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THE
AMERICAN ARCHITECT
AND BUILDING NEWS

VOL. XLII.

* REGULAR EDITION *

NO. 930.

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THE AMERICAN ARCHITECT AND BUILDING NEWS.

VOL. XLII.

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OCTOBER 21, 1893.



SUMMARY:—

The Tribulations of the Builder and Architect of a New York Armory.—Artistic Vulgarity assumed to be a Necessary Sequence of the Success of the World's Fair Buildings.—Death of Mr. Ford Madox Brown, Painter.—The American Locomotive Bell.—The Noises in English and American Railway-stations contrasted.—Lead or Copper Poisoning and Drinking-water.—Coking-ovens.	29
THE BURGUNDIAN SCHOOL OF ARCHITECTURE.—II.	31
THE GREAT EXHIBITION REVIEWED.—III.	32
LETTER FROM PARIS.	34
LETTER FROM SAN FRANCISCO.	36
ARCHITECTURE IN APARTMENT-BUILDINGS.	36
THE HYDRAULIC WORKS AND SYSTEM OF HYDRAULIC POWER-SUPPLY AT GENEVA.	37

ILLUSTRATIONS:—

The Union Trust Company's Building, Broadway, New York, N. Y.—Sketches by the <i>American Architect</i> Travelling-Scholar for 1892.—Two Designs for a Suburban House.—Competitive Plans for the Hôpital Boucicaut, Paris, France.—Store at Louisville, Ky.—A Court-way at Gien, France.—Cottage at Tuxedo, N. Y.—House at Norfolk, Conn.—Design for Entrance to McPherson Barracks.	
Additional: The Heroic Silver Statue of Columbus at the World's Fair, Chicago, Ill.—Corridor of the Equitable Insurance Building, Denver, Col.—Northwest Pavilion of the Liberal Arts Building, Jackson Park, Chicago, Ill., showing Lunette Decoration.—Council-Chamber and Library, Institute of Chartered Accountants.—Church of St. Thomas of Canterbury, West Hill, Wandsworth, Eng.—Birmingham Municipal Technical School, Eng.	39

COMMUNICATIONS:—

English Portland Cement.—The Architect as the Owner's Agent.	40
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THE architects of the buildings devoted to the military service of the State of New York do not seem to find their position altogether enviable. We have before had occasion to mention some of their troubles, and a fresh mischance has occurred to illustrate the rule. An armory is now building for the Seventy-first Regiment, on Thirty-fourth Street, from the designs of Mr. Thomas. A few days ago, a meeting of the Armory Board was held, at which the secretary reported that "a serious blunder" had been made in the construction of this building. "Mr. Thomas's plans," he said, "had lacked clearness, and when the builder followed instructions, he found that the wall on the west side did not meet the roof, there being a space of about six feet all along the side." We need hardly say that experienced members of the profession are well acquainted with the builder who, when he has a grudge against an architect, or wishes to get a hold on him for purposes of his own, discovers "blunders" in the plans, but it is surprising to find that the Board, on the simple repetition of the builder's tale by the Secretary, immediately "fined" the architect four hundred dollars for his "mistake," without, apparently, giving him any chance to be heard, or making the slightest effort to discover the truth of the matter. Judging from the analogy of many similar cases, it is probable that the trouble, if there was any, was due to the carelessness of the builder himself. To say that a builder, having to cover with a roof a space enclosed by four walls, could not make the roof reach the walls on account of the lack of "clearness" of the architect's plans seems, to an expert, very much like a joke. Did the plans show the roof resting anywhere else than on the walls? If not, upon what indications did the builder base his conclusion that the architect did not intend the roof to reach the wall? That there must have been some indication, and that a "clear" and unmistakable one, to justify the builder in going on, without asking the architect for explanations, and making the roof improperly, is well settled in the courts, which consistently hold that a builder who signs a contract thereby warrants that he understands the plans to which the contract relates. His contract, moreover, is not blindly to carry out plans, but to erect the building which the plans are intended to represent. He is obliged to use his skill and judgment in the interpretation of the drawings; he must do, under his agreement, work, not shown on the plans, which may be necessary for carrying out the building which forms the subject of his contract in such a

manner as would be inferred to be intended from a study of the drawings of other portions of the work; and the law obliges him, if he discovers, or might, with due attention, discover, inconsistencies, obscurities or oversights in the drawings and specifications, to apply to the architect for explanations or corrections before carrying them out. If the builder of the armory had done this, it is hardly conceivable that any such glaring blunder should have been committed as that for which Mr. Thomas was so coolly fined; and if he did not do it, the cost of making the blunder good should be paid by him, not by the architect.

A WRITER in the *Brooklyn Review and Record* makes a rather alarming suggestion in regard to the effect of the Chicago Fair upon our architecture. After saying, like every one else, that the Exhibition Buildings constitute, perhaps, as a mere spectacular creation, the greatest achievement of architecture that the world has seen, he infers that they will have, upon a people so impressionable as ours, a lasting effect, but he doubts whether the effect will be altogether advantageous. To be impressed by a piece of architecture is one thing, but to succeed in imitating it is another, and, as imitation is sure to be the way in which the carpenters and pretended architects will show their admiring recollection of the White City, we must probably make up our minds to a reign of "peristyles," engine-houses designed in imitation of the Administration Building, and so on. The *Review* thinks that the Renaissance of the Fair buildings lends itself more readily than other styles to vulgarity and ostentation, and that, on this account, the approaching age, which we may, perhaps, call the White City epoch, is likely to be particularly prolific of "artistic crimes"; but it is to be remembered that, if any artistic sin is possible which has not yet been perpetrated in the Renaissance style, it would take a more ingenious bad taste than is possessed by our builders to invent it, and, while the White City has undoubtedly given models capable of inartistic imitation, it has also done much to cultivate the taste of our community to a point which would render it capable of discerning and rejecting a bad design; and, as people cannot be prevented from making ugly things, if they choose, the more the public taste is improved, the less chance there will be for the bad designers to get their evil intentions carried out.

MR. FORD MADDOX BROWN, a painter very distinguished for his success in working in connection with architecture, died a few days ago in London, at the age of seventy-two. Mr. Brown was by birth a Frenchman, having been born in Calais, but was English in all his relations, and spent most of his life in England. He exhibited many successful pictures at various times in England, and on the completion of the Manchester Town-hall was engaged to paint a series of frescoes on English historical subjects. These frescoes, which have been often illustrated, occupied him for many years, and will form an enduring monument to his reputation. In 1887, the year of the Queen's Jubilee, he painted eight enormous canvases, each thirty-five feet long, representing the industries of Lancashire, to decorate the spandrels of the dome of the Jubilee Exhibition Building. The gift of painting successfully for the decoration of buildings is rather a rare one, and English architects will have difficulty in finding an artist who can take his place.

THE editor of the *Deutsche Bauzeitung*, among his observations on his journey to Chicago, remarks upon the American practice of providing locomotives with bells, to be rung whenever the machine is started. As thousands of highway grade-crossings have no protection beyond a board, requesting the public to "look out for the engine," he thinks that the bells are useful, and perhaps necessary, in passing through the country districts; and even in city stations, where much more liberty is given in the way of crossing tracks than would be permitted in Europe, he thinks it may be necessary to use them; but the result, whether inevitable or not, is to fill the great railway-stations with what he calls a tormenting, and at last unendurable, noise of clanging bells. In other respects, he finds the American locomotives admirable, their thoughtful, ingenious design being no more remarkable than their precision of workmanship and perfection of movement. That this compliment is deserved, no one will doubt, but a

much severer criticism of the noisy and careless management of our great railway-stations might have been justly made. As to our principal terminal stations, although they are far inferior to those of European towns, it may at least be said that they are improving, but most of the great way-stations, like those of Cleveland and Buffalo, are a disgrace to American railroading. To one who, after a few months' experience in Europe, where the large way-stations have handsome staircases, by which, the passenger is conducted to the various platforms, without even being required or allowed to cross the tracks, and where uniformed officials are ready at every step to direct him to his train, to give him notice of the number of minutes remaining before starting-time, and to find a seat for him in the cars, is turned loose, let us say at night in the Cleveland station, and left to thread his way, amid a deafening clamor of bells, and rumbling of shifting trains, across almost innumerable tracks, and in and out among cars just ready to start, if not actually in motion, to find the particular sleeping-car for which he has a ticket, the words which occur as suitable to the circumstances are not complimentary.

THE dangers and annoyances of such stations would, however, be lessened if the terrific noise which the German editor writes of could be abated. No doubt, it is necessary to warn people who are crossing the track in front of a moving train, if the arrangement of the station requires passengers to do so, but this could be done just as well without the continual clanging of huge bells, which, as every one has observed, is often kept up, apparently for the amusement of the fireman, long after the locomotive carrying the bell has come to a stop. There is a story of a little girl, piously brought up, who came to New York with her mother. They reached the city in the evening, and as they walked up the platform in the Grand Central Station, amid the shouts of the hackmen, the clamor of the locomotive bells, the flaring of the gas-lights, the roar of escaping steam, and the confusion of voices, the child, terror-stricken, said to her mother, "Mamma, is this Hell?" Even without the bells, the noise made in an American station in a day would last a French one, or, still more, an English one, for a month. An English locomotive, for example, runs into a station in almost perfect silence. The wheels make, necessarily, some sound, even on the smooth, well ballasted and graded track, but beyond this there is no noise, and it is as easy to talk to a guard, or a cabman, in the Charing Cross or Euston Square station as it would be on the sidewalk. In an American station, on the contrary, the advent of a train is heralded from a distance of a quarter of a mile or so by the pounding of its huge bell. It clatters into the station, and, as the reversing lever is pulled to bring it into a stop, the safety-valve flies open, with a hissing roar that drowns all conversation in the neighborhood. Even outside the stations, the American railway-service appears to be designed to make as much noise as possible. The rattling and thundering of the trains is, we suppose, incident to the greater weight of the cars, and the smaller diameter of the wheels, so that it would be impossible to imitate here the smooth, quiet movement of an English train; but it is not impossible to suppress the other noises. To say nothing of the big bell, which is often rung continuously on every locomotive through the whole of its passage through a thickly-settled town, and the opening of the safety-valve at every check to the speed of the train, our engineers apparently take pleasure in adding a distracting whistling to the other uproar. We have ourselves heard an American locomotive whistle at a distance of fifteen miles, and it may be imagined that performances on this instrument do not add to the satisfaction of residents on the line of a railway, however, they may delight the fireman and his friends. In plain truth, they are an intolerable nuisance, and should be forbidden by law except in cases of absolute necessity. If the unnecessary whistling could be suppressed, there might be hope that the unnecessary bell-ringing might also be done away with, and then might follow the invention of a comparatively noiseless safety-valve. Even then, we should be far from having reached the quiet of English railway operation, but, at least, some relief would have been given to the public nerves.

TWENTY years ago, or even less, there was a panic in the public mind on the subject of poisoning by water drawn through lead pipes. Terrible were the stories related of the sufferings of persons who had drunk water from lead pipes,

and in whom the metal had "accumulated," to use the expression of the day, and in all well-regulated houses block-tin pipes, or at least tin-lined pipes, were employed to convey the water used for drinking. At that time, there was more reason for anxiety on this point than there is now, as it was common to supply houses from a tank in the upper story, itself supplied by a "rising main" and ball-cock, and the drinking-water stood much longer in the pipes than it does in modern houses, where it is drawn directly from the pressure; but careful investigation showed that, although rain-water would attack lead, ordinary spring or lake waters, such as most houses are supplied with, contain in solution carbonic acid, which acts immediately on the lead, covering it with a skin of carbonate of lead, which is insoluble and impervious, and protects the interior of the pipes from further action. So it came about that lead poisoning, which had succeeded the ferocious jute-bug as the most popular enemy of the human race, fell out of fashion, and was itself succeeded by "heart failure." The reign of this dread complaint continued for several years, until investigations into the nature of bacteria explained, or were supposed to explain, the origin of a great number of diseases, and, from that time until now, doctors, sanitarians, architects and the public have been dodging microbes as diligently as our grandfathers and grandmothers used to avoid "fits," or as their grandparents fled from witchcraft, or the evil eye. We are far from saying that the great science of bacteriology has anything in common with the ignorant dishonesty which concealed itself behind the names of "heart failure," or "fits"; on the contrary, the intelligent study of germs and ferments bids fair to extirpate, before many years, most, if not all, the contagious diseases from which the race has so long suffered; but history would fail to repeat itself if some fashionable bugbear did not appear before long to supersede the microbes. A suspicion of what this bugbear may be can, perhaps, be gathered from some articles which have recently appeared in the foreign scientific journals. It seems that a distinguished botanist who died recently, Dr. von Naegeli, discovered that microscopic plants were extremely sensitive to the presence of any metal in the water in which they lived; so that the filaments of one species, the spirogyra, died, or were kept alive with difficulty, in water containing one billionth part of copper. As this would be at the rate of one ounce of the metal in a cube of water a hundred feet each way, it will be seen that the spirogyra must be sensitive to copper, and this observation raised the question whether human beings might not be more sensitive to it than had been previously supposed. Further investigation has shown that a solution of one part of copper in twelve millions of water forms a liquid which is fatal to young children, and it seems to be not impossible that enough of the metal might be taken up by water drawn through brass fittings, or, still more, through brass pipes, to be injurious to persons drinking it. This question, which is an important one, has been taken up by certain scientific men, and the answer to it will be of much interest.

WE have received from Mr. Samuel A. Tuska an interesting pamphlet describing a sort of coking-oven, arranged according to the Simon-Carvès system to utilize the volatile products of the process, in very much the same way as the German ovens, of which we spoke a few weeks ago. The Simon-Carvès ovens are, it seems, in extensive use in France and England, and the statistics given of the saving in cost of coke obtained by their means agree substantially with those claimed for the German ovens. It is singular that in this country, which is now very nearly, if not quite, the largest producer of iron in the world, no improved coking ovens of any sort appear to be in use, yet, according to Mr. Tuska, the Simon-Carvès ovens, with average coal, will save nearly their cost in a single year. A point which Mr. Tuska makes is worth remembering. Every one knows that our city gas-companies are getting more and more into the way of supplying water-gas, in place of coal-gas. In the manufacture of water-gas no ammonia or tar is collected. Both these substances are indispensable for many purposes, and the home supply is so limited that large amounts are imported from Europe. By the new coking processes, the ammonia and tar, which were formerly wasted, are saved, so that, if they could be introduced here, the incidental products would find a particularly steady and profitable market.

