an avenue 2,000 metres in length, bordered by sphinxes and terminated by obelisks, or the Temple of Luxor, containing a hypostyle hall with one hundred thirty-four columns bearing a roof at the height of the Vendôme Column, on capitals the abaci of which have each an area of 80 square metres — a hall entirely covered with sculptures and paintings, and on the floor of which would be placed four cathedrals like that of Paris.

Archæology and history accord in fixing the date of the construction of the temple, of which a syncretical study has been made above, in the fifteenth century, B. C., under the twentieth dynasty, the builder as King Rameses III, and the dedication of it to the god Khonsu.

For our second example we will employ the analytical method.

Let us look at what remains of the Assyrian palace constructed at Khorsabad, near Mossul.

Since architecture, in the golden age of a style, presents a complete harmony between all its elements, supplied by the national character and subject to climatic laws and the means of execution, we will endeavor to determine whether the general qualities constituting this harmony exist in the palace of Sargon.

Above an immense plain may be seen a course in unbaked brick, surmounted by a battlemented rampart in enamelled brick; these are the remains of an Assyrian palace. In general form the plan is a vast parallelogram, the interior of which is divided into three principal parts for habitation. Each of these divisions has its private court and a single door gives access from one to the other. The total surface embraces an area of 100,000 square metres. Bestriding the city ramparts, the palace is half in the town and half in the country, and is apparently the fortress of the city. The entrance is on the side toward the town, at the extremity of the steps leading to the level of the course on which it is built. The structure contains two hundred and nine rooms, and on the same course as itself is a tower, or sort of observatory, rising in seven retreating stories, constructed of gayly-colored bricks: white, black, purple, blue, vermillion, silver and gold. The outer walls were furnished with buttresses.

Brick is the important constructional element employed by the Assyrians. It stamped upon architecture, in details as in ensemble, an absolute purity of origin, which was due to the employment by a military nation, whom the very propriety of its conquering character forced to build and be conveniently constructed by soldiers in conquered countries. When the general plan

was once adopted, nothing was of greater importance than to endeavor to obtain the forms best adapted to the size of the materials selected, and it was with perfect precision that the constructors succeeded in assigning a special function to each particular organ, whether to support, to span, or to protect. Material needs and moral aspirations called for programmes which corresponded with clearness to the necessities of the moment. These necessities, always imperious and which must be satisfied, demanded solutions that were simple and, consequently, approached the natural order. The Assyrians suited their dwellings perfectly to their needs and to the means at their disposal; the decoration of their architecture was very rational and the appropriateness which they were able to put into the combination of all their constructive elements made their monuments works of style.

The peoples of the north of Mesopotamia were warlike; their palaces resembled fortresses where the monarch, hidden from the eyes of his people, hardly experienced other sentiment than that of pride, other need than that of conquest, other pleasures than that of sanguinary orgies. Its gods were terrible, its literature crude; its king thus extolled his victories: "The trappings and arms, the trophies of my conquest, swam in the blood of my enemies as in a river; my war chariots, which crush men and animals, had ground their bodies in their course. I have reared as a trophy heaps of dead bodies, the extremities of whose limbs I have lopped off; I have mutilated all those who have fallen into my power alive. I have cut off their hands." . . . "The wrath of the great gods, my lords, weighed heavily upon them; not one escaped, not one was spared; they all fell into my grasp; their chariots of war, their trappings, their wives, the treasures of their palaces were brought before me. I have pulled out the tongues of the men, whose lips had formed terrible plots against me and against Assur, my lord, and I have worked their destruction. The remnant of the people were exposed alive before the great stone bulls that the father of my father had set up, and I, I have thrown them into the ditch; I have cut off their limbs, I have caused them to be eaten by dogs, wild beasts, birds of prey, denizens of the air and the water. In accomplishing these things, I have rejoiced the heart of the great gods, my lords." Architecture was the living expression of the sentiments that we find traced in cuneiform characters on clay and stone.

The principal need of Assyrian monarchs was to impose forcibly their rule upon all surrounding lands; hence the use of an architecture in which the processes of construction lie in the mass of materials easily utilizable by unskilled hands and brought together in colossal profusion. The walls built of these unbaked and baked bricks, are not less than 3, 8 and even 25 metres in thickness, and receive vaults and cupolas, also of brick, surmounted for the most part by terraces with rounds and with towers for observation and defence, the whole furnished with battlements. The bricks were cemented together with bitumen, the wall-facings were adorned with a very remarkable decoration of enamelled bricks, which Herodotus speaks of in terms of admiration; the doorways were semicircular, with archivols. The Assyrians derived their earliest constructional principles from the Chaldeans; however, they introduced stone in certain parts designed for carvings. These sculptures, but slightly varied in expression when representing the human form, which remains pompously cold, squat and exaggerated, are exceedingly beautiful in reproductions of the attitudes of animals; but what to us is especially curious and peculiar in Assyrian architecture, aside from the enamelled decoration and the sculptures depicting hunting-scenes, is certainly, the variety of vaults of all forms, employed in accordance with needs and revealing an astonishing knowledge of the laws of construction.

The palace of Sargon, at Khorsabad, is imposing in size and rich in decoration; yet, in viewing it, we experience, from an æsthetic standpoint, a painful impression. It is not a palace that we have before us, notwithstanding its wonderful magnificence, but a fortress where everything betokens a work of defence; the lofty ramparts, the towers, the lack of communication between the exterior and the interior. It is terrible in appearance, nothing invites one to enter, and fear is the characteristic sentiment that it induces.

If we compare what archæology has unearthed concerning the Assyrian civilization with the historic facts that have come down to us, we discover their complete accord, the natural confirmation of the results arrived at. They show us proud, cruel

en-
materia-
ety or propo-
citadels that cou-
and prisoners in conque-

warlike kings interrupting their wars and their hunts only for nameless orgies, in which the conquerors dishonored themselves in the punishment of the vanquished.

The results also show that the palace which we have just analyzed was constructed in the eighth century B. C., by Sargon, King of Assyria.

[To be continued.]

THE CHURCH ORGAN, ARCHITECTURALLY AND ARCHÆOLOGICALLY CONSIDERED.¹—II.



An early Organ shown by a Bas-relief on the base of the Obelisk of Theodosius, at Constantinople.

WE must now call attention to the type of old organ provided with wings or shutters turning upon hinges. These appendages, the prototype of the modern pianoforte lid, were used to fold over the pipes to protect them when the instrument was not being used, and also to hide the organ during penitential seasons, as Lent, when it is also customary to veil pictures and images. These doors are always painted and decorated, and have a splendid effect when opened, thus reversing the outline of the case in similar manner to the wings of a triptych. At Sion the subjects are the mystic marriage of St. Catherine, and our Saviour and St. Mary Magdalene in the garden. Shuttered organs are rare in Northern Europe, though of more frequent occurrence in the South, in Italy and Spain. There are fine examples at Salamanca, Barcelona, the New Church at Amsterdam, Dol in Brittany, Milan Cathedral, the Carignano Church in Genoa, San Sebastiano at Venice and in the cathedral at Perpignan in the French Pyrenees. This last is a magnificent example of a Mediæval organ of great size, and is of Spanish workmanship. The doors are wooden frames with canvas paintings, some thirty feet high, producing an effect of great dignity. Unfortunately the doors have recently been removed from the organ and placed against the wall of one of the side chapels as pictures.



Organ in the Johanniz Kirche, Lüneburg, Germany.

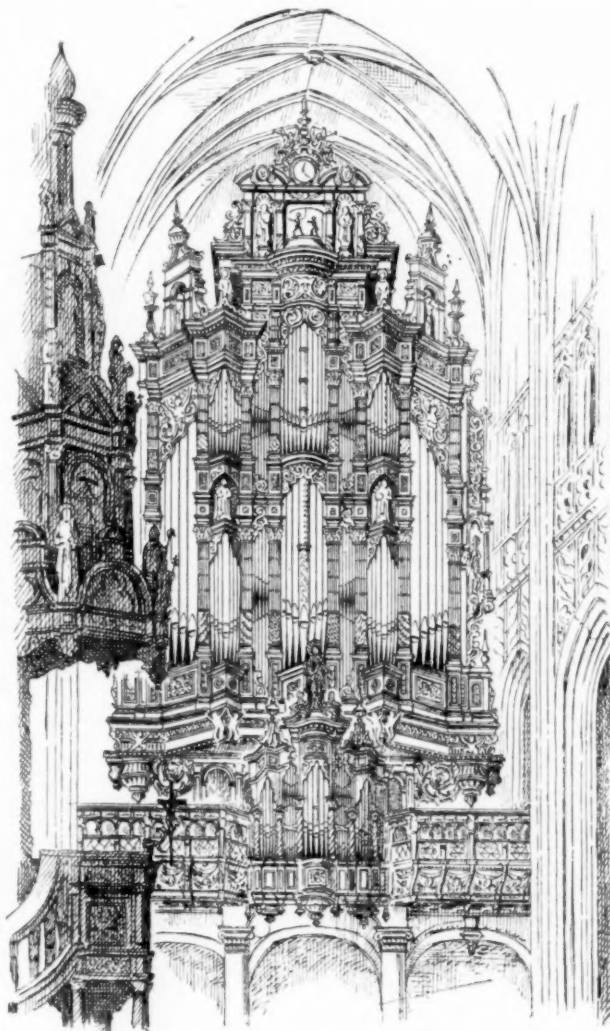
There is no doubt that many old organs of which I have made drawings originally possessed doors, but have now lost these adjuncts.

The organ in the church of St. George at Nordlingen, in Bavaria, is in many ways highly interesting. It was built in the year 1466,

¹ A paper read by Arthur G. Hill, M. A., F. S. A., at the meeting of the Society of Architects, on December 11, 1893. Continued from No. 959, page 64.

by the celebrated Stephen Castendorfer, of Breslau, who was also a noted organist. The records of the town show that there were two paid organists at Nordlingen as far back as 1412, at which time an instrument was built for the church of the Barefooted Friars. The organ still stands in a beautiful Gothic gallery erected in 1450. It is adorned with paintings representing our Saviour and certain saints. The doors are decorated with subjects illustrating the Nativity and Resurrection, executed in 1605 by Simon Metzler. The whole case is painted and gilt by an artist named Jesse Herlen. Very little of Castendorfer's original organ remains, and the case as we now see it was remodelled about the middle of the sixteenth century, to which date much of its fine detail belongs.

The very remarkable example from the church at Jutfaas, near Utrecht, next claims attention. This is wholly unlike any other old organ I have yet come across. It consists of an extremely beautiful spire-like composition of tabernacle-work, and the design is obviously borrowed from contemporary work seen in altar-pieces, font-covers and such like, and is, perhaps, of a form not much suited for adoption as an organ-case. The whole dates from about the year 1500, and is attached to a beautiful gallery with iron grilles and candle prickets.



Organ in Church of St. John, Bois-le-Duc, Holland.

