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THERE is one class of mechanics whose dangerous lot during this hot summer has been presented to our imagination with each recurring scorching day. At the best of times the occupation of the roofer is a dangerous one and accidents are daily concomitants of their ordinary labor; but think of the torture of laying a bright-tin roof on days when the mercury is near the hundred mark, when there is no place where a square inch of shade can be found and where tools and tin sheets alike are almost too hot to handle! If it were not that upon the rooftop there is generally some air stirring the prostrations from direct sunstroke and from heat exhaustion would be very great; as it is, we fancy that many an accident that is attributed to a simple careless step or accidental slip is really caused by vertigo, consequent on incipient sunstroke. Painters, stone-carvers, in fact all building mechanics who are forced to work on the sunny side of a building are exposed to the same danger, but not to the same degree as the tin-roofers. Now here is one of the evils of the laboring man's lot which is a real one and yet a curable one, and it is an evil which should receive the attention of organized labor, since the cure or palliation we suggest can only be effected by organic effort. There is no gainsaying the fact that we have, all through this temperate zone, spells of hot weather when the temperature is as high, or higher, for days at a time as in tropical and subtropical countries where the midday siesta is an actual necessity. We propose, therefore, that there should be introduced into the life of the American laborer and mechanic the siesta of three hours' length, not every day, of course, but only on certain days during the heated season. With a Government weather bureau with its official in charge always on duty, with a fire-alarm system always in working order, it only needs official consent and the agreement of employers, which can easily be secured by the action of the Labor Unions, to have a signal given on the fire-bells which shall be understood by all laborers to mean that they are entitled to lie off from twelve to three o'clock—the three hours, that is, when the heat is usually most burdensome. On such days, of course, the working-day would end at seven o'clock in place of five, but as the heated term usually synchronizes with the long days no loss to the employer would result in the way of amount of work accomplished, while something might even be gained through the greater activity of the men working in the cooler hours. The change we suggest would, perhaps, interfere with the good wives' supper preparation, but they too would hear the signal and could conduct themselves accordingly. At any rate, a spoiled supper is to be preferred to a heat-prostrated bread-winner.

UP to the present time our Presidents have been content to be modest gentlemen, entirely democratic in their manners and methods of life and in no degree aping those to which the rulers of European countries have been wonted. This is partly due to personal characteristics but still more to the laws and traditions directly established by the early holders of the

office. It seems, now, that we may look for a change in presidential behavior, not because of the "expansion" that is going on but because of the elimination of one of the obstacles which lay in the way of our early Presidents and by its existence gave being, in part, to the tradition which prevented them from visiting foreign countries during their term of office. It was of course very doubtful what sort of a welcome would be accorded to a President of the United States who should attempt to visit a foreign potentate, and it was not felt proper that our chief magistrate should be subjected to such affront to his real power and dignity as would be implied in having to yield the *pas* to some petty German princeling at any court or public function. No laws of etiquette had been established in the foreign courts and so our Presidents have remained at home. Now, however, the matter has been definitely settled: the Czar has received the President of the French Republic as a ruler of the first class with all due honor, and the Pope, in his even more particular court, has extended like welcome to the president of one of the South American republics. The ice therefore is broken, and we may before long see our Presidents taking part in person in some important gathering where the rulers of the world are met in council. But we are as a people nothing if not hospitable, and if a President once consents to play the part of guest he must hold himself ready to act the host with grace and dignity; and how can he do this when the nation has no place wherein its honored guest can be properly housed and entertained? To send him to a hotel and have his bills paid by the Treasurer of the United States is all that could be done now, and this course would be rather more democratic than properly dignified. It would seem not improper that the Government should now provide at Washington a building, suitable in size and character, of which a certain portion could be placed at the disposal of any one who visits the city as the nation's guest. As visitors of this class of the highest rank are rare, it would not perhaps be advisable to erect a building solely for this purpose, since it would generally stand tenantless, but it seems to us that a building could be easily arranged to give accommodation in palatial suites in its upper portion—a small suite for a distinguished civilian, a more generous series of rooms for a well-known noble or prince travelling *incognito*, while the whole establishment could be placed at the service of a chief magistrate should such a personage ever visit Washington. Meanwhile and at all times the lower story could be arranged in suites of offices and assigned to the various foreign embassies for the transaction of their official business. It would be quite a feature of the decoration of the city to encounter a grand building whose dozen or two of individual doorways were distinguished by the blazonries and banners of the nations whose ambassadorial offices could be found therein.

THIS suggestion springs from the fact that just now Paris is giving itself much concern because it has waked to the appreciation that it has no proper accommodations to place at the service of the royal personages who are certain to visit the city during the term of the Exposition of 1900. The partial destruction of the Tuileries and the growth of the national collections in the Louvre make it impracticable to find room in that group of buildings, as formerly it was easy to do, and so the government is forced to negotiate with a number of private owners of palaces and ample private dwellings, of which there are many, for the sale or lease of a sufficient number to meet the prospective demand. Noting this fact, the École des Beaux-Arts this year assigned as the subject of the competition for the Prix de Rome competition a "Palace for the Guests of France," and we republish from the pages of *La Construction Moderne*, this week, three of the designs which were submitted in the competition. It seems to us that our own Society of Beaux-Arts Architects might do many a more foolish thing than to choose as the subject of one of next season's competitions "A Palace for the permanent and temporary Guests of the United States," arranging the programme to conform in some degree with the suggestions we make above.

WHAT we said a week or so ago as to the criminality of improperly dismantling unused apparatus, citing as one variety of the evil the existence of "dead ends" in water-supply pipes, receives fresh endorsement through a recent

investigation. A few weeks ago people were shocked to learn that a "mysterious" disease had attacked the children in the Hebrew Orphan Asylum in New York with such virulence that it seemed doubtful whether any child could survive. It has now been discovered that the epidemic was due to a dead end in the water-main on One Hundred and Thirty-eighth Street, as from this end, it appears, the Asylum drew its water. Some one is clearly blameworthy for this defect, for in a city of which the resources are as great as New York's a dead end should never be allowed to exist long enough to breed an epidemic.

ONE ought not to leave on record uncorrected a statement which is prejudicial to the personal character of any one, and as we felt strongly that great injustice was done to Mr. A. G. Menocal, who, as our readers know, was suspended from duty for three years and put on furlough pay as a consequence of the findings in the court-martial held on the failure of the great timber dry-dock in the Brooklyn Navy-yard, we are particularly pleased to learn that his misfortune has been lightened. As Mr. Menocal would retire for age in September and as such retirement, taking place while under suspension, would leave a stain on a particularly honorable record as civil engineer in the Navy Department, the President saw fit in August to restore him to duty. More than this: in place of allowing him to retire for age, the Department has again assigned him to duty in connection with the Nicaragua Canal. As the canal now seems more than ever likely to be built, it may reasonably be hoped that the reputation he may hereafter make in connection with its successful construction will wholly obliterate the censure, undeserved we believe, that was visited upon him because of the failure of the Brooklyn dry-dock.

IF the architects of the proposed new library building for New York are really the kind of men we hold them to be they will, in place of being angry with him, feel particularly grateful toward that phenomenal personage the present Mayor of New York, since, thanks to his eccentricities, they have afforded to them, most unexpectedly, ample time for restudying and perfecting their design in all its details. A chance such as this is unheard of in American practice nowadays, and it is the sort of chance for quiet study that almost every architect, whatever his actual habit of work may be, is given to bemoaning in public that fate denies it to him, or else he could, should, would do so much better and more artistic work. Other jobs, private ones, are sometimes postponed, and though their actual resumption is believed to be certain, none the less all zest in giving them refining study wanes with the delay. Even in such a case as the Cathedral of St. John the Divine, whose execution is certain though it may be infinitely delayed, we doubt whether the architects can maintain their determination to secure to the design all the advantages of the time afforded for further study. But in the library we have a work which the metropolis of this country is pledged to carry out and for which, as a municipality, it is amply able to provide all the money needed with unexceptionable promptitude, even supposing that the sum already authorized to be expended should prove to be insufficient. It is not possible for the architects to feel that the postponement is anything more than temporary or that there is anything in the situation that can fairly chill their zeal or interest in the work. The astuteness of the Mayor and his Tammany advisers can be admired, even as one approves the intellectual keenness shown in his work by some brilliant professional criminal. Evidently they have not read Shakespeare in vain, and it is amusing to find the Mayor playing the rôle of Portia and saying, "Oh yes! it is quite right for you to build the Library. I will provide the money as soon as it is required; but as I am not authorized to provide money to remove the old reservoir there is really no hurry."

MEANWHILE, while this project rests, rests, we feel sure, to its ultimate benefit, the other enterprise which the same architects, Messrs. Carrère & Hastings, won in open competition at about the same time that they won the Library competition is said to be making satisfactory progress. The sum necessary to justify the National Academy of Design in beginning work on its new building on Morningside Heights is said to have been nearly raised through an appeal addressed to the friends of the Academy, and work is likely to begin at once. The money already pledged, together with what remains from the sale of its property on Twenty-third Street, will en-

able the construction of enough of the projected building to provide accommodation for the classes and the permanent collections already owned by the Academy. The other portions of the building can be built later, whenever gifts from the living or bequests from the dead make it practicable to do so.

AS all things that are Spanish have an unusual interest to us nowadays, we will record the death of Don Federico Mardrazo, who, according to some biographical authorities, died June 10, 1894, but who really closed his life August 22d of the current year. The name is an honored one in the annals of Spanish art, as Don Federico, himself a painter of historical subjects and portraits, was the son of Don José, who was distinguished by his successes in the same branches of art, while Don Federico's son, Don Raimundo, now a man of middle age, is also a distinguished painter but affects the lighter vein of *genre* subjects. Don Federico, who was born in 1815, at Rome, studied his profession, as was natural, under his father's direction and also at Paris under Winterhalter. Later, when settled at Madrid, he became Court painter, as his father was before him, and later a professor, and finally director, at the Academy of Fine-Arts. One of his best-known works, because it hangs in the galleries at Versailles, is "Godefroy de Bouillon proclaimed King of Jerusalem."