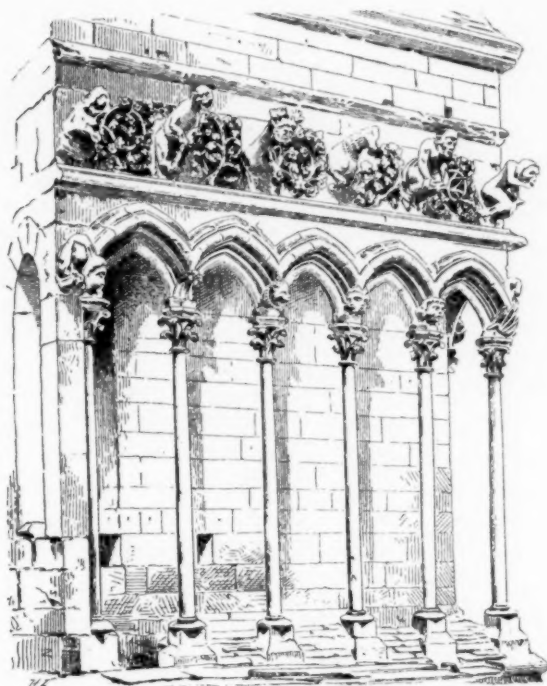
THE BURGUNDIAN SCHOOL OF ARCHITECTURE.¹—II.

Fig. 8. Cornice from the Towers of Notre-Dame of Dijon.

THE Burgundian school not only distinguished itself in the thirteenth century in the general design of the edifice, but also in the various details; thus, for example, Burgundian bases and capitals are generally of elongated section, while in certain other centres they are square, or nearly so; and the sculpture of the capitals, in which crockets play an important part, assumes thenceforth a peculiar aspect in the matter of grouping. A wholly individual character appears likewise in the disposition of Burgundian cornices, which are formed by means of corbels connected by shoulders joining them to the main mass (Fig. 8).

The civil architecture of this province is also most interesting to the student; of the twelfth century, for example, should be cited the houses of Cluny, nearly all of which have, unfortunately, disappeared; but sketches of the remains that existed thirty years ago will be found collected and reproduced in the work of MM. Verdier and Cattois. Among the well-preserved constructions of the Gothic period, we note particularly the house at Dijon known as the "Hôtel des Ambassadeurs d'Angleterre"; it dates from the fourteenth century. The court is in a good state of preservation, with its angle stairway, the open-work spirals of which exhibit a very ingenious and picturesque construction; the disposition of the

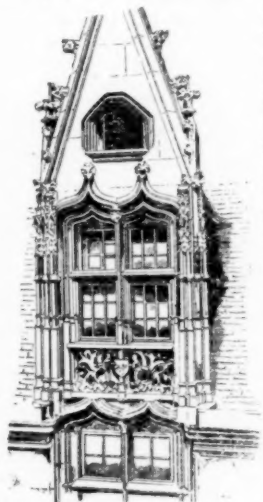


Fig. 9. Dormer-window from the Court of the Hôtel des Ambassadeurs, Dijon.



Fig. 12. From Saint-Michel, Dijon.

windows very happily combined in the dormers is especially remarkable, as shown in Figure 9.

¹ From the French of A. de Baudot, in Planat's *Encyclopédie de l'Architecture et de la Construction*. Continued from No. 929, page 16.

At the close of the fifteenth century and during the sixteenth, Burgundy, while maintaining its own characteristics, was subjected in the architectural forms to influences of divers kinds, and notably to the influence of Flemish art; it is to this



Fig. 10. The Well of Moses, Dijon.

period that the famous Well of Moses at Dijon belongs, a very beautiful cast of which (Fig. 10) may be seen in the Museum of the Trocadéro. The Church of Saint-Michel, at Dijon, is of the sixteenth century. Interesting sculptural motives are found here (Figs. 11, 12). From this time, the sculpturing spread over structures was made to project quite prominently, comparatively speaking, as in the north; but it, nevertheless, preserved a local character which is not without its charm. As to the architecture itself, it remained Burgundian, and we can always perceive in it traces of mediæval traditions, as well as the influence of the peculiar materials used.

The various departments now included in Burgundy still possess a number of castles, mansions and edifices of all sorts, some more remarkable than others; but it is at Dijon that



Fig. 11. From the Church of Saint-Michel, at Dijon.

those most interesting to the student are found. We will call attention especially to the court of the Hôtel Sully, the construction of which is based on the use of columns cut contrary to the cleaving grain and of monolithic lintels, which the

architect turned to good account for decorative purposes (Fig. 13); also to the Palais de Justice the porch of which, surmounted by a stone dome, is of uncommon interest because

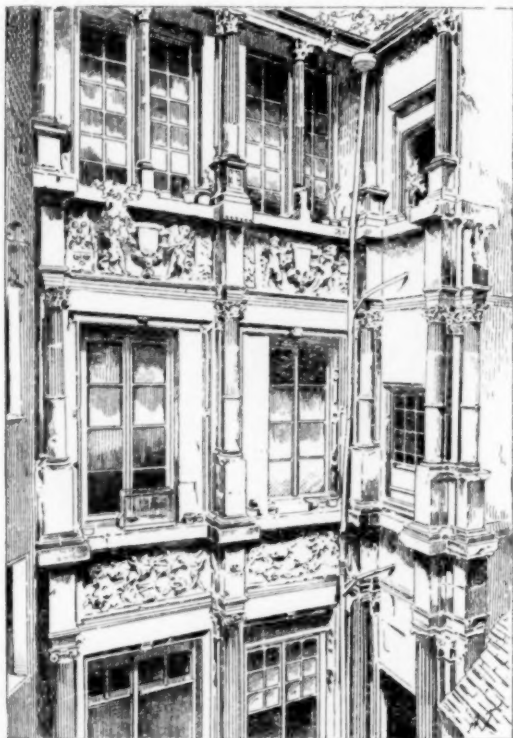


Fig. 13. Court of the Hôtel Sully, Dijon.

of the intelligent fashion in which the columns adorning the door are made to reinforce the angle piers, the latter being too slender to resist the thrust without this opportune aid

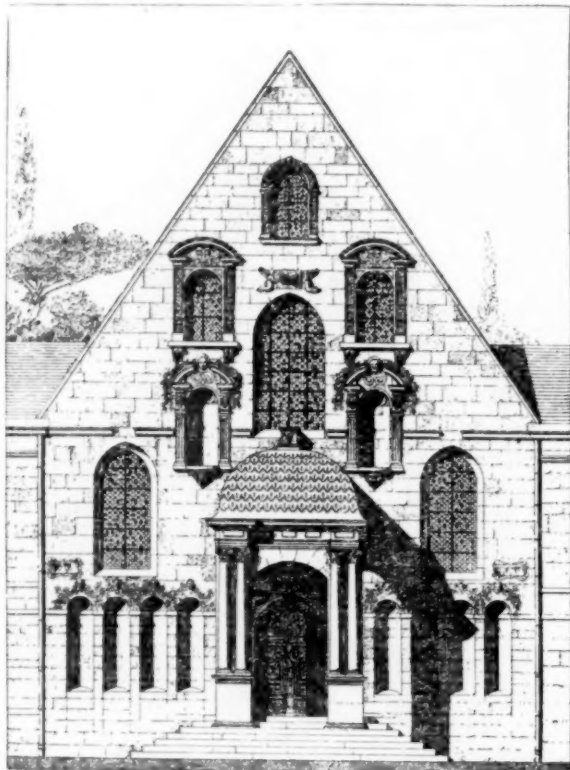


Fig. 14. Palais de Justice, Dijon.

(Fig. 14); and lastly to the curious façade of a house in the Rue des Forges, most lavishly embellished, but with very interesting architectonic dispositions and details of mouldings.

Here, too, the reasoning of the builder is apparent, who attempted, above the lintels of the bays, to indicate discharging arches, the decoration of which is skilfully interwoven with the sculpture (Fig. 15). At every step in the progress of the school the same kind of effort is observable,

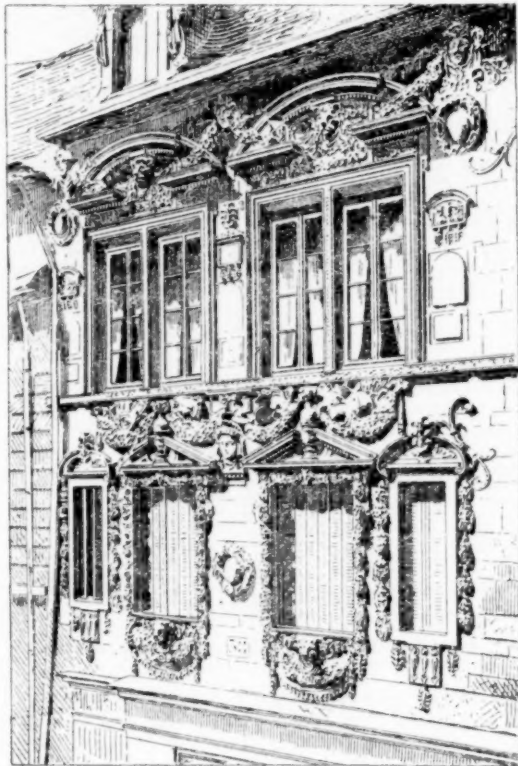


Fig. 15. House in the Rue des Forges, Dijon.

the desire to ally form and structure which constitutes the fundamental characteristic of all mediæval architecture, but particularly in Burgundy, where this inspiring principle continued to be applied down to the eighteenth century.

A. DE BAUDOT.

THE GREAT EXHIBITION REVIEWED.¹—III.

ITS VISTAS AND LANDSCAPE EFFECTS.

WE are standing on the floor of the Colonnade. Our backs are to the Stock Pavilion. On this level we can walk from the gallery of the Agriculture Building to the gallery of the Machinery Building without descending to the ground. Immediately in front of us stands the Exposition Monument. In all the accounts and descriptions that have been written, this has seldom been mentioned. Its site has by some been called the "neglected corner." It is only neglected because it is not a thoroughfare. When the park is crowded but few persons may be met on this gallery and few are seen about the monument, but the concrete steps that surround it are resting-places for the weary who are always sufficient in number, to give scale to it. The monument is the design of Peabody & Stearns of Boston. It is of temporary materials but is worthy to stand until it can be replaced by a permanent structure, as it is admirably located for the purpose in view of the canals being retained as part of the ultimate design of Jackson Park. The base is of concrete in five steps rising from the lower terrace at the south end of the canal. Here the boundary of the canal curves outward into the water. The steps form angle-buttresses, which are surmounted by four lions cast in concrete from a model by M. A. Waagen, who also designed the colossal groups that surmount the pavilions of the colonnade between Agriculture and Machinery Buildings. These lions somewhat resemble those modelled by Sir Edwin Landseer for the Nelson Monument in Trafalgar Square, London. Between the buttresses on the four sides of the monument are four basins for fountains which are sunk below the floor of the lower terrace. They are built in concrete as also is the esplanade that surrounds them, but unfortunately have never been supplied with water. Back of the lions rises the square die of the monument, having truncated angles against which are Greek scroll consoles, and these are connected together by festal garlands. On the four sides

¹ Continued from No. 929, page 23.

of the die is the following inscription in the English, Latin, Russian and Chinese languages:

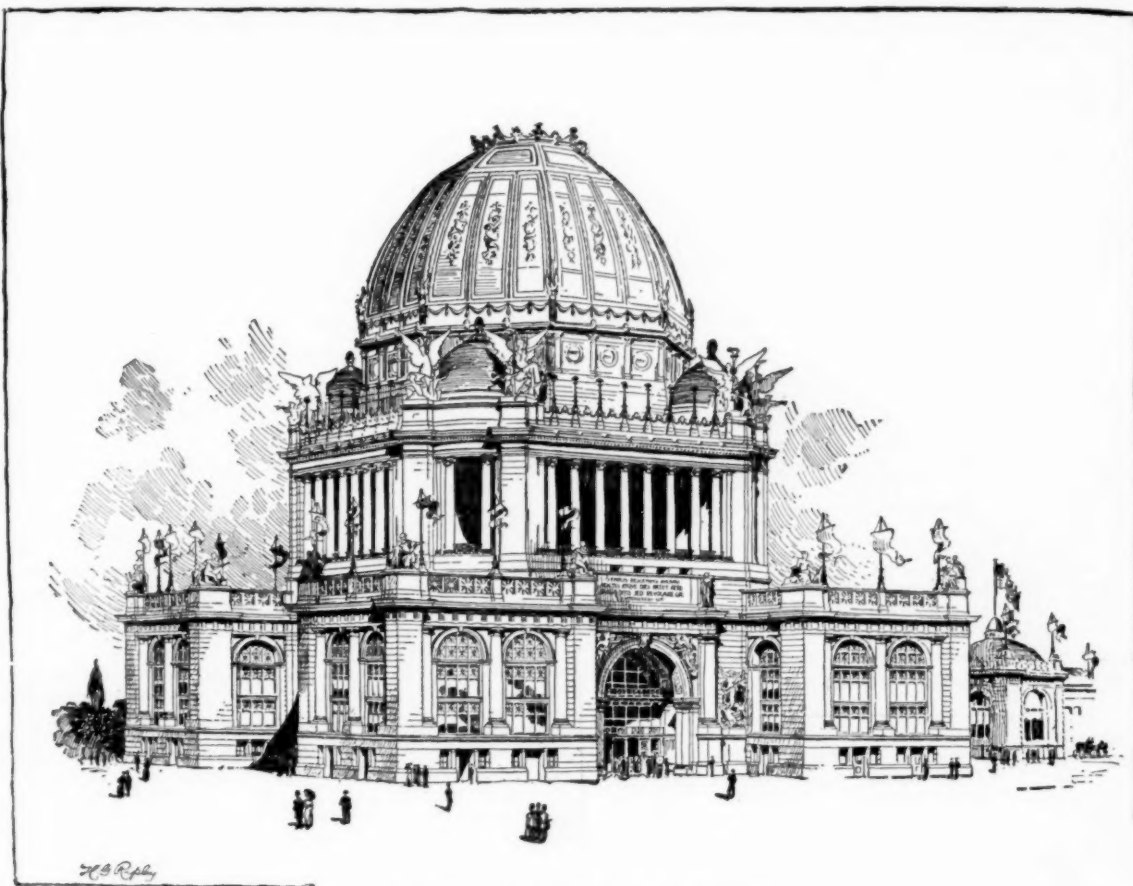
FOUR HUNDRED YEARS
AFTER THE DISCOVERY
OF THIS CONTINENT BY
CHRISTOPHER COLUMBUS
THE NATIONS OF THE WORLD
UNITE ON THIS SPOT TO
COMPARE IN FRIENDLY EMU-
LATION THEIR ACHIEVEMENTS
IN ART, SCIENCE, MANUFAC-
TURES AND AGRICULTURE.

