

German castles, and so rare, for example, in America. When turrets designed especially for the purpose are lacking, then staircases are hollowed out in the thick walls of old castles. In newer palaces

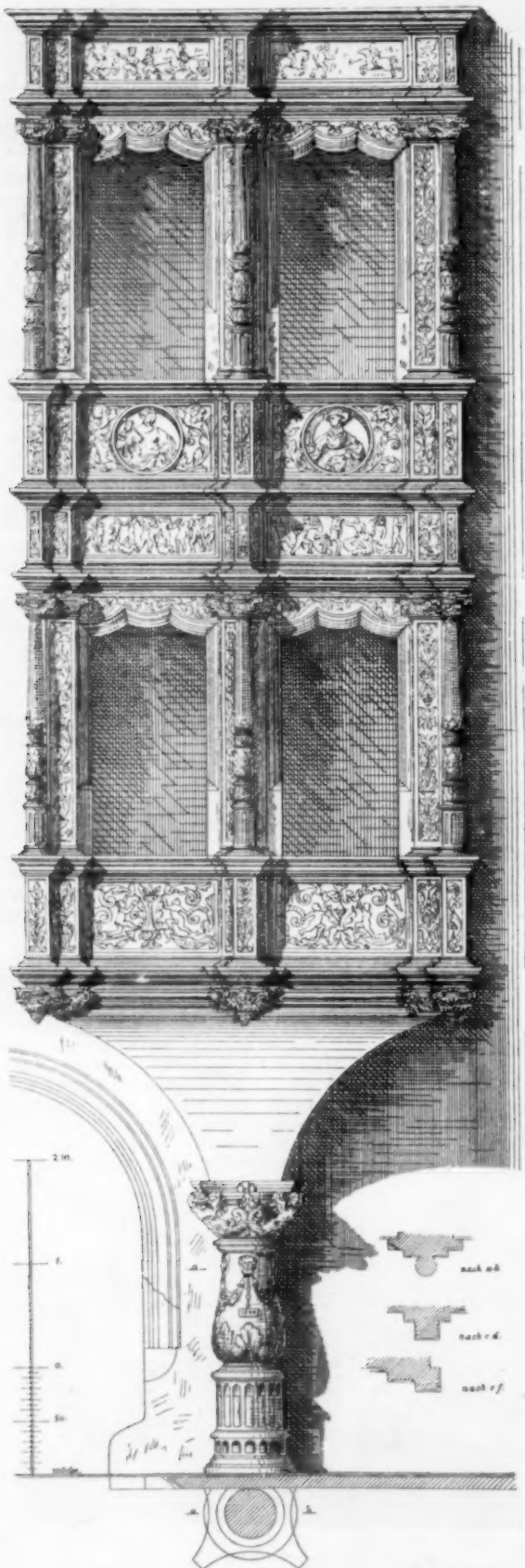


Fig. 64. Oriol from the Chapel of Schloss Hartenfels, Torgau.

where this is impracticable, spiral stairs are constructed of iron, and stand often quite open on all sides, in one end of a room. It seems that despite the many generations that have gone by since the intro-

duction of interior corridors and stairways, still the old, traditional use of turret steps will not expire.

In all old castles which have not been renovated past recognition, stairway-towers form most important and beautiful parts of palaces. They are run up anywhere where convenience suggested in the very oldest burgs. Then they came to be relegated to the four corners of the court (Fig. 36); and, finally, in the sixteenth century, to where the front entrance of the dwelling-house has ever since generally been put, in the middle of the façade.

I choose for an illustration of this last-mentioned kind of tower, the finest specimen, perhaps, in Germany; the stairway tower of Schloss Hartenfels, at Torgau in Prussian Saxony. Figure 57 [Illustrations] is a front view; Figure 60, a side view; Figure 61, the ground plan. A of Figure 61 is a sectional drawing taken at the height of the balustered landing on the top of the rectangular foundation. The landing is reached from the sides by flights of nosed steps. The stair-tower proper rises from this landing, in the form of six pilasters, held together by the spiral sides of the winders. B is an enlarged design of the ground plan of one of these pilasters.

The open spaces between the pilasters are lofty and form five round-arched spaces, of which the two next the façade wall are crossed by horizontal fragments of the banister and three others by slanting fragments. These banisters divide the slender-looking airy tower into two stories, capped by a third story, somewhat lower, and a storied gable; the lower third story appearing as an entablature to the semicircularly grouped pilasters supporting it, while the gable crowns the forehead only, not the sides of the projection.

The whole of this tower stairway is richly decorated save the rectangular base. The stone sculptures of the balustrade, the pilasters and banisters are chiefly vegetable ornamentation interspersed with figures, masks, medallions and heraldic coats-of-arms. (Fig. No. 62.) Iron grille-work fills up the bases of the top-story windows and the transom of the door in the foundation at the front. Figure 63 shows this transom grille.

A kind of turret that grew out of the mediæval palace chapel choir, a very early example of which was given in Figure 28, in No. 842 of the *American Architect* in the course of the description of the chapel in Burg Trifels, and which developed during the Renaissance into a two-story bay, is found also in Hartenfels, projecting from the chapel wall, supported by a short, attached baluster column (Figs. 64 and 65). This turret was completed in the year 1544 A. D., and was carefully restored in the middle of the present century, at an expense of twenty-six hundred dollars. The chapel to which it belongs is historical, it being the first Protestant chapel in the world. Luther himself dedicated it, in the year of its completion, at the invitation of Elector John Friedrich, of Saxony, one of the earliest friends of the new religion. Luther's wife, Catherine von Bora, lies buried in the town (Torgau) church, near the castle, a church, which, in Luther's days, was connected with Hartenfels by a covered gallery. The two stories of this beautiful turret is a feature not without significance, for they indicate a very old custom among the feudal aristocracy of the land of dividing their chapels so as to separate the family from the menials of the household. Thus very commonly the chapel floor is on a level with the ground-floor of the castle, the gallery with that of the second story. Hence, while the household servants enter from the courtyard, their honors admit themselves from their chambers or the salon, direct into the gallery boxes or balcony.

L. VON KROCKOW.

(To be continued.)

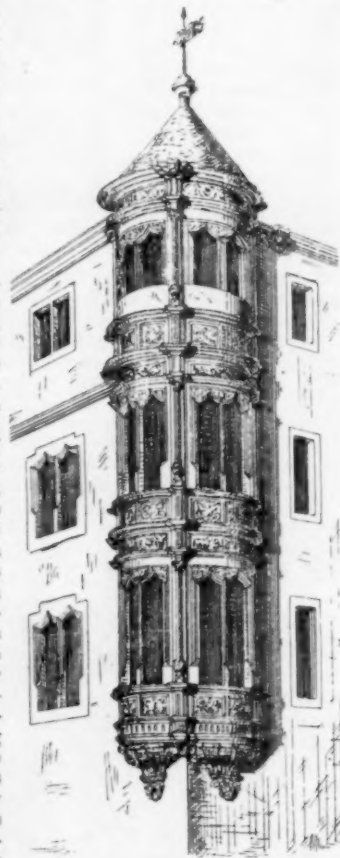


Fig. 59. Angle Turret, Castle Hartenfels, Torgau.

BELLS AND THUNDER-STORMS. — In the Swiss Canton Wallis the mediæval custom still exists of ringing all the church bells to avert an impending thunder storm or untimely fall of snow. — *N. Y. Evening Post*.

L'ENFANT AND THE PLANNING OF WASHINGTON.