M. BOURLET gives, in *Le Génie Civil*, a study of the development of bicycles. The real ancestor of the modern bicycle was, in his opinion, a machine devised by the Baron Drais, of Sauerbrunn, and called by him the "draisienne." This was a vehicle composed of two horizontal beams, joined by a pivot, so as to admit of being set at an angle with each other in a horizontal plane, with one wheel under each. A saddle fixed on the rear beam, and a handle attached to the other, completed the apparatus, which the rider, seated astride on the saddle, propelled by striking his feet on the ground. This primitive contrivance became for a time fashionable, as did an English version of it, made of iron, and known as the "hobby-horse"; the fashion soon died out. One day, in 1855, a carriage-builder in Paris, named Michaux, had a "draisienne" brought to him for repairs. It was nearly forty years since the introduction of this queer vehicle, and Michaux examined it with curiosity. Since its invention, every civilized country had seen the development of railways, and Michaux was familiar with the principle of the locomotive engine, which Drais had never dreamed of. It was, then, without much difficulty that Michaux perceived the possibility of fitting cranks to the forward wheels to be turned by the rider seated in the saddle, and a little experimenting showed that, with suitable handle-bars for managing the forward wheel, a rider could keep his feet off the ground for a long time without danger of falling. Michaux saw a chance for profit in the device, and, together with a man named Lallermant, who had been studying the subject, and had arrived at similar conclusions, he began the manufacture of a wooden "velocipede," of considerable merit. It was, however, with its wooden frame and wooden wheels, encircled with iron tires, heavy; and about 1869 some one conceived the ingenious idea of making the wheels with spokes in tension, instead of compression, substituting iron wires, tightly stretched, for the wooden spokes of the old wheels. The device was an excellent one, but, for a time, the wire spokes gave trouble by breaking off at the hub, in consequence of the twisting strain thrown upon them in turning. This defect was partially obviated by spreading the spokes at the hub, but it was not until 1878 that wheels with tangent spokes were produced in England, and have since been everywhere adopted. At the same time, the rims were modified. About 1869, iron tires were replaced by india-rubber bands, set in grooves in the edge of the wheel, but the material was inferior, and the present tire of vulcanized rubber was only developed by slow degrees. After the solid rubber tire had been adopted, a manufacturer named Truffault, seeking to lighten his wheels, invented a hollow rim, made of sheet-steel, which proved successful, and was led to try hollow tubes for other portions. He got hold of some old steel scabbards, which had once belonged to cavalry sabres, and utilized them successfully in making the forward fork of a machine. Naturally, this suggested tubing of some sort for the other portions, but steel tubing was not made in Truffault's day as it is now, and, although he probably conceived the idea distinctly, he had not the means of carrying it out, and the steel-tube frame did not come into general use until long afterwards.

ARCHITECTURAL FEATURES OF THE BOSTON PARKS.—II.¹

BUILDINGS FOR REFECTORIES, SHELTER, ADMINISTRATION, ETC.



Shelter near Bridge over Saddle-path: Riverway.

A SYSTEM of public parks demands numerous buildings for various purposes—primarily for shelter in case of inclement weather, for the manifold purposes of administration, and for the accommodation of visitors in many ways. These have been provided to a notable extent in the Boston parks, though several yet remain to be erected.

Beginning at the Back Bay Fens, the first part of the park system to be taken in hand, we find the first building erected by the Park Department—the gate-house for the Stony Brook overflow, an unassuming structure of Roxbury pudding-stone designed by the late H. H. Richardson. A second structure of similar character, designed as a gate-house for the overflow of Muddy River, stands on the Riverway at Brookline Avenue. It is the work of Mr. Arthur H. Vinal, then city architect.

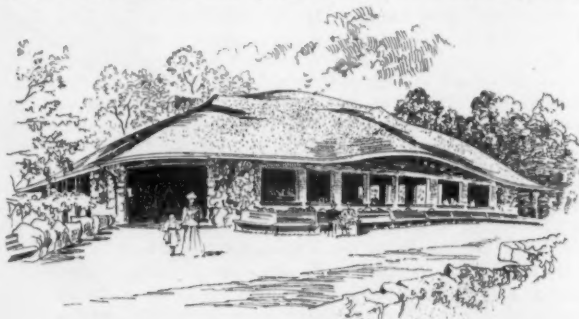
The Administration Building on Audubon Road and the Riverway is the work of Messrs. Shepley, Rutan & Coolidge. It is conveniently located, adjacent to the line of the Boston & Albany Railroad, and has facilities for the unloading of supplies and other material from the cars, to be stored in the basement or shipped to other parks. The building contains excellent accommodations for engineers, park police and also public urinals and water-closets. It is a plain and well-proportioned structure of brick.

The picturesque circular building on the Riverway for shelter and outlook purposes, designed by the same architects, has been mentioned in connection with the Longwood foot-bridge.

On the Brookline side of the Riverway, a short distance above Longwood Avenue, and also adjoining the tracks of the Boston & Albany Railroad, is a small tool-house for the Brookline park department, also designed by Messrs. Shepley, Rutan & Coolidge.

At Pine Bank in Jamaica Park is a handsome building of stone and brick, formerly the mansion for the Perkins estate, that comprised this portion of the park. The interior was destroyed by fire not long after it came into the possession of the city, but the walls remained intact. The building was reconstructed with special reference to park uses, and it was intended to devote the lower portion to refectory purposes, but it was found that there would not be sufficient patronage at present. It was, therefore, decided to use the entire building, with the exception of rooms desired for public shelter and conveniences, as the central headquarters for the park department, thereby saving the considerable outlay for rentals in the business centre. On the south side of this building is a beautiful terrace overlooking Jamaica Pond. In the centre of the terrace stands the charming fountain designed by Miss Anne Whitney.

In Franklin Park the first building erected was the Overlook shelter. It has a very large, low roof, of an irregular curve, the lines of which were obtained by careful study in a wax model. The



Overlook Shelter: Franklin Park.

spacious interior would shelter a very large number in case of a sudden shower or other inclement weather. There are provisions for the sale of simple refreshments; there are also police accommodations, and in the basement are toilet-rooms and lavatories, together with lockers for the use of boys playing on the adjacent Playstead. On

the side towards Pierpont Road this building has a picturesque façade of shingle and boulder work. The entrance from the Playstead is by a subway to the basement, through an arch in the wall of the Overlook.

This building has a peculiar interest from the fact that it is the



Ellicott House: Franklin Park.

one edifice in the whole park system to which Mr. Frederick Law Olmsted gave so much thought that the design may be fairly called his. The working-drawings were prepared by the city architect of that date, Mr. Vinal, but the only feature of the building for which Mr. Vinal is responsible as a matter of design is the introduction of the two stone columns to support the roof and the roof-trusses, and, of course, the details of mouldings, etc. The model for the undulations in the roof was prepared by Mr. Olmsted.

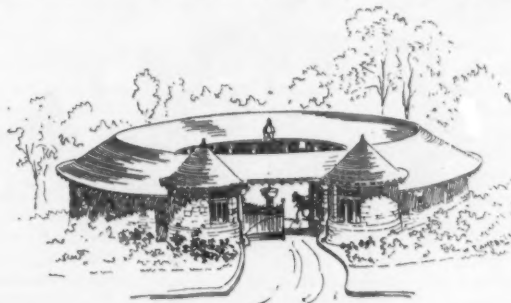
It is the purpose to provide buildings for shelter and other conveniences in the immediate neighborhood of all portions of the parks that are special resorts for any purpose, as at the Playstead. A building, called Ellicott House, has accordingly been built for the use of players on Ellicottdale, which is devoted to tennis, croquet



Entrance to Lookout on Schoolmaster's Hill: Franklin Park.

and similar games in which girls and women take part. Ellicott House is a stone structure of a tasteful English cottage design, the work of Messrs. Rotch & Tilden. It is in charge of a matron, and contains lockers for the use of players. It occupies a retired site on the other side of Ellicott Arch from the playground. In connection with the arch it makes a charming rustic picture.

Another building for similar uses is that on Schoolmaster's Hill, the design for which was studied with great particularity by Mr. Frederick Law Olmsted, together with the adjacent long line of arbors for the use of small picnic parties, commanding a broad and beautiful prospect. Besides its use for shelter and other accommodations, a purpose of this building is to provide a place where picnic parties can



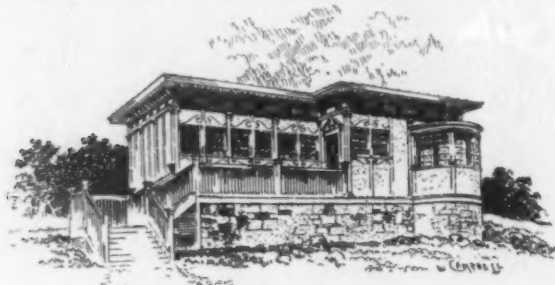
Refectory Carriage-shed: Franklin Park.

obtain hot water for tea, together with light refreshments. The building is of stone, in an English rustic style. It was originally designed by Mr. Olmsted with a thatch roof, but there was some objection to this feature on the ground of impermanence, and glazed

¹ Continued from No. 1181, page 52.

tiles were substituted by the city architect, Mr. Edmund Wheelwright, in carrying out the design. The tiles have a showy effect, hardly in accord with the rustic character of the work as a whole. The Schoolmaster's Hill terraces, close by, were designed by the late Charles Eliot and Mr. John Charles Olmsted.

It is proposed to have a building for the accommodation of players on the golf-links, and another building that has not yet been carried



Girls' Bath-house: Wood Island Park.

out is a picturesque structure for boating and skating on Scarborough Pond, designed by Mr. Wheelwright.

The largest and most costly building in Franklin Park, and, indeed, in the whole park system, is the refectory on Refectory Hill, designed by Messrs. Hartwell & Richardson. It is a Renaissance structure, of light-buff brick and terra-cotta. This light color, while giving a cheerful, festive appearance, also contributes to making the building unduly conspicuous and, perhaps, the only serious contravention of the canons for park architecture referred to at the beginning of these articles. This over-conspicuousness will perhaps be mitigated by the growth of intended foliage about it. But a lighter and more airy design would have been more in keeping with the site and the purpose. The Refectory stands upon a great terrace, with a wall similar to that of the Overlook and similarly overgrown with plants. The building is nearly surrounded by a pergola, which covers the greater part of the terrace. This site was chosen for the Refectory on account of the superb view, with a background formed by the range of the Blue Hills. Adjacent to the Refectory is a circular arrangement of carriage-sheds, architecturally attractive.