There are two imposing Mediæval organs at Saragossa, in Spain; one in the cathedral, and the other in the church of San Pablo. The former stands above the stalls on the south side of the *coro*. It was built as early as the year 1413, and has curious pyramidal crowns to its three towers and fine traceried shades above the pipes. There is also much costly tracery throughout the design. You will notice that the trumpets project horizontally from the front of the case, a treatment seen in almost every organ in the Peninsula, and which produces a very majestic effect. Some of the later instruments perfectly bristle with rows of trumpets, placed in several tiers, one above the other. This arrangement, also, is acoustically good, and protects the reed stops from dust.

The organ in the church of San Pablo is somewhat similar to that in the cathedral, and dates from about 1420. I may mention that the horizontal trumpets are later insertions, reed stops being unknown in the earlier organs.

The organ in the great cathedral at Barcelona is a Renaissance work of 1546, and is an imposing structure with large painted doors.

I think, however, that the organ in the cathedral of Tarragona, though late in architectural style, is, without doubt, the grandest piece of design in the matter of organ-cases to be found in Spain. It was built in 1563 by Canon Amigó of Tutosa, and stands above the stalls on the north side of the *coro*. The design is very classical and somewhat square, but the magnificence of its detail and the richness of its parts, coupled with its great size, constitute an architectural production of the noblest kind. Here the dignity afforded by its outspread doors is strikingly manifest. This case, as is usual in later examples, is of unpainted oak, and is now very dark with age.

Another very pretty shuttered organ stands in the ancient church of San Feliu, at Gerona, in Catalonia, and which is a good type of Spanish of the sixteenth century, and worthy of adoption for modern purposes.

In the Marienkirche at Dortmund, on the Rhine, is a fine Gothic organ of the fifteenth century, standing in a beautiful wooden gallery, with a tribune and *coul-de-lampe*. The cresting is similar in design to that seen in the grand organ at Strasburg Cathedral, and is characteristically German. The case has three semicircular towers of pipes—the only Gothic example of this treatment that I know of.

We have here a drawing of the Strasburg organ, which is a remarkable work of the year 1497, and illustrates in a powerful manner the true principles which guided the design of such objects in the Middle Ages. The gallery is a beautiful feature, and the whole composition was well utilized by Sir Gilbert Scott in the Ely Cathedral organ. The doors which formerly belonged to the Strasburg organ have long since disappeared, and the tradition of such lateral expansion is maintained by the projecting pieces of carving at the sides, with excellent result.

In Amiens Cathedral still stands an organ, the case of which is, apparently, the oldest in France. It was erected in 1429, and remodelled, as it now appears, in 1550. The flat front attests its early date.

There are also fine Gothic organs at Hombieux, near Amiens, and at La Forté Bernard, in the Sarthe. The latter instrument is a transition from the Gothic to the Renaissance, and is a charming work of that period, the gallery dating from 1501 and the *buffet* from 1536, the latter the work of Pierre Bert, organ-builder of Le Mans.

There is a remarkable work of the time of François I at a village near Paris. It was originally painted and gilded all over, in a very beautiful manner, and has embossed and gilded pipes. It is one of the earliest examples of Renaissance woodwork in France, and dates from 1508.

The chasing or embossing of the front pipes is a fine feature not commonly seen, but it was not unusual with the English builders of the Restoration, and examples still remain at Tewkesbury Abbey and Stanford Church, Northants, of which there are here drawings.

In this somewhat discursive paper I have as yet omitted to mention the fine organ in the Church of St. Anne at Augsburg, built in 1502, the doors of which were painted by Holbein and Hans Burgmair, at the expense of the great merchant family of Fugger.

It should be borne in mind by modern architects that it was the almost invariable rule among Mediæval architects and artists to paint and decorate in gold and color the entire surface of such objects as organ-cases, screens, rood-lofts, altar-pipes, etc., whether made of common or costly wood, or even of stone. For this reason

a well-designed organ-case of deal, painted and gilt, is as fine a thing as any church need possess, though, unfortunately, but very few modern architects are competent to carry out work of this kind.

Conspicuous among the drawings here to-night is that of the organ at Bois-le-Duc, in Holland. This glorious piece of work is certainly the finest in Europe of its style, and you may judge of its great size and magnificence when you are told that this instrument, with its gallery, would barely find height enough if erected at the west end of Westminster Abbey, our loftiest English church. The case is about 100 feet high, and was erected in 1602, and our largest church organ is, in appearance at any rate, a pigmy beside this continental giant.

The main outlines are quite Gothic, while the detail is Classic, very freely and sumptuously treated. Both the main organ and the choir organ possess embossed pipes.

The modern craze for so-called "restoration" nearly caused the demolition of this noble organ, because it was not "Gothic," and so did not agree with the ridiculous notions regarding uniformity of style; but the townspeople rose in arms against such vandalism, though they were too late to save the magnificent marble rood-loft,

which has now found its way into South Kensington Museum.

Through the kindness of Herr Hezenmanns, the architect, I have had tracings given me of the original drawings of this case now preserved in the Cathedral library.

Flemish and North German Renaissance is usually very fine in the matter of woodwork, and we are able to put on the screen a representation of the organ in the great Church of St. John at Lüneburg, near Bremen. This is a chaste and dignified specimen of sixteenth-century work, very Gothic in feeling and delicate in detail. It is in many ways a fine composition. The large side towers are, of course, later additions, necessitated by the extension of the pedal organ. There is no doubt that the great Sebastian Bach has many times played upon this organ when he was attached, as a youth, to the St. Michael's School in this town, and became known to Böhm, the organist of St. John's.

Even much later examples of organ-cases than these selected specimens which you have seen are often grand and most imposing works, as, for instance, that in the so-called New Church at Amsterdam, built in 1673, and of which we here have a drawing. Though so far on from Gothic times, yet the outlines remain excellent in every way.

There is a splendid organ of about the same date in the Jacobi-kirche at Stralsund, in Pomerania, which is an altogether exceptional production, and which fills the entire west end of this vast brick church.

Before turning to English organs, we will call attention to three Italian specimens of high interest. The first is that in the church of San Petronio at Bologna, and is, I believe, the finest, if not the only, remaining Gothic organ-case in Italy. It was built in 1470 by Maestro Lorenzo di Giacomo da Prato, and I am inclined to think that Flemish workmen must have been responsible for the lovely traceries of the pipe shades, which have a character that is but slightly Italian, though the general arrangement of the pipes is so, and the shields of arms are of Italian shape. This organ has been colored and gilt throughout, and is a most beautiful piece of work in all respects, and one well worthy of the attention of modern copyists.



Organ formerly in Music-hall, Boston, Mass. (Published by permission of *The Organ*.)

I am able, also, to show you a purely classical organ from the chapel in the Palazzo Publico at Siena, a fine work of the celebrated Baldassare Peruzzi, about the year 1500. This instrument is likewise painted and gilt throughout, and there are several other refined works of Peruzzi, of similar class, in the Duomo and the Ospedale della Scala.

The last Italian example is that from the church of St. Maria di Carignano at Genoa. It was built in 1657 by Hermann, a Flemish Jesuit, who had the assistance of Italian artists for the carvings, paintings and gilding. Hermann probably designed the main case, which is rather northern in shape, while Italian details are sufficiently pronounced. The painted doors are highly picturesque, and are always shut when the organ is not being played. The weight of these appendages is skilfully borne by iron swivels and chains.

I must conclude this paper by reference to a few English organs which deserve more than slight attention. These are all comparatively late in date, but nevertheless of high artistic value.

The first I am able to exhibit is that now in Tewkesbury Abbey Church. This fine instrument was built in 1637 by Harris, the

mon type, and there are some almost as good in the city churches, but this is, perhaps, the best of its date.

It does not require much examination to see that the ordinary modern organ-case will not bear any comparison whatever with even the least costly of those of which we have been talking. I have already shown how complete was the destruction of the Mediaeval instruments here during the Rebellion, and how very few organs of any respectable age remain to us. But at the same time the process known as "restoration," which is a most laudable thing if carried out in a thoroughly conservative spirit, has done so much damage to old organs and their cases, that we have positively destroyed during the last forty years many which were erected at the momentous and interesting epoch of the Restoration of the Monarchy in England following the death of Cromwell. Nearly all our cathedrals possessed before the "Gothic revival" old organs of some kind or other, and many were enclosed in really splendid cases. These have been ruthlessly swept away, one after the other, and been replaced by sometimes better organs and always infinitely worse cases. Durham, Hereford, Worcester, Chichester, Peterborough and many others have gone forever; destroyed in deference to the fallacy of architectural uniformity which has proved such a bane to the art of past ages. On the Continent things have been quite as bad, for the reaction has set in here in England, while such is unfortunately not the case abroad, though signs of its advent are not wanting. And these remarks do not apply, of course, only to organs, but to every kind of work of past artists.

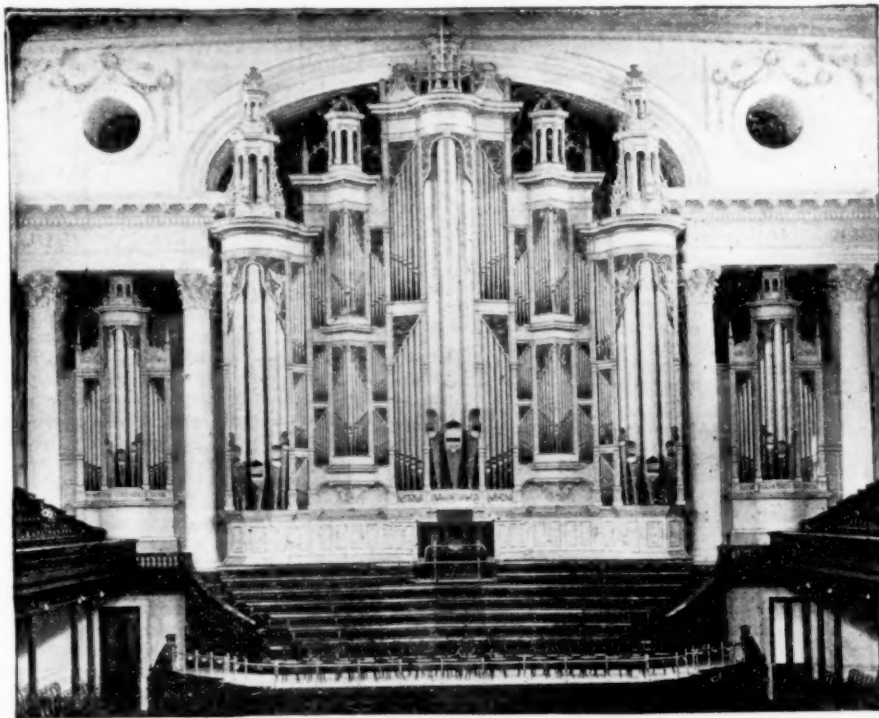
There still remain, however, some fine old organ-cases in the colleges at Cambridge and Oxford, in the churches of the City of London and several others in country churches.

The King's College organ at Cambridge has a grand case, dating from as early a period as 1606, which was built by Dallam, a famous artist of that period. The college accounts give a very interesting list of the charges incurred for building the organ, and erecting and decorating the case, the chased pipes of which were destroyed by Avery in 1804. Another fine case is that in Exeter Cathedral, the work of John Loosemore in 1665.