Surmounting the die is an octagonal cornice carrying on the four shortest sides eagles resting on globes, and garlands are hung between the eagles. Above this rises the obelisk, with Egyptian proportions, to a height of more than one hundred feet, surmounted by a finial and ball. This with the die, eagles and consoles is of staff on a framework of wood, and painted white.

The monument was the last piece of work done by the Exhibition builders and was not completed¹ until June. As a treatment of the obelisk feature it is more successful in its proportions than any of the Egyptian obelisks that have been set up in Europe on modern pedestals. Should it ever be made permanent, there are more quarries than one in America that can produce a monolith of equal size. On the four sides of this it would be possible to inscribe a

enchantment to the view," as far as this building is concerned, and its critics can at least be contented with it as serving a useful purpose in contributing to some of the landscape effects. There is no other view in the park so extensive and none so long, not even on the cove of the lake front. From a position on the east side, we see in perspective on the left the entire fronts of the Machinery and Electricity Buildings, between which are the McMonnies and electric fountains; in the foreground the canal with its three bridges, the lagoon and, beyond the Wooded Island, part of the Woman's Building and the red dome of the California Building in the extreme distance. Walking westward the scene slowly changes, and from near the Machinery Building we see the Agriculture Building to the right, and across the basin, the Manufactures Building on its longest side, facing both the North Canal and the lagoon. Beyond this is the west pavilion of the Fisheries and the Marine Café with its brown turrets and in the extreme distance a glimpse of the Art Building. In each view the Illinois dome is the most prominent distant object, and is the resting-place for the eye at the end of the perspective.

It is a long walk from this to the next point of observation, and yet we pass only two buildings to reach it. We traverse the lower terrace east of Machinery Hall, then cross the Grand Court west of the fountains, breasting our way always through dense crowds, and as we reach the east side of the Electricity Building we are again uninterrupted, for here in the very heart of the exhibition we come to an unfrequented walk. We take the upper terrace with Electricity on the left and the South Canal on the right. Here may be



The Administration Building, R. M. Hunt, Architect.

brief but enduring history of the undertaking that is now about to be closed forever.

From the gallery where we stand is unfolded the grandest of all the vistas in the Exhibition, the Grand Court not even excepted; for it reveals just enough of the latter to suggest what it may be and prepare us for the revelation of another panorama. From this point we have an unbroken view of exactly three-quarters of a mile. For at that distance is seen the dome of the much-abused Illinois Building, over the trees of the Wooded Island. At the risk of a hackneyed phrase it may truly be said that here "distance lends

seen more boats than in any other place for they all pass through it both ways. The crowds are on the opposite side of the canal around the restaurants under the loggia of the Manufactures Building. Here, also, it is shady in the afternoon and the grass on the terraces is always fresh and green. But reaching the end of the walk and turning to the right we are in the throng again and on the bridge over which passes nearly all the travel from Transportation, Illinois and Electricity Buildings to the Manufactures Building. Here we may look backward to the Colonnade, and find that the perspective is all architectural, bordering the waters of the canal which is fringed with green grass and white balustrades, on both sides. Two bridges cross the line of vision through which we see passing the interminable procession of gondolas, launches, and sometimes strange craft from Ceylon, Japan or the Bosphorus.

This bridge is at the dividing line between the formal and picturesque portions of the park. For, turning to the north we see not only the distant part of our last view, but the whole lagoon and Wooded Island, the Transportation Building to the left, the Choral

¹ This is an imperfect statement, for the reason that this monument is not yet completed. In order that visitors might not longer be annoyed by workmen and to cut down operating expenses, the authorities had, at last, to order that all work should stop on a fixed day. When this day came the Exhibition Monument still lacked four figures, each twelve feet high, modelled by Messrs. Evans and Bachmann, which were to stand in front of the flanking consoles, and also the nude boys astride dolphins which were to be placed below each inscribed panel in the centre of the big festoons were omitted. As the water for the basins was to issue from these dolphins' mouths, the present effect is hardly what the designers intended it should be. — Eds.

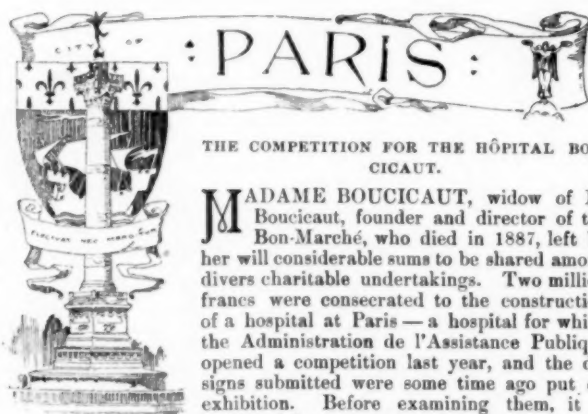
Hall and such parts of the Horticulture Building as are visible above the trees of the island. On the right, the terrace along the north-half of Manufactures Building changes to a single revetment and balustrade only. For the lower terrace is substituted a sloping bank covered with green shrubs and aquatic plants. This building is so long that its north-half invades the picturesque quarter; the landscape architects have, therefore, given the shore of the lagoon a transitional character. This is also carried out in front of the Transportation Building. But north of Manufactures Building the shores have a natural treatment except where landing-places for the boats are required. The view now brings out more definitely what was only a mystery as seen from the Colonnade. Directly in the centre is the Japanese bridge, with the Wooded Island to the left. The whole of the Illinois Building comes into prominence above the trees still half a mile distant, with the white Greek Temple of the Merchant Tailors in front of it and reflected in the water. The Fisheries Building is to the right, backed by the brown Café Marine, while the domes of the Art Palace and California Building and the Gothic towers of the Indiana Building are seen in the extreme distance. This is the most comprehensive of all the views in the park and reveals the vast extent of the exhibition better than any other.

Turning to the left it is but a short walk along the north side of the Electricity Building to the bridges which take us to the Wooded Island. There are two of them. The first lands us on Hunter's Island, where is located the Hunter's Camp and its log house, which was the gift of Theodore Roosevelt, and from this we reach the Wooded Island over another bridge. We will stop on the first bridge. From this there are four famous architectural views. To the west there is the best view of the "Golden Gate" to the Transportation Building, with the terrace, the sloping bank and the waters of the lagoon in the foreground. During the quiet days of summer a Venetian two-masted fishing-boat was anchored here with its red and gold sails set, and making a beautiful picture. Turning a little to the south we see the best perspective of the great north door of the Mines Building, with a similar foreground. To the south is a view wholly architectural, which suggests a street-scene, the only one on the grounds. It has frequently been photographed. It shows Mines to the right, Electricity to the left and the Administration Building seen in elevation at the end of the street. There is nothing here to suggest the rurality of the surroundings. We turn next to the east and find that the centre of this bridge is on the axis which passes perpendicularly through the centre of the Transportation Building on the west and Manufactures Building on the east, and we have a direct front view of the central pavilion of the latter. But the best view is from the next bridge, so we cross over the Hunter's Island and face to the right on the centre of this bridge. Here the architectural details and great proportions of Manufactures Building come fully into view. We see the great pavilion in perspective across the water and the bridge of three arches over the canal to the right, forming one composition. At intervals along the balustrade on the south end of the lagoon and on the bridge piers the vigorously modelled wild beasts of Kemeys, come into all the views and greatly assist the foreground effects.

From this point we are ready to take the tour of the Wooded Island. Following the outer walk, the views are almost endless in number and variety, and when the eye tires of them the most delightful rest is found amid the shady walks that surround the Japanese Palace at the north end, where we can sit on the garden seats and watch the passing throng.

P. B. WIGHT.

[To be continued.]



THE COMPETITION FOR THE HÔPITAL BOUCICAUT.

MADAME BOUCICAUT, widow of M. Boucicaut, founder and director of the Bon-Marché, who died in 1887, left by her will considerable sums to be shared among divers charitable undertakings. Two million francs were consecrated to the construction of a hospital at Paris—a hospital for which the Administration de l'Assistance Publique opened a competition last year, and the designs submitted were some time ago put on exhibition. Before examining them, it is worth while to understand the main lines of the programme, drawn up to fit existing exigencies and so as to comply with all the modern laws of hygiene and take advantage of the progress made by science. The hospital had to be arranged for one hundred and twelve beds, sixty-four for sick cases and forty-eight for surgical cases. Besides, there were to be provided twenty-four beds for confinement cases, eight for doubtful cases, and six for

the employés of the Bon Marché. This gives a total of one hundred and fifty beds to be provided for on a site occupying 23,170 square metres. The services which had to be provided for in different structures comprised nine different divisions: First, the medical service; second, the chambers for the employés of the Bon Marché; third, the surgical division; fourth, the building for accouchement cases; fifth, the pharmacy, linen-room, kitchen, common rooms and chapel; sixth, the administrative buildings and consulting-rooms; seventh, laundry; eighth, heating-apparatus, clothing-shop and store-rooms for foul linen; ninth, operating amphitheatre and dead-house.

The medical service, consisting of one or two pavilions, must contain forty beds for males and twenty-four for females, with two isolated chambers for each sex. In case a single pavilion should be used for the medical service, the building must be arranged so that the sick men could never encounter the sick women. One uncommon point, and one which denotes the constant prevision of the laws of hygiene: the height of the wards had to be at least four metres, the width nine metres, without intermediate points of support. Each bed had to occupy a space between windows, which must reach to the ceiling, and be divided into three parts, so that each could be opened independently of the others. The floors must be of stone, so as to endure daily scrubbing. The walls, as well as the ceilings, must be painted and varnished, all the angles rounded, and without mouldings or cornices. Each ward must contain an open fireplace, but the heating must be provided for by hot-water apparatus. A vestibule, of course, must be attached to each ward.

Finally, attached to each service, must be found the isolated chambers, with a room for the watcher, a bath-room containing a fixed bath, and one mounted on wheels, an office with stove, a little linen-closet, heated water-closets entirely separated from the wards by double doors, lavatories and dining-room, and a separate room and office for the head-nurse and a storeroom. The surgical ward must be arranged under analogous conditions, and must be removed from the medical ward as far as possible. It must contain thirty beds for men and eighteen for women, and consist of a ground-floor raised above the cellar, while the medical pavilions could, under necessity, have two stories. Moreover, the surgical ward must contain a division for those whose wounds or diseases are infectious, containing fourteen beds, and a room containing eight beds for women in the same category; also two similar rooms for non-infectious cases, two operating-rooms, one for infectious cases and the other for non-infectious, which are to be common to the male and the female pavilions, but so placed as to entirely separate the male from the female wards, which, notwithstanding, still remain neighbors to one another.

The operating-rooms must be six metres in length by five in width, and at least four metres in height, lighted from above and from one side, and facing north-northeast. The floor must be of Césame stone, and the walls must be covered with tile to their full height. These rooms must be provided with hot and cold water, sterilized. In a neighboring room must be arranged the linen-heater, sterilizing apparatus, the instruments and bandages, the water-heater, the ventilator, etc. Each operating-room must be preceded by a smaller room of twelve square metres, where chloroform can be administered if necessary. A maternity hospital must be arranged for eighteen women recently delivered, two women *enceintes*, and two cases under inspection. Built above a ventilated basement, and consisting of a ground story and one above, it must provide for a service for the eighteen confined women, a room for the four women *enceintes*, an accouchement-room, an operating-room, a consulting-room, two chambers for the women under examination, and, finally, bedrooms for the midwives, the head-nurse, six convalescents, two nurses and a steward.

All these services, described with great fulness in the programme, had to be provided for with extreme care in the matter of orientation of the wards and their hygienic distribution. The general services, the pharmacy, the linen-room, the common rooms and kitchen might be grouped in a single building placed in the centre of the hospital. This building might consist of basement, ground-floor, second story and attic, except above the kitchen. The administration building must be placed on one of the street-fronts. It must consist of basement, ground-floor, second story and attic. On the ground-floor must be placed the consulting-rooms for physician and surgeon, with their numerous annexes, waiting-rooms, examining-rooms, disinfecting-room, clothes-room, medicine-closets, dentist's office, etc.; also the office of the director, the apartment of the *concierge*, the rooms of the medical and surgical internes, the library for the patients and the water-closets; upon the first floor must be the apartment for the director and one for the apothecary, and the rooms for the servants.

As for the general arrangement, the establishment must be closed on the street-fronts by solid walls to the level of the window-sills, and above this by windows closed with shutters. Lighting must be by electricity, the heating by hot water; each department must be furnished with filtered water, provided by the best apparatus. Here, evidently, it is intended to apply the system of "everything to the sewer." The attendants must be provided for, either in the buildings devoted to the patients, or in the buildings devoted to the general services, or in special pavilions.

This well-defined programme will allow us to take account of the arrangement adopted by the competitors, whose schemes [See

illustrations] we are going to study. The site, situated at Grenelle, is bounded by three streets: Rue des Cévennes, Rue de Lourmel and the Rue de Vouillé. This last, the widest, was adopted by the greater number of the competitors for the main façade and entrance, which was thus placed on one of the short ends of the parallelogram. To the right lies a block of houses to rent.

Forty-three competitors took part in the competition, which resulted in very interesting studies and very complete ones. Nevertheless, the first prize, which amounted to six thousand francs, was not awarded. Two second prizes, each of 4,000 francs, were granted to MM. Alfonse and G. Le Gros placed first, and M. Michelin. Three prizes of 2,000 francs each were given to MM. Courtois-Suffit, Planq and F. Calinaud. Actually, the first prize of 6,000 francs was divided into three supplementary prizes, awarded, rightly or wrongly, to three designs which were deemed to deserve some recognition. The project of the Messrs. Le Gros presents really good qualities and ought to have been placed in the first rank. The principal approach to the establishment was chosen on the Rue de Vouillé as being the broadest street. The administration building occupies the centre of the building on the street, and consists of one story with an entresol which serves to separate the apartments from the rooms devoted to the sick. Right and left, consisting of a single story only, are the pavilions of consultation and observation. In the basements, lighted and ventilated through English courts, are placed the bath-rooms. It is through the basement, by means of galleries, that is effected the communication with the several pavilions which are not connected by any corridor but are completely isolated one from another. At the right of the main longitudinal axis is found the medical department, at the left the surgical. Each of these two departments is in itself divided into four distinct parts. The men's portion consists of two pavilions, each containing the eighteen beds required by the programme, while the women's department equally consists of two pavilions each containing ten beds. The surgical division is arranged in the same way. Two operating-rooms, one for infected and the other for non-infected patients, are separated from the pavilions by galleries, which allow of the transportation of the wounded. The sick-wards occupy the end of each pavilion, and consist of only a single story. The chambers for the sick are placed in the second story, which extends only over the dining-room, wash-room, linen-room and access to these is made easy by an elevator. The pavilion of the Bon Marché, which is considered rather as quarters for convalescents, occupies the central portion of the group. It takes advantage of the space left free by the pavilions which surround it, and which, with the exception of the maternity-ward, consist only of a ground-floor. It is surrounded by the gardens, and is two stories in height. The maternity hospital, which forms a complete and independent division, has been placed at the angle of the two streets, and the pavilion for women under surveillance is entirely isolated. On the other side, against the party-wall, are found the dead-house, as far removed as possible from the sick-wards, the laundry and the little chapel. These services are grouped about a special court-yard, which has a distinct and independent exit to the street. Finally the general services, kitchen, linen-rooms, pharmacy and common rooms, are grouped in one building having direct approach from the street at a central point behind the pavilion of the Bon Marché. Galleries arranged in the basement furnish communication with all the other pavilions.