The Refectory, on the whole, considered in relation to its site, is the most unsatisfactory of all the architectural works in the Boston parks, being in marked violation of the instructions and wishes of the landscape architects as to the relation of the design to the landscape. It was not the intention of the latter to have the building of the light-colored terra-cotta, nor so showy in its details, particularly as to the pavilions on the roof. The woodwork of the pergola was intended to be as low in the middle portion as elsewhere and without the eccentric curves in the elevation. The terrace balustrade was intended to be of boulder work and to have curves everywhere. It is intended to have the pergola floor formed by a brick pavement sloping toward the holes left for vines, so as to shed rain-water into the earth at those points. The present plank-floor is a temporary expedient to permit cultivation of the ground while the vines are growing.

The impression conveyed by this building is that of a desire on the part of the architects to make an ostentatious work, disregardful of all ideas as to harmonizing the building with the landscape and desirous of making the most "stunning" edifice possible with the available appropriation. To speak plainly, the building has been made obtrusive, instead of following in its design the great law of the art that commands adaptation to environment as the first consideration, with all effects secured in subordination to this principle.



Shelter at Charlestown Heights.

At the Blue Hill Avenue entrance to the park, near by, is a simple and picturesque shelter for persons waiting for the public carriages, designed by Mr. R. Clipston Sturgis.

On Charlesbank are two interesting "field-houses," for use in connection with the men's and women's outdoor gymnasiums, respectively. The former replaces a good building that the patronage of

the place had outgrown. Both are picturesque wooden structures in rustic style and covered with shingles. They contain ample accommodations for lockers, baths, etc., and the bathing facilities of the former are open through the winter to the public at large, the first public cold-weather bath open in the city. The men's building connects with the exercise-ground by means of a wooden arch that crosses the running and bicycle track, a stairway connecting the ground with the second story. The men's field-house was designed by Mr. Edmund M. Wheelwright, as city architect; that for women by Mr. C. Howard Walker.

These Charlesbank field-houses are, in a measure, to be regarded as temporary, as larger accommodations may be required later. Had they been regarded as permanent, the desire of the landscape architects would have been to have them constructed of brick or stone in a simple Romanesque or Classic style, on account of their proximity to plain brick tenement-houses.

At Wood Island Park, in East Boston, is a similar field-house for the men's outdoor gymnasium, designed by Mr. R. Clipston Sturgis. Its cupola enhances its somewhat stately air, due to its rather conspicuous site in the midst of a large playground. It has a rough-cast exterior, and an arch, similar to that at Charlesbank, gives access to the exercise-ground. A tasteful bath-house designed by the same architect is represented by a completed section of the whole.

At Charlestown Heights the shelter building, designed by Mr. C. Howard Walker, is an attractive feature of the place. The basement contains toilet accommodations, etc.

At Marine Park Mr. Edmund M. Wheelwright is the author of the strikingly picturesque "head-house" for the great pleasure-pier. The design is in the old German "Rathhaus" style, and was suggested by the admirable German Government Building at the Columbian World's Fair, although there is no direct likeness between the two structures. It is of half-timber construction, and the panels are filled with fantastic designs executed and partly originated by Mr. Max Bachmann. It contains a refectory, accommodations for shelter, lavatories, etc., together with several hundred dressing-rooms for bathers on the adjacent beach.

In its realization this design appears to be too picturesque for the broad and simple landscape surroundings that it must always have. The design would be more appropriate for a rocky, tree-clad shore. If it can ever be flanked by masses of well-grown trees the banks of foliage thus secured will doubtless go far towards giving the work the right place in the landscape.

At North End Beach the group of buildings designed by Mr. R. Clipston Sturgis, in the Elizabethan style, has a charming agreement with the general character of the historic locality and with the old-time buildings near by, in particular. The buildings include dressing-rooms for the adjacent beach bath, laundry and administration accommodations, etc. There is also a boat-landing and a great pleasure-pier, double-decked, having a shelter on its upper deck.

Mr. Wheelwright, as city architect, designed several park buildings which have not yet been carried out. Mention has been made of the proposed Scarborough Pond boat-house. Another proposed boat-house is that for the Back Bay Fens, in combination with a house for water-fowl. This delightful design is in the Japanese style, and was suggested by the Japanese temple on the Wooded Island at the Columbian World's Fair. The situation here corresponds very closely to that on the margin of the lagoon at Chicago, and the effect could not fail to be equally beautiful. A third boat-house design by Mr. Wheelwright, for Jamaica Park, has admirable character.

Another important design by Mr. Wheelwright is that for a shelter at Castle Island. In character it meets the requirements for a water-side structure of holiday aspect, while it felicitously expresses the name of the island, as derived from a circumstance of historic import.

Besides the terraces at Revere Beach, the only important architectural work yet carried out by the Metropolitan Park Commission is the great bath-house, a large edifice of brick, simple and thoroughly utilitarian in design. It has a fine architectural effect by reason of its commanding position on the grand driveway, reinforced by the high walls that flank it on each side and by the ocean-side terrace in front. The flags waving over the entrance, the decorations of the terrace, and the throngs of bathers and other pleasure-seekers combine to impart the festival aspect belonging to a scene of the kind. This effect is heightened at night by the brilliant illumination of the building and its surroundings by numerous electric-lights. The establishment has dressing-rooms for a thousand bathers, and provisions for expeditiously and thoroughly washing and drying an enormous number of bathing-suits, together with all needful lavatory and sanitary accommodations.

On the Mystic Valley Parkway, in Winchester, is a small and picturesque building for police and sanitary accommodations also built by the Metropolitan Commission. It is a pleasing example of an economical and inconspicuous means of satisfying the needs to be provided for.

SYLVESTER BAXTER.

MITLA AND OTHER ANCIENT CITIES OF MEXICO.



El Calvario, Mitla.

THE time is seemingly approaching when the ancient cities of Mexico will be opened as a new field to the students of architectural history. Our information regarding some of these cities is being rapidly extended. In 1863 Charnay published his fine photographs with his "*Cités et Ruines Américaines*." In 1874 Hebrüger photographed the ruins of Mitla. In 1881 Bandelier made his "Archæological Reconnaissance into Mexico," and a considerable portion of his Report thereon to the Archæological Institute of America is devoted to a detailed description of Mitla. More recently, the mural paintings of Mitla have been made the subject of an important work by Seler; and Le Plongeon has published his book upon the Maya remains. Maler, Mercer and Maudslay have published works upon the Yucatee ruins; and no less important than these is the report of Mr. William H. Holmes to the Field Columbian Museum, Chicago: "Archæological Studies among the Ancient Cities of Mexico."

This report appears in two parts, comprising altogether 338 well-printed octavo pages, fully illustrated. The Parts are difficult to obtain, as the Museum has them for distribution only to institutions or individuals having an equivalent literature to offer in exchange. The present writer's efforts have failed to secure him a copy of Part I of this exceedingly interesting work, — containing 140 pages of matter upon the monuments of Yucatan — and he counts it his rare good fortune that Part II, containing reports on the Monuments of Chiapas, Oaxaca and the Valley of Mexico, should be in his possession.

Mr. Holmes was admirably equipped for the work entrusted to him by the Museum, his long service as draughtsman for the Smithsonian Institution having quickened his powers of observation and rendered him exceedingly expert in the preparation of drawings for scientific illustration; while his sympathy for his subject seems to be inborn. He has illustrated his report with detail drawings which are an immense aid to our conjectures as to how the buildings in the



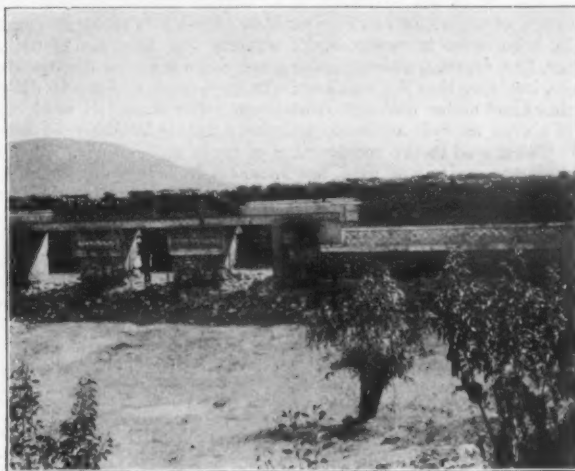
Interior, Mitla.

ancient cities were constructed, and with topographical sketches and panoramic views which help one who has never visited these ruins, or any like them, to realize the scene far better even than from photographs. Photographs are likewise numerous in the book.

His investigations of Palenque, in the State of Chiapas, of Lesser Alban, Monte Alban and Mitla, in the State of Oaxaca, and of San Juan Teotihuacan, in the Valley of Mexico, were thorough. To Tenochtitlan he devotes little more than a page of reference to the subsoil investigations previously made at Noncalco, San Simon and Santiago Tlatelolco, of little or no architectural interest. Whatever superstructures there may have been at Lesser and Monte Alban have now disappeared, leaving only earth-mounds to suggest the inquiry as to what they were. Palenque and Mitla, however, are fit subjects for architectural study.

While not the most extensive of the ancient cities of Mexico, Mitla, being the best preserved of them, presents the most satisfactory field for architectural study, more especially as it shows a development of the art of building far beyond the stage generally ascribed to aboriginal races. The ruins of Mitla, in fact, present features of plan, profile, construction and ornamentation not found elsewhere. Purely geometric mural decorations, in striking contrast with the life-form mythologic designs elsewhere prevalent among the remains of the prehistoric races of Mexico, may or may not indicate a racial distinction; it cannot fail of suggestions to the architectural student.