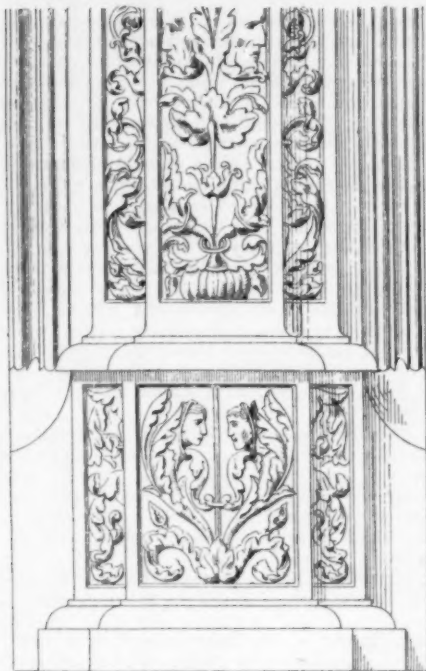


Fig. 62. Pilaster Base, Staircase Tower, Schloss Hartenfels.

from all sorts of people. To him Washington turned for the plan of the grand city he had in view. L'Enfant, for his part, seems to have realized that this was the opportunity of a lifetime; that if he proved equal to the occasion, his fame was secure. All through the spring and summer of 1791 he brooded over the plan. One point was quickly settled in his mind—he would not plan for thirteen States and three millions of people, but for a mighty republic of fifty States and five hundred millions. In his boat on the broad bosom of the Potomac, from the heights of Georgetown, and from the opposing hills across the Anacostia, he studied the features of the site. The old palace of Versailles in La Belle, France, that he had known as a boy, came frequently into his thoughts during these musings. . . . Often, too, did he recall the grand old forests of Compiègne and Fontainebleau, with their long avenues meeting at *carrefours*, and increasing in number according to the importance of the junction. Quite early in these reveries, April 4th, he writes a letter to Jefferson, asking for plans of some of the grand cities of Europe, such as London, Paris, Amsterdam, Naples, Venice, Genoa and Florence. He disclaims any intention of imitating, but observes: 'I shall endeavor to delineate in a new and original way the plan, the contrivance of which the President has left to me without any restriction whatever; but,' he adds, 'the contemplation of what exists of well-improved situation, even the comparison of these with defective ones, will suggest a variety of new ideas, and is necessary to refine and strengthen the judgment.' Jefferson furnished the maps with the remark that they were 'none of them comparable to the old Babylon revived and exemplified in Philadelphia.' But the engineer did not agree with him. Philadelphia, he observed, was laid-out in squares, like a chessboard; he thought that three or four great avenues, run obliquely, would relieve the monotony by introducing occasional curves and angles, and would also facilitate communication. He, therefore, combined both features. Choosing Capitol Hill as a centre, he first laid down streets parallel to it, and running due east and west. These were named after the letters of the alphabet, A, B, C, and so on. Then he drew another set of streets running from north to south, and intersecting the lettered streets at right angles, and which were distinguished by the numerals, 1, 2, 3, etc. Lastly, radiating from the Capitol and other public buildings, he laid-out magnificently wide and straight avenues, cutting the checker-board at every variety of angle, and creating those squares, circles, triangles and parallelograms which eighty years later were used to such advantage in the renaissance of the city, and which, with their beautiful growth of trees, render Washington the most picturesque city on the continent. The defect of the plan lay in doubling the names of the streets, and in creating too many of the avenues, both tending to confusion.

"In making these, however, the engineer had an ulterior object in view—he wished to connect outlying points of his plan with the Capitol, the President's House, and other public buildings, and to create vistas which they should fill, so that in whatever part of the city the observer should be placed, his eye, sweeping down the avenue, should rest on the imposing pile of the Capitol, the Monument, the Treasury or some other public edifice. There were some sixteen

JUNE 4, 1825, Pierre Charles L'Enfant died. "He had been educated in the best military schools of France, and with the first guns of the Revolution had hastened, like so many other gallant Frenchmen, to the aid of the oppressed Americans. He did excellent service, too, in teaching the latter how to plan and rear fortifications, and in this service attracted the attention of Washington, who caused him to be appointed major of engineers. Later, he had remodelled and fitted up the City-hall in New York for the use of the first Congress, and later still, the Federal House in Philadelphia, in a manner to win golden opinions

of the avenues in all, each named after one of the sixteen States that, in 1800, formed the American Union. These avenues are from 160 to 180 feet wide, while none of the streets are of less width than 90 feet. Ample provision was also made for public parks and gardens, not all of which has been utilized. In the original plan the Capitol grounds extended to the Potomac, as did also those of the President's House. The city, as originally laid-out, extended from northwest to southeast about four and one-half miles, and from east to southwest about two and a half miles, and included about seven thousand one hundred acres. It was a drive of fourteen miles around it; there were sixty-five miles of avenues and one hundred and ninety-seven miles of streets.

"When the plan was completed, the commissioners demanded it in order to have it engraved and published, but L'Enfant declined to do this, alleging that, if published, the plan would be made use of by speculators to purchase the best locations in his 'vistas and architectural squares, and raise huddles of shanties which would permanently disfigure the city.' When this refusal was reported to Washington he dismissed the engineer March 1, 1792, and appointed Andrew Ellicott in his place, who made a plan of close imitation to L'Enfant's, which was published late in 1792 and widely circulated. In the Congressional Library may still be seen L'Enfant's original plan, carefully secluded by him during his life, but secured by the Government after his death—a torn and discolored paper, yet giving proof of having once been an elaborate and elegant design. . . . His subsequent fate was a sad one, and marks alike the limitations of genius and the ingratitude of republics. . . . He was buried in the garden of Chillum Castle (near Bladensburg, Md.), and his grave is marked for remembrance only by a tall cedar tree and

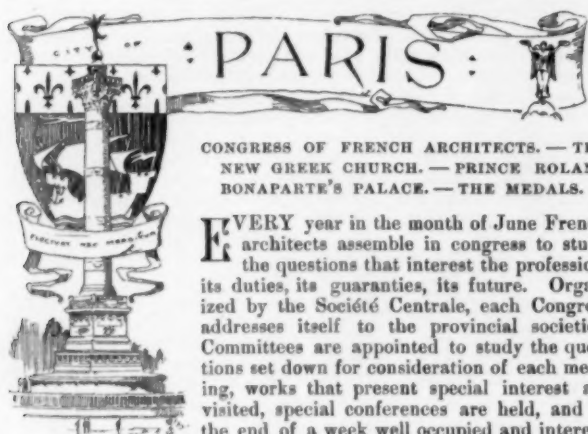


Fig. 58. Schloss Neuenstein, near Oehringen.

fragrant beds of myrtle. There is neither stone nor inscription—perhaps none is needed, for so long as time endures the beautiful city that he planned will remain his grandest monument and noblest epitaph."

CHARLES BURR TODD.

CAPACITY OF ST. PETER'S.—It needs fifty thousand persons to make a crowd in St. Peter's. It is believed that at least that number have been present in the church several times within modern memory; but it is thought that the building would hold eighty thousand—as many as could be seated on the tiers in the Colosseum. Such a concourse was there at the opening of the Ecumenical Council in December, 1869, and the two jubilees celebrated by Leo XIII; and on all three occasions there was plenty of room in the aisles, besides the broad spaces which were required for the functions themselves.—*Marion Crawford in the Century for July.*



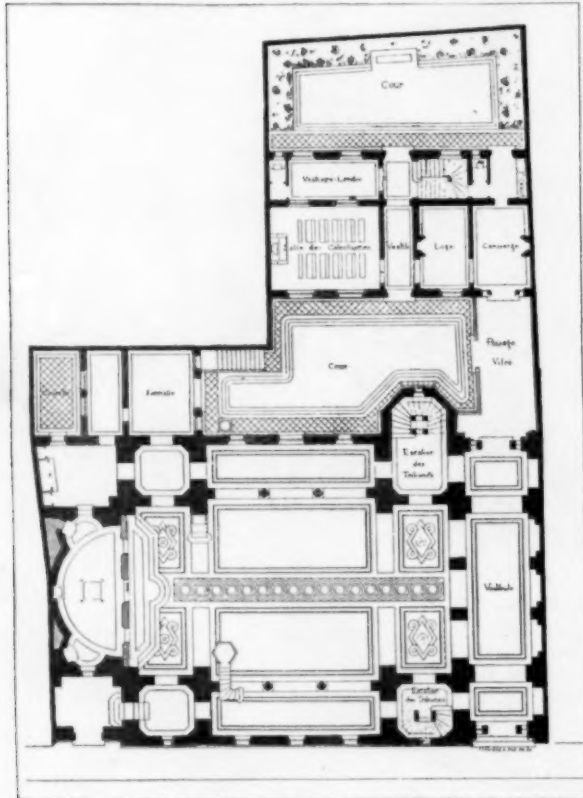
CONGRESS OF FRENCH ARCHITECTS.—THE
NEW GREEK CHURCH.—PRINCE ROLAND
BONAPARTE'S PALACE.—THE MEDALS.

EVERY year in the month of June French architects assemble in congress to study the questions that interest the profession, its duties, its guaranties, its future. Organized by the Société Centrale, each Congress addresses itself to the provincial societies. Committees are appointed to study the questions set down for consideration of each meeting, works that present special interest are visited, special conferences are held, and at the end of a week well occupied and interesting takes place the impressive ceremony of distributing the rewards decreed by the Société Centrale to those architects who have most distinguished themselves by their work, and also to the most deserving of the contractors and their workmen.

This year the matters brought up for consideration were: Hygiene, Fees, Social Economy, Public Competitions, Building Laws, and the Protection of the Interests of Architects. Moreover, discussions took place as to the rights of the owner in the specifications, drawings and agreements that constitute the contract negotiated by the architect between owner and contractor. These different proceedings take a long time and much work and their results can only be known later. If it shall appear worth while, I may return to this matter later, but to-day I mean to write concerning those new constructions that earned the admiration of those who attended the Congress.