Let me conclude with expressing a hope that any of you who may have to work on an old church which contains an ancient organ, even if not so old as some of these just mentioned, will be careful of its venerable features, and not, to satisfy the desire for modernization, destroy the ancient case or front pipes. You can with ease obtain a grand new organ — certainly superior to any old one in tone and mechanical appliances — but you cannot replace the ancient and destroyed case, for a copy even, however exact, is but a modern reproduction, devoid of the charm and value which antiquity alone can give.

In the following illustrations, which have appeared in the *American Architect*, may be found representations of organs:

No. 54. Jan. 6, '77. Amherst College Chapel, Amherst, Mass. (Modern.)



Organ in Centennial Hall, Sydney, N. S. W.



Organ in Abbey Church, Wettingen, Germany.

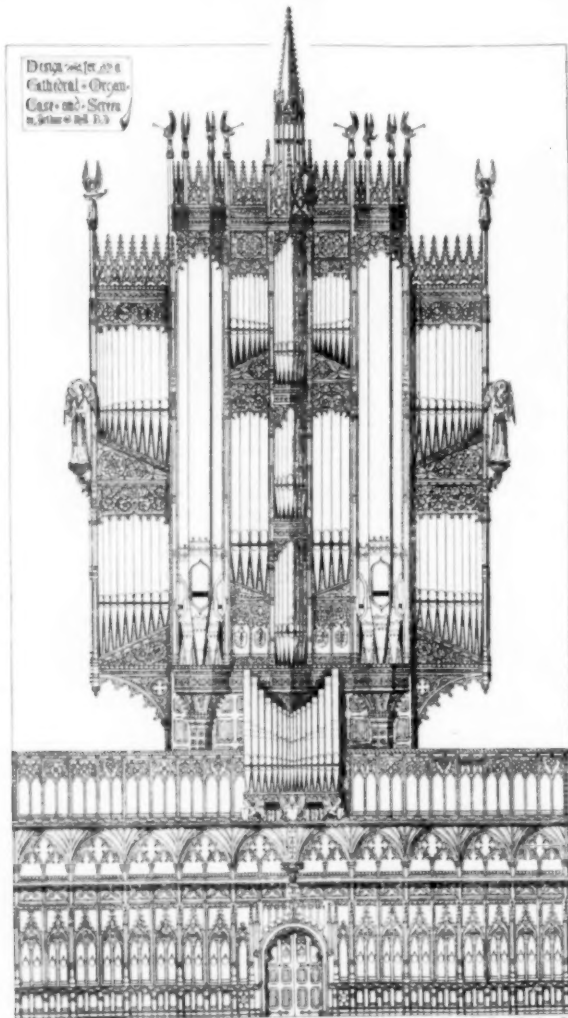
grandfather of Renshaw Harris, for Magdalen College, Oxford, in the chapel of which it stood for a short time. During the Civil Wars it was, curiously enough, removed by Oliver Cromwell to Hampton Court, where, it appears, he used it for his own gratifica-

tion. In 1660 it was restored to the College, where it remained in use till 1737, when it was sold to Tewkesbury Abbey. It is a most interesting and valuable specimen of Carolean architecture, and the richly-embossed pipes should specially be noticed.

The next example is the work of the same builder, the elder Harris, and now stands in a dilapidated state in the west gallery of Stanford Church, near Rugby. It is a charmingly designed organ with highly-enriched and embossed pipes. The case is of deal, and has been painted and gilded all over.

The last English specimen is from Finedon Church, near Wellingborough, in Northamptonshire. The organ was the work of Gerard Smith, and was built in 1717. This case is of a fairly com-

No.	Date	Church	Location	Notes
67.	April 7, '77.	First Church, Boston, Mass.	(Modern.)	(Int.)
127.	June 1, '78.	Central Falls Baptist Church, Lincoln, R. I.	(Modern.)	(Int.)
208.	Dec. 20, '79.	Oxford Presbyterian Church, Philadelphia, Pa.	(Modern.)	(Int.)
214.	Jan. 31, '80.	Grace Church, New York, N. Y.	(Modern.)	(Int.)
275.	April 2, '81.	Universalist Church, Waltham, Mass.	(Modern.)	(Int.)
277.	April 16, '81.	Church of the Redeemer, Bryn Mawr, Pa.	(Modern.)	(Int.)
315.	Dec. 24, '81.	St. Stephen's Memorial Church, Lynn, Mass.	(Modern.)	(Int.)
345.	Aug. 5, '82.	Presbyterian Church, South Orange, N. J.	(Modern.)	(Int.)
366.	Dec. 30, '82.	First Baptist Church, Cambridge, Mass.	(Modern.)	(Int.)
495.	June 20, '85.	Church, Wethersfield, Conn.	(Modern.)	(Int.)
564.	Oct. 16, '86.	First Spiritual Temple, Boston, Mass.	(Modern.)	(Int.)
614.	April 28, '88.	Emmanuel Baptist Church, Brooklyn, N. Y.	(Modern.)	(Int.)
732.	Jan. 4, '90.	Palace of the Trocadéro, Paris, France.	(Modern.)	(Int.)
733.	Jan. 11, '90.	Church of the Good Shepherd, Gospel Oak, London, Eng.	(Modern.)	(Int.)
734.	Jan. 18, '90.	Wesleyan Chapel, Leeds, Eng.	(Modern.)	(Int.)
735.	Jan. 25, '90.	Hofkirche, Innsbruck, Tyrol.	(Modern.)	(Int.)
770.	Sept. 27, '90.	Church of Holy Trinity, Reading, Eng.	(Modern.)	(Int.)
770.	Sept. 27, '90.	St. Michael's Church, Framlingham, Eng.	(Modern.)	(Int.)
788.	Jan. 31, '91.	Peddie Memorial Baptist Church, Newark, N. J.	(Modern.)	(Int.)
797.	April 4, '91.	St. Sepulchre's, Holborn, London, Eng.	(Modern.)	(Int.)
809.	June 27, '91.	Neustra Señora del Pilar, Saragossa, Spain.	(Modern.)	(Int.)
865.	July 23, '92.	Church of St. Mary, Bottesford, Eng.	(Modern.)	(Int.)
906.	May 6, '93.	Trinity U. P. Church, Glasgow, Scotland.	(Modern.)	(Int.)
921.	Aug. 19, '93.	Grace Church, San Francisco, Cal.	(Modern.)	(Int.)



936.	Dec. 2, '93.	St. Luke's Church, Germantown, Pa.	(Modern.)	(Int.)
944.	Jan. 27, '94.	Congregational Church, Providence, R. I.	(Modern.)	(Int.)
952.	Mar. 24, '94.	Parish Church, Hampstead, London, Eng.	(Modern.)	(Int.)
960.	May 19, '94.	French Protestant Church, London, Eng.	(Modern.)	(Int.)

The case of the organ formerly in the Boston Music Hall was designed by Hammett Billings, but the instrument was built in Germany. Dedicated in 1863, at which time it was the largest organ on this continent and one of the largest in the world, it was taken down in 1884 and is now the property of the New England Conservatory of Music, in Boston, which purposes to re-erect it in its new hall, yet to be built.

The largest organ in the United States is that in the Cathedral of the Incarnation, Garden City, L. I., the elaborately carved case of which is of mahogany, designed in Decorated English Gothic by Henry G. Harrison. It was erected in 1879-1883.

The largest organ in the world is in the Centennial Hall at Sydney, N. S. W., and was completed in 1899. The case was designed by Arthur G. Hill.

ART IN THE CITY OF LONDON.

AFTER several efforts to see the new mosaics, which the London atmosphere churlishly hid from our view, I must fain confess some disappointment. I had pictured to myself something of the effect of my first sight of San Marco, Venice, when, upon a sunny afternoon one autumn, I entered that, to me, unknown church,

the sun streaming in and lighting up the whole apse in a blaze of golden light. Here, in London, the sun was shining pretty brightly, but no rays penetrated the haze in which the interior of the great cathedral is almost always enshrouded. How rarely one ever sees the pictures on the dome,—indeed, two persons, quite lately, have been astonished when I have spoken of these same pictures by Sir James Thornhill. However, that is not Mr. Richmond's fault; he has done his best; and if the atmosphere refuses to aid him in his effort to diminish the gloom of London's most gloomy church, it is no one's fault, but the climate's.

The subjects of the mosaics have been described; and it is undoubtedly true that the quasi-Byzantine style is much too early for Wren's church. Could not the artist have gone to the Renaissance for his inspiration? His "Christ in Glory" is of the character of the great figure at San Marco; his Angels are a cross between the Cherubim of Orcagna and the "Sons of God" by W. Blake. As for the design, the "Creation of the birds," upon one of the shallow domes, it is much too minute to be anything but a confused mass. Mr. Richmond studied the early Ravenna mosaics (slung up in a basket, it is said) to some effect; for, undoubtedly, they are far more luminous than the flat-surfaced ones by Salviati; the difference being that the cubes of the fifth-century work are of all manner of shapes, while those of the Murano mosaists are uniformly square. Mr. Richmond's designs have all been carried out by British workmen, a fact which gives great pleasure to the world here in London; but I confess to being very unpatriotic in this, as in all art and many other matters; and if a foreigner can do the work better than an Englishman, I see no objection to employing him. Whether Paris is happier in its new mosaics in the Louvre, is very doubtful—I fear not; they are decidedly gaudy and uninteresting, although the work of France's best artists. Where is the fault? Are we nineteenth-century people deficient in the bump of decorative talent? Who can answer? Perhaps Chicago can.

There is one noble example of architectural design to be seen in St. Paul's, a work equal to any of its kind in any country—equal to the great cinque-cento tombs in Italy, or the fine examples of French Renaissance at S. Denis—the monument of the Duke of Wellington. It is extraordinary how little was thought of Stevens in his lifetime, and with what pain and grief his work was accomplished. Let us hope that now we may soon see the completion of this grand monument, for it still lacks the Duke's effigy upon the summit.

The city fathers have arranged another exhibition at the Guildhall, as fine a one as its forerunners, and as interesting. Mr. Poynter's "Israel in Egypt" is once more in public, and Mr. Waterhouse's magnificent "Mariamne," which the catalogue explains as having been at Chicago in 1893, as if it were painted for that exhibition. They are worth comparing in their workmanship—the one hard and dry, the other rich and enveloped, to adopt a French phrase. But, in spite of its dryness, this early work of Mr. Poynter's is far more interesting than many of his later pictures. What is there about Mr. Herkomer's manner that always strikes one as unsatisfactory? Is it a want of distinction? The "Last Muster" treats of the commonplace; but so do Jules Breton's peasant subjects; likewise Dagnan-Bouveret's; yet the latter artists are always "distingués." So is Mr. Orchardson. A charming landscape "lent by the artist" seems to show that Mr. East's admirers do not always take away the right thing when they visit his studio. On the other hand, one of Mr. Dicksee's sweet sentimentalities meets with many admirers amongst a discerning public. Lady Butler is not a colorist—nor is she a De Neuville, or a Detaille, or a Morot; but any one who can draw a cavalry-charge as she has done ought to be a member of the body of artists which includes Messrs. Dicksee, Storey, Yeames, and Company.