In considering these ruins and the approximate mechanical perfection of the stonework which they indicate, it must not be overlooked that Mitla enjoyed advantages over Monte Alban and Teotihuacan, whose remains indicate that both were larger cities in the past. The quarries about Teotihuacan furnished basaltic lava; those about Monte Alban, flinty quartzite and crystalline limestone, both exceedingly difficult to work; while Mitla is surrounded by cliffs of trachyte, a variety of volcanic lava, light gray in color, massive, of moderate density and hardness, reasonably tough and durable, yet easily split, hewn and worked with the crude implements in use



The Ruins at Mitla.

among the prehistoric sculptors. And in this interesting particular Mr. Holmes has given valuable information in advance of any heretofore attainable. Bandelier was informed in 1881 of the existence of an ancient quarry about six miles from Mitla, but was unable to get to it. One of Mr. Holmes's assistants succeeded in finding it, and from the description he furnished and by close scrutiny of the stone implements used by the prehistoric stonecutters Mr. Holmes is able to arrive at the "conclusion that there is no specific distinction between the work done at Mitla and that of the soapstone workers in Virginia, Pennsylvania and Connecticut." The quarry discovers the several stages of the process by which the huge monoliths used by the Maya builders were obtained. From a solid mass of trachyte, one block twelve feet long by five wide and three thick had been detached and set up on its edge. A second block of similar dimensions was detached and rested upon small stones. In a third block the process of undercutting on both sides had begun and the channeling for a fourth block had been carried nearly to its full depth. Mr. Holmes's drawing from this description fully illustrates the process by which stone was quarried by the aborigines. And not the least interesting of the remains of Mitla discovered by Mr. Holmes and illustrated in his report is a huge block of trachyte, partially hewn and showing how the stone, after being quarried, was prepared for use in building. In the immediate vicinity of this block his experienced eye encountered a large number of stone picks. The means by which these huge stones were transported from the quarries to the place of building remains to be discovered, but the indications thus far are that the workmen made use of levers and of some simple contrivance for aggregating and concentrating their individual strength. The vast results attained with their necessarily simple and crude appliances imply the employment of large numbers of men under a despotic power, continued throughout successive generations.

Recent railway construction in Mexico has rendered the ruins at Mitla reasonably accessible to tourists, but it is the writer's previous

familiarity with the literature of the subject which leads him to pay more particular attention, in a paper necessarily brief, to the features of those ruins which are best worth the consideration of students of architecture. The ruins are disposed in an area of about two thousand feet from north to south and about one thousand feet from east to west. They consist of five groups (called by Mr. Holmes, for convenience, the Catholic Establishment Group, the Adobe Group, the South Side Group and the Group of the Columns), together with a fortified hill in the immediate vicinity. The chief ruins, as Baudelier tells us, are known in the Tzapoteca dialect by the name of *Lyó-Baa*, or "Entrance to the Grave." The name of the Catholic Establishment is derived from the Church and curacy built into the walls of the most northern ruins on the highest ground.

There are indications that the details of the construction of the buildings occupying these sites were prearranged. The pyramidal substructures usual in other localities have been unnecessary in two of the groups, which rest upon but slightly modified ground surfaces. A third rests upon terraces not over twelve feet in height. The other groups have pyramids, the highest twenty-five feet high. This pyramid was constructed in terraces probably six to ten feet in height, with faces of stone, either cut or finished in plaster or cement. The floors of the terraces, four or five feet in width, were of cement, or perhaps, in some cases, of stone.

The ground-plan of the buildings was simple, presenting long, narrow, rectangular chambers. A few of these show traces of partition-walls. The width of the chambers is limited by the ceiling span to a single beam's length, about twelve feet, or to two beams' length (where columns were used to support the beams in the centre), about twenty-three feet. To the interior width may be added the thickness of two walls, about seven feet. The maximum exterior length is one hundred and thirty-three feet. The walls were but one story in height and did not extend above the flat roofs. There are no indications of the existence of successive stories, of towers, of stairways, of arches, or of subterranean water-ways, as at Palenque.

The orientation is exceptionally uniform and accurate to within four or five degrees, although there are differences of constructive details, implying that the buildings may have been erected at different times and under different conditions. The materials used consist of adobe, as well as stone, and there are indications of wood having been used in the construction of roofs and ceilings. Mortar of excellent quality was used, not so much in laying cut stone (in which, as is often remarked, the joints were so perfect that the lines of junction would be invisible) as to fill out spaces and even out surfaces.

The Column Group presents the greatest development of architecture. It includes three sub-groups, called by Mr. Holmes, the Quadrangles of the Grecques, of the Columns and of the Sub-galleries, respectively. The first name was conferred by Charnay, because of the Greek panels with which it is profusely adorned. Conjoined with the second is the well-preserved Hall of the Columns, which has already attained to considerable fame among archaeological investigators.

The chief interest in the Group of the Columns, and hence in Mitla, centres in the ornamentation of the façades of these buildings. The designers have resorted to string-courses, and these support rectangular panels of mosaic-work in stone. There are about one hundred and fifty of these panels, besides the continuous panels of the four Grecque chambers. Mr. Holmes, by means of ingeniously contrived under-and-over sheet drawings, shows that the relation of the mosaic pattern to the mosaic stones is such as to imply that the stones were fitted into the wall and the fretwork carving done subsequently (though he does not say this). The fret-motives are in great variety. They are suggestive of distinctive styles, and a Mexican architect adopted some of them as motives for the embellishment of the pedestal for the statue of an Aztec hero. In so doing, however, he was guilty of an anachronism, for these motives are chronologically precedent to the era of the Aztecs and far in advance of the attainments of that race.

Mr. Holmes does not attempt to decide whether the buildings at Mitla were temples, palaces or communal houses. Each theory finds some support and many adherents. He is inclined, on general principles, to attribute their erection to religious inspiration; yet he finds that plan and arrangement do not correspond with the specialized temples of other localities, and that there are strong suggestions of communal use, especially in secluded courts, convenient for the retreat of women of a community, or for special social or sacerdotal groups. He promises in his preface that a contemplated final chapter on the "Origin and Development of Ancient Mexican Architecture" will take the form of a separate publication. It is to be earnestly hoped that his acceptance of a position at the head of the Bureau of Anthropology under the Government of the United States will not prevent its publication, and that if published by the Field Columbian Museum it will be made accessible to a large number of readers who are interested in the subject.

L. VIAJERO.

NEW FOUNTAIN FOR THE EXPOSITION OF 1900. — M. Picard has decided upon a new feature of the Exhibition of 1900, which is to consist of a gigantic fountain utilizing the hydraulic force of 12,000 horsepower required for the machinery of the Exhibition. The fountain is to be thirty-four metres high, and its volume of water over 1,200 litres a second. It will be illuminated by electric lights in every imaginable color. — *N. Y. Tribune.*

SIR JOSHUA'S LONDON HOUSE.

BY the time Londoners have returned from their autumn wanderings a house full of associations, and, indeed, well known to many of them, will have been altered, enlarged, and in part reconstructed, almost past recognition. It stands now in the centre of the west side of Leicester Square, with its fine frontage and long first-floor windows, an imposing structure, noticeable enough even to those who know nothing of its antecedents. It was the house to which Sir Joshua Reynolds removed in the year 1760, where he lived for the rest of his life, where the most famous of his pictures were painted, and where he died, "without any visible symptoms of pain, on the night of Thursday, February 23, 1792, in the sixty-ninth year of his age."

We can still wander about the house and find some of the old associations clinging to it. There is a stately last-century flavor about that Georgian hall, with its Corinthian columns and fluted shafts, and about its well-proportioned staircase — so unlike what the modern builder gives us now. The newels from which its ballustrades start are carved with acanthus-leaves, and taper delicately to the base. The iron ballustrade itself bellies out over the edge of the stairs, in order, as one sees, to allow easy passage up or down for ladies who lived in the days when petticoats were "tempestuous," or when hoops were worn. "Leicester Fields," as it was called, was a picturesque neighborhood.

Before Sir Joshua took the house another painter had lived in it. This was Henry Robert Morland, a capable artist, whose fame has been eclipsed by the greater reputation of his son. There are two portraits by this Henry Morland now in the National Gallery — ladies, obviously, though one is painted "Washing" and the other "Ironing" linen. Very delicate they both are in color, and very aristocratic in bearing these ladies masquerading as laundrymaids certainly look. The models are said to be two of the beautiful Miss Gunnings. We may fancy them easily to have passed up that broad staircase, though when Reynolds took the house he remodelled much, altered a great deal, and laid out £1,500 in building a gallery and a painting-room.

No painter ever had such a variety of sitters. That is what gives interest to the house — the sitters even more than the painter himself. They all passed up and down that broad staircase; it heard the rustle of their silks and the frou-frou of their brocades. And we can see these silks and brocades in the pictures still. With a little memory and a little imagination we can make the scene live for ourselves. Here many a time, oftener than any other sitters, came Kitty Fischer and Nelly O'Brien, the two frail beauties of their day, of whom the painter has left us many portraits named and passing as such, but who sat to him as models for half his allegorical figures. Kitty lived in Cranbourne Alley, hard by, ran through £12,000 in nine months, spoke French with great fluency, "was the essence of small talk and the magazine of temporary anecdote, and died a victim to cosmetics." Up and down that staircase she flitted many a time. Nelly was a demurer beauty, with those Irish eyes so admired by Lord Bolingbroke, and lived in Pall Mall, next door to the "Star and Garter," and entertained Sir Joshua at dinner "at 6 o'clock," as his engagement-book for July, 1762, faithfully records.

No artist in these days has worked harder. He would be at his easel at 9 in the morning, even of an October morning. One year the number of his sitters was 162. Another delightful visitor to the house was Mrs. Abingdon, whom he painted again and again, as the "Comic Muse," as "Roxalana," as "Miss Prue." He delighted to put on his canvas her sauciness, as in the "Miss Prue," where, sitting with her arms leaning on the back of her chair, she looks out at you with provocative beauty, the lines of her *retroussé* nose repeated in the pug dog who shared the sitting. And with this actress would come the famous Mrs. Baddeley, who entered the rotunda of the Pantheon in triumph under the drawn blades of her admirers, when the manager tried to exclude her on the opening night.

And then the men of letters: old Johnson, sturdy, purblind, majestic and uncommonly untidy, and Goldsmith, with that pleasant face and splendid brow. He came for his sittings the very year his "Deserted Village" was published, and if Reynolds flattered the poet — as was said at the time — Goldsmith's flattery of the painter has perhaps never been equalled in its simplicity and delicacy and grace. Here are the words of it as it may be read in the dedication to the poem: "The only dedication I ever made was to my brother, because I loved him better than most other men. He is since dead. Permit me to inscribe this poem to you." In contrast to these two men, another of the celebrities of the day whom they both admired but could not like passed up that staircase from his lodgings in Bond Street to keep his appointment with the painter. This was Sterne, who had at that time written the first two volumes of "*Tristram Shandy*," but had not reached his full fame.