Among the most important and most artistic must be named the Greek church built by M. Vaudremer, and the hôtel for Prince Roland Bonaparte designed by M. Janty—of this last I formerly wrote in connection with the *Salon* of the Champs Elysées, where the drawings for the building attracted much attention.

Here the artistic conscientiousness and real worth of M. Vaudremer is well known. His church at Montrouge stands a model amongst modern religious monuments: his *lycées* have shown his ingenuity and his great skill in producing a decorative architectural effect through the simple and logical use of his materials. In the



New Greek Church, Rue Bizet.

Greek church lately built in Paris, M. Vaudremer seems to have united all those qualities which make him one of the greatest architects of our age. The aspect of the exterior is very simple and the façade, standing as it does between two *maisons à loyer* and fronting

on a rather narrow street, seems to promise only a large chapel or a moderate-sized church. But at the very entrance, in the vestibule itself, one is seized with admiration on seeing the grandeur and richness of this architecture, carefully studied as it is in the minutest detail. This little marvel has been constructed at the cost of a private gentleman, M. Schillizi. The church consists of a nave and side aisles, above which run two galleries, while a third is arranged above the vestibule, facing the altar. A dome crowns the centre of the building. The gallery staircases, built in the piers which support the dome, are arranged in openwork cages and produce a most charming effect. Between the nave and altar rises a white marble portico, finely carved and closed at the centre with a gilded bronze grille, the side openings being closed by bronze doors of admirable workmanship. The appearance of the whole makes it a very jewel wherein the gilded bronze enhances the brilliancy of the marble. Everywhere throughout the nave, galleries, staircase and dome the surfaces are decorated with paintings, some merely accenting the construction by means of fillets, bands, volutes and friezes, while others are purely decorative or symbolic, representing certain sacred personages at a large scale and treated on a gold background in a very archaic manner by the artist, M. Lamerre. The effect is incredibly rich, though the forms are always simple and the lines always pure.

It would seem that on leaving such a building as this a modern hôtel must suffer by comparison. Nevertheless, the members of the Congress experienced a feeling of admiration, though of quite another kind, on visiting the hôtel of Prince Roland Bonaparte. This hôtel, or rather palace, is situated near the Trocadéro between the Avenue d'Jena, on which it fronts, and the Rue Fresnel, whose grade is fifteen metres below that of the avenue.

M. Janty, the architect, has taken admirable advantage of this enormous difference of levels, though it threatened the greatest difficulties.

About a great court, opening on the Rue Fresnel by a grand arcade, he has arranged the stables, coach-houses and servants' quarters, all in the height of these fifteen metres. Above this court he has suspended a second one, wholly floored with glass, the level of which is at the grade of the ground-floor of the hôtel itself and the Avenue d'Jena. Around this second court are ranged the galleries of the library and the Prince's own working-quarters, which take up almost half of the total superficial area. In truth, Prince Roland is a man of learning and is deeply interested in ethnographical studies, and his private library is more valuable than many public and official libraries. The hôtel is separated from the Avenue d'Jena by a small court-yard, at the left of which stands the lodge of the *concierge*.

Between two slightly projecting wings runs a peristyle, whose columns support a balcony at the first-floor level. Passing under this peristyle at the centre, one enters a wide vestibule continued by a vaulted gallery to the central rotunda, at the left of which ascends the great staircase. At the left of the vestibule, a waiting-room gives access to the office of the secretary; a corresponding waiting-room on the right gives access to the smoking and billiard rooms. Just before reaching the rotunda, one finds a private staircase at the left, which ascends to the private rooms above. Ranged about the glass-paved court, in two stories, are the various departments of the great library, including store-rooms, historical museum, *salle d'armes* and photographic studio.

The grand staircase ascends only to the first story, upon which floor, of course, are the main reception-rooms and halls. The staircase itself is an admirable one, in white marble with bronze hand-rail, and recalls not a little the fine one at the Château de Chantilly, in so far as concerns beauty of workmanship. At the level of the second story the vault is pierced with a circular opening with gallery all around it, and through it one sees the glazed roof above and the decorations of the gallery itself, which being, in general tone, of a light, clear green, offer a charming contrast to the richness of the gilded and brilliant staircase itself. A portico with marble columns and gilded bronze capitals surrounds two sides of the staircase-cage at the level of the first floor. The landing gives access to a great waiting-room of octagonal shape, through which one passes into a gallery which has the same length as the grand *salon d'honneur*, which opens into it by three great doors. The *salon* fills the whole breadth of the house between the two wings, its five windows opening onto the balcony over the peristyle. At the right of the *salon* are two smaller rooms intercommunicating, while on the left is the great dining-room.

Through the octagonal waiting-room one has access to the library, which is the marvel of the palace. In other parts of the building there is on all sides evidence of good taste in the decoration, its richness being derived from the superior quality of the materials: the chimney-pieces are of the finest marble, the woodwork is carved with skill, and the bronze-work is admirably executed. The whole is in excellent taste and artistic, yet its chief quality, perhaps, is that it recalls servilely no one style. Reminiscences of Louis XV work are corrected and strengthened with great skill by more modern forms, which modify their character without destroying their elegance. Yet with all this, one does not in this part of the building feel the impress of the owner's personality. It is only on passing into the library that one feels that this is the home of a true lover of books, that here it is that he lives, that here his aims centre. This library, large enough to contain 1,800,000 books, consists of four great galleries, ranged about the court above the stables. The

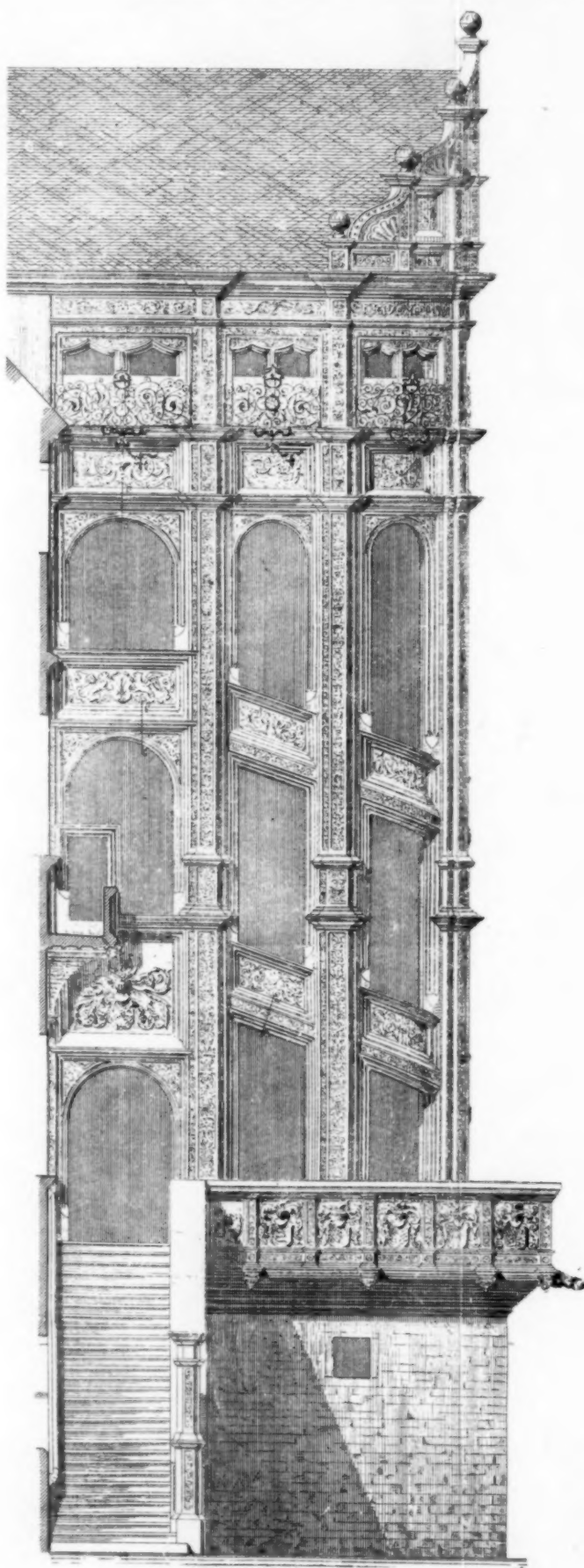


FIG. 60.