We find fault with the Messrs. Le Gros for having placed their water-closets too much in the centre of the sick-wards. They should have been in places more remote from the wards. Moreover, the general services might have been placed a little more in the foreground and not forced so far to the background. However, this plan has the advantage of being very well ventilated, while giving satisfaction to the principal demands of the programme.

M. Michelin's scheme is also very well studied; but he has committed rather a grave error in having followed the letter of the programme, which allows the division of the surgical pavilion into two stories. M. Michelin answers this complaint by pointing out that the men's ward, being placed on the ground-floor and the female ward above, allows the surgeon to have both male and female wards under the same roof. Having made this observation, let us examine the general structure of his scheme. Entrance is had from the Rue de Vouillé into a wide vestibule, at right and left of which are the administration building and its dependencies, the lodge of the *concierge* and the guard-room. At right and left of this building, to which they are connected by galleries, are the consultation pavilions, with private entrances from the public street. This arrangement is excellent. Galleries connect with the general medical and surgical services, which are arranged in a manner analogous to that followed by the Messrs. Le Gros; but here, notwithstanding, the sick-wards are completely isolated from their water-closets and accessory service, with which they are connected only by galleries. This adaptation of the theory of isolation to a sick-ward is very well devised; but in the present case it compelled the architect to superpose, as I said above, one ward upon another. The jury did not allow themselves to be greatly influenced by this consideration, and were evidently captivated by the absolute isolation of the sick-wards. The remainder of the plan can be readily interpreted from the cut. At the rear, on the left, is the maternity-ward, forming a little isolated establishment. In the centre are the general services, and on the right the dead-house, laundry, etc. Wide paths, adapted to

wagons, cut the plan in an ingenious manner, and separate the different departments.

M. Courtois-Suffit has been placed third, with a plan which is very remarkable from the point-of-view of mere study and architectural arrangement. It is the sort of thing which we in Paris call "*un plan de grand prix*," composed with an attention to style which accentuates an edifice of prime importance. Unfortunately, it has the faults of its good qualities, and it answers in a too grandiose manner the end which it was designed to serve. The porticos, which encircle a grand central court-yard, are too monumental, and do not sufficiently isolate the pavilions which they actually connect.

Upon the annexed cuts can be followed the main lines of the *parti* adopted by M. Courtois-Suffit. Here it is seen that the sick-wards are situated in the second story, but the ground-floor is only occupied by exercising grounds, widely opened, where the convalescents can take their exercise under shelter. The operating-rooms, which occupy the centre of each surgical pavilion, are, perhaps, not sufficiently ventilated, but the general arrangement of these pavilions is extremely happy, and might be used in a satisfactory manner by bringing forward the operating-room. The general services are very well placed at the centre of the buildings. The pavilion of the Bon Marché, which the greater part of the competitors believed ought to be placed in the centre, and on the axis of the administration-building, would have occupied a more agreeable site on the street, forming, as it were, a little private annex surrounded by a garden. M. Boileau, *fils*, architect of the Bon Marché, thus understood it. But his scheme, although very well studied, has only been ranked in the seventh place. M. Courtois-Suffit had the excellent inspiration of separating his buildings as much as possible from the neighboring party-wall, alongside of which he arranged a broad alley. The façades were also very well studied, but were treated with too great richness, and it was through his seeking too grandiose effects that M. Courtois-Suffit only obtained the third place.

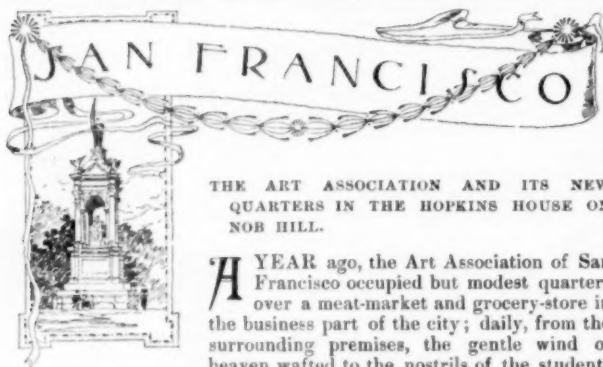
M. Guenot had a plan unfortunately encumbered and lacking air, and received no award; but the detail of his pavilions was studied with care. He adopted a scheme analogous to that of M. Courtois-Suffit. His halls, as may be seen by the annexed cut, are raised above a kind of open recreation-ground, which allows the circulation of air below the floors. The currents of warm air established in this floor prevent the entrance of cold, which might otherwise enter because of this arrangement. The hollow walls of the first story protect the hall also against cold and, as well, against heat. The water-closets are well separated from the pavilion, and the operating-room, placed, as is that of M. Courtois-Suffit, on the axis of the staircase, projects in front of the buildings, and is for this reason easily ventilated.

In the way of curiosity, I will mention the scheme of M. Héneux, who adopted a disposition which was different from those which were premiated. He placed his façade on the Rue Lourmel, which allowed him to arrange his plan breadthwise. The building forming the façade was occupied by the administration *A* and by the consulting pavilions, *B* for surgery and *C* for medicine. The pavilion of the Bon Marché was placed at *G*, in the centre of the central court. On the right are found the medical pavilions *EE'*, on the left those devoted to surgical cases, *DD* for non-infectious cases, *DD'* for infectious cases. The maternity pavilion occupies the buildings marked *F*, having a façade on the Rue de Vouillé. Then, backed-up against the party-wall, are found the general services: kitchen *H*, chapel *I*, the laundry *K*, and the drying-rooms *L*. At the right of the general services are arranged the pharmacy, *M*, the offices *O*, the stables *P*. On the left, relegated to the Rue des Cévennes, is the mortuary.

This arrangement, adopted by only a few competitors, has not been approved by the jury. It was not, however, to be condemned absolutely. He isolated the pavilions of the middle buildings, and preserved for them a good orientation, but it had the defect of not placing the entry on the largest street, and this inconvenience was judged to be not allowable.

This important competition was only a preliminary competition, and it is likely that the competitors receiving awards may have to undergo a second trial. This seems only fair, does it not? But in France, and perhaps in other places it may be the same, public competition often gives rise to extraordinary surprises; and it would not be astonishing if the Administration de l'Assistance Publique, now that it has in its hands eight schemes, all presenting great and admirable qualities, should appoint an architect from its own body, who, by the aid of all these elements, could succeed in combining a perfect whole. As amongst the competitors premiated there was one who is officially connected with the Assistance Publique, it may at least be wished that in such a case he may be the one selected.

VAULTS OF THE BANK OF FRANCE.—The treasures of the Bank of France are said to be better guarded than those of any other bank in the world. At the close of business hours every day, when the money is put into the vaults in the cellar, masons at once wall up the doors with hydraulic mortar. Water is then turned on and kept running until the cellar is flooded. A burglar would have to work in a diving suit and break down a cement wall before he could even start to loot the vaults. When the officers arrive next morning the water is drawn off, the masonry torn down and the vaults opened. — *Exchange*.



THE ART ASSOCIATION AND ITS NEW
QUARTERS IN THE HOPKINS HOUSE ON
NOB HILL.

A YEAR ago, the Art Association of San Francisco occupied but modest quarters over a meat-market and grocery-store in the business part of the city; daily, from the surrounding premises, the gentle wind of heaven wafted to the nostrils of the students the aroma of fried tom-cods, steak-and-onions, and other such choice edibles as go to make life worth the living, telling them as language cannot that they, too, are of the earth earthy, born even of the soil, and that if they would go forward unto the life artistic they must follow the highways and byways of men, studying them in all, even their humblest avocations; for from these surroundings alone may they expect to draw that simplicity and beauty of thought which will make them that which they desire to become, that something which is apart from custom, propriety and convention, and which we call artistic.

All this is now changed. In our folly of follies we desired that the wealth of the millionaire might be ours, and now, true to the saying, that "to what we aspire, that we attain," the gods have granted our request, and thus have cursed us. The art life of San Francisco was a healthy one until they began to envy the palaces of the rich: but it is passed; in an unguarded moment they have sold their birthright of cobwebs and grime and other such natural surroundings, and have received in exchange a veritable mess of pottage.

On Nob Hill stands the palace which is now theirs, but it is far from a thing of beauty, despite the hundreds of thousands required to produce it. Rather let us call it a thing of vulgarity, for from turret to foundation-stone it contains naught that is not repellent to the eye of the artist, save it may be the few feet, few and far between, which the extravagant designer has left unadorned. Such a building as this must forever rest as a great burden upon the heart and soul of a true artist, for it draws him away from nature, making him forget the blue sky and the quiet walks of life, and filling his mind with the importance of that which, above all, he should hold as worthless—material wealth.

The story of the building is in this manner: In the days when railway-kings were being created, one Mark Hopkins was chosen by the gods to be a ruler over the travel of the people, and in this control of their movements amassed great wealth, which it is said even millions could not count. Toward the close of life he builded for himself a great mansion, placing it on a hilltop, that it might see and be seen by all men.

Externally, it has been likened by those unacquainted with architectural terms, but possessing judgment, to a highly ornate box-stove, and the comparison will do. Internally, it is equally devoid of beauty, but not for lack of intent, for from the distant East were brought carvers and gilders and inlayers of rare woods, that they might adorn it from floor to ceiling with the choicest efforts of their crafts, that it might equal, if not surpass, the finest in the land; but money alone could not make it other than commonplace. Fortunately, or otherwise, the wealthy owner did not live to see the spacious halls and reception-rooms, not to speak of inferior apartments counted by the score, finished, so to the lonely widow was left the labor of superintending. Her death a year or two ago left to Mr. Searles, her second husband, with her other possessions, the great house on Nob Hill.

Few men can fill well so great a residence as that of which we speak, and Mr. Searles, not being one of these, soon found the great building becoming a burden to him, and, casting about to see how best to dispose of it, the Art Association of San Francisco was suggested as a fit object on which to expend his generosity; so to it the offer was made and finally accepted.

A private residence is never likely to be satisfactory as an art-gallery, and this building is no exception to the rule, for its walls are so pierced with openings of various sorts that but few pictures can be hung, and still fewer seen to advantage.

The building was formally opened a few months ago at the spring exhibition and a house-warming given, the art-world mustered in force and some of the other world as well, to see, be seen and "give to get esteem," as also to discuss pictures, sound, dress and light refreshments, and go away feeling happy if not elevated.

The main floor of this building is to be used for gallery purposes and although at present the Association does not possess any pictures, it hopes to accumulate in a few years a fund which will enable it to spend a thousand or two annually in purchases of works of art. The attic floor is used for studios and class-rooms for the pupils, while the intermediate floor and basement are of use only in so far as they provide vacant space in which the masters or students may wander around for rest or contemplation. An art museum may some day well fill this emptiness.

The spring show brought forth nothing remarkable or significant of budding genius in this land of the far West. As in former years there were perhaps a score of pictures that one might care to have were money no object, and as to the rest, if one has seen them once it is enough.

Mr. William Keith is still as hard a worker as ever and so long as we have him we can count upon landscapes that will interest and instruct us. This year Mr. Keith has one that is particularly satisfactory—it is of Mount Diablo. Mr. Keith's pictures are, as a rule, cool and sombre for California and have their truth rather in the fleeting days of winter and spring than in the season of withered grass and cloudless skies that are so characteristic of this western country. In this "Mount Diablo," however, it is summer. You are standing in the sun-cracked valley of the San Joaquin; in the middle distance a few live oaks sheltering some stacks of straw suggest cool retreats beneath their close-set foliage. From one's feet to the far distant mountain the air vibrates with the heat of summer, the grass is brown or rather straw-colored and the valley, tawny as the seashore, stretches outward to the far distance and becomes lost in the sloping sides and blue of the mountain. In such a picture the artist has given us room to breathe despite that the day is hot, for one feels that the world is all before him and beyond the blue mountain, drawing him to it because of the mystery of distance. Another of Mr. Keith's pictures might fitly be dedicated to the wind, to the breeze of the Pacific, that which blows lustily all day long and grows not weary. Beneath its every gust the trees bend gracefully, and the arms of the wind-mills rattle as they turn and turn again.

Mr. Matthew's picture is essentially the picture of the year, but I do not care for it very much; not that it is a poor picture but then, you know, when one tries to do something very fine and does not quite succeed, it would perhaps be as well if one had not succeeded at all. The subject is an ambitious one, for it purports to represent a picnic scene: it is summer, of course, and in the woods; thin, smooth silvery trunks of many small trees wander up, here and there and everywhere, as background. Through thin, leafy covering above the yellow sunlight spatters itself upon their many branches, and upon the brown earth beneath birds hop from earth to tree-trunk. Beneath the shade is gathered a party of young women, some standing, others sitting, about twenty in all, and all looking proper and inane. A little in advance of their companions stand the three principal figures of the picture, two, arm-in-arm, are leading their companion who loiters behind in an indifferent manner, but the lack of motive and centralization of idea, makes the picture positively wearisome to look at. When Thomas Carlyle wished, as he used to say, to produce vacuity of thought he took up a light novel: perhaps to this end the artist painted and in some degree he has succeeded, save only that it does not give one the rest of vacancy of mind, for like the puzzle "here is the tree and rat, but where is the cat?" It keeps continually annoying one with an interrogation. The color and drawing we accept as good, but as a whole we find this picture less interesting than the uncombined studies made for it by the artist.

In Mr. Emil Pissis we have an artist of yet another cult, one who cares not for the realities of life as we find them last, and so we find him seated beneath the vaulted ceiling of a Moorish palace or what-not watching the willowy motions of a slender dancer as she glides to and fro within a shaft of light that shines only that it may illumine one fair face. All around in semi-darkness and crouched upon the floor sit the spectators, thoroughly absorbed in the graceful movements of the dancer. Both in color and in drawing the picture is somewhat indefinite but gives promise that in future the artist may be able to add these without suggesting the suspicion of effort.

For every evil, beneficent nature provides a compensation, so let it be with us. The Art Association has made a sacrifice in exchanging the wholesome surroundings of their old quarters for these on Nob Hill. Let us hope that the mess of pottage for which they surrender their birthright may be in some degree the measure of its value, and that what they may have lost in a sense of beauty may be offset in an accumulation of gold.