He does not seem to have been among the diners, who would assemble at 5 o'clock in the room to the right of the hall-door as we go in. There the table would be laid for eight and the guests would be fifteen or sixteen, Sir Joshua at the head, careless of the food and very careful of the conversation. He would have the club sit as his most constant guests, or Burke and Johnson, and Goldsmith and Boswell, and, with them, lawyers, actors, peers, bishops, then chance visitors who loved to meet the wits, the sitters of the morning, whom his hospitality induced to remain to dinner.

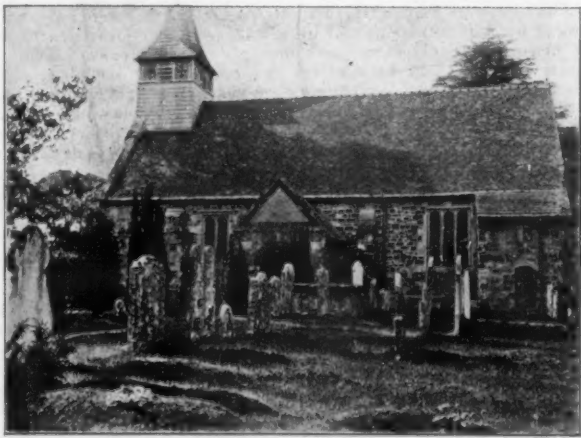
One can realize the scene as it passed within its very walls. Sir

Joshua was primitive in his arrangements. There would be a difficulty about knives and forks and plates. There was no "*diner à la russe*" in his century. Once his sister induced him to lay in a sufficient stock of glasses and decanters, but when they got broken he never would replace them. We may go downstairs and see the little kitchen where these rough-and-ready banquets were prepared. It stands now just as it did in the painter's time, and as we go down the passage we pass the cellar that held his frugal stock of wines.

Hall, staircase, dining-room, basement, all are still very much as they were in the painter's day. That low drawing-room with its three wide windows to the front, its delicately fluted low chimney-piece of white marble inlaid with green, its double doors with reeded doorcases and heavy panels, this was the room where he received his sitters, and where they waited their turns—for no painter was more industrious. He would hand a portfolio of engravings to the sitter and let her choose her own pose. But the room where he worked, the gallery on which he spent that £1,500, has been so altered and reconstructed that it scarcely has for us much remaining association.

The house stands, still, but in a few weeks the builders and their men will be active, and there will be such changes that the *genus loci* may well be driven from the spot. And yet, even to the square itself, once a duelling-ground and the resort of bullies and of foot-pads, the memory of Sir Joshua clings irresistibly. Here it was that one summer's day he was found wandering about, trying to recapture a pet bird that was one of the favorites of the studio, and had escaped from the drawing-room. One knows the face and dress so well, the spectacles, the ear-trumpet, the snuff so copiously scattered over the lapels of the brown or plum-colored coat—"the most invulnerable man I know," said Johnson, "the man with whom if you should quarrel you will find the most difficulty how to abuse."—*London News*.

ELLINGHAM, HANTS, ENGLAND.



Ellingham Church: Alice Lisle's Grave is marked by a flat stone under the right-hand window.

THIS little church is interesting from several points-of-view. It is the chapel of Moyle's Court, the dower-house of the Earl of Normanton's estate of Somerly Park, and contains the square pew, resembling a four-post bedstead, of Alice Lisle, who was sentenced to be burned for harboring a follower of the Duke of Monmouth after the battle of Sedgemoor. The hideous sentence was afterwards commuted, and she was beheaded at Winchester. Macaulay gives a graphic description of the trial in his "*History of England*."

The little church is built partly of red brick; over the south porch is a curious triangular sun-dial, and just by, a little to the right, is a flat stone covering the remains of Lady Lisle.

The Church of St. Mary was built in the twelfth century or somewhat later. It belonged to a priory which was attached to the abbey of St. Sauveur in the diocese of Coutances, by a deed or gift of William de Solaris in 1163, together with the parish church of All Saints. After the suppression of alien priories, Henry VI gave it, and a rent charged upon tithes, to Eton College, where the original deed relating to the building of the church is still preserved. Edward VI added the rectory. The priory held privileges in the New Forest, and some of the land about Ellingham belonged to Beaulieu Abbey. The lower part of the rood-screen remains, and two horizontal beams of carved oak above; but the rood itself was partially destroyed, and filled-in by a lath-and-plaster wall on either side, probably about 1561. Upon the plaster framed texts were painted, and at one side the bracket upon which an hour-glass was placed may still be seen. This was a device of the Puritans to limit the length of discourses, although many of the clergy were in the habit of leaving out portions of the service, such as the Creed and the Commandments, in order to preach longer sermons. In 1625 we find the Bishop of Winchester, Launcelot Andrews, inquiring if his clergy were given to this pernicious habit. There are some re-

mains of the foundations of the priory, and many fragments of carved stone,—brackets, a cherub's head and wings, and the like. The old reredos has given place to a modern Gothic arrangement of doubtful beauty, and has been erected at the west end of the church. It is a high piece of woodwork with pilasters supporting a pediment, beautifully carved—possibly, it is thought, by Grinling Gibbons; it is certainly of that period. Inserted in the lower part is a picture on panel, said to be Spanish; but, although the upper part may be of Spanish eighteenth-century origin, the lower part is more Flemish in character, and earlier. Probably some bungler added the upper part, when angels were supposed to be in the habit of sprawling upon clouds in bright-colored and heavy drapery.

Moyle's Court is a fine, old, brick mansion. The collection of pictures at Somerly Park contains a large number of Reynoldses and a splendid example of Rubens—"the Dying Lioness"—besides many more or less indifferent works attributed to celebrated old masters of the Italian, Flemish, or Dutch schools. Of the Reynoldses, the "Cardinal Virtues" are fine examples of the painter, designed for the west window of New College, Oxford. Very beautiful also are "Una," "The Child and Cat," "St. Agnes," "Contemplation" (called here erroneously "Melancholy"), and, had it not been spoiled by cleaning and varnish, "A Child with a Dog." Two portraits of children also deserve attention. A Bonnington has the appearance of being a fine example, but it hangs too high for study, works by Creswick and Stanfield being apparently more appreciated and placed in a much better light. A family portrait by Hogarth is also a very notable picture—quaint in style, but treated with all his marvellous dexterity of brush.

S. BEALE.

ILLUSTRATIONS

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

THE NEWTON BANK BUILDING, NEWTON, MASS. MR. WILLIAM GIBBONS PRESTON, ARCHITECT, BOSTON, MASS.

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

THIS building has been built in the most thorough manner, all the latest devices for securing safety for bank funds having been adopted. The outside has a granite foundation, with cream-colored brick and terra-cotta trimmings for the upper stories, and, from its commanding position, it is the most noticeable building in Newton. It is divided into two sections by a heavy brick wall, the easterly portion being owned by the Newton National Bank and the westerly by the Newton Savings Bank.

The entrances are on the north side and are three in number, one for the Savings Bank, one for the stairway leading to the upper story and one for the National Bank. They are all set in under a wide porch, so that they are sheltered from the weather.

The Savings Bank quarters are entered through massive mahogany doors, with elaborate iron grille-work protecting them; these open on a vestibule and another pair of doors opens into the banking-rooms. The space for the public is some 18' x 30', which will give ample room for depositors. The floor is laid in mosaic, and, like all the floors on the first story, is fireproof. The walls are tinted a light olive-green. All the desks and woodwork in the room are of mahogany. In front is the trustees' room, fitted up with table and chairs of mahogany.

The National Bank portion of the building is of about the same dimensions, with its own entrance, and here all the woodwork is of antique oak. There are cages of heavy brass grille-work, for the teller and bookkeeper, in addition to the grille-work over the counter, which city banks have adopted as a further precaution against daytime burglars. The vault is of the same elaborate pattern as the one in the Savings Bank, and has a compartment fitted up with safety deposit-boxes of all sizes, for the use of the public. The Holmes system of protection has been put into the safes, whereby any attempt to open the safes automatically rings an alarm in the police station. So delicate is it that the application of even a penknife or a pin to the safe door will call the police. There are also two coupon compartments, in the banking-room, shut off from the envious public, where bondholders can sit at a desk and cut off their coupons at leisure. There is a spacious desk for the cashier and plenty of room for clerks, outside of the cages.

In the easterly end is the directors' room, fitted up with oak.

The National Bank has a spacious basement, with a large storage-vault and two strong-rooms, which will be needed as the demand for storage of valuables in parcels, boxes and trunks increases with the growth of the city. Double fireproof doors shut off the rear passageway between the two banks, and there are heavy steel doors between the two vaults, which could be opened in case the locks of the outer doors of either vault get out of order.

Above the banking-rooms are fourteen rooms of good size, furnished in antique oak, and most of which have connecting doors, which will be leased for offices.

The building is heated by hot water, both direct and indirect radiation being used, and each bank has its separate plant. Both gas and electricity are used for lighting.

The Newton National Bank was organized fifty years ago this fall, and the Savings Bank in 1831.

THREE PRIX DE ROME DESIGNS: A PALACE FOR THE GUESTS OF FRANCE, BY MM. ARFRIDSON, AUBURTIN AND CLIFFLOT.

This plate is copied from *La Construction Moderne*.

ST. STEPHEN'S CHAPEL, ROCHESTER, N. Y. MESSRS. WALKER & BRIGGS, ARCHITECTS, ROCHESTER, N. Y.

EAST ENTRANCE TO BEXAR COUNTY COURT-HOUSE, SAN ANTONIO, TEX. MR. JAMES RIELY GORDON, ARCHITECT, SAN ANTONIO, TEX.

RUINS AT MITLA, MEXICO: TWO PLATES.

See article elsewhere in this issue.

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

A GROUP OF CHURCHES.

A GROUP OF CITY FRONTS.

[Additional Illustrations in the International Edition.]

CORRIDOR FIREPLACE IN THE HOTEL WALDORF-ASTORIA, NEW YORK, N. Y. MR. H. J. HARDENBERGH, ARCHITECT, NEW YORK, N. Y.

[Gelatin Print.]

APARTMENT-HOUSE IN THE CHAMPS ELYSÉES, PARIS, FRANCE. M. A. DURVILLE, ARCHITECT.

"WINTHORPE," EPSOM, SURREY, ENG. MR. EDWARD CARTER, ARCHITECT.

DESIGN FOR PROPOSED JUBILEE CLOCK-TOWER, LEWISHAM, ENG. MESSRS. HUNT & STEADMAN, ARCHITECTS.