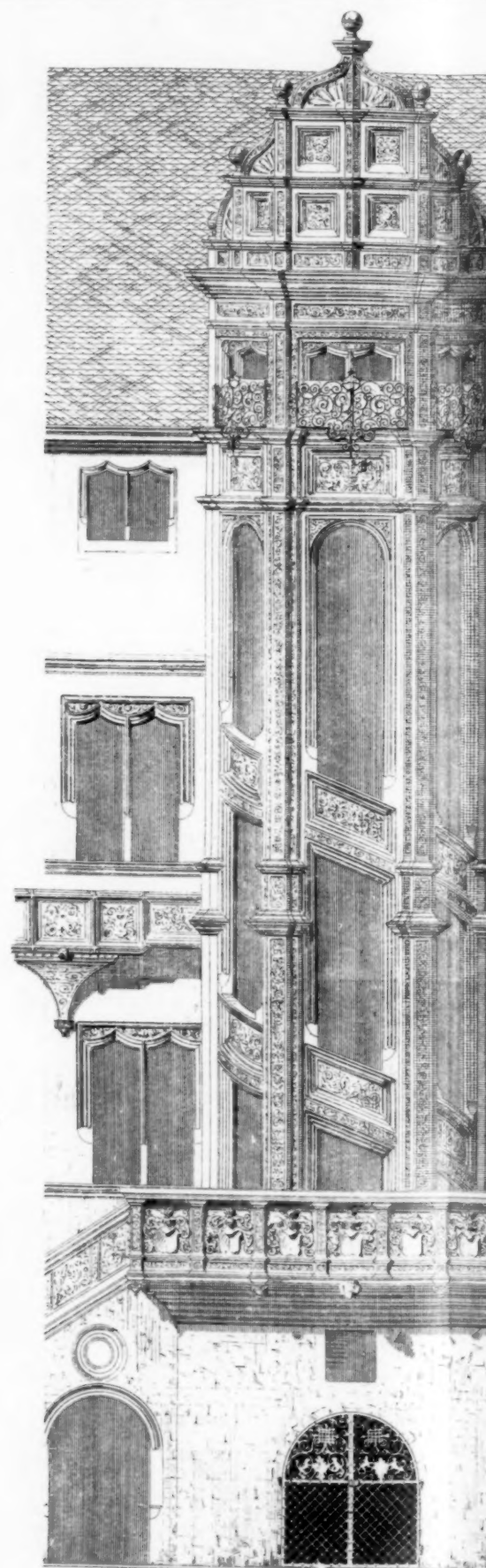


FIG. 57.

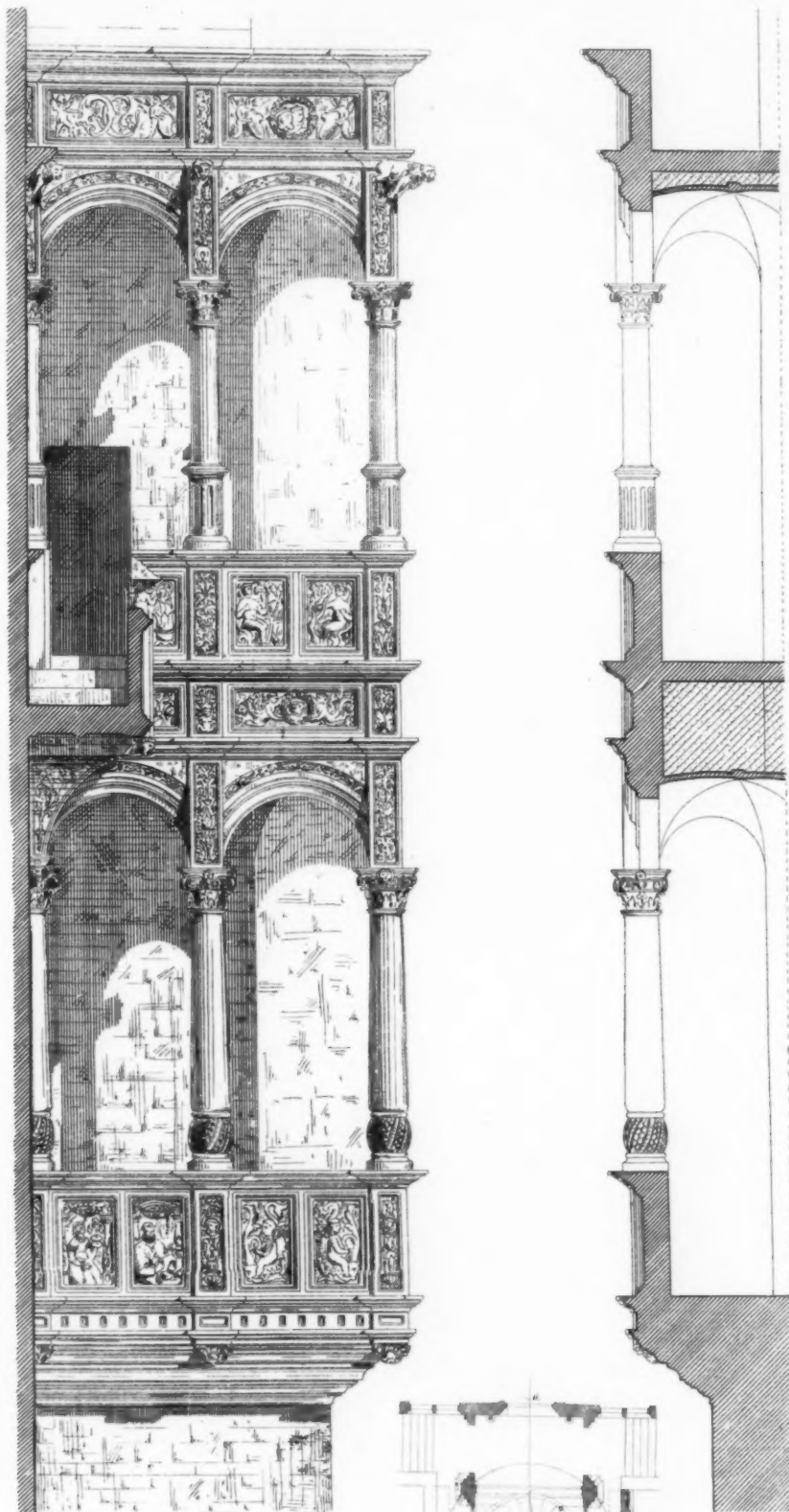
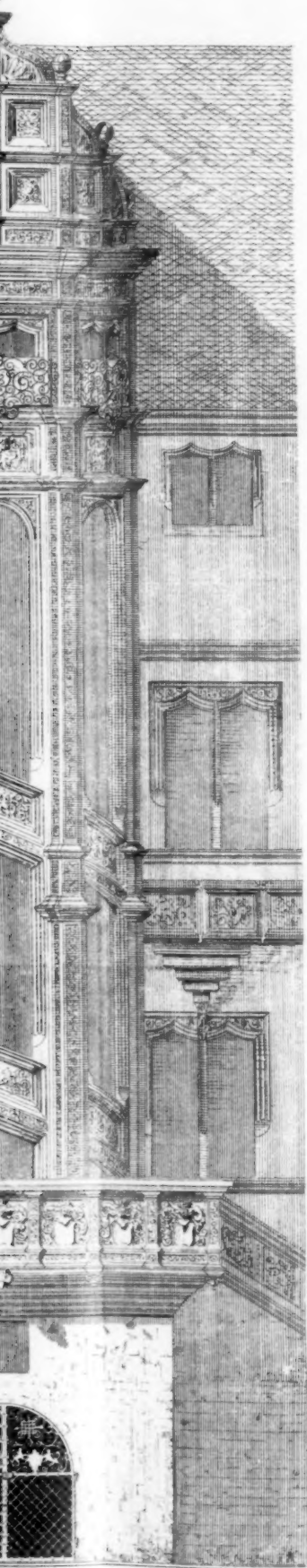