The magnificent vulgarity of the new quarters has aroused the curiosity of the populace, and now in place of the solitary one who saw something in a picture, one sees a score of eager gazers, willing to pay fifty cents for the privilege of entering this palace. Let us hope that in this manner sufficient funds may accumulate to enable the Association after a few years to throw off this incongruous thing that has grown around them, and acquire a more becoming habitation, one in which the jingle of gold and the ostentation of wealth will have no place, for, of a truth, these things belong only to those who robe themselves in purple and fine linen and dwell in the houses of kings, and have their dominion there; but this is not the kingdom in which art rules.

ARCHITECTURE IN APARTMENT-BUILDINGS.¹

WE have been requested to give some information on the subject of apartment-building in France and especially in Paris; we respond with pleasure to this invitation by a brief résumé which we have the honor to present to you, as follows:

In the art of architecture, the house certainly is what best characterizes the taste, the habits and the morals of a people. From

¹ A paper read before the Congress of Architects of the World's Congress Auxiliary of the World's Columbian Exposition, Saturday, August 5, 1893, by F. Adolphe Bocage, member of the Société Centrale des Architectes Français, Paris, France.

the first centuries of the Middle Ages in France, the habitation in the country presents a character of defence while that in the city, occupying a narrower space from the necessity of surrounding these towns with walls as a protection against the enemy, was obliged to be raised, in order to find in height the space wanting in surface. The same conditions existed at Rome in ancient times where a great number of houses had several floors, while in the adjacent neighborhood this method does not seem to have been followed.

Other large cities in more modern times can be cited as examples of considerable increase in height, but happily, for very different reasons from those given above. I mention especially New York and Chicago. We believe that for these last, their geographical position and the tendency of commerce to concentrate itself in the centre of towns are the reasons for this agglomeration. If, in Paris, we have not attained these prodigious heights from love of the sun, the number of houses of six and seven stories above the ground-floor has increased considerably on account of the habit now generally adopted by Parisians of living in apartments in the city while keeping to the old custom for the country, that is to say, private houses.

It was under the reign of Louis XIV that the period of apartment-building began in Paris. The streets, laid out at a time when there was no thought of living at such an elevation, were sufficiently wide for small houses, but became too narrow after the change to higher buildings was made; and in a part of old Paris many streets are found in which air and light scarcely penetrate; it is well to say that all those streets and the houses which line them are condemned and will disappear sooner or later.

The regulations of buildings which apply to the reconstructions on enlarged streets are called: Rules for large and small thoroughfares.

These various regulations form, indeed, the basis upon which the plans of the ordinary apartment-buildings are established in Paris. Observing, now, the needs and tastes of the inhabitants, we will complete this short study by considering the comfort actually desired, according to the kind of apartments to be built.

For the most important we have in view the habits followed in private residences, the actual patrons for these being largely composed of wealthy men who have always lived in their own residences and now are gradually adopting more and more the idea of the apartment for several reasons.

The high price of ground in aristocratic quarters forced the owners first to suppress the garden, which was one very great advantage of the private residence, or to have one of restricted dimensions subject to the indiscreet curiosity of neighbors or surrounded by walls of adjoining buildings, sometimes sixty or seventy feet high. Moreover, for further reasons of economy, a small space of ground was found sufficient under the conditions of having three or four stories for the house. But this offered many inconveniences: the supervision of servants was difficult, and their numbers necessarily increased; and also, for large receptions, the reunion of several drawing-rooms on the same floor was impossible.

Finally, in spite of the advantages of individual liberty, the inconveniences indicated above have been found sufficiently important to induce many owners of private residences to give up their old habits, and adopt the better system of apartments.

We speak of this as a general rule, notable exceptions still existing, in which proprietors can afford expensive gardens and every luxurious surrounding.

The problem then, to be solved by the architect charged with the construction of luxurious apartment-buildings, is to suppress the disadvantage found in private residences, and to diminish as much as possible the inconveniences arising from the assembling of several families in the same house.

Generally these large apartments are divided into two parts: the one for family use and the other for occasions of ceremony, the former including a parlor, dining-room, several bedrooms and closets, bath-room, pantry and kitchen; the latter comprising ante-chambers, large dining-room, several drawing-rooms, billiard-room, smoking-room, boudoir, etc., with every convenience necessary for easy communication.

In these luxurious apartments there are usually two ante-chambers, the first for the servants, with simple decorations, the second more ornate and, sometimes a third, called waiting-rooms. It is to these different rooms that visitors according to their rank are admitted and obliged to wait. These different ante-chambers establish, with galleries, the communications between all the rooms of the apartment; a special passage for the servants is often placed parallel to the passage for the family that leads to the chambers.

In apartments of less importance, one or two ante-chambers with passages form the communication between the different rooms, which are all lighted and ventilated directly from the streets or large courts.

In these apartment-buildings, a passage-way for carriages is reserved, with an apartment for the concierge (or janitor) near the entrance; this passage gives access to the court of honor in which the carriages turn. The stables have their entrance on this court and front often on a court of service which is used for the washing of horses and carriages. Sometimes these stables are underground.

In the carriage-way is a vestibule entrance, reached by several steps which gives access to the apartment of the rez de chaussée or ground-floor, and to a second vestibule which forms the entrance to the principal stairway. This stairway, built of iron and marble or stone, or more simply in wood, is more or less monumental and richly

decorated according to the importance of the apartments, but in all cases is considered a subject for decoration and the electric or hydraulic elevator for the use of all the apartments is enclosed in a special place apart from the stairway.

To avoid the meeting of servants in the principal passage-way, a passage for service is sometimes made with direct access to the street and leading to the servants' stairway placed at the back of the house and leading to the ante-chambers of the various kitchens and to the servants' rooms on the top floor. In connection with this stairway is an hydraulic freight-elevator going from the cellars to the highest floor, for the use of all the apartments.

An electric or hydraulic letter-carrier starting from the concierge's apartment leaves letters and papers in a box placed in each of the apartments. A telephone is often installed in the apartments, or more frequently in the concierge's apartment for the use of all.

A furnace, heating all the rooms of the different apartments except the bedrooms, is placed in the cellars under the care of the concierge.

We will say nothing about the materials of construction nor of interior decoration. We think that in finishing by some remarks on certain laws in regard to light and air in apartment-building in Paris we shall have attained the object proposed by the title of this paper.

This consideration is important from the standpoint of hygiene, and laws on this subject are rigorously applied to tenement-houses, as well as to larger apartments, though, as to the latter, the exactions of tenants exceed the requirements of law.

The city regulations strictly forbid the lighting of a habitable room (that is, one large enough to hold a bed) from a court measuring less than two hundred square feet in a house sixty feet high. In general, custom as well as the law requires that not only the rooms of the upper stories, but all those of the lower stories, even to the ground-floor, shall have sunlight. In this connection, I will refer to another regulation relative to the height of the houses.

The highest house which can be built in Paris, and this only allowed on streets not less than sixty-five feet wide, must not be higher than sixty-five feet, including the attic. The mansard roof above must be within an arc, the radius of which cannot exceed thirty feet, this by way of increasing the space for the passage of light and air. Nothing, not even a moulding or a gutter, can be allowed beyond this line. After the building is finished, a special supervisor of the city examines the work, and can order its demolition if it has not been executed in conformity with the regulations of the city.

These laws, necessary for public hygiene and for the cheerfulness of the streets, have their inconvenience from a purely artistic standpoint, as they are the cause of the monotony of façades of apartment-buildings in Paris. Their *silhouettes* being uniform, the talent of the architect has to struggle against this drawback in order to produce an original effect in this kind of construction. His compensation lies in the fact of his entire liberty in matters of detail and interior decoration.

The regret I have just expressed in thinking of the severe regulations of Paris must be followed by my congratulations to my American *confrères*, whose unfettered imagination has produced such remarkable works in so short a time.

My duty calls me to make a report to the Ministry of Fine Arts of France and to the Société Centrale; it will be inspired by my admiration for the beautiful results obtained from this liberty in art, which is the privilege of America, and also by the cordiality with which my *confrères* have received my efforts.

THE HYDRAULIC WORKS AND SYSTEM OF HYDRAULIC POWER-SUPPLY AT GENEVA.¹

WHERE is now in operation at Geneva one of the most remarkable hydraulic power-stations in the world. The water of the River Rhone, near the point where it flows out of Lake Lemane, is employed to drive a number of large low-pressure turbines, giving a total of 4,500 effective horse-power. These turbines pump pure water obtained from the lake into two systems of mains. The older of these, termed the low-pressure system, the pressure at the pumps being 160 to 200 feet, is an extension of a previously existing system of mains used for supplying potable water to the town of Geneva. Although some of the water pumped into this system is used for power purposes, it is chiefly intended to supply water for domestic and municipal purposes. The second system of mains, termed the high-pressure system, the pressure at the pumps being 460 feet, supplies potable water to some districts not reached by the low-pressure system, but it is specially intended to afford a supply of water for motive-power purposes to the entire area of the town. The demand for water, both on the low and high pressure systems is a fluctuating demand, large during the day, and very small during the night. Hence, if the turbines in the Rhone were employed solely in pumping into the mains, they would not be continuously working, and a large part of the water-power of the Rhone would be wasted. To meet this difficulty, an important storage-reservoir has been constructed at Bessinges, about four kilometres from Geneva. The turbines pump water up to this reservoir at night, and at times when the demand for power for other purposes is insufficient to keep them fully employed. The energy derived from water flowing back

¹ Extracts from a lecture delivered before the Society of Arts by Prof. W. Cawthorne Unwin, and published in the *Journal* of the Society.

from the Bessinges reservoir through the high-pressure system, represents parts of the water-power of the Rhone which would necessarily have been wasted if this means of storage had not been provided.

The works at Geneva have been gradually developed under special local conditions. In spite of natural and political isolation, manufacturing industries have for centuries flourished at Geneva. That they did so is partly owing to the fact that cheap water-power could be obtained by simple forms of water-wheel placed in the ample and rapid Rhone, flowing past the town. An industrial quarter gathered along the banks of the river, and factories were built even in the stream itself. As the population increased, a water-supply was required. The small aqueducts of spring water became insufficient, and further recourse was had to the motive-power of the Rhone. From the beginning of the eighteenth century, water-wheels placed in the Rhone pumped a water-supply into the town.

Then arose an antagonism to the utilization of the motive-power of the Rhone, which, for two centuries, hindered the progress of industrial enterprise at Geneva, and threatened at times to destroy the existing industries. The properties of riparian owners on the shores of Lake Lemman were from time to time injured by the rising of the lake-level. It was not unnatural that the landowners should attribute the disastrous inundations from which they suffered to the obstacles created at the outlet of the lake, that is to the bridges and buildings, and especially to the factories and water-wheels in Geneva. Complaints were addressed by the Canton Vaud to the Federal Government at Berne of damage caused by the works at Geneva. Then arose a question of arrangements necessary to regulate the lake-level, and to facilitate in time of flood the discharge of the water. From 1875 the project of utilizing the motive-power of the Rhone took a new magnitude and importance from the combination with it of plans for regulating the level of Lake Lemman, and so ending a long and bitter controversy.

Another local circumstance had great influence in determining the ultimate form of the project for the utilization of the motive-power of the Rhone. In 1871, Col. Turrettini,¹ the engineer under whose direction the present works have been constructed, had applied to the Town Council at Geneva to place small pressure-engines on the mains of the then existing low-pressure water-supply. The plan of obtaining motive-power in this way proved so successful and convenient that, in 1880, there were 111 motors at work, using 34,000,000 cubic feet of water annually, and paying a yearly rental for power-water of £2,000. The cost of the power at that time to consumers was at the rate of £36 to £48 per horse-power per year of 3,000 working hours.

In 1878, a private firm asked the concession of a monopoly of the motive-power of the Rhone, at Geneva, on condition of carrying out works necessary for facilitating the discharge from the lake, and regulating the lake-level. A similar offer was made in 1881. But there grew up a feeling that such works should be carried out by and for the profit of the town itself. Finally, after many studies the contract was given by the Municipality in 1883 to M. Chappuis to construct under their direction the present works.

These works have cost, altogether £283,000. Of this sum, a fraction has been paid to owners of land on the shores of the lake and part has been expended in constructing new sewers required in consequence of the alterations of river-level. Deducting these items, the cost of utilizing the motive-power of the Rhone has already amounted to nearly £200,000.

The scheme included the clearing away of all obstacles to the free flow of the river, and the division of the river, by a longitudinal embankment, into two portions, one forming a head-race to the turbines, the other — which was straightened and deepened — forming an outlet for the surplus water from the lake. Between the two divisions of the river-bed are movable sluices, which keep up the water in the head-race channel, or discharge surplus water into the tail-race channel, according to the condition of the lake. The scheme also included a complete re-construction of the old pumping-system for the low-pressure water-supply, the creation of the new system of high-pressure water-supply and the provision of motive-power also by hydraulic transmission to the industries of the town.

The Low-pressure River Turbines. — The turbine and pump house is placed at the end of the left-hand channel or head-race. The turbines are of 210 horse-power each, and fourteen groups of turbines and pumps have been erected. Four more groups, of somewhat greater power, are expected to be erected within the next five years. The turbines are Jonval pressure turbines, constructed by Messrs. Escher, Wyss & Co., of Zurich. They have vertical shafts, and each turbine drives from a crank two horizontal double-acting Girard pumps, placed at right angles.

The head at the turbines varies from 5.5 feet, when the river is in flood, to 12.14 feet when the volume of flow is smallest. With most forms of turbine this would involve a considerable variation of the normal speed, or speed of greatest efficiency. The turbines are skilfully arranged to meet this variation of head. The turbine wheel and its corresponding system of guide passages is arranged in three concentric rings. When the fall is great, and the quantity of water used is smallest, the outer ring only is open, and the water acts at a large radius. As the fall diminishes, the second ring is opened, and the mean radius, at which the water acts, is smaller.

¹ "Utilisation des forces motrices du Rhone et régularisation du lac Lemman." Th. Turrettini, Ingenieur Conseiller Administratif délégué aux travaux. Geneva, 1890. This admirably illustrated memoir fully describes the origin, progress and details of all the works at Geneva.

In the lowest condition of the fall, when most water must be used, all three rings are open, and the mean radius at which the water acts is smaller still. The number of rotations of the turbine depends entirely on the velocity due to the head and inversely on the radius at which the water enters. Hence, as the radius diminishes as the head diminishes, a fairly constant speed of rotation is obtained. The adjustment is such that, with the highest fall, the normal speed is 27 revolutions per minute, and with the lowest fall, 24 revolutions per minute, a variation not practically serious in working pumps.