PROPOSED OFFICES IN BISHOPSGATE STREET, LONDON, ENG. MR. E. W. POLEY, ARCHITECT.



THE TOOLS OF THE ANCIENT EGYPTIANS. — A two years' study of Gizeh has convinced Flinders Petrie that the Egyptian stone-workers of 4000 years ago had a surprising acquaintance with what have been considered modern tools. Among the many tools used by the Pyramid builders were both solid and tubular drills, and straight and circular saws. The drills, like those of to-day, were set with jewels (probably corundum, as the diamond was very scarce), and even lathe tools had such cutting edges. So remarkable was the quality of the tubular drills and the skill of the workmen that the cutting marks in hard granite gave no indication of wear of the tool, while a cut of a tenth of an inch was made in the hardest rock at each revolution, and a hole through both the hardest and softest material was bored perfectly smooth and uniform throughout. Of the material and method of making the tools nothing is known. — *Invention*.

EXTENSION OF THE BOULEVARD DE LA MADELEINE, PARIS. — Proposals continue to be made for further embellishing this city, with a view to the forthcoming international exhibition. M. Quentin Bauchart, a member of the Municipal Council, is responsible for the last but not the least important of these schemes. He suggests nothing less than a prolongation of the Boulevard de la Madeleine. The new thoroughfare as planned would cut through the small streets of the St. Philippe du Roule quarter, adjoining the Rue du Faubourg Saint Honoré, a favorite neighborhood with English visitors to Paris. The Boulevard as it now exists would be continued past the Madeleine, and open out opposite the Palace of the Elysée, close to the Home Office, not many doors west of the British Embassy. M. Quentin Bauchart's scheme for further "Haussmannizing" Paris and carrying on the vast undertaking begun by the famous Baron under the Second Empire is, of course, as yet but a proposal, for which the Municipal Councillor in question is alone responsible. — *London Telegraph*.

THREE ROOTS IN SEWERS. — City engineers of municipalities where the roots of trees have given trouble by their extension into sewer-pipes will find material of interest in a paper on this subject presented at the Chicago Convention of the American Society of Municipal Improvements by Capt. Lansing H. Beach, Corps of Engineers, U. S. A., which is summarized in a recent issue of the *Engineering Record*. This paper describes the experience in Washington, D. C., a city where this trouble seems to be especially likely to occur if sewers are so laid as to furnish any opportunity for intrusion, on account of the peculiar conditions under which this work is installed. The width of Washington streets and avenues, as great as 100 feet in some cases, and the expensive asphalt pavements so largely used, have forced the construction of many sewers in the form of a double line, one branch under each sidewalk. There were no through alleys in the plan of the city when it was laid out, and it is only in exceptional cases that houses can be drained to the rear. The fact, however, that there is a portion of the street, termed the parking, varying from 12 to 40 feet, between the houses and the sidewalks, renders the placing of sewers beneath the latter much less objectionable than it would be in most other towns. Washington is probably provided with more shade-trees than any other city of the country. The setting and care of these is a matter entirely controlled by the Commissioners governing the city, the individual having no more right or privilege to plant trees than he has to lay street-pavements. Streets are provided with shade-trees at the time the curb is set, each having but one variety of trees throughout its length. It can, therefore, be readily seen that as the trees are set just inside the curb, sewers in the sidewalks are particularly exposed to the action of roots, and, where not carefully laid, become completely choked in a few years. Prior to 1878 but little care was taken to secure tight joints in laying a sewer, and as a result it has been necessary to take up and relay many of these lines, and it is probable that all laid before that date will eventually have to be replaced. To cut down the shade-trees, as has been done in some cities, would be cheaper, but is a method that would not be permitted by Congress or the people of the city. In 1878, when the trouble from roots began to be serious, it was determined to lay the sewers in concrete, covering each joint with a concrete band. Burnt-clay rings similar to the pipe were used at first to cover the joint beneath the concrete, but of late years these have been abandoned, as it was found that the concrete band alone was cheaper and better. Only three instances are known where the sewers laid in concrete have been troubled by root intrusion, and upon uncovering these it was found that in each case defective work was distinctly the cause. Two of these sewers were laid by contract and one was by day-labor. The method, with this showing after eighteen years of test, is certainly efficient, and it is believed to be the cheapest construction which will secure the desired result. The method of constructing these sewers, from the office-work on the plans down to the final inspection, is detailed in this interesting paper. — *Providence Journal*.

DECLINE OF JAPAN'S CERAMICS. — The ceramic industry of Japan, viewed from a commercial standpoint, is found to be suffering from a chronic form of decadence. The annual export does not exceed 2,000,000 yen worth, which, however, will decline to 1,600,000 yen when the value of *cloisonné* ware is deducted from the sum. Of the total export at least one-half is sent to the American market. Good customers for the Japanese ware as the American people are, Japan, however, supplies to them only 4 per cent of the total volume of porcelain, the remaining 96 per cent coming from the French, German and other potters. The reason why the demand for Japanese ware is steadily falling off in America is entirely due to the deterioration of the quality of the Japanese porcelains. And yet the Japanese ware is relatively higher in price than the German or French ware. The price being such, with nothing particularly recommendable in its workmanship, the wonder is that the export of Japanese ware does not decline even more. To what an extent the industry has been reduced may be inferred when it is remembered that in Arita, one of the principal porcelain districts of Japan, while its output was valued at above 700,000 yen worth about ten years ago, it has since declined to only one-seventh. Deterioration of the quality is at the root of the trouble. The same remark applies to Tajimi, Soto, Kyoto, and indeed to almost all the places of old famous for their porcelains. Various causes are evidently at the root of the evil. The withdrawal of the liberal patronage formerly extended to potters by feudal princes must in a large measure be responsible for the discontinuance of production of porcelain ware of such exquisite workmanship as to entitle it to be ranked among art objects. But with regard to the cheaper kinds of ware the cause must be traced to the lack of funds and of knowledge. Both are defects not easy to remedy, for it is out of the question that Japanese potters could have, even in combination, command of an adequate amount of funds. The second difficulty is equally beyond immediate cure, for the artisans at present engaged in the work are in most cases men of the old school and are not qualified to be benefited by the recent progress of science. That will be possible only after the boys now being educated at the various apprentice schools shall have been turned out sufficiently equipped for the purpose, with scientific knowledge, further strengthened by practical training at the workshops. But, in regard to this question of how to promote the ceramic industry, the authorities should contribute their due share. It is necessary that greater encouragement should be accorded it, as is the case in the principal ceramic countries of the world, such as Germany and France. — *Japan Weekly Times*.

LORD LEIGHTON'S HOUSE. — There is thought to be some probability that the house of the late Lord Leighton in Holland Park Road, London, will pass into the control of the Kensington Vestry and be preserved as a permanent art centre. The special committee appointed by the local authority consider that it might easily form the centre of a school of art in the widest sense. Students of form and composition would have a collection of the work and methods of Lord Leighton for their careful examination, and the large studio might be used for art lectures, musical performances, or dramatic studies. — *N. Y. Evening Post*.