Two splendid portraits show Mr. Watts¹ and Mr. Oulss² at their best—both being very unequal artists. That the same man could have painted the portraits of Philip Calderon and Lady Garvagh is almost incredible. It is curious to compare these portraits with Mr. Whistler's study in gray, "Miss Alexander," the schemes of color are so different, but so are the works of Titian and the great Japanese. Our dear old friend "Sir Isumbras," by Millais, is here, and so is the "Finding of the Saviour in the Temple," also that clever "Lorenzo and Isabella," by the first painter—perhaps never excelled as a character sketch. There is a conscientious thoughtfulness about these pre-Raphaelite pictures, which, in spite of certain glaring mistakes, commands itself to our sympathies in these days of smudge and fog. If Holman Hunt and Millais, if Arthur Hughes and Madox Brown erred on the side of affecting an imitation of nature, which is impossible, our friends of these latter days who give us impressions of nature err on the side of dirtiness, fogginess and ugliness. If Mr. Grieffenhagen's and Mr. Fowler's "Eves" are true portraits of our first mother, we cannot be too thankful that we are no plainer than we find one another in these degenerate days; and is it not extraordinary that "Pandora," adorned with beauty by Aphrodite herself, should have been no pleasanter to look at than Rossetti has depicted her? Strange, indeed, must the men have been who were ruined by this ghastly lady in red with the shock-head. But the color, they say: the color; how exquisite!

PENGUIN.

¹ Portrait of P. Calderon.

² Mr. Bancroft.



THE PROPOSED COUNCIL OF ARBITRATION AND CONCILIATION—ALLEGED DISCOVERY OF TIN.—ST. JAMES'S, MONTREAL.—IS AN EXCAVATION A FIXTURE?

THE Bill before the Ontario Provincial Legislature for the settlement of labor disputes reached its second reading since my last letter; the Attorney-general explained its provisions, which may be briefly summarized thus: The purpose of the bill is the formation of "Councils of Arbitration and Conciliation for the settlement of Industrial Disputes." It is founded largely on the Act of the New South Wales Legislature, which has proved effective, and has been adopted in British Columbia. The Act is simply permissive, and seeks to give effect to the awards found, to make them conclusive and enforceable by law. This principle has been adopted by the Imperial Parliament. In the State of Massachusetts the adoption by the parties to a dispute of the decision of the arbitrators is purely voluntary, but it is said masters and workmen very seldom refuse to act on the awards. Public opinion, the attorney-general said, was against the disregarding of the awards. It is proposed to establish two councils, that for conciliation to consist of four conciliators, two to be appointed by each party to the dispute. If unable to agree, these conciliators could have a reference to the council of arbitration which is to consist of three members, one representing the employers, one the employees, and the third to be appointed by the Governor-general. The proceedings are to be conducted in public. The parties may, by uniting, agree beforehand that the decision shall be binding and the award compulsory, but this is optional. This appears to be a considerable weakness in the bill, and one which may nullify its effect. It need not be compulsory for the parties to a dispute to appeal to a council of conciliation, but having appealed, having gone through with their case, and perhaps owing to disagreement among the "conciliators" had reference to the arbitrators, the arbitrators' award should be final and binding. Making the acceptance of the award optional to either party may result in leaving the dispute at the end of the proceedings exactly in the position it was before they were begun. The parties having agreed to submit their dispute to the Council, should do so, on the understanding that the award shall bind them, and only under such circumstances should the aid of the Council be invoked. The Bill is said to be favorably regarded by the workingmen of the Province generally, copies having been freely circulated among the various societies of workingmen, and employers are said to have raised no objection to it. But this optional clause looks like pandering to the workingman, an election-dodge in fact, as if the promoters said, "We will legislate for the benefit of the workingman, but we must not legislate so as to bind him to anything against his precious will." Exception was taken to the "cumbersome machinery" of the Bill, but, on the whole, it was well received. It is, no doubt, a move in the right direction, but if made at all it should be done firmly and without hesitation.

It has recently been reported from the Bureau of Mines that tin ore has been discovered in the mining district of Sudbury, Ontario. As to the quantity and quality, we still await details, and probably shall have to wait until investigation has been made. But the ore is described as occurring in a ledge of white quartz standing boldly out from the surface of the rock. Samples have been assayed and have proved to be cassiterite or tin oxide. The oxide occurs in crystals in the rock, but they do not show crystalline formation but are rather fragmentary, varying in size from a grain to a small bean. The importance of a good find of tin ore would be great and far-reaching. Tin, so far, is little known in Canada, or indeed, on this continent. Where in the United States discoveries of tin were alleged and means for their protection were taken, the result was considerable financial loss to those concerned, Mr. McKinley himself suffering largely through his own protective measures in this connection. Just because of its rarity, tin ore has been the basis for many fraudulent operations: "salted" tin specimens have caused an immense amount of loss, so that in this case it is well to remember the proverb that advises investigation prior to the indulgence of athletic performances.

The new great Roman Catholic church in Montreal, commonly called "St. Peter's," but actually named "St. James's," was recently opened for public service. So far as proportions can be adopted on a reduced scale, it is supposed to be a model of St. Peter's at Rome, but it is to be feared St. Peter's of Rome would hardly recognize itself in miniature. In saying this I do not wish or intend to disparage the efforts of its authors, but, of necessity, details, such as doors and windows, which cannot be reduced in conformity with the reductions of length and breadth of the building, must be totally out of proportion in a model. The general effect, however, is very fine and the cathedral is an imposing structure. The foundation-stone was laid on the 28th of August, 1870, and Mgr. Bourget, the great ultra-

montane Catholic Bishop of Montreal, rejoiced in seeing his earnest desire take practical shape. The site was then fairly outside the city, but now it is the southern extremity of the most fashionable part, while from the brow of the eminence on which it stands, the church overlooks a densely populated district, chiefly inhabited by members of that body of the Christian Church who will look up to it as their haven of refuge and chief place of worship. Where open fields and orchards existed, when the stone was laid, now stand half-a-dozen other churches, great railway-stations and hotels, surrounded on three sides by the residences of the wealthy. The older Cathedral of St. Sulpice occupied the centre of the older city, and the newer St. James's, the centre of the new; farseeing must have been the projector of this scheme, and well have his prognostications been fulfilled. The new Cathedral is 333 feet long externally, 150 feet wide at its greatest width and 114 feet at its narrowest, while 116 feet is the width of the transept. The great portico has a façade of 170 feet and a depth of 30 feet; the extreme height of dome and cross is 256 feet. The interior is very much broken up with chapels, so that its seating accommodation is small as compared with the older church, but it was estimated that 4,000 people were present on the opening occasion. The older cathedral has two immense galleries each capable of seating 2,000 persons, while 4,000 more can be accommodated in the pews on the floor. The aisles are very wide and when packed with people standing in them, there have been as many as 16,000 persons present at one time. A feature of interest in the choir of the new church is the Archbishop's throne, presented by the priests of the diocese, at a cost of \$1,300. It occupies the same position relatively as the Pope's throne in St. Peter's at Rome. It is of walnut with sculptured ivory and is surmounted by a statue of St. James. The high-altar is not yet complete, nor are the thirty altars the church is intended to receive in place. A great deal remains to be done, and it will probably be another year before services can be regularly offered there.

A very curious case has been before the Exchequer Court at Montreal. The Crown, in 1851, leased a large tract of land near Montreal for \$1,000 a year, the lease renewable every twenty-one years, the site to be used as dry-docks, ship-yards, etc., the Crown to have the power to terminate the lease at the end of any of these periods of twenty-one years, and to take over the buildings and works to use in connection with the Lachine Canal, the value being settled by arbitration. The buildings, etc., appear to have been designated in the original lease as "fixtures." The present motion was to determine the meaning of "fixtures" in this particular case, the Crown claiming that an excavation (such as the dry-docks, etc.) is not a "fixture" under the Landlord and Tenant's Act. The case known as *Grier vs. the Crown*, was some time ago referred to Referee Mr. C. C. Gregory, of Toronto, for a report, the plaintiff suing for \$150,000. The referee reported in favor of giving the plaintiff \$50,000. Judgment was reserved, while Justice Burbridge considered whether "a hole" could be regarded as a fixture.

CONSTRUCTION—XXIII.

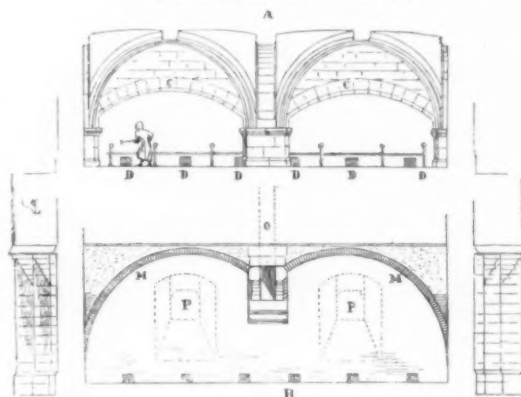


Fig. 123c.

AS architects, it is of small importance to know whether these hospitals, these colleges, these farm-houses were dependencies of abbeys or cloisters, whether these town-halls were frequently embargoed by the suzerains, whether these markets paid a tribute to the lord of the manor. These establishments existed, that is all we need to state; they were well arranged, well constructed, in a durable and thoughtful way; that we must acknowledge.²

¹ From the "Dictionnaire raisonné de l'Architecture Française," by M. Viollet-le-Duc, Government Architect, Inspector-General of Diocesan Edifices, translated by George Martin Husse, Architect. Continued from No. 915, page 23.

² The spirit of passion which causes the destruction of castles and even churches is comprehensible; but what is much more difficult to explain is the blind mania which has brought about in France during the last sixty years the demolition of numbers of very good civil structures, very handsome, very useful (for no other reason than that they were old and recalled a former age), simply to replace them by deplorable constructions which cost a great deal of money, although they were built in a parsimonious manner and are frequently decidedly ugly. Many towns have been deprived of establishments which would have been suitable for new uses, which would attract the attention of travellers and which, in short, did them honor.

Let us take a few examples: let us examine the excellent arrangements of the great halls of the abbey of Ourscamp, of S. Jean-des-Vignes, Soissons, of Mont S. Michel-en-mer, and of the hospitals of Angers¹ and Chartres, which date from the end of the twelfth and the

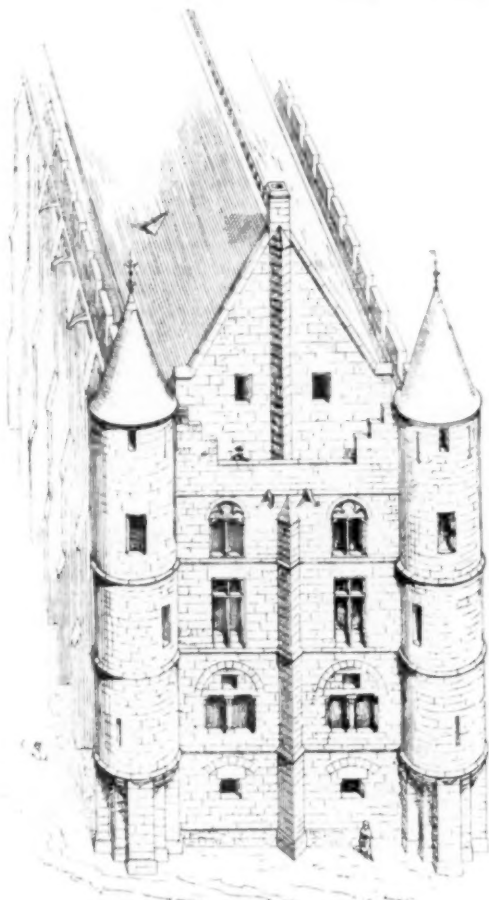


Fig. 123. Abbey of S. Marie de Breteuil, France.

beginning of the thirteenth century. Where shall we find better construction, better conceptions, more ample, more healthful, without needless luxury and which give a higher idea of the knowledge and practical sense of their architects?