The fixed distributor over the turbine-wheel is 13.78 feet in external diameter and 5.74 feet in internal diameter. It is divided into three rings, having 52 guide passages in the outer ring, 48 in the middle ring and 40 in the inner ring. The external ring has no regulating sluices, regulation being affected, when that ring only is open, by the sluices in the head race. The other rings are arranged so that over one semicircle the orifices open vertically on an annular plane surface, and over the other semicircle they open horizontally on a cylindrical surface. Each ring of passages has two regulating sluices, one a semicircular annular plate for the orifices opening vertically; one a semi-cylinder for the openings which are horizontal. Each sluice can be fully opened without interfering with the openings corresponding with the other. The sluices are worked by gearing. The turbine-wheel is of cast-iron, in two halves. It has wheel-passages corresponding to those in the distributor.

The vertical support of each turbine consists of a fixed wrought-iron pillar, carrying at its top a steel step for the pivot, and a steel revolving hollow shaft hanging from the pivot at the top. The pivot is 6 inches diameter. A crank at the top of the shaft drives two Girard double-acting pumps placed at right angles from a single crank-pin. The Girard pump consists virtually of two plunger-pumps placed end to end, the advantage being that the stuffing-boxes for the plungers are accessible and there is no internal packing. The two pumps discharge into a single air-vessel placed between them. The diameter of the plungers of the low-pressure pumps is 1.41 feet, that of the high-pressure pumps 1.08 and 0.85 feet. The stroke is 3.61 feet and the mean velocity 188 feet per minute. The valves are ring-valves with leather faces. The high-pressure pumps supply mains of 20-inch diameter, and of 24-inch and 16-inch in the other. The low-pressure pumps supply two mains of 20-inch diameter.

The High-pressure Reservoir at Bessinges. — When the high-pressure system was first put in operation, a constant pressure was maintained in the mains, by constantly pumping in excess of the demand, and allowing the surplus to flow away through a relief-valve. This involves a constant waste. To further moderate fluctuations of pressure, four large air-vessels (additional to those at the pumps) were erected. These were 5 feet in diameter, and 39 feet high, and were kept charged with air by a Colladon compressor. When it became a question of driving the electric station by turbines driven by water from the high-pressure system, the need of a storage-reservoir became pressing. At four kilometres from Geneva a site was found, at an elevation of 390 feet above the lake, and it was decided to construct a reservoir capable of storing the discharge of three groups of pumps working through the night. The discharge of the pumps is 34,000 cubic feet per hour, of 442,000 cubic feet per 13 hours, during which, if there were no means of storage, they would be put out of action.

The reservoir is a covered reservoir, capable of containing 453,000 cubic feet. It stores, therefore, 5,573 gross horse-power hours of energy. Allowing for the loss at the motors driven by the pressure-water, the reservoir will furnish about 800 effective horse-power for five hours. It serves as a perfect regulator of pressure. A float with electric signal and recording apparatus shows constantly in the pump-house the condition of the reservoir.

Hydraulic Pressure Relay or Compensating Pressure Regulator. — The 16-inch pipe main from the pumping-station to the reservoir at Bessinges being four kilometres in length, there would be a difference of pressure in the mains in Geneva equivalent to the friction of eight kilometres of main, according as water was being pumped up to or flowing back from the reservoir. This would not have been very serious if all the motors driven by the water had been supplied by meter. But the larger motors are supplied by gauging, the quantity of water used being computed from the area of the orifices of discharge. Variations of head would have involved a variation of the quantity of power developed at the motors amounting to 20 per cent. This would have hindered the development of that method of estimating the charge for water.

To prevent this variation of head, Col. Turrettini devised a centrifugal pump relay, which comes into action automatically and increases the pressure whenever the water is returning from the reservoir to the town. The centrifugal pump, which forms part of the main, is driven by a turbine so regulated for speed that a constant pressure is obtained on the town side of the pump. The pump receives, at the maximum, 635 cubic feet of water per minute and can give to the stream passing through it an increase of pressure of 30 feet. The turbine works with 380 feet of head and can exert 120 horse-power.

The sluices of the turbine are governed by an automatic pressure-regulator. The pressure in the main acts on a piston controlled by a spring. According to the position of the piston, the turbine sluices are open more or less. The movement of the piston actuates the valve of an hydraulic relay which operates the turbine sluices. During

the filling of the reservoir the centrifugal pump is at rest, the water merely flowing through it. When water flows back from the reservoir the turbine begins to drive the pump so as to increase the pressure in the main. The arrangement has worked with perfect success.

The Motors used in Geneva.—The original motors used in Geneva were Schmid pressure-engines and these are still used for small powers. They use a quantity of water which depends on the speed only and not on the work done. Hence they are uneconomical with light loads. They are convenient and cheap, they can be run at any speed and they act as meters of the quantity of water used. A counter on the pressure-engine recording the number of revolutions gives the means of ascertaining accurately the quantity of water used. At full load their efficiency is 80 per cent.

For all larger motors impulse-turbines are used. The maximum efficiency of these is 75 per cent and it is not much less with light loads. They occupy little space and can be perfectly governed to constant speed by the ingenious relay governors of Messrs. Faesch and Picard. In Geneva the question of speed regulation was found to be an important one. The industries connected with watch-making required motors running at constant speed.

The Electric-lighting Station.—In 1887, the City Council came to an arrangement with a company for supplying electricity. It was part of the arrangement that the company should use pressure-water, supplied by the town, as motive-power in all its installations. The pressure-water is supplied to the company by meter, at a price of two centimes per metre cube, with a minimum of 400,000 cubic metres annually. This is equivalent to a little more than £3 per effective horse-power per annum. The advantage to the town is that their pumping machinery can be run constantly, night and day, the energy, which would otherwise be wasted, being stored. The electric company, on the other hand, get power at a cheap rate, and their turbines being driven by high pressure are convenient and cheap and run at an extremely constant speed.

Under the arrangement an electric station has been installed in the old pumping-station, no longer required for its original purpose. There are three impulse turbines of 200 horse-power each, and each turbine drives two dynamos directly coupled to it by Raffard couplings. There is also a 25 horse-power turbine and dynamo for day work. It is the system of reservoir storage which makes this hydraulic driving of the dynamos possible and economical. They could not be driven so conveniently by the large low-pressure turbines in the river, with the very varying head which they have to utilize, nor could power be spared to drive them, except by utilizing the motive-power of the flow of the river through the night.



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

THE UNION TRUST COMPANY'S BUILDING, BROADWAY, NEW YORK, N. Y. MR. GEORGE B. POST, ARCHITECT, NEW YORK, N. Y.
[Gelatin Print issued with the International and Imperial Editions only.]

SKETCHES BY THE *American Architect* TRAVELLING-SCHOLAR FOR 1892. MR. W. M. MACCAFFERTY, BROOKLYN, N. Y.
[Issued with the International and Imperial Editions only.]

TWO DESIGNS FOR A SUBURBAN HOUSE SUBMITTED IN A COMPETITION OF THE CINCINNATI SKETCH-CLUB, BY MR. HARRY HAKE AND MR. M. HEISTER.
[Issued with the International and Imperial Editions only.]

COMPETITIVE PLANS FOR THE HÔPITAL BOUCICAUT, PARIS, FRANCE.

For description, see letter from Paris elsewhere in this issue.

STORE FOR LEVY BROS., LOUISVILLE, KY. MESSRS. CLARKE & LOOMIS, ARCHITECTS, LOUISVILLE, KY.

A COURT-WAY AT GIEN, FRANCE.

COTTAGE FOR BALLARD SMITH, ESQ., TUXEDO, N. Y. MR. JAMES BROWN LORD, ARCHITECT, NEW YORK, N. Y.

HOUSE AT NORFOLK, CONN. MESSRS. STEVENSON & GREENE, ARCHITECTS, NEW YORK, N. Y.

DESIGN FOR ENTRANCE TO MCPHERSON BARRACKS SUBMITTED IN A COMPETITION OF THE ATLANTA ARCHITECTURAL SKETCH-CLUB, BY MR. W. L. STODDART.

[Additional Illustrations in the International Edition.]

THE HEROIC SILVER STATUE OF COLUMBUS AT THE WORLD'S FAIR, CHICAGO, ILL. M. F. A. BARTHOLDI, SCULPTOR.
[Gelatin Print.]

AMONGST the countless exhibits of the World's Fair there are two of very unusual and, it must be admitted, very unequal value when considered as works of art, and it must be further admitted that a great part of the interest felt by spectators in either

case is excited by the rather vulgar fact that these exhibits have been executed in a precious metal at a scale not often used when such costly material is employed. These two exhibits are the silver statues of "Justice," by the sculptor R. H. Park, and the even larger figure of "Columbus" by the sculptor F. A. Bartholdi. The first of these statues forms part of the Montana State exhibit in the Mines Building and has achieved notoriety less because of its merits as a work of art or because of its being cast in silver than because it was asserted that a well-known actress, Miss Ada Rehan, had posed to the sculptor for the model. The newspaper discussion that arose out of this seemingly unimportant fact was both voluminous and tedious to a degree, and the fact that we have not seen any mention of the statue since the day when it was unveiled almost justifies the belief that the newspaper excitement was worked up by a clever advertising manager, working in the interests of—whomsoever it concerned.

The other statue, the "Columbus," is sufficiently a work of art to command attention no matter what might be the material composing it, and we are free to say that on first seeing the photograph of the model and later the model itself our first feeling was surprise that a sculptor of Mr. Bartholdi's real rank should have succeeded in modelling a figure which had so many really good points about it. This statue forms part of the exhibit in the Liberal Arts Building made by the Gorham Manufacturing Company, to whose courtesy we owe the pleasure of witnessing the very unusual operation of casting in silver a figure of such size and requiring the melting of so great a weight of a metal which, in spite of the efforts of our Colorado friends, still is held by the world to be precious.

The process of casting in silver is the same as that used where the material is the more common bronze alloy, and a stream of melted silver looks not different from a similar stream of any of the higher metals when heated to a point of white liquefaction. The details of the process of founding are always interesting, but we will not now stop to describe the methods and the more than ordinary care required where a precious metal is used. It is enough to say that the casting was in every particular successful and that the unusual undertaking was accomplished without serious delay or mishap having been encountered at any stage of the proceedings.

The figure of "Justice" (Miss Rehan's), is 5' 10" high and stands on a globe borne by an eagle, and the silver used, weighing about 1,631 pounds Troy, cost, it is said, \$61,800. The cost of the statue as exhibited, including the cost of the gold plinth, the model, etc., is said to have been \$307,675. As this statue is to be exhibited in various parts of the country after the closing of the Fair, those who have not visited Chicago this summer may be able to inspect one of the curiosities which have been there exhibited.

Such a fate, we fancy, will hardly befall the "Columbus," as the Gorham Company is not in the "show" business, but those who are interested in such matters will probably for some years to come have a chance to see the figure either at the warerooms of the concern in New York or at its great factory in Providence. Even if this should not be the case, because of the passage of the metal once more through the melting-pot and its representation to the world in the guise of "souvenir spoons," people are to be enabled to see Bartholdi's work perpetuated, since Mr. Henry C. Clarke has presented a replica of the statue in bronze to the city of Providence, this second cast being also the work of the Gorham Manufacturing Company, and it is likely to be set up at the junction of Reservoir and Elmwood Avenues next month.

As for the silver original—which is supposed to be solid by those who do not know how thin is the shell of which metal statues are composed—it cost, even at the rates which this great silver-working company can command, some \$25,000 exclusive of the sculptor's fee and incidentals. For the casting 30,000 ounces Troy, .925 per cent fine, were melted and nearly all had to be run into the mould. Of course, a certain part of this was taken up in the form of "gates," which had to be trimmed off in the process of finishing, so that we cannot state even the approximate manufacturing cost of this statue which is rather larger than life-size. As for its value as a work of art, the illustration will enable the reader to form his own opinion.

CORRIDOR OF THE EQUITABLE INSURANCE BUILDING, DENVER, COL. MESSRS. ANDREWS, JAKES & RANTOUL, ARCHITECTS, BOSTON, MASS.

[Gelatin Print.]

NORTHWEST PAVILION OF THE LIBERAL ARTS BUILDING, JACKSON PARK, CHICAGO, ILL., SHOWING LUNETTE DECORATION, BY MR. FRANK D. MILLET.

[Heliochrome.]

COUNCIL CHAMBER AND LIBRARY, INSTITUTE OF CHARTERED ACCOUNTANTS. MR. JOHN BELCHER, ARCHITECT.

The drawing now reproduced was exhibited in the last Academy Exhibition.

CHURCH OF ST. THOMAS OF CANTERBURY, WEST HILL, WANDSWORTH, ENG. MR. EDWARD GOLDIE, ARCHITECT, KENSINGTON, LONDON, ENG.

This church, which is now in course of erection, will stand on a commanding site at the northwest corner of the Richmond Road and of Santos Road. It will consist of a nave 92 feet by 30 feet, an

arcade of four bays on the north side opening into the double transept and aisle, and on the south side an arcade of five bays. The aisles are 15 feet wide. At the west end of the north aisle will be the tower, 25 feet square exclusive of buttresses, the lower portion of which is destined to be the baptistery. In the angle formed by the west end of the nave and the south aisle will be the south porch. There are two arches between each of the double transepts. The north transepts are each 15 feet by 25 feet, and those to the south 15 feet by 23 feet. The chancel is 28 feet by 30 feet. It is separated from the nave by a chancel arch, and divided on either side into three bays, the lower portion of two of which open on either side into side chapels. The lady chapel to the south is 27 feet long by 15 feet. The chapel to the north is 20 feet by 11 feet 3 inches. Over the latter is the organ-chamber, approached from the sacristy, and having openings into the chancel and the northeast transept. The two sacristies, opening one into the other, are in the northeast angle. The boys' sacristy, 17 feet 6 inches by 13 feet 3 inches, communicating with the transept, and the priest's sacristy, 26 feet 3 inches by 16 feet, having a door giving direct access to the sanctuary. The latter will be connected by a lobby with the future presbytery, and under it will be the heating-chamber. There is no clerestory. The nave will be lit by a large seven-light west window. This and the rest of the building will be abundantly lighted by the large three-light windows of the aisles and transepts. The chancel is lit by three two-light windows on either side, and the lady chapel by three small two-light windows. The nave roof is a barrel, with ribs, tie-beams and king-posts. The aisle roofs are flat, richly panelled, and rising to within a short distance of the nave eaves. The transept roofs are plain barrel. The chancel roof will be groined in wood, and those of the side chapels will be flat and richly panelled. The baptistery will be vaulted in stone. The main entrance at the west end will be under a deeply-recessed and richly-moulded arch, and will consist of two doorways, with a statue of the patron saint in a canopied niche standing between them. The body of the church will be floored with wood-block flooring throughout, deal under the seating and oak being used in the alleys. It is proposed to have marble floors in the chancel and side chapels and tiles in the baptistery. It is unnecessary to describe the exterior; our illustration speaks for itself. Suffice it to say that in design the church is a free treatment of Flowing Decorated, the detail being rich and very delicate, and that the materials used are red bricks of a bright color and light pointing, and that the stone used is to be Bath, with a few exceptions. The building is to be covered with Westmoreland slates. In conclusion we may mention that the average height of the nave to the ridge is 56 feet; the tower is 63 feet to the top of the parapet, and 114 feet from the ground to the apex of the octagon above. The nave only is being built at present, but it is anticipated that before long the aisles, transepts and lower portion of the tower will be put in hand.