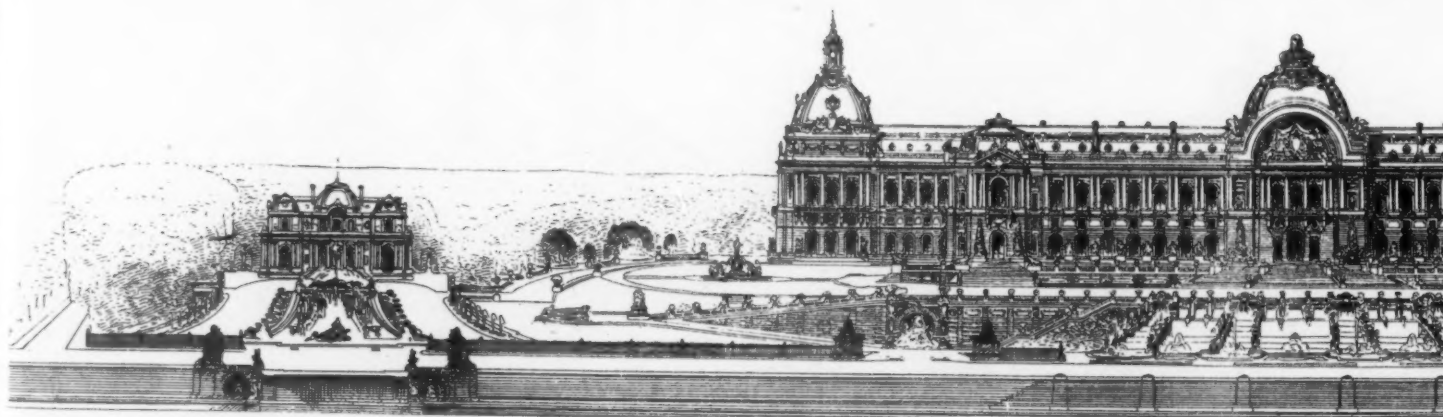
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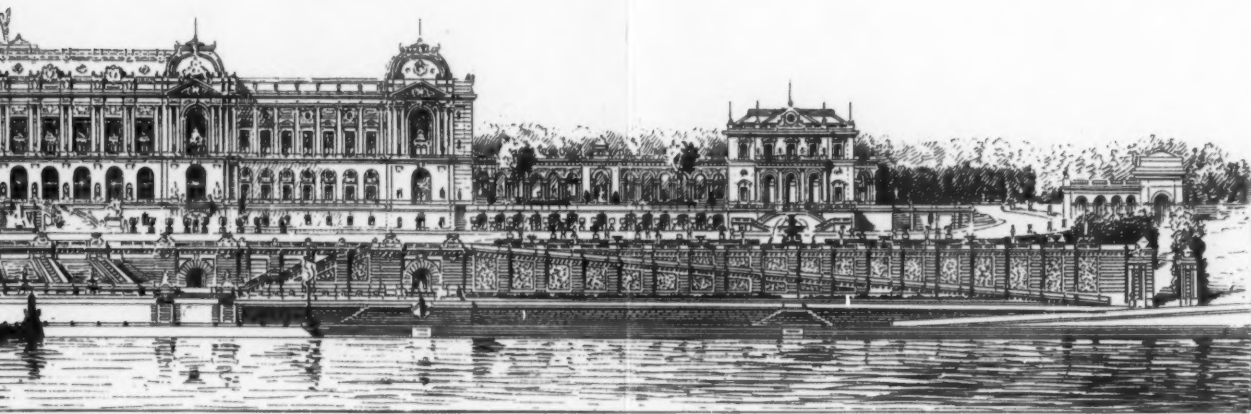
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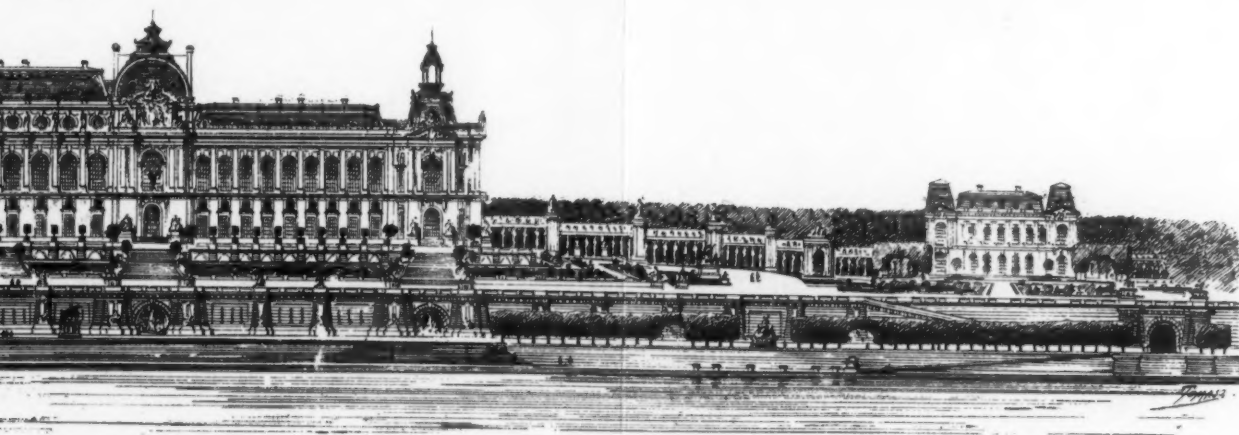
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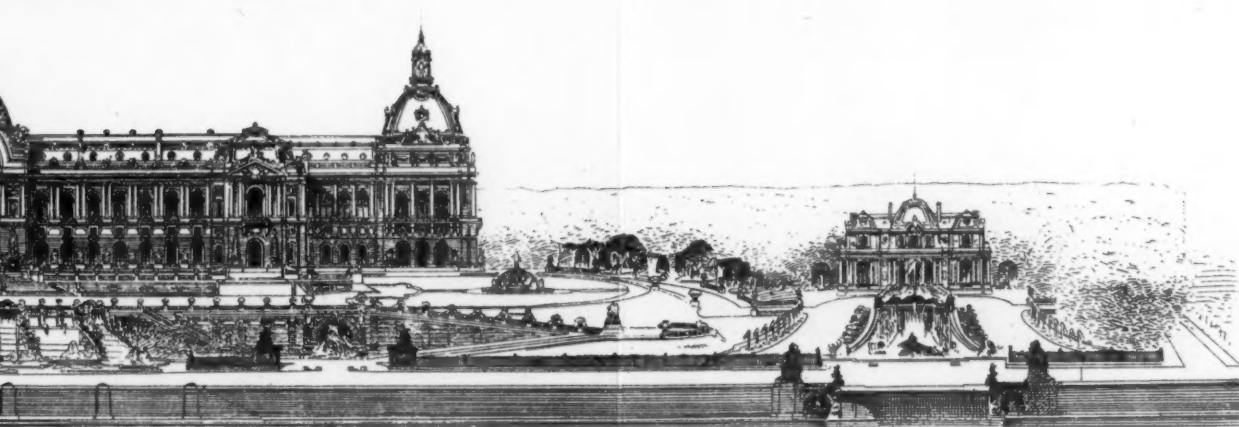
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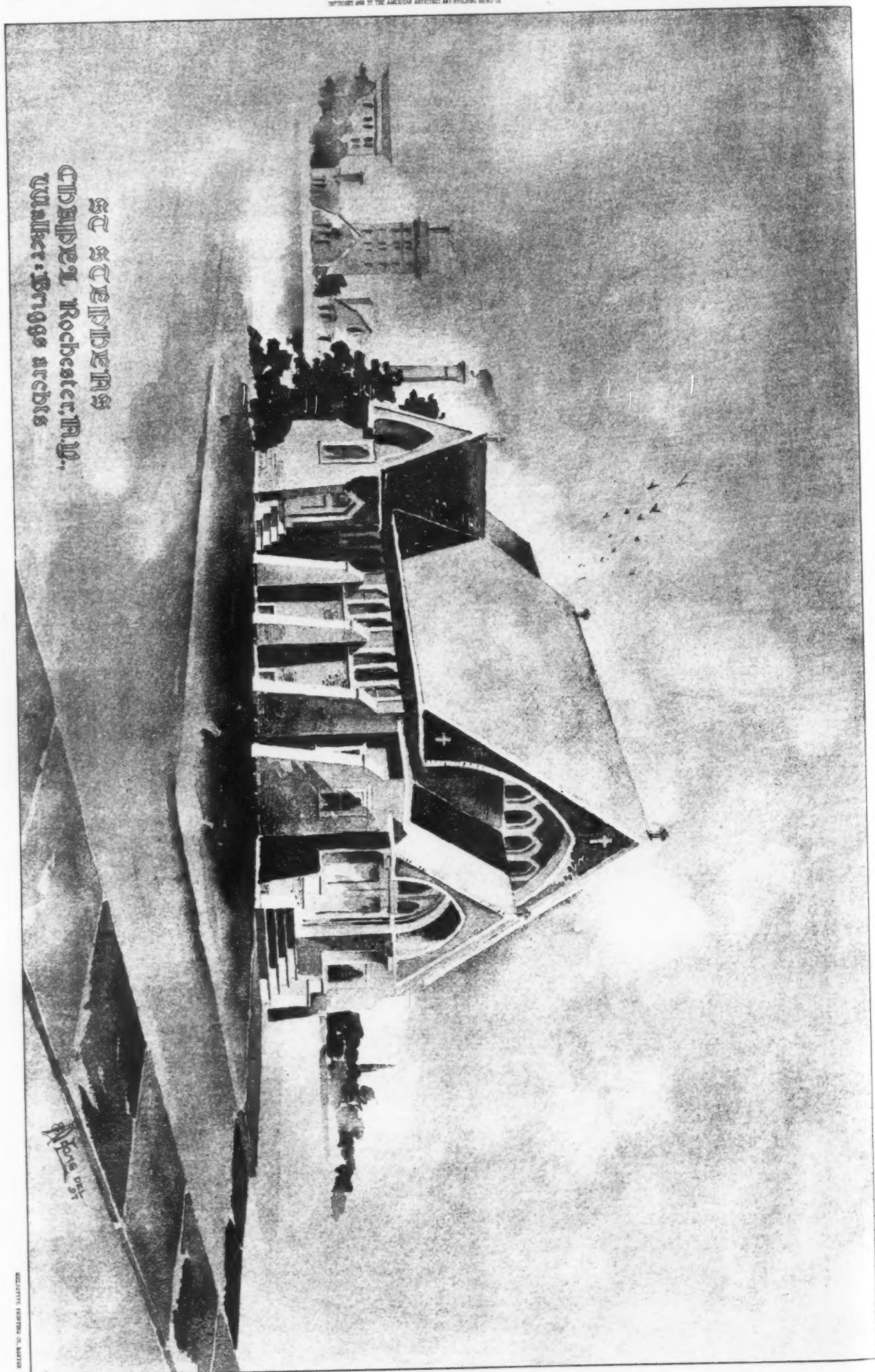
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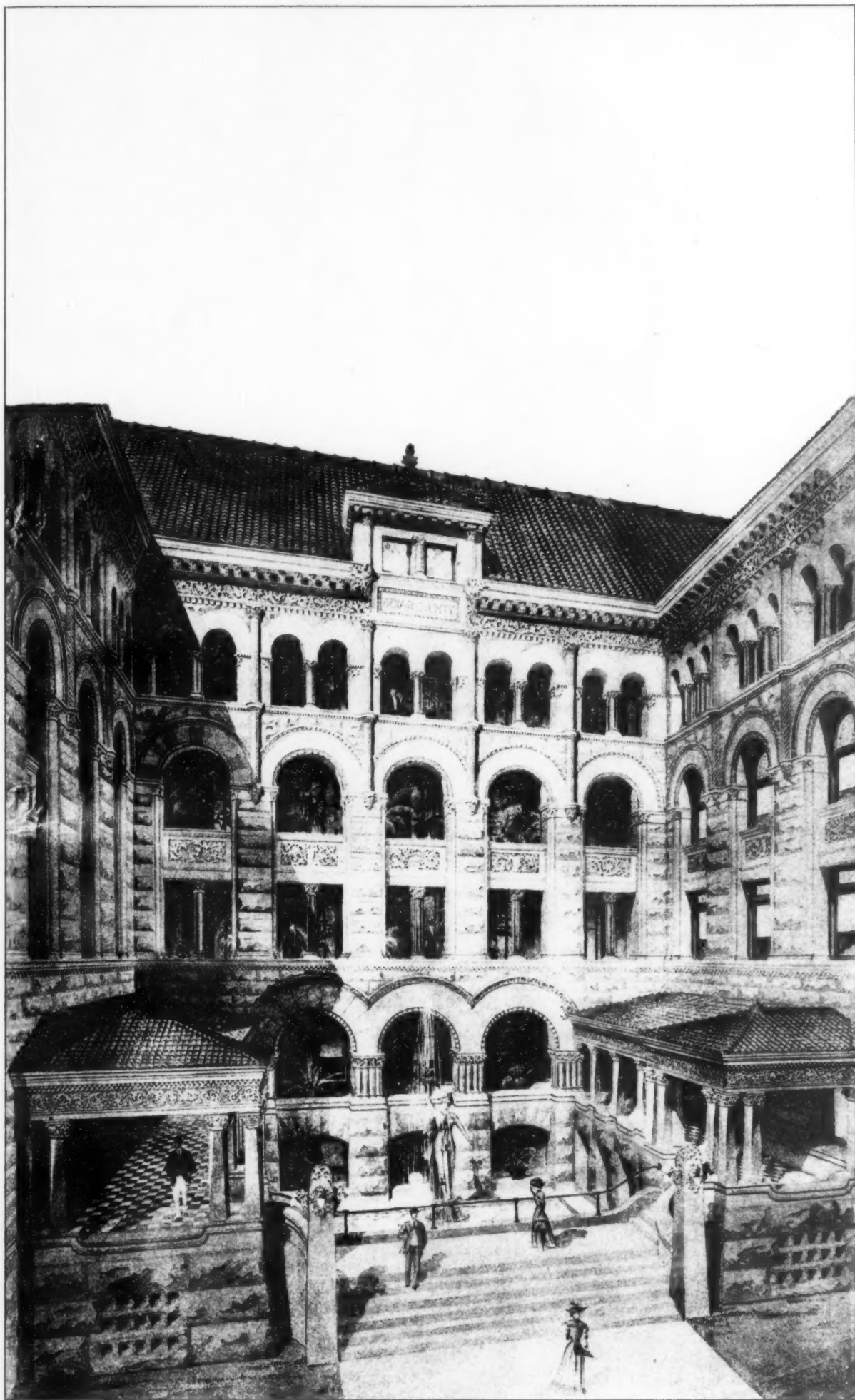