The general view and details of some of these vast edifices having been engraved with minute care in the work of M. Verdier on civil architecture, we do not deem it necessary to reproduce them here; we shall give our readers a few constructions which have not before been studied and which have, at least, an equal importance with those mentioned. There exists in the Abbey of S. Marie de Breteuil, a

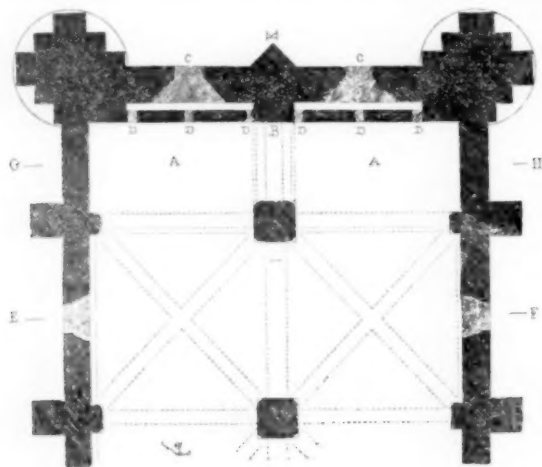


Fig. 123a.

vast building flanked by four turrets and crenellated, which could, if necessary, be defended. Its ground-floor contained the kitchens and their dependencies. The first story contained the dormitories of the

¹ See "Architecture, Civil and Domestique," de Mm. Aymar Verdier et Cattois.

guests of the monastery; the second a large infirmary; the third store-rooms for provisions and the fourth, under the roof, a granary for storing cereals. A lateral staircase passing across the buttresses and covered by a lean-to roof rose to the second story; the turrets at the angles had, in addition, winding staircases leading from one story to the other. This structure was not vaulted except the lower floor and under the roof; it is divided lengthwise by a range of columns. Lateral buttresses take the thrust of the vaults. Figure 123 shows the exterior aspect of this structure.²

We see the gable on which is built the huge kitchen chimney. A triangular buttress, like a ship's prow, gives strength to this gable wall in front of the chimney flue. In order to grasp this construction thoroughly, it is necessary to refer to the plan (123a) taken on the ground-floor level. The entire space A.A., that is to say the last bay of the room, is occupied by the fireplace whose flue rises at B between two arches. At C are exterior openings communicating by a throat with the air inlets intended to give a vigorous draft to

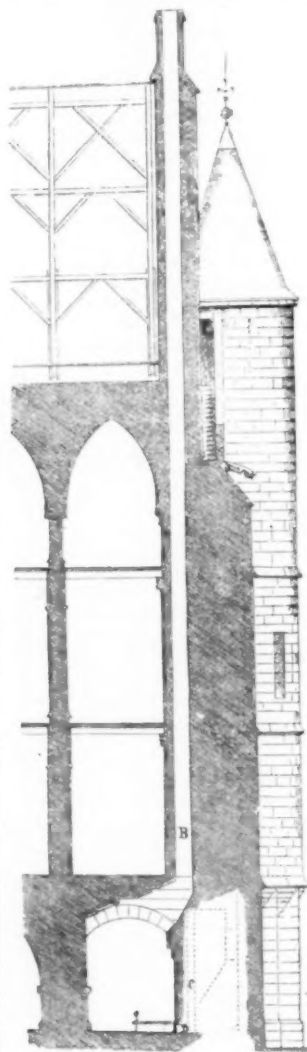


Fig. 123b.

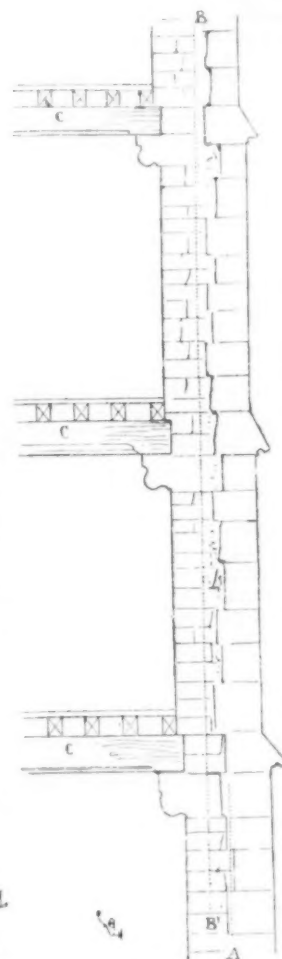


Fig. 123c.

the fire built on an elevated grate and to establish a sufficient current of air to carry away the smoke into the central flue. Figure 123b made on the line I.K. of the plan, shows us at B, the chimney-flue, at C the throat with its exterior opening, and at D the air-inlets. It will be observed that the pathway around the battlements is not interfered with by the turrets and the gables, but, on the contrary, that this pathway is continuous across the gables on a lower level. Figure 123c shows at A, the section of the ground-floor on the line E.F. of the plan and at B this section on the line G.H. In the section A are shown at C the arches which form the hood of the chimney divided by the large pillar; at D the mouths of the air-inlets with the elevated grate. In the section B the arches M which form the soffit of the chimney are of brick and the flue is shown by the dotted lines at O. The dotted lines also show at P the two air-intakes intended to supply the inlets by the throat behind the brick wall which forms the back of the fireplace. The cross-section, (Fig. 121) looking toward the gable opposite to the chimney, completes the description of this fine and simple construction. At A is shown the lateral staircase which leads up to the second story through the buttresses, which

² See "Monog. d'abbayes." Bib. Sainte Genevieve.

are given greater projection in order to provide for it. The windows *B* of the third story used for store-rooms are pierced in the gable on the level of the interior flooring so as to facilitate the hoisting up, by pulleys supported on exterior brackets, of the things to be stored. Similarly the openings *C* are pierced on the level of the floor of the garret. The thick side walls preserve an equable temperature in the interior; the ventilation of the stories could easily be managed, by means of windows opened in the four main walls on all sides of the isolated building. The buttresses enclosing the walls dispense with all transverse anchorage and this the more naturally because the inner face of the walls frequently overhung the story below, as shown in the transverse section, Figure 124.

This was a means frequently employed to give the walls an inclination inwards and is, in fact, an excellent principle of construction whenever one is able to give to the base of the walls, sufficient thickness to guard against danger of buckling. It must be remarked, nevertheless, that habitually the intermediate girders (see the transverse section) do not tie together the bearing or side walls [*murs-goutterots*]; observe how the ends of the girders on the intermediate columns are arranged. At each story the supports are furnished with a cap *A* (Fig. 125), projecting only under the girder ends. Consequently the bearing walls exert a pressure on these girders and not a pull.

We cannot follow this plan in our modern constructions, but it is not without its advantages, and the Greeks in ancient times, much earlier than the epoch we are considering, had followed it in building their temples. If the mediæval architects followed the laws of equilibrium, whose importance we have endeavored to show, in building the vast vaulted edifices carried on isolated supports, they, at the same time, sought to obtain the concentration, the resultant of all the forces acting toward the centre of their edifices, in such a way that all the parts had a certain disposition to reciprocally buttress one another.

In civil constructions, where vaults play only a secondary rôle, where the floors present horizontal and rigid surfaces at different heights, the constructors adopt methods of building which act from the outside inwards against these rigid surfaces. They reached this result by the arrangement of the general plan and special details of construction. For instance, they give the walls an interior overhang, as we have just mentioned, and they build these walls of large

by a stone belt-course, will be set a few centimetres farther back than the one below. The interior face, on the contrary, will be laid with thinner stones and each story will overhang the one below. Therefore, this wall will have a tendency to lean inwards — first,

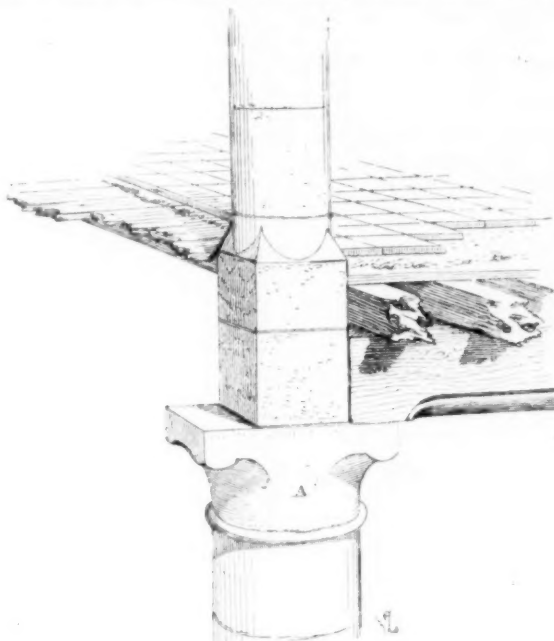


Fig. 125.

because its axis *B* will fall at *B*, inside the lower axis *A*; second, because the exterior face will offer a less compressible surface than does the interior face. Thus, this wall constructed in this manner will exert against the ends of the girders *C*, a more powerful pressure in proportion as these girders are elevated above the ground. It would be, therefore, superfluous to tie the walls, which instead of tending to spread, will have on the other hand, a tendency to incline inwards.

This example shows that while the civil construction of mediæval times has its own individual character, distinct from religious construction, the architects, nevertheless, endeavor to replace in one as in the other inert masses by acting forces. In the civil constructions, the floors are considered as braces placed between walls which tend toward one another. Thus these floors are stiffened by the pressure of the walls and the whole mass of the building shows great solidity in consequence of these pressures against a system of braces.

[To be continued.]