BIRMINGHAM MUNICIPAL TECHNICAL SCHOOL. MESSRS. ESSEX, NICOL & GOODMAN, ARCHITECTS.



[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.]

ENGLISH PORTLAND CEMENT.

NEW YORK, N. Y., October 17, 1893.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—Your editorial comment in issue of last week on the review by the *Builder* of Mr. W. M. Patton's book on Foundations, does an injustice to English Portland cement that we believe you will not willingly pass without correction in as prominent a manner, especially as strong terms are used when it is said that architects within the last ten years have endeavored to find a brand of English Portland cement any two barrels of which would have the same properties—that it was spoiled by dampness—which would set in something like a definite time if at all—which is thoroughly and evenly ground—and which could be depended upon not to swell after setting and burst the masonry laid with it.

We regret that *The American Architect and Building News* which we have considered an authority, should through prejudice or other causes have erred on the wrong side, for not to know that there are several brands of English Portland cement, conceded by architects, engineers and contractors to be the finest and most uniform quality, is to argue deficiency of knowledge.

For instance, Black Cross English Portland cement was used for the foundations of Congressional Library Building, Washington, and General Meigs, after stating average tensile strength, evenness and setting quality, concluded by giving his judgment that "it was excellent cement and much stronger than any cement known to him."

The foundations of some of the largest buildings in the United States stand on concrete made with Black Cross English Portland cement, whilst for artificial stone and pavements it is equally appreciated with German cement, and here it is appropriate to state that since some require German cement without specification as to

quality, a great deal of inferior stuff to which your condemnation would apply, is imported and sold at low figures simply because architects and engineers may specify "German Cement."

There are inferior and adulterated cements sent from England as well as from Germany and Belgium to the United States, and to exclude their employment specifications should name such brands of Portland cements that by continual testing are known to be uniform and imported by reputable firms.

Your strictures should not apply to all Portland cement from Great Britain simply because it is "English, you know."

Yours truly, FLEMING CEMENT & BRICK COMPANY,
HOWARD FLEMING, President.

[We are pleased to publish this statement as we are anxious only to place facts and truths before our readers. Our comments, based partly on personal experience as well as on that of other architects, were called out solely by the absurd assumption of the *Builder* that Americans were willing to use only such materials as could be had cheap.—EDS. AMERICAN ARCHITECT.]

THE ARCHITECT AS THE OWNER'S AGENT.

PROVIDENCE, R. I., October 11, 1893.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—In view of the decision of the Court of Appeal of Great Britain, in the case of *Lelièvre versus Gould*, is it not settled, as far as the English courts can settle it, that the architect is the agent of the owner, and if, as I infer, this is the proper interpretation to be put upon the decision, does it not show that the Uniform Contract, as framed by a committee of the American Institute of Architects and the National Association of Builders, is correctly worded in so designating the architect?

In the case referred to, an action was brought by the plaintiffs "against the defendant Gould to obtain a declaration that the defendant, a surveyor, was liable to make compensation to them for the loss that they had sustained by reason of untrue certificates which he had given as to the progress made in the building of certain houses."

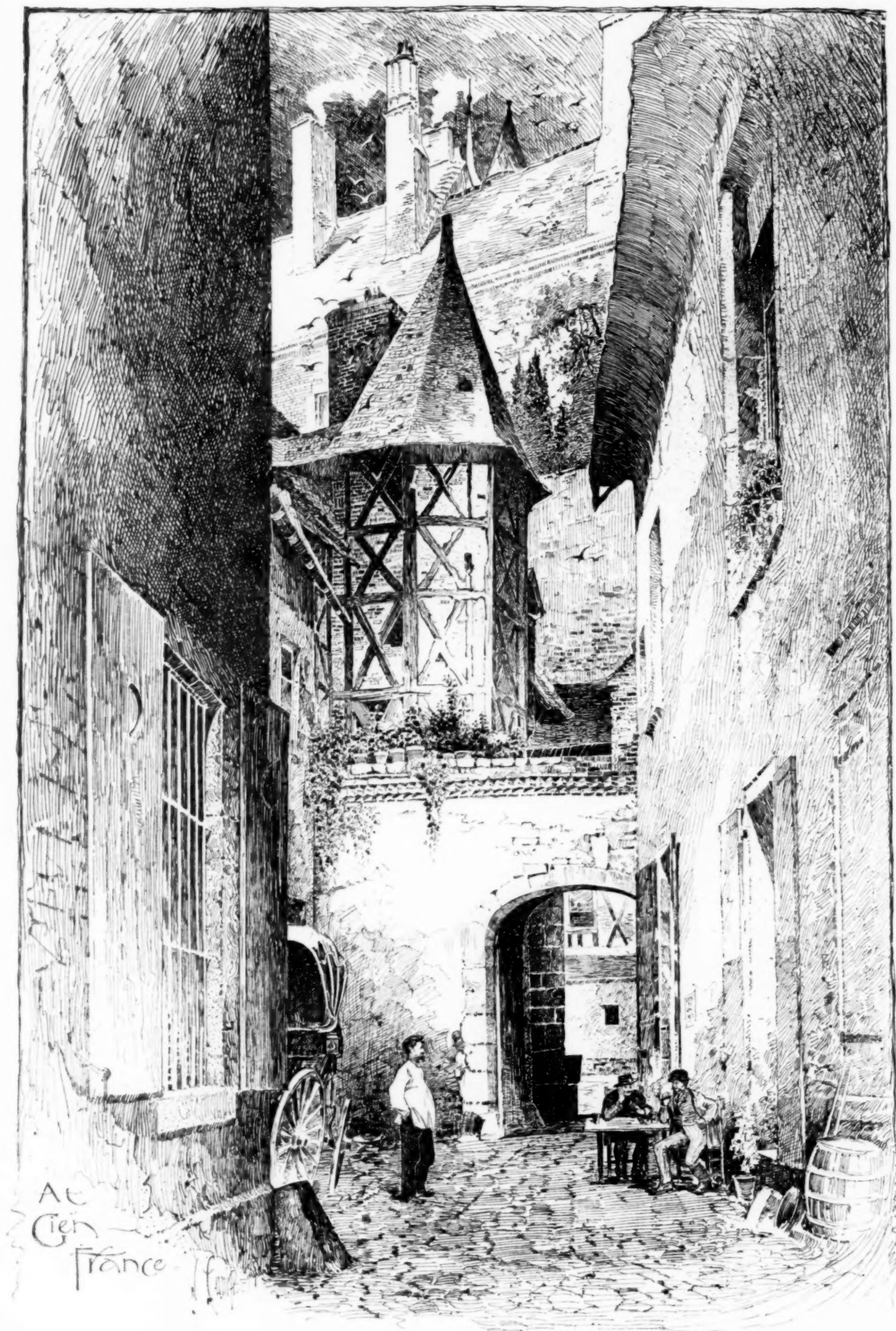
The defendant alleged that in giving the certificates he had acted *bona fide* and in the belief that the statements contained in the certificates were true. The *Law Journal* in a brief summary of the case says: "The decision has now finally settled the much-debated question whether the architect or the surveyor employed under the building contract is under any liability to the builder for any inaccuracies or for any act of omission in the discharge of the duties imposed on him by the contract. In such cases there is no privity of contract between architect and builder. The architect's contractual duties are toward the employer only. For any neglect of them causing damage to the employer he is responsible in damages, and is not, as was currently supposed by the profession, entitled to the immunities of an arbitrator to protect himself by his certificate from his own negligence. In *Cann v. Wilson*, a valuer employed by a mortgagor was held by the Court to be liable to the mortgagee for damages arising from adopting the valuation, and in the case now under review it was attempted to render the building-owner's surveyor liable to the builder's mortgagees for losses alleged to have been sustained by them by reason of his certificate. But this decision was rejected by the Court of Appeal which decided that, in the absence of fraud, the surveyor owed no duty to the mortgagees, and held that *Cann v. Wilson* must be treated as overruled by the decision of *Derry v. Peak* in the House of Lords. There is no distinction between the position of the builder and of his mortgagee, and the result of the decisions stated is that while the building-owner has a remedy against his architect for failure to do his duties under the contract, the builder has no such remedy, unless he can show fraud or collusion; and can neither recover without a certificate, nor sue the architect for errors in it, nor appeal to the Court to rectify the errors."

In the same number of the *Journal of Proceedings* of the Royal Institute of British Architects, which contains the above cited decision, we find the following statement copied from a review by William H. White of "*L'Architecte moderne devant le Code Civil*," Par Achille Hermant, Architecte Honoraire du Département de la Seine. 8° Paris, 1893. (M. G. Delarue, Libraire-Éditeur, 5 Rue des Grands Augustins, Paris.)

"At the present moment the architect makes the design, determines the conditions of execution, and estimates the approximate cost; he then confides the work to a general contractor, or to several contractors, who may be chosen by the employer or selected by other means, and on this point the modern architect acts simply as an adviser. The contract is made between the employer and the contractor; the architect is no party to it. During the progress of the works the architect's mission is to direct, to watch over (*surveiller*) them and those engaged upon them, and to see that the buildings are carried out in accordance with the drawings, the specification, and the terms of the contract. He, an expert in the art of building, receives a mandate to act as the agent of the employer supposed to be ignorant of that art. He does not construct, properly speaking, for the employer; he controls those who do. Instead of being the antagonist of his employer, as was the case when the architect was also a contractor, he is his employer's supporter or defender, the guardian of his employer's interests. At the same time, by upholding the terms of the contract he is the protector of the contractor."

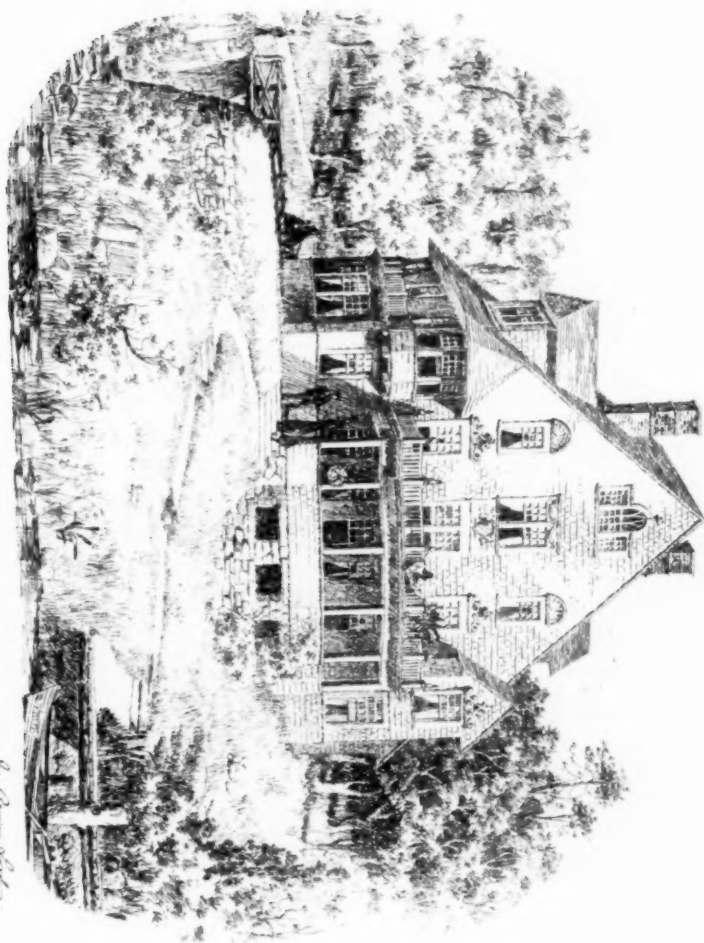
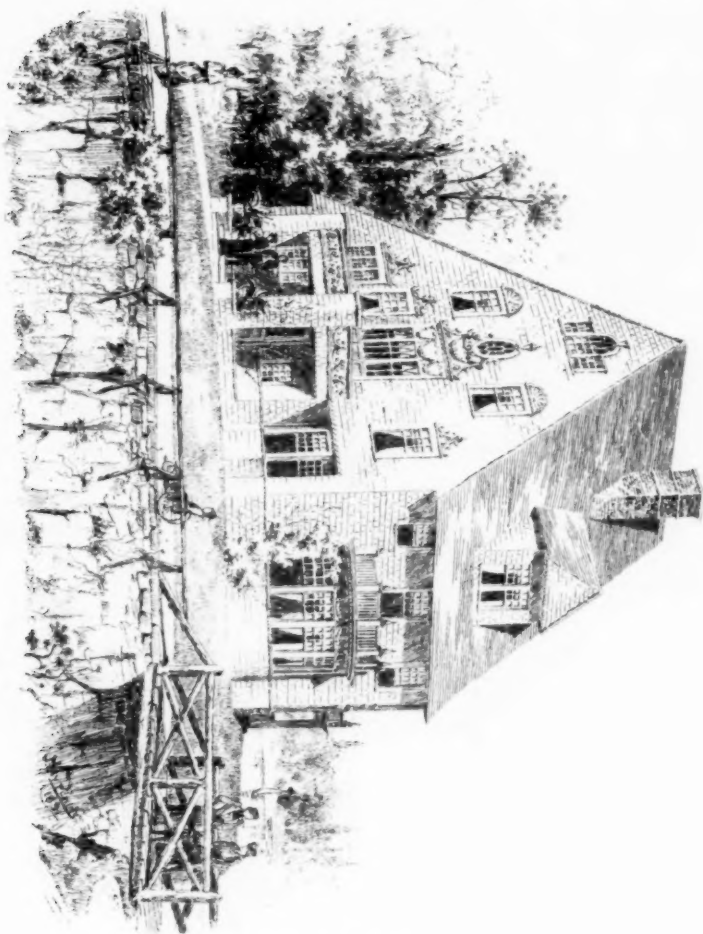
A. S.