FIG. 65

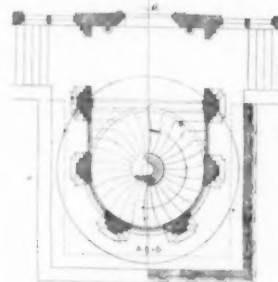
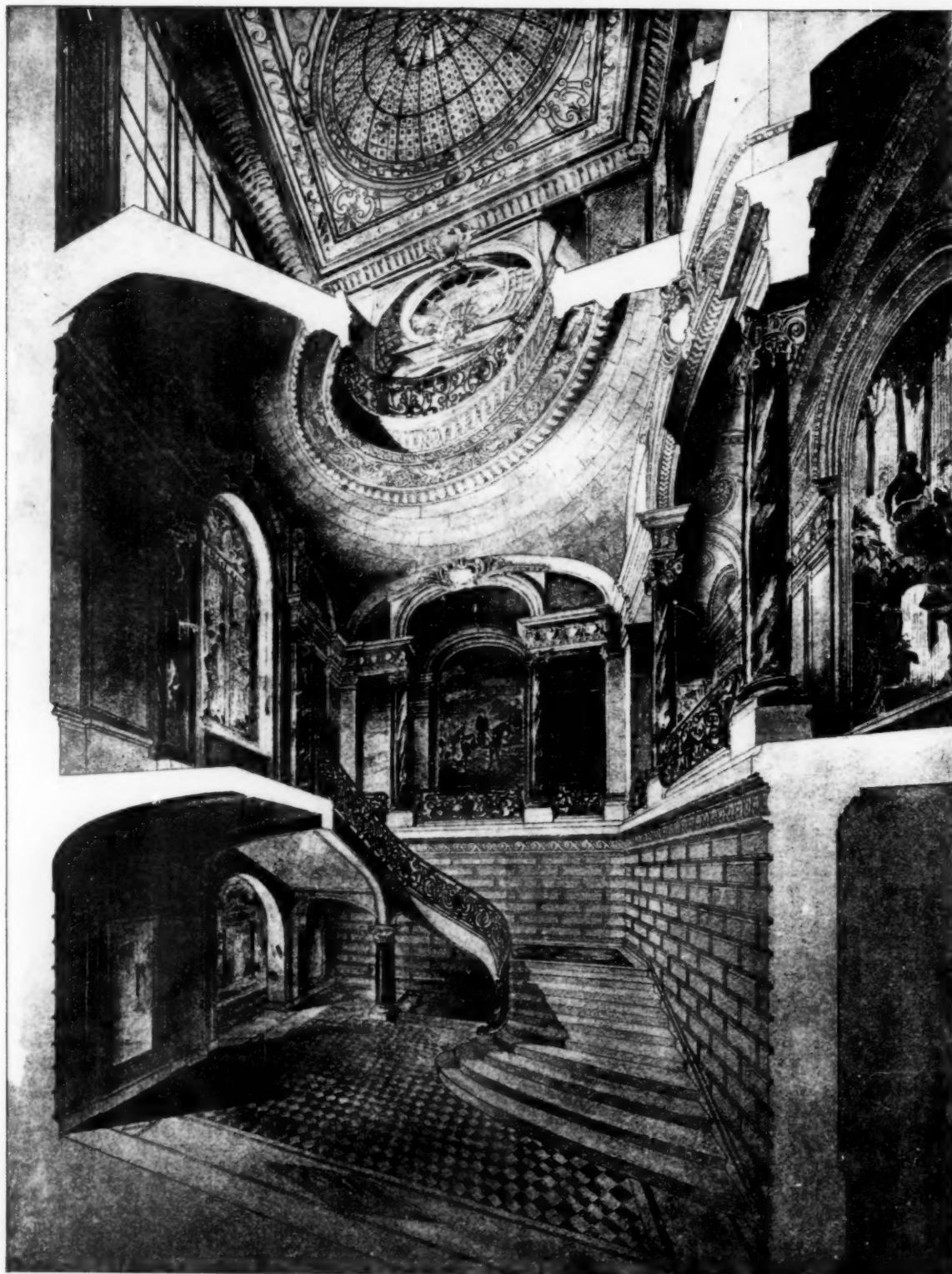


FIG. 61

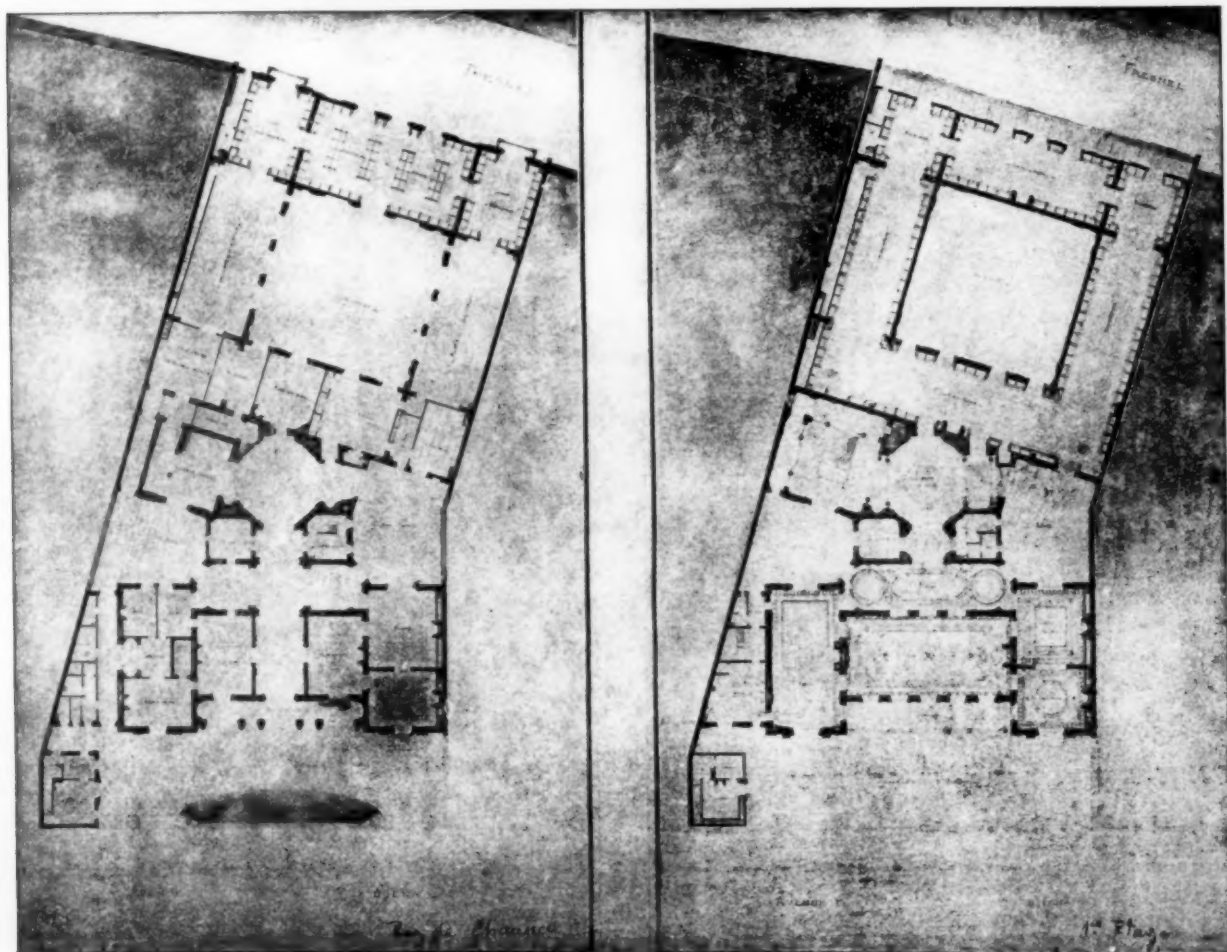
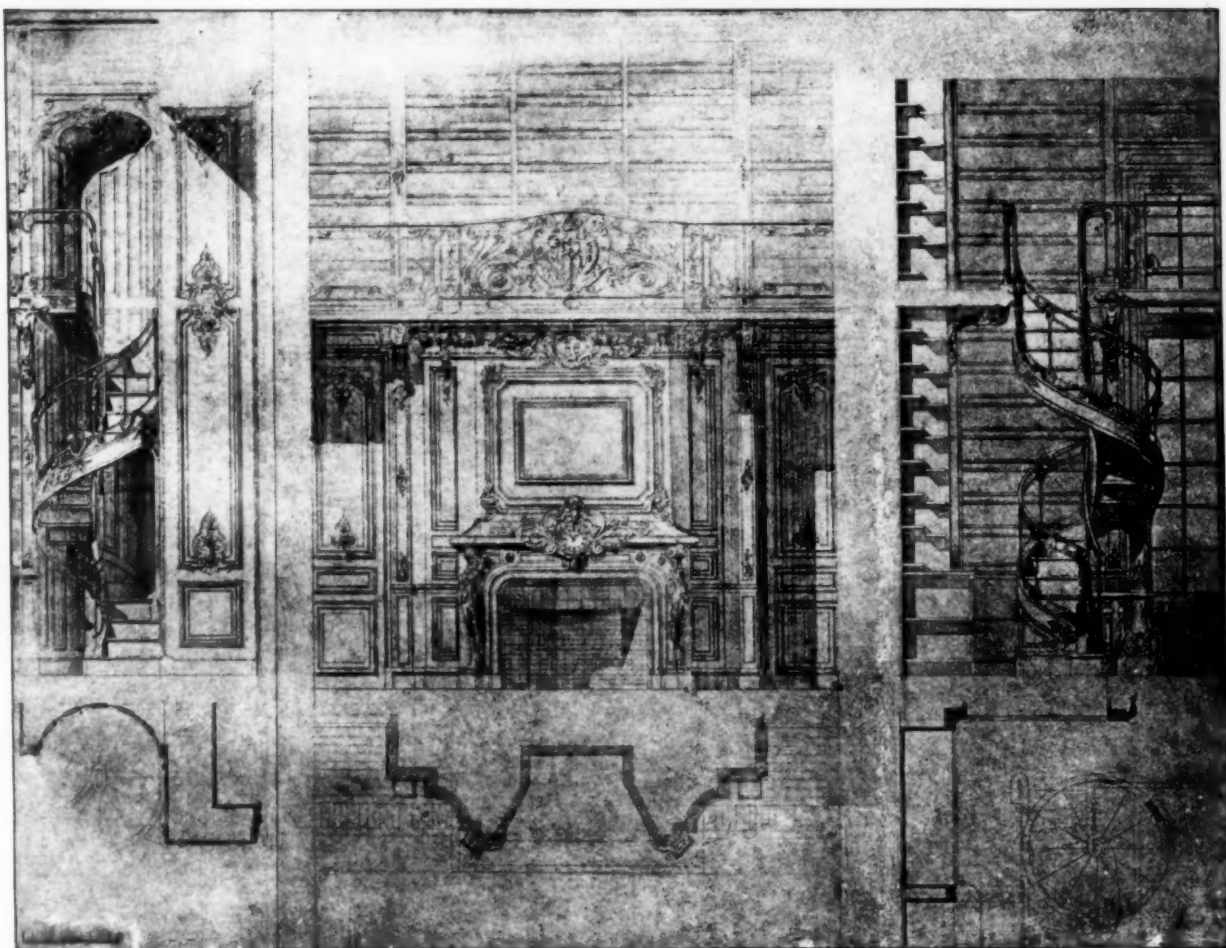
Helotype Printing Co., Boston.