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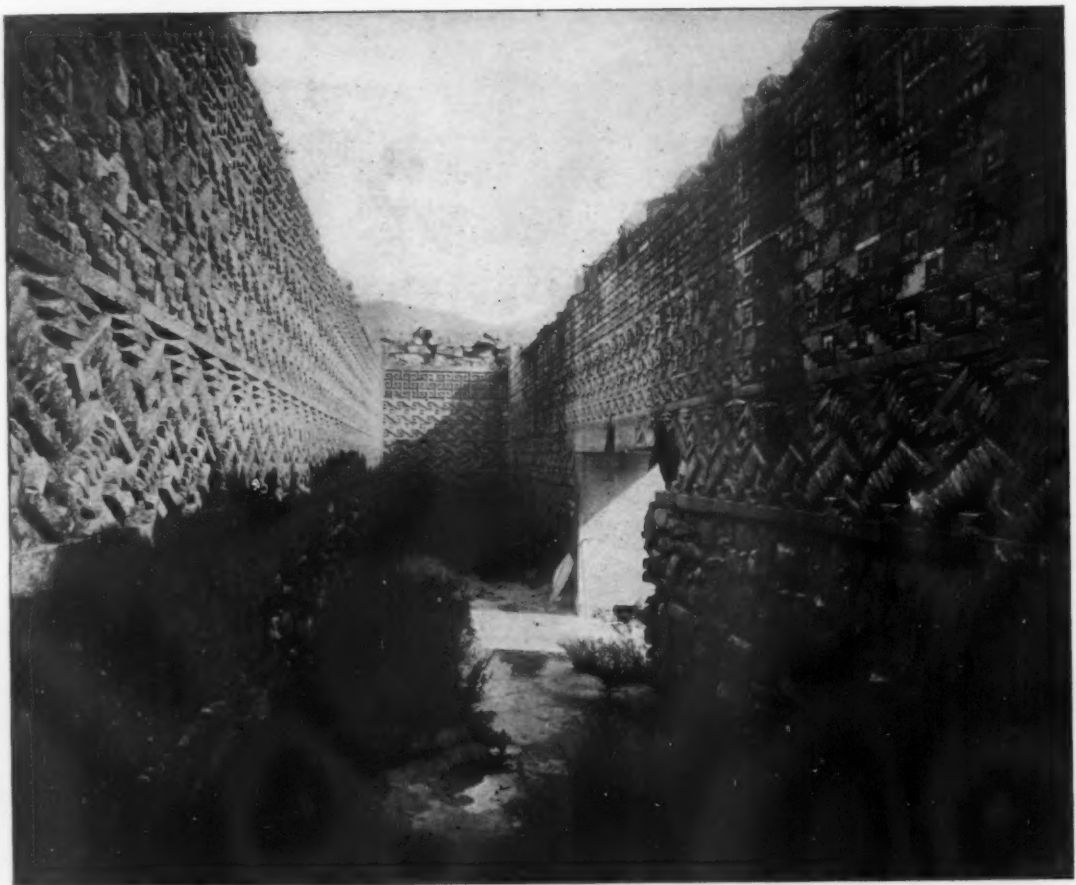
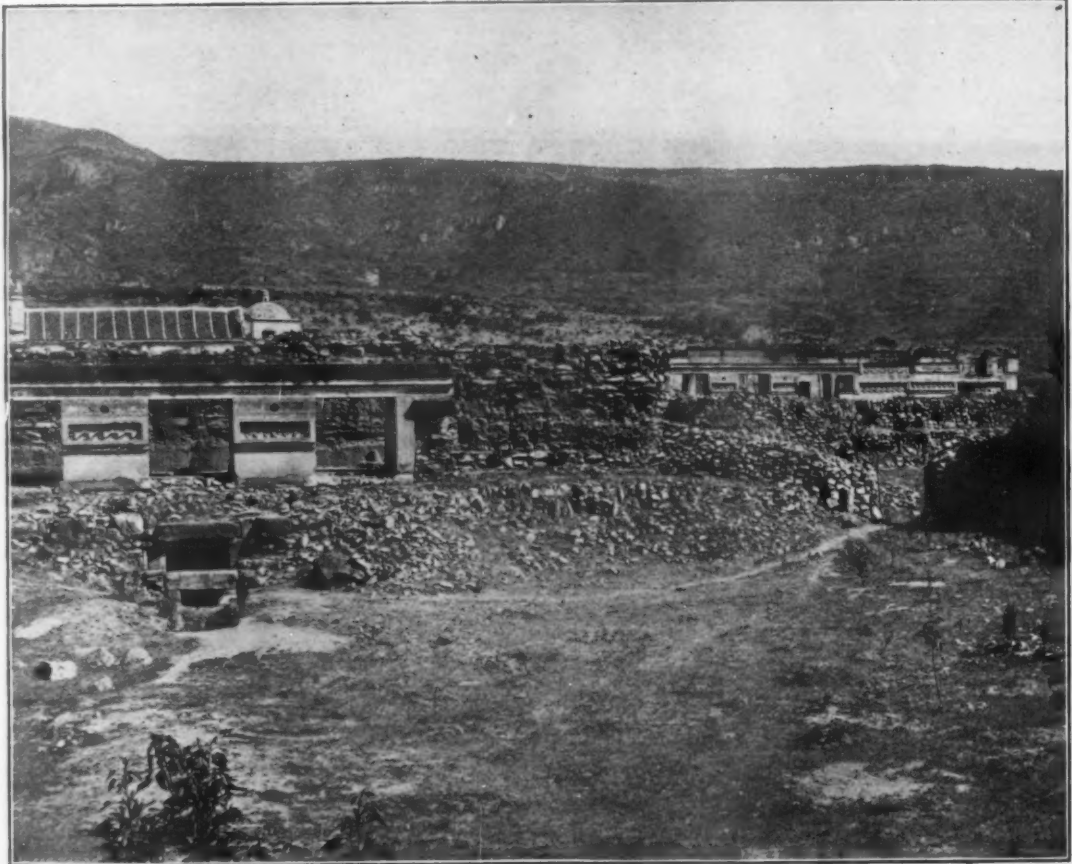
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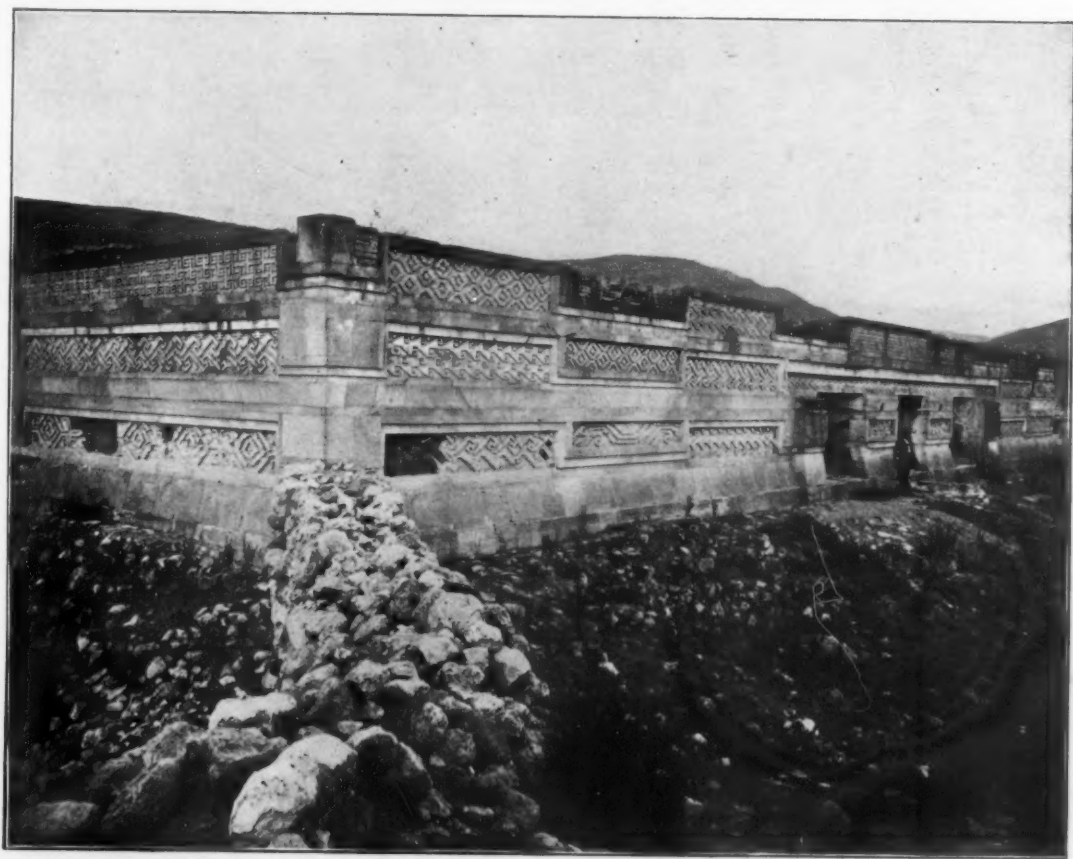
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