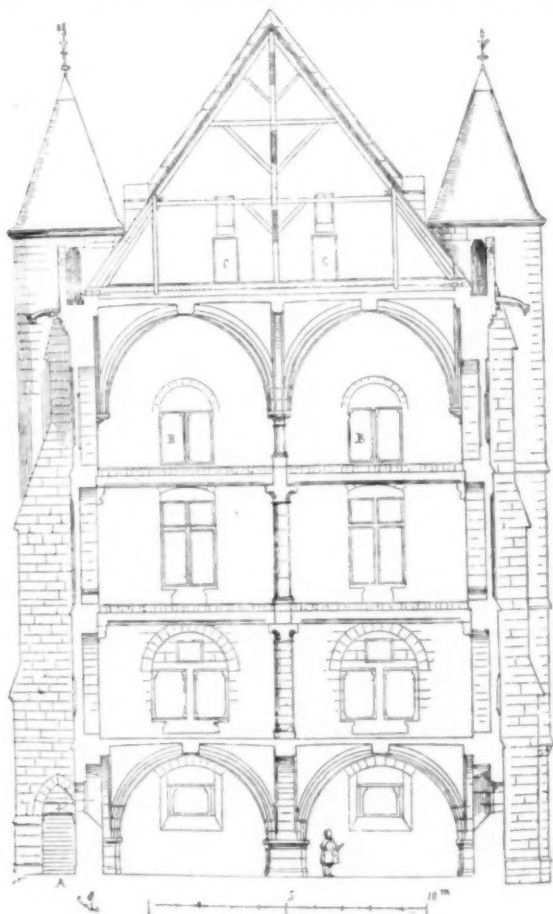


Fig. 124.

stones on the outside and with courses of less height, or with rubble on the inside.

Take, for instance, the section of a wall *A-B*, intended to carry the girders (Fig. 126); the outer face of this wall will be composed of relatively high courses of stone not bonded, and each story, separated



THE ARCHITECTURAL LEAGUE OF NEW YORK.

THE last regular meeting and dinner of the League, previous to the summer adjournment, will be held at the club-rooms, on Wednesday, June 6, 1894.

The committee on current work announces that Mr. F. Wellington Ruckstuhl, Secretary of the National Sculpture Society, will deliver an address on "The New Sculpture Movement, and how the Architects may aid it."

The committee on Monthly Exhibitions announces an exhibition of a series of drawings made by Mr. K. Dahler-Tangen, during a three years' course of study at the Vienna Academy of Fine Arts, under the instruction of Baron Th. V. Hausen.

Since the last announcement the following have been elected members of the League — Messrs. Victor E. Rondel, Frederick Wilson, William W. Ferguson, J. A. Holzer, Henry Otis Chapman, Frank Vincent DuMond, and Guy Carlton Hunt.



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

LOWER STORY OF HOUSE OF W. E. ROOSEVELT, ESQ., NO. 804 FIFTH AVE., NEW YORK, N. Y. MR. W. H. RUSSELL, ARCHITECT, NEW YORK, N. Y.

[Heliochrome, issued with the International and Imperial Editions only.]

COMPETITIVE DESIGN FOR THE HILLSBOROUGH COUNTY (N. H.) FARM BUILDINGS. MESSRS. HOWARD & CAULDWELL, ARCHITECTS, NEW YORK, N. Y.

THE conditions of the problem are briefly as follows: the buildings, five in number, are to be located on a narrow strip of land between the railroad and highway, with accommodations for 250 paupers, 150 insane, 100 criminals; also an administration building for superintendent and family and 20 officers, and a boiler-house for heating the entire establishment. The buildings are to be of brick, with mill-construction throughout.

AMERICAN TRACT SOCIETY'S BUILDING, CORNER NASSAU AND SPRUCE STREETS, NEW YORK, N. Y. MR. R. H. ROBERTSON, ARCHITECT, NEW YORK, N. Y.

THE building will occupy a lot 94' 6" x 100' 7". The main portion of the building will be 20 stories high, there being three additional stories in the roof of the front portion, the 23d story being used as a restaurant. The material will be granite, up through four stories; above, limestone, terra-cotta and brick. The cost of building is estimated at \$1,000,000.

HOOK-AND-LADDER HOUSE, NO. 1, WARREN SQUARE, ROXBURY, MASS. MR. E. M. WHEELWRIGHT, CITY ARCHITECT, BOSTON, MASS.

"CHINATOWN," SAN FRANCISCO, CAL. SKETCHED BY MR. C. R. MITCHELL.

[Additional Illustrations in the International Edition.]

THE COLUMBIA FOUNTAIN, WORLD'S COLUMBIAN EXHIBITION, CHICAGO, ILL. MR. FREDERICK W. MEMONNIES, SCULPTOR. [Gelatine Print.]

DOORWAY OF THE CHURCH OF ST. OURS, LOCHES, FRANCE.

THIS plate is copied from *La Construction Moderne*.

INTERIOR OF THE GERMAN PAVILION, WORLD'S COLUMBIAN EXHIBITION, CHICAGO, ILL. PROF. GABRIEL SEIDL, ARCHITECT, MUNICH, BAVARIA.

THIS plate is copied from *Deutsche Bauzeitung*.

THE WEST TOWERS OF THE CATHEDRAL, SANTIAGO, SPAIN: AS SEEN FROM THE CLOISTER.

THIS plate is copied from *Building News*.

DESIGN FOR A FRIEZE BY MR. PATON WILSON.

THIS plate is copied from *The Builder*.

ADELPHI BANK, LIVERPOOL, ENG.: THE PORCH. MR. W. D. CAROE, ARCHITECT.

NEW OFFICES, Northern Daily Telegraph, RAILWAY ROAD, BLACKBURN, ENG. MESSRS. STONES & GRADWELL, ARCHITECTS.

THIS building, which we illustrate in our present issue, has just been completed for the Northwestern Printing and Publishing Company, Limited. It occupies a most convenient and commanding site close to the principal entrance to the railway station. The buildings are admirably arranged for the purposes for which they are erected. On the ground floor very commodious accommodation is provided in the shape of a large general office for the transaction of public business, private offices for the managerial, editorial and reporting staff, with cloak-rooms and all other conveniences in connection therewith. The main entrance is at the corner of the building, as shown in the drawing. On the same floor, and approached from the side street, is a very large machine-room and rooms for the receiving and despatching of parcels, etc. Leading from the machine-room is a convenient office for the supply of papers to the news-agents' and news-boys' rooms; these rooms have separate entrances from the back street. The first floor is occupied by a very commodious compo-room, stereo-room, office, and other conveniences. The basement is very extensive, and contains large paper and other stores, damping-room, boiler-house, fan-room, dynamo-room, etc. This floor has separate entrances from the back roads. The elevations are of Accrington bricks, with buff terra-cotta dressings from Burmantofts, Leeds. The dome of the tower is covered with copper. The building is fireproof, and the construction throughout is of the best possible character. The machinery and other fittings are of the most modern and approved make. The total cost is about 20,000l.

COMMUNICATIONS.

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

THE VERDICT IN THE CASE, ROTCH VS. FRY.

BOSTON, MASS., May 19, 1894.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—In publishing the judge's charge of the case Rotch vs. Fry, can you not insert for our vindication that the judgment was (plus costs) in our favor? I think, attention being called to our having to

go to law for fees, we should have it known that our grounds for so doing were legitimate in eyes of the jury, and our position as architects sustained by the judgment. The case is entirely settled and we have been paid our bill in full, plus interest and costs.

Yours truly, ARTHUR ROTCH.

[OUR correspondent properly calls attention to what is analogous to that lack of correlation between editorial and news columns which is more common in the daily papers than in ours. The fact is that at the time of writing the editorial paragraph, we were under the impression that the decision had been appended to the charge and that it was not necessary to repeat the statement. We regret this oversight all the more, since, as we learn, it has subjected our correspondent to an annoying amount of correspondence. — EDS. AMERICAN ARCHITECT.]



BOSTON, MASS.—Several hundred Specimens of Textile Designs of all countries, from the second century to the present time, from the collection given by Denman W. Ross; also the Shirassee collection of Japanese Art: at the Museum of Fine Arts.

Exhibition of New Tiffany Glass ware: at the Galleries of Williams & Everett, 190 Boylston Street, May 21 to June 2.

CHICAGO, ILL.—Annual Exhibition of Water-colors: at the Art Institute, May 6 to May 27.

CINCINNATI, O.—Exhibition of the Cincinnati Art Club: at the Art Museum, May 17 to June 30.

NEW YORK, N. Y.—Twenty-sixth Annual Spring Exhibition: at the Metropolitan Museum of Art, opened May 8.

Exhibition of the Competitive Designs for the Decoration of the Oger and Terminer Court-room: at the Century Club.

Group Exhibition by American Painters William M. Chase, J. Alden Weir, Childe Hassam and others: at the Galleries of the American Fine Arts Society, 215 West 57th Street.



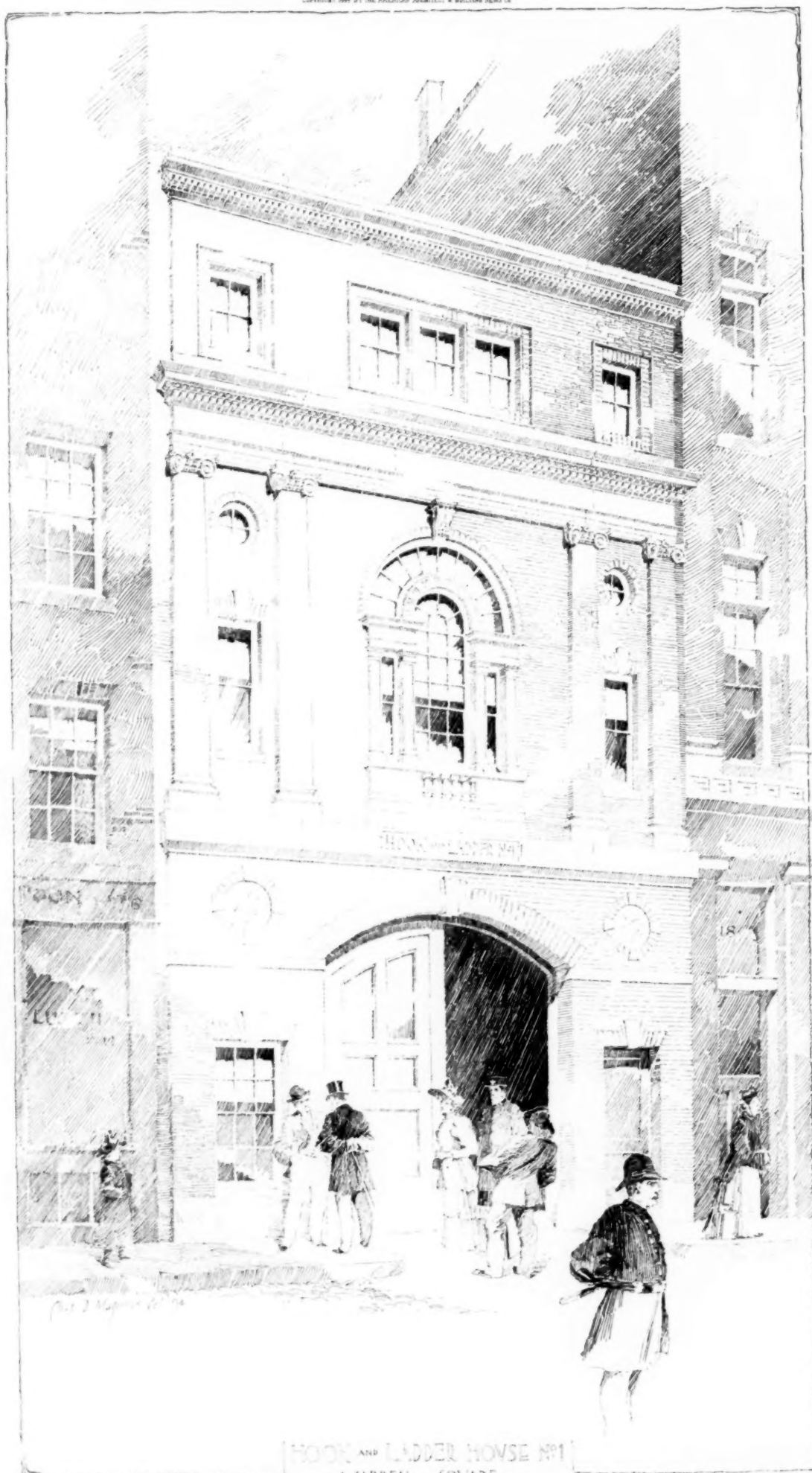
A PLAUSIBLE THEORY OF RAIN-MAKING TO BE TRIED.—In spite of all the cold water which Secretary Morton has poured on the science of rain-making, the spring has no sooner arrived than there are indications that the experiments of last year are considered a scientific success and will be resumed this year with renewed vigor. The first notes of preparation are heard from Chicago and from the officials of the Rock Island Railroad Company. This company's road traverses Western Kansas in two directions, branching out from Topeka, one line skirting the northern part of the State and the other running directly to Montezuma in the southwest corner. These two lines of railroad run through a section of what was formerly called "the Great American Desert," part of which is in Eastern Colorado. The farmers in this country have always suffered for the want of rain. The Rock Island Railroad last summer set one of its employes to rainmaking. This was C. B. Jewell, the company's train-dispatcher at Goodland, not far from the Colorado line. His efforts were astonishingly successful, both in Kansas and in Colorado. Mr. Jewell's method is the one invented by Louis Gathman of Chicago, whose theory is that rain is never produced naturally except by the vapors of the atmosphere becoming agitated and mixed with the colder upper strata of air. He, therefore, fires up into the air metallic bombs filled with liquefied carbonic-acid gas. When these bombs explode the liquor expands instantaneously into gas, producing intense cold and immediate precipitation. Mr. Jewell will give the people of the West an ample opportunity this summer to enjoy the benefits of this discovery. — *Chicago Tribune*.