HÔTEL OF PRINCE ROLAND BONAPARTE, AVENUE D'JENA, PARIS.

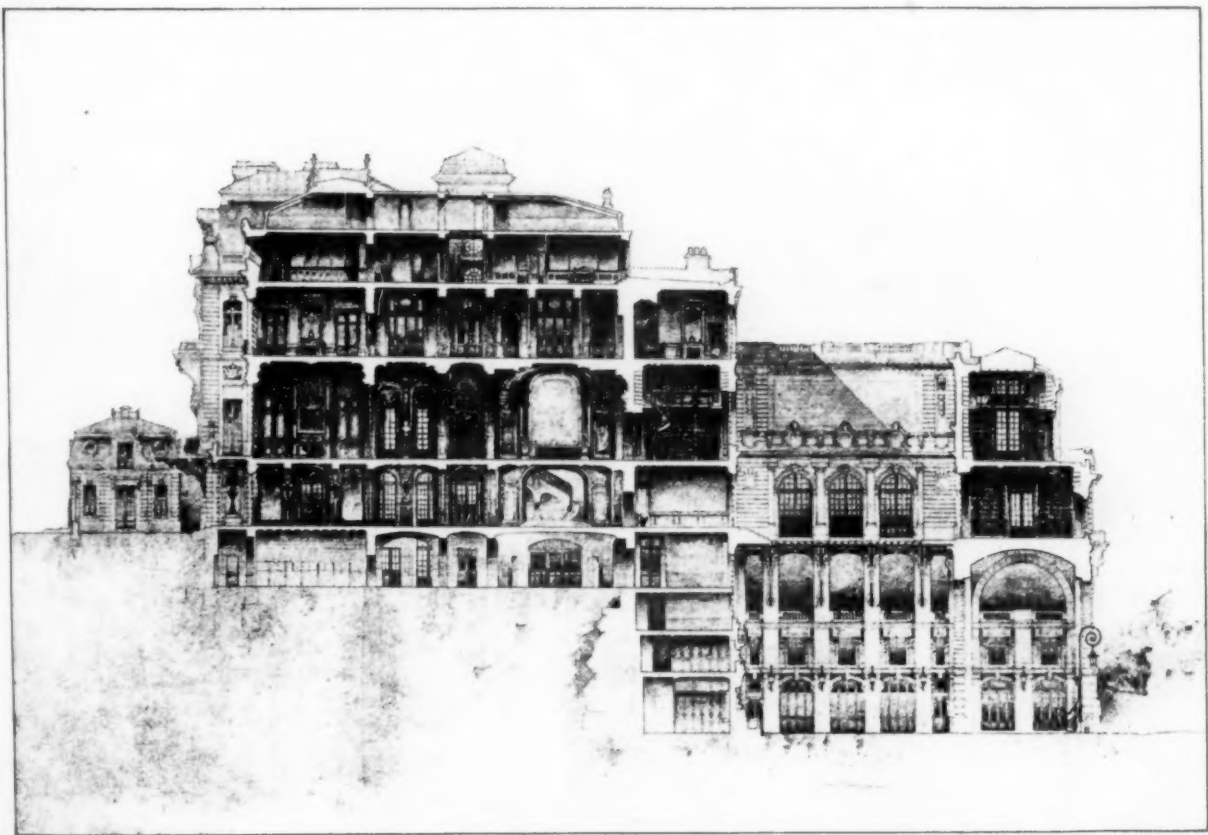
MAIN STAIRCASE.

RELIQUARY PRINTED BY J. BASTIN



HÔTEL OF PRINCE ROLAND BONAPARTE, AVENUE D'JENA, PARIS.
DETAILS OF LIBRARY.

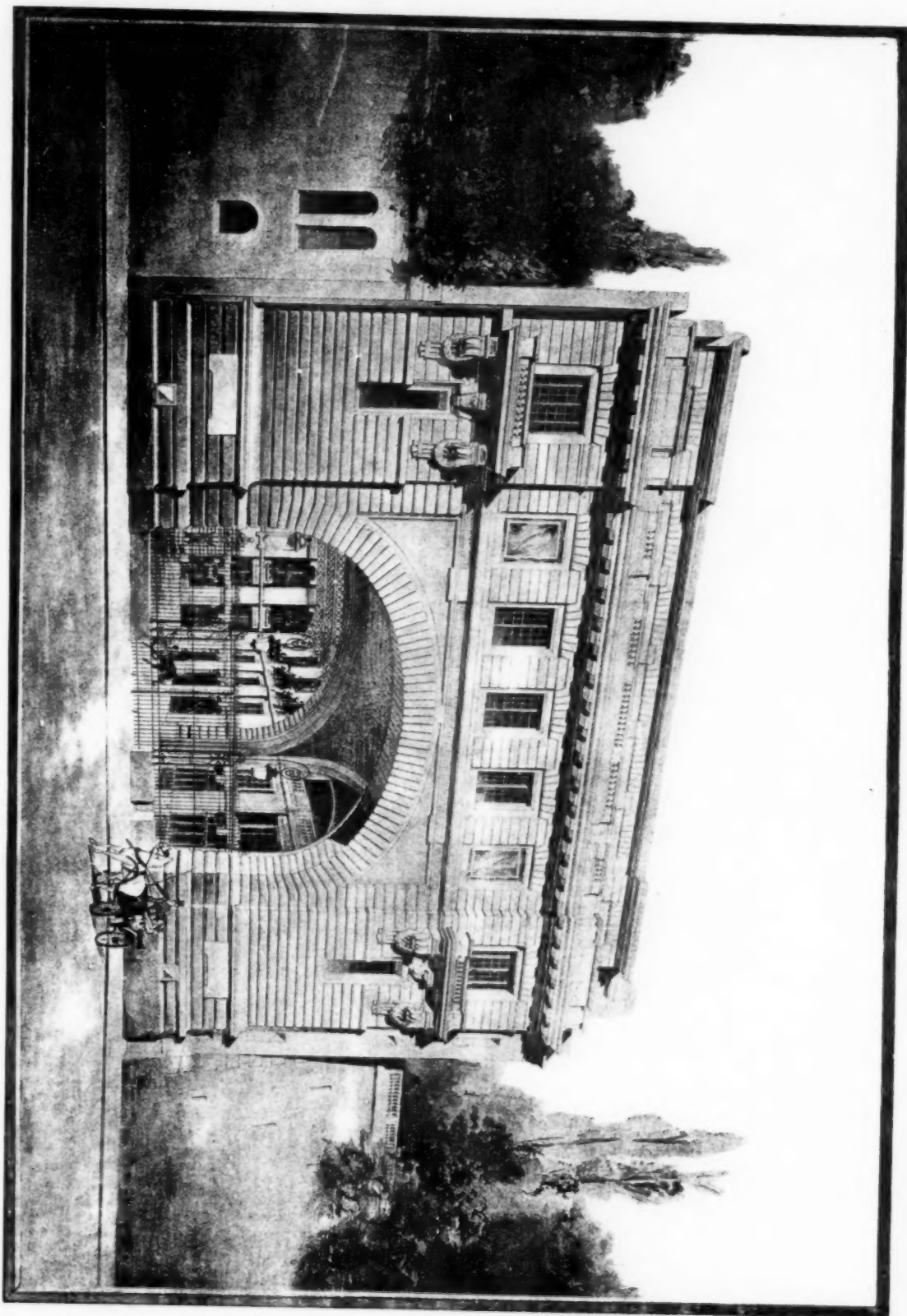
REPRODUCED BY PERMISSION OF THE ARCHITECT



ELLIOTT & FRY, N.Y.