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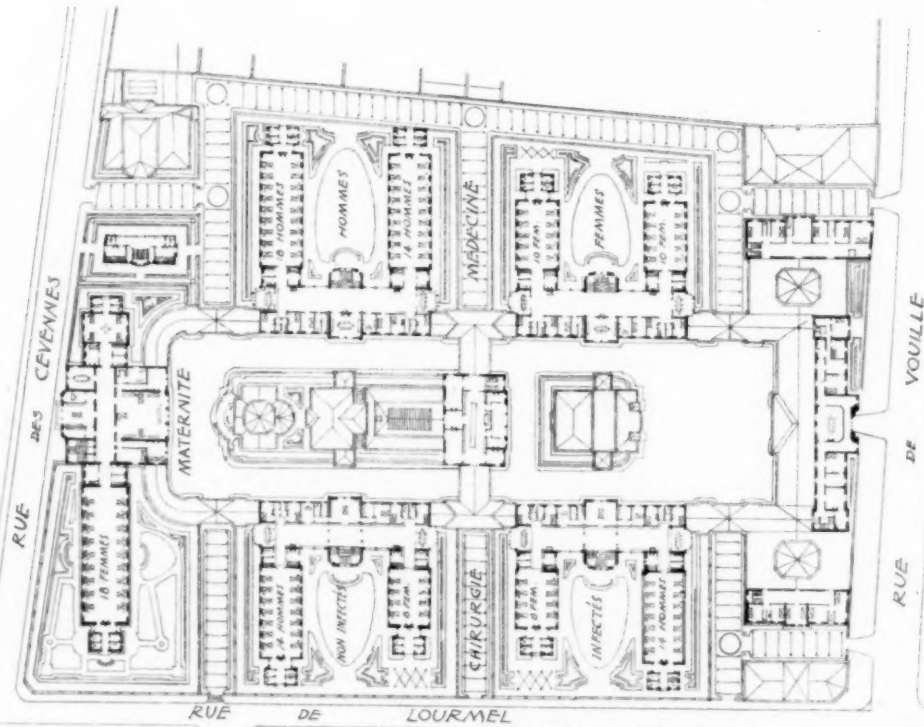


*Cottage at Glendale -
The Railroad Road by*

*James M. Smith
Arch.*

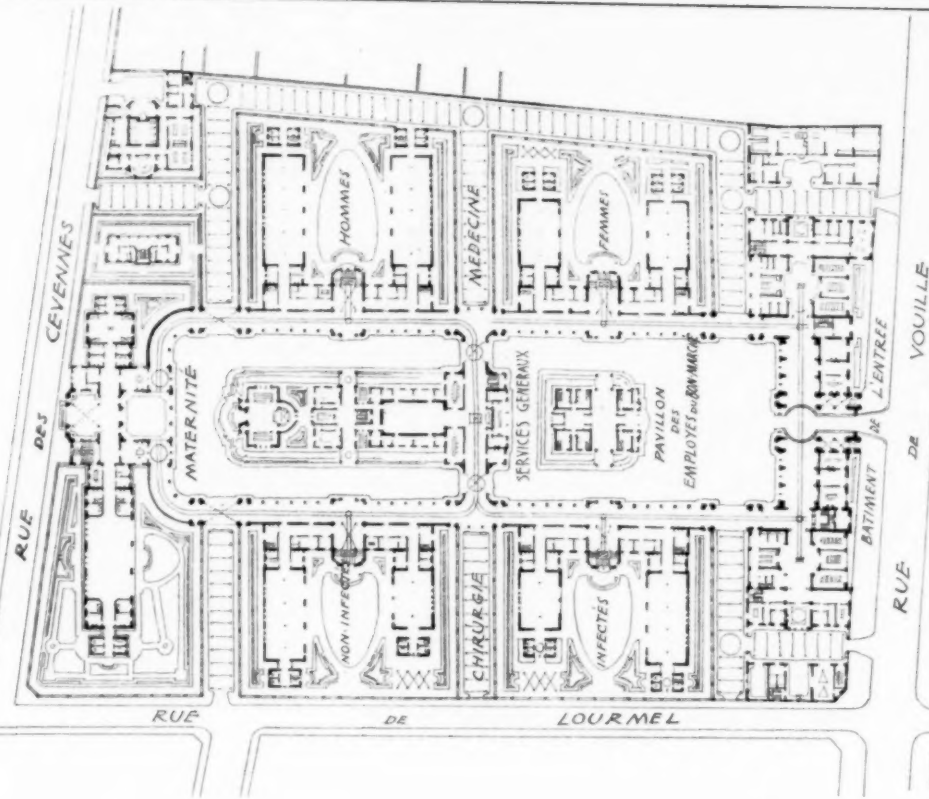
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PLAN DU 1^{ER} ETAGE

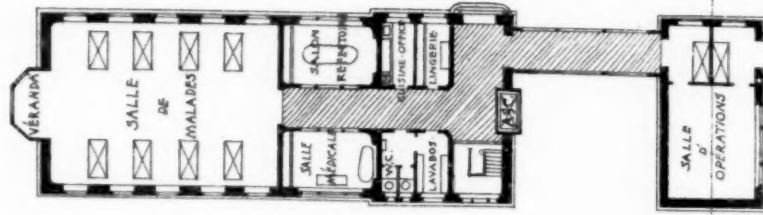


PROJET DE M. COURTOIS - SUFFIT

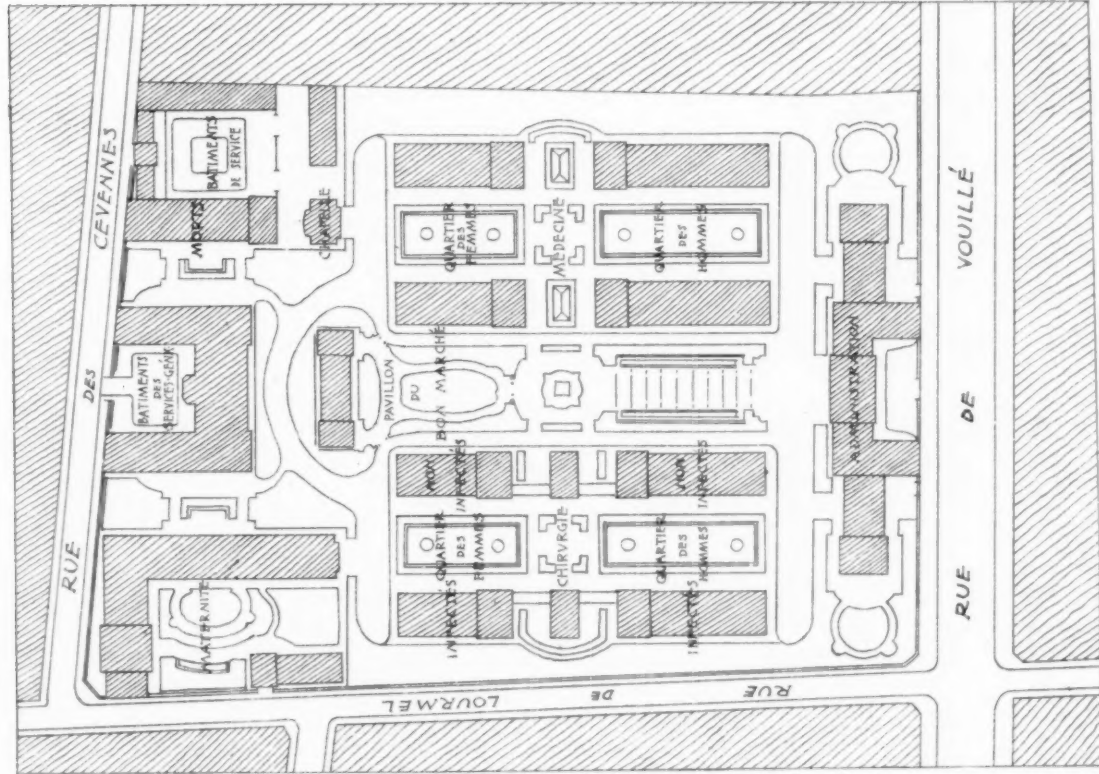
PLAN DU REZ DE CHAUSSEE.



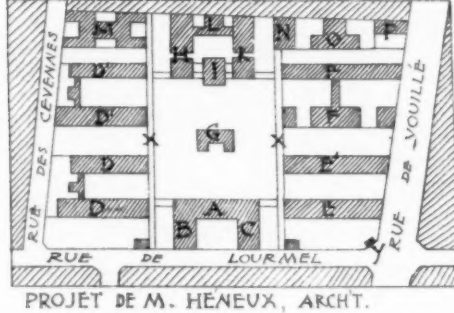
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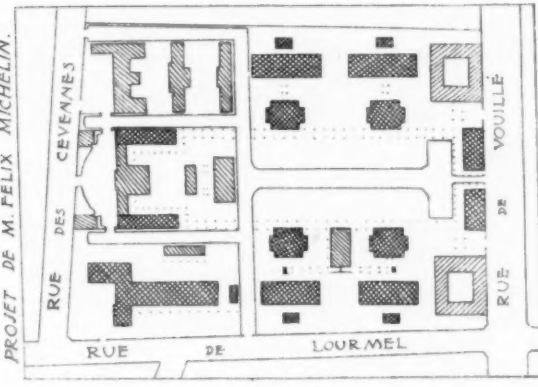
DÉTAIL D'UN PAVILLON DE CHIRURGIE - PROJET DE M. LE GROS



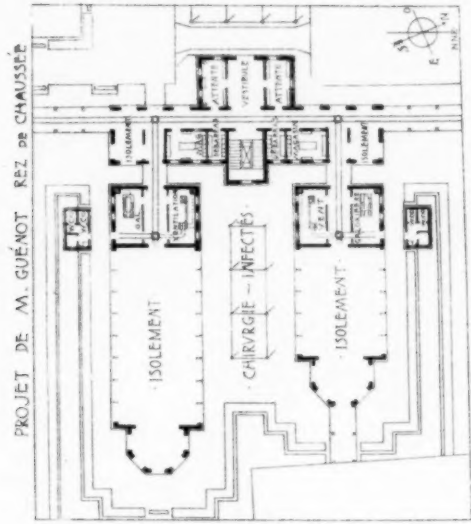
PROJET DE MM. LE GROS.



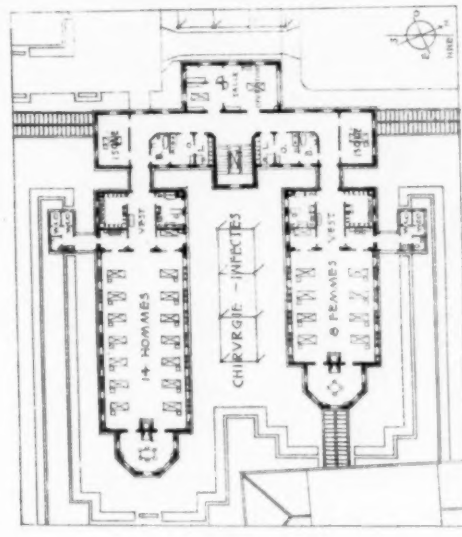
PROJET DE M. HÉNEUX, ARCHT.



PROJET DE M. FÉLIX MICHELIN.



PROJET DE M. GUÉNOT. REZ DE CHAUSSEE



PROJET DE M. GUÉNOT. 1^{ER} ETAGE.

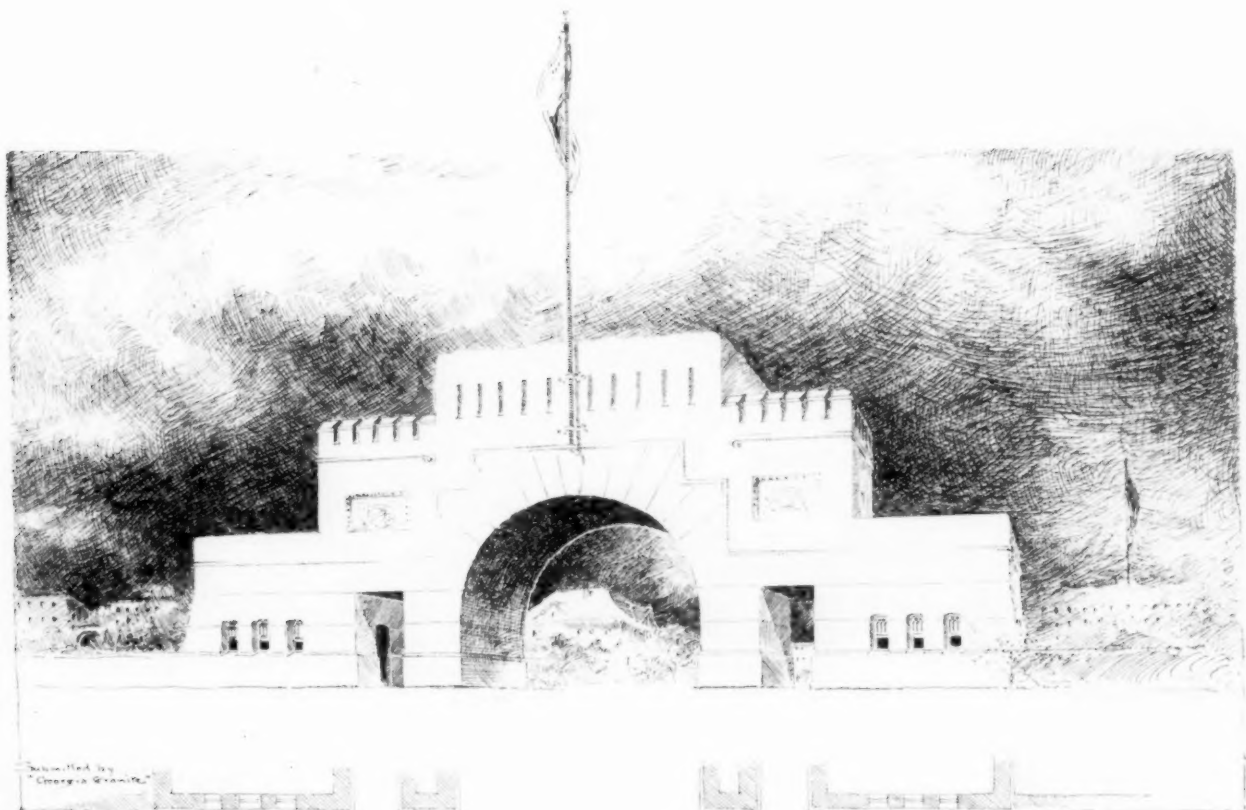
COMPETITIVE PLANS FOR THE HÔPITAL BOUCAUT, PARIS, FRANCE.



STORE BUILDING FOR LEVY BROS. - LOUISVILLE, KY.
CLARKE & SPOMIS ARCHT'S

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Atlanta Architectural Society Photo Competition. Entrance to W. P. Sherman Pharmacy, Atlanta, Ga., as rendered by the artist.