THE TRADE IN FLINTS.—The oldest industry in Great Britain—older it could hardly be, for its existence has been traced back to the pre-historic Stone Age—is still being carried on at the village of Brandon, on the borders of Norfolk and Suffolk, and is reported to be in a flourishing condition. It is a manufactory of gun and tinder-box flints. The work is done in little sheds, often at the back of townfolks' cottages. It will naturally be asked, "Who wants tinder-box-flints and gun-flints in these days of phosphorous matches and Martini-Henrys?" The answer to the first question is that there is a good trade in tinder-box-flints with Spain and Italy, where the tinder-box still keeps its ground in very rural districts. Travellers in uncivilized regions, moreover, find flint and steel more trustworthy than matches, which are useless after they have absorbed moisture. Gun-flints, on the other hand, go mostly to the wild parts of Africa, where our old friend "Brown Bess," sold by auction long ago for what flint-muskets would fetch, has found, it seems, her last refuge. — *London News*.

NEW STYLE OF RESERVOIR.—The City of Bordeaux has adopted a new species of reservoir, which deserves to be well known. It is entirely constructed of metal above the ground, and is the invention of M. Gerard, the municipal engineer, who was led to the contrivance by the necessities of the case. The ground being soft, the foundations were secured by sinking blocks of concrete and building piers of masonry on them. Iron columns standing on broad feet, are supported by the piers, and carry the girders on which the basins are built. There are two basins in the reservoir, which is over 120 feet long, by 50 feet wide, and they are covered by a metallic roof which is dust-proof. — *The London Globe*.

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HOOK AND LADDER HOUSE NO. 1
WARREN SQUARE
EDMUND M. WHEELWRIGHT, CITY ARCHT.

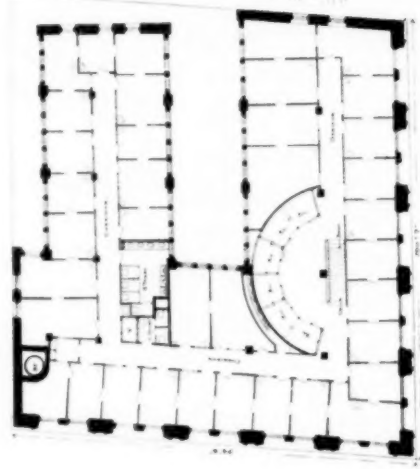
Chinatown, San Francisco.



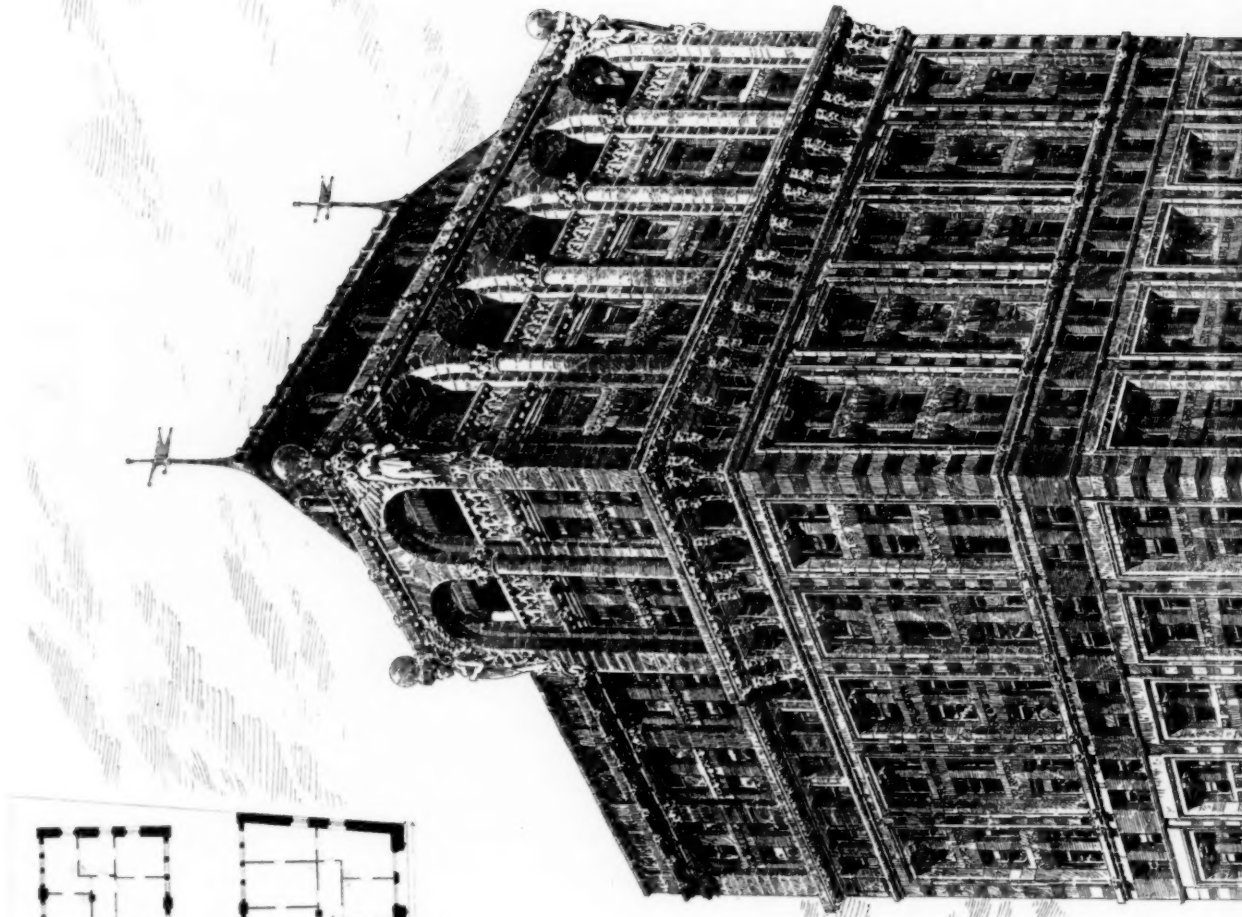
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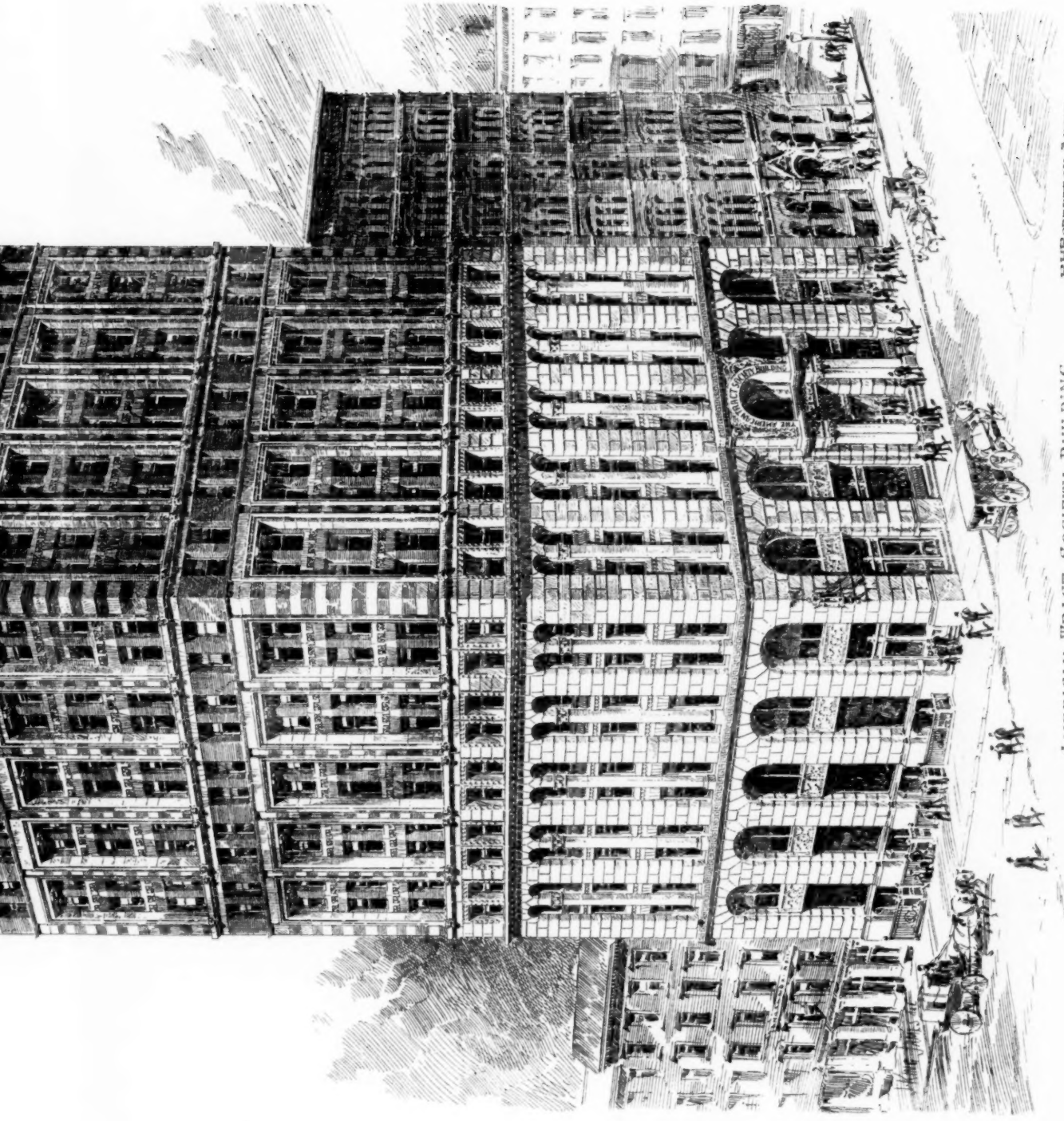
AMERICAN ARCHITECT AND BUILDING NEWS, May 26, 1894.