HÔTEL OF PRINCE ROLAND BONAPARTE, AVENUE D'JEUA, PARIS.

A. E.-CH. JANTY, ARCHITECT.



HOTEL OF PRINCE ROLAND BONAPARTE, AVENUE D'JENA, PARIS.

FAÇADE ON THE RUE FRESNEL.

galleries are shelved full height, the upper shelves being reached from a gallery on corbels, to which ascend circular stairs; furthermore, rolling ladders of the latest pattern are abundant on all sides. The rear gallery on the Rue Fresnel is devoted to the Prince's own work-rooms. It is lighted through great windows above entrance to the stables and the servants' quarters, and the view from them overlooks all Paris and the heights of Châtillon and Meudon. One cannot too greatly admire the *ordonnance* of this library, finished in finely-carved wood; the brackets that support the galleries and the railings of the circular stairs have also a rare distinction. In short, it is a palace for books.

The Prince's room is still more richly finished and is ornamented with a fine chimney-piece of sculptured wood, over which hangs a portrait of the Prince.

In order to protect, so far as possible, all this part of the building from fire, an isolating gallery has been built around the lower courtyard buildings and under the storerooms of the library itself. This gallery is far from being the least of the curiosities of the lower courtyard, to which it adds a very decorative aspect. The library itself is lighted from above, except in the case of the entrance gallery which is the only portion of it that has rooms above it.

The façade on the Avenue d'Jéna is treated in an interesting manner; it counts two full stories only between the level of the first floor and the main cornice. The curtain-wall between the wings, pierced with five bays, is very sober of aspect in line and projection. The two wings, on the other hand, with one window to each story have this feature treated with great richness. The great full-centered window of the first story is ornamented with lion-headed gables which support the *trompe* of the semicircular balcony of the story above. The corresponding windows of the second story are decorated with caryatides on either side, which support, in slight projection from the main cornice, the broken pediment with its included dormer above. A stone balustrade, interrupted over the curtain-wall by oval dormers, crowns the façade.

The façade on the Rue Fresnel, much more modest in character, is, nevertheless, very interesting. An enormous arch, sprung between two pylons the width of the court-yard apart, gives entrance to the stable court-yard and affords it light and air; above this archway rises the two stories of the rear gallery of the library, in which are the Prince's work-rooms. The general effect of this façade suggests not remotely the aspect of a town gateway, for to right and left of the enclosing pylons stretch the great terrace walls of the neighboring gardens.

Taken all together, this palace is one of the most interesting of the structures recently built. It shows what an architect can do when he is fortunate enough to have as his client a man rich, intelligent and artistic, who allows him to satisfy, as completely as possible, the double aim of our art—the utilitarian and the artistic.

The members of the Congress also visited the Sorbonne, which will be wholly finished only in time for the Exposition of 1900. I need not speak of the grand lines of this noble monument which I formerly described in No. 754, *American Architect*; I only wish to refer to-day to the harmony of the interior decorations. In this case the architect, M. Nénot, was the master of his decorative artists, and consequently the decorative paintings do not offer those unhappy contrasts that confront one at the Hôtel de Ville. At the Sorbonne all is tied together and the several parts support one another. Nevertheless, the effect is not monotonous and the different rooms present decorations of very various character, but in each room there is a unity and harmony of decorative treatment. The one slightly discordant effect is due to M. Besnard, who in the chemical amphitheatre has indulged in a very orgy of incoherent symbolism which it would be sheer cruelty to describe. When confronted with the expressions of astonishment voiced by the members of the Congress on beholding this piece of brutal coloring, M. Nénot attempted to make an explanation, but failed in his effort.

Amongst other interesting visits of inspection made during the Congress was one to the *Post and Telegraph Building*, designed by M. Scellier, of Gisors, and another to the new scene-dock of the Grand Opera-house. An excursion made to Rheims allowed an inspection of the treasures of that city.

The proceedings finished with the distribution of honors awarded by the Société Centrale. For the second time was awarded the grand Gold Medal of Honor, founded in 1891 by M. Guerinot, and to be granted to that French architect designated by his distinguished and honorable career. This year the honor fell to M. Héret one of the most esteemed deans of the profession.

Silver medals were awarded to MM. Emile Ulmann, Ernest Janty and Joseph Galinier, the latter a Toulouse architect and the designer of a fine building for the *Depêche*, one of the most influential newspapers of the South of France.

The archaeological medal was bestowed on M. Albert Ballu for his interesting investigations conducted at Tebessa in Algeria. And, finally, minor medals were granted to the pupils of different schools, as well as to certain contractors and deserving workmen, in recognition of the faithful performance of their duties. In many cases the recipient betrayed not a little emotion in stepping forward to receive this public recognition of years of honorable effort.

The competition for the selection of designs for the two palaces that are to be built on either side of the new Avenue des Champs Elysées for the Exposition of 1900 has just been decided.

Fifty-nine architects undertook this enormous task, although only

two months' time was allowed for the work, and of course it was impossible in so short a time to properly study a problem of such magnitude. Consequently the result has not been wholly satisfactory and though amongst the several designs there could be discerned individualities of considerable merit and details very artistically composed, the jury did not find before it any work the ensemble of which was so satisfactory as to warrant them in accepting it for execution. The administration is all the more embarrassed, because time is so scanty and final studies should be begun as speedily as possible.

It is probable that these studies will be carried on under the direction of M. Bouvard, Directeur des Services d'Architecture, who will derive from the several premiated designs the element for the new palaces that must be built. But who will have charge of the actual construction? As it is here not a question of temporary exhibition buildings, but of structures that are to remain as part of the artistic wealth of the city, this question is a serious one.

To-day I will give only the names of the architects who won prizes.

For the larger palace the prizes were:

1st Prize,	15,000 francs.	M. Louvet.
2d "	12,000 "	MM. Deglane & Binet.
3d "	8,000 "	M. Thomas.
4th "	6,000 "	M. Girault.
5th "	4,000 "	M. Tropey-Bailly.

For the smaller palace, which is to face the larger one on the other side of the new avenue, the prizes were:

1st Prize,	5,000 francs.	M. Girault.
2d "	4,000 "	MM. Cassien, Bernard & Cousin.
3d "	3,000 "	MM. Toudoire & Pradelle.
4th "	2,000 "	M. Mewes.
5th "	1,000 "	MM. Depertthes et fils.



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

AMERICAN SURETY BUILDING, BROADWAY, NEW YORK, N. Y.
MR. BRUCE PRICE, ARCHITECT.

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

STAIRCASE TOWER, SCHLOSS HARTENFELS, TORGAU.

See article "German Castles," elsewhere in this issue.

PLANS, ELEVATION, SECTION AND DETAILS OF THE HÔTEL OF
PRINCE ROLAND BONAPARTE, PARIS, FRANCE.

For description see the letter of our Paris correspondent, elsewhere in this issue.

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

SGRAFFITO DECORATION, NO. 1 VICOLO SUGARELLI, ROME.

A RESTORATION OF THE CHORAGIC MONUMENT OF LYSICRATES,
ACCORDING TO STUART AND REVETT. PROBLEM IN PERSPECTIVE,
DEPARTMENT OF ARCHITECTURE, DREXEL INSTITUTE.

A GROUP OF URBAN CHURCHES.

[Additional Illustrations in the International Edition.]

CENTRAL DORMER OF THE HÔTEL DE VILLE, LA ROCHELLE,
FRANCE.

[Copper-plate Etching.]

ENTRANCE PORCH TO THE AMERICAN SURETY BUILDING, BROADWAY,
NEW YORK, N. Y. MR. BRUCE PRICE, ARCHITECT, AND
MR. J. MASSEY RHIND, SCULPTOR, NEW YORK, N. Y.

[Gelatin Print.]

CASTLE GROVE, HEADINGLEY, YORKS, ENG.: THE SALON. MR. T.
BUTLER WILSON, ARCHITECT.