DESIGNED BY THE ARCHITECTS ASSOCIATED & BROTHERS, NEW YORK



General Office Floor



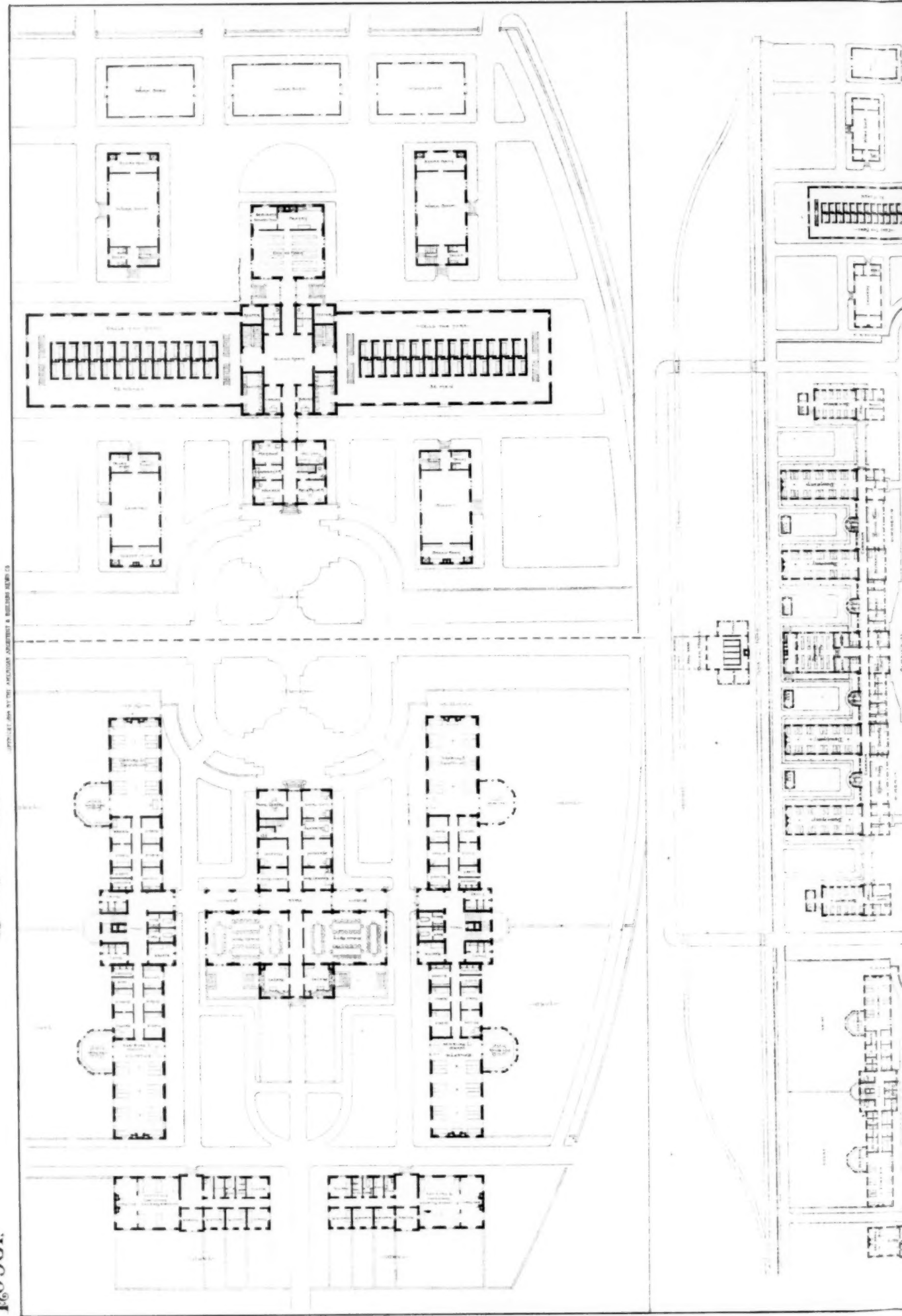


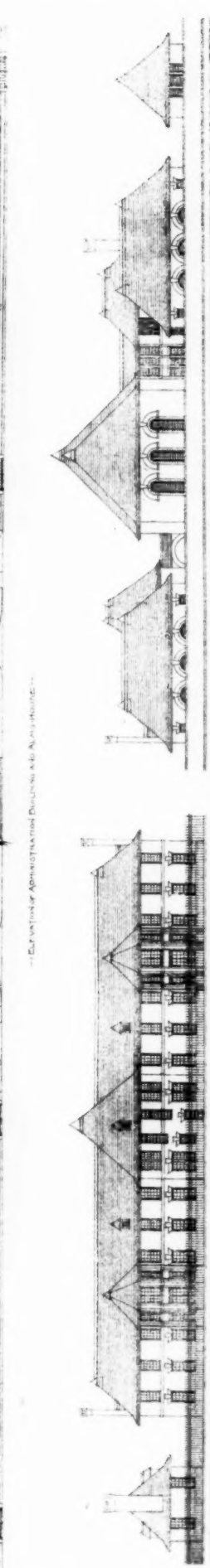
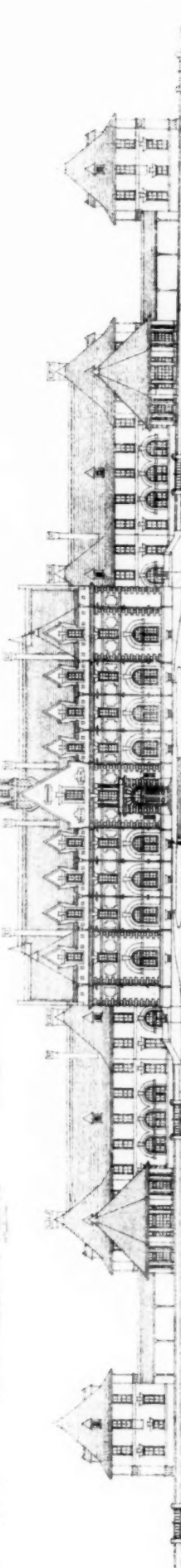
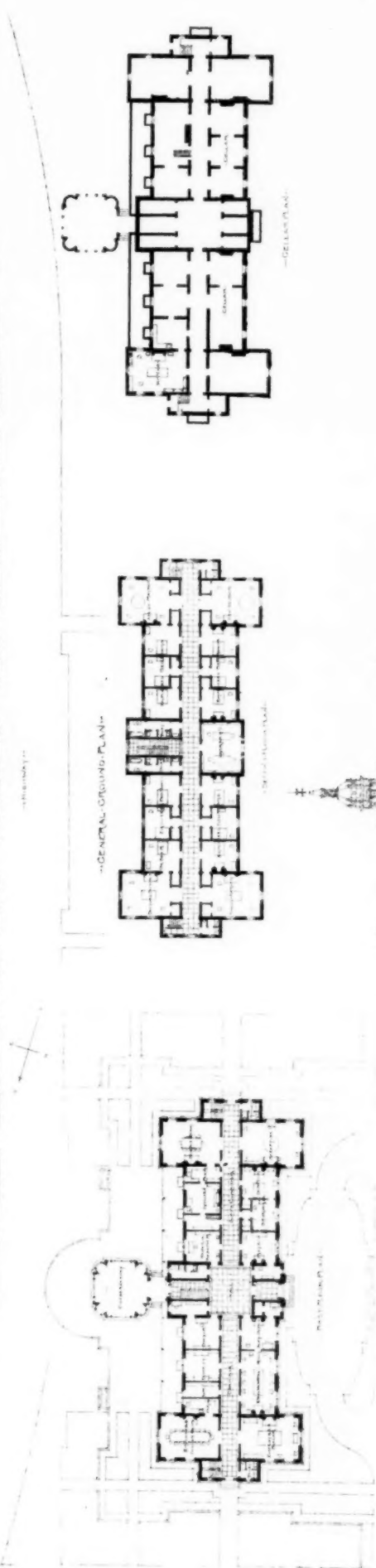
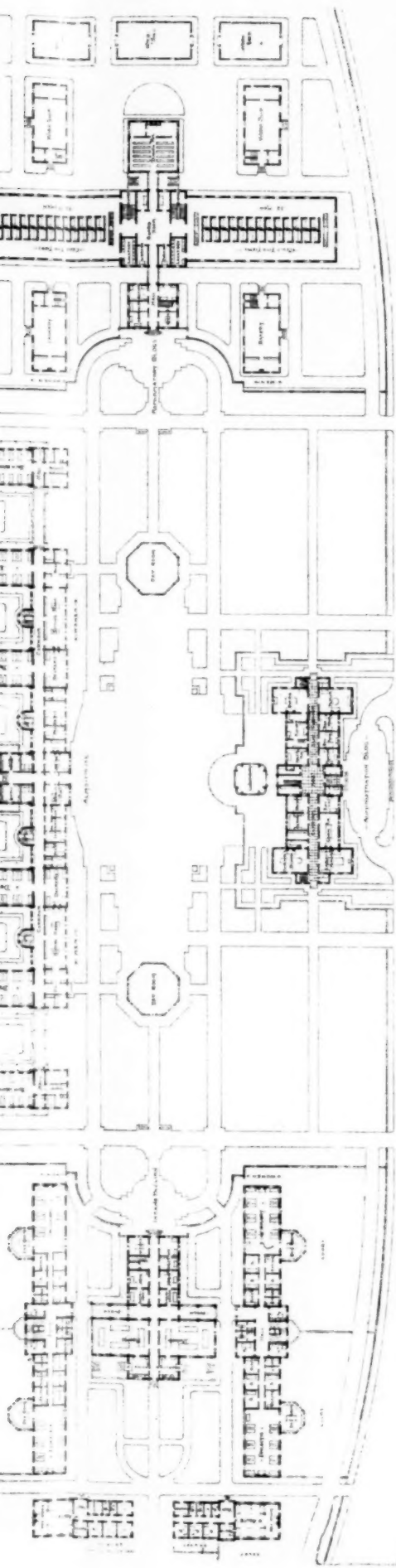
AMERICAN TRACT SOCIETY BUILDING
S E COR NASSAU AND SPRUCE STREETS

RHODESTON ARCHT
160 NORTH AVENUE, N.Y.C.

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