THIS mansion has been recently rebuilt upon the site of a former building, and the stabling has been remodelled and refitted. The illustrations here published give two views of the Salon and the accompanying detail of the gallery arcade. This Salon, with the remaining apartments grouped round and opening from it, is the principal and most spacious apartment of the house, and forms

the common room of the household, fulfilling the several functions of lounge, writing and reading room, music and ball room. The apartment rises to a height of 28 feet. Its columns are of marble, with their capitals and bases in ormolu. The floor is of oak parquetry, inlaid with broad lines of walnut, while richly-figured Italian walnut is used for the whole remaining woodwork, the Atlantes to the mantel being gilded. The walls are hung with tapestry. Fibrous plaster forms the ceiling and upper entablature, from which are suspended ormolu lanterns.

DETAIL OF ARCADING IN SAME ROOM.

GRAND STAIRCASE, HÔTEL DE VILLE, PARIS, FRANCE.

THE grand staircase is not comprised in the parts of the Hôtel de Ville which are open to the inspection of ordinary visitors. Apart from its constructional excellence it has accessories which are interesting. The bronze-equestrian figure of "A Herald" is by M. Frémiet. There is also a memorial of the late M. Ballu, the architect, and some other statues and reliefs.



PUMPING HOT WATER. — How high will a pump lift water, and how high can hot water be lifted by a pump? are questions which continue to be animatedly discussed by engineers, and some statements on this subject have been made which, to say the least, are quite remarkable. Theoretically considered, cold water may be lifted by so-called suction 33.9 feet above the surface of the supply, but owing to the defects of machinery we find that in practice, under highly-favored conditions, water can be lifted in this manner to a height of only about 27 feet. Special apparatus, says an American paper, might do better than this, but ordinary devices never do. All pumps are constructed with valves, and those valves have a certain weight which must be deducted from the pressure of air by which the water is forced above its level; for the action of a pump, primarily, there is nothing more than exhausting the air from above the water. A portion of the loss of duty in a pump is due to leakage, even when in the best practical working condition, so that ordinary leakage and weight of valves limits the lifting power of an ordinary pump to 27 feet of water, or a column equalling 11.7 pounds in weight per square inch of cross-section. The next question that arises is at what temperature will a pump lift water to this height? Practical experiment has repeatedly shown that when the water has a temperature of more than 50° Fahr. it cannot be lifted to the same height by the same pump, and the reasons for this are that there is an unbalanced air-pressure of 3 pounds remaining in the pump, and that the vapor given off from the water at that temperature is sufficient to fill a portion of the space and prevent the water rising to that height. When water, under an atmospheric pressure of 3 pounds is transformed into vapor, the volume of vapor produced is so many times greater than that of the water that only a small volume of water is sufficient to produce vapor which will fill an exceedingly large space and be sufficient to prevent the full action of the pump. Under these conditions the vaporization of a very small portion of the water would be sufficient to fill the suction pipe and cylinder of the pump, but this would not be necessary to prevent it working, as if only the 100th part of the water is vaporized — and there is sufficient heat present to provide for the vaporization of much more than this amount — the vapor produced will prevent the water being raised to the height of the pump, if it is about 27 feet above the surface of the water. As the temperature of the water is increased above this, the height to which it can be raised will decrease in a corresponding ratio. Of course, when we speak of lifting water to any such height as this, it is necessary that suction pipes, valves and pump-plunger shall be absolutely air-tight, a condition which it is quite difficult to obtain in practice without introducing other difficulties of greater moment, as, for instance, excessive friction in the pump cylinder, which will require a greater amount of work to overcome than that which is utilized in raising the water. That water gives off vapor copiously, when relieved of the air-pressure upon its surface, is shown by laboratory experiments where a shallow dish of water placed under the bell glass of an air-pump and the air-pressure reduced; vapor is given off so rapidly that, by its absorption of heat, owing to its change of condition, the temperature is reduced to such an extent that the water is rapidly frozen and becomes solid ice. Water, when at a temperature of 98° will boil in a perfect vacuum, the heat contained in the mass being given up and transforming a part of the water into steam. A vacuum sufficiently perfect to produce this effect on water of 98° temperature is not easily obtained, owing to the imperfection of the apparatus; but with reasonably good pumps, or other means of reducing the air-pressure, water at a temperature of 100° can easily be made to boil by such a reduction of the air-pressure as can readily be obtained. In attempting to lift hot water, or water of a temperature above 100°, the height to which it can be lifted cannot be readily calculated on account of the invisible vapor given off from the surface and filling a portion of the space before boiling commences. When water at 100° is changed into steam at 100° the volume is increased nearly 3,000 times, so it will be readily understood that if the pressure of air is relieved to such an extent as will permit the water to boil, the vapor resulting from such action would fill the suction pipe and cylinder of the pump, and its further action would be expended on the elastic force of the steam, so that the water could not be lifted above a certain height; but that water of a much higher temperature can be lifted certain distances will be readily understood by considering that, if the pressure of air within the pipe be relieved to a certain extent, the superincumbent pressure of the atmosphere on the water which forms the supply will force it upward in the pipes to a height due to

the difference in pressure, excepting that, at all temperatures, water gives off a vapor when the pressure on its surface is reduced. To illustrate, suppose we take water at a temperature of 143°, which will boil under a pressure of 3 pounds absolute; then if we reduce the pressure on its surface to nearly this amount, we will have an unbalanced pressure of about 11.5 pounds to force it upward in the pipes, which it would do to a height of about 26 feet were it not for the vapor given off, which fills the space and makes it impossible to retain the reduced temperature with water at that temperature. The best pumps have a lifting efficiency of only about 80 per cent under favorable conditions of operation, and this includes that the water be of the lowest practical temperature, so that instead of an unbalanced pressure of 11.5 pounds being sufficient to force the water to a height of 26 feet, practice demonstrates that 12 feet is the greatest height to which water at 140° can be lifted by a so-called suction pump, and as the temperature of the water is increased, the height to which it may be lifted decreases in a much greater ratio. All accounts of lifting water having a temperature of 200° and upwards, by suction pumps, must be taken with a great deal of allowance for incorrect observation and mistaken data. — *Invention.*

THE TOMBSTONES AT SCUTARI. — At Scutari the *coup d'œil* is picturesque in the extreme. As far as one can see, the long, slender shafts, of marble rise beneath the shadow of the massive cypresses — the tree of Allah, the Osmanli call it, which points its finger to the sky — while the luxuriant vegetation of the East clusters around the base of the slabs, emphasizing their snowy whiteness and preventing them from being too dazzling to the eye. Each tomb bears its own decoration. A single leaflet, the drooping petals of a rose, or graceful frond of fern indicate that a female form lies below. A turban or a fez shows that the dead person was a man. Lamps, ostrich eggs, sashes, fringed and colored handkerchiefs of varied hue, all have their own signification; while here and there will be some tall stone sculptured from end to end, its ornamentation in high relief, encircled by a number of smaller stones, which proves that the father of a family — a man of wealth — rests here, surrounded by his wives and children. A curved scimitar shows that a man of war reposes there, an anchor marks the sleeping place of a sailor, a wand of office proves that the dead man held some post of command. So on, till something is learned of all, even though one may not be able to decipher the fantastic Arabic characters which tell with more detail the history of the dead. — *The Churchman.*

HERALDIC DECORATION. — Without some knowledge of the science of heraldry it is impossible to appreciate the various devices which appear in the ornamentation of many of our public buildings and churches. Within the last few years in particular, Americans have given closer attention to the dignity and beauty of these stately edifices, and it requires but a passing glance to acquaint us with the part that heraldry plays in their embellishment. The revived taste for the well-defined styles of architecture of the mediæval period is apparent in all our larger cities: the introduction of the griffin, lion and other heraldic figures is particularly noticeable. Take, for instance, the Public Library of Boston, "built by the people and dedicated to the advancement of learning," in which heraldic decoration forms one of the most important features. The heraldic seals of the State, city and trustees are beautifully carved on panels above the main entrance; the seals or book-marks of the world's most famous publishers, beautifully carved, are a feature of the exterior decoration, and eagles, lions, the signs of the zodiac, and other symbols, are executed in various parts of the building with telling effect. The quaintly carved "lion and unicorn" upon the old Boston State-House speaks plainly of British occupancy, and the many coats-of-arms on old tombstones in that city and vicinity cannot fail to impress the observer. An especially rich display of sculptured coats-of-arms is to be seen upon the Gettysburg battle-field, where costly monuments bear the arms of the States by which they have been erected in commemoration of the troops who participated in that memorable conflict. — *Eugene Zieber, in August Lippincott's.*

STOWE HOUSE. — Stowe House, long the home of the ducal house of Buckingham, has been placed in the hands of agents to be let or sold. Many readers will remember the place from Pope's often-quoted line — "A work to wonder at — perhaps a Stowe." Others will recollect references to its glories in the writings of Horace Walpole, Congreve and others, who have termed it an "Elysium." "If anything under paradise," wrote Pope to Bollingbroke, "could set me beyond all earthly cogitations, Stowe might do it." Lord Chesterfield and Lord Chatham were as loud in its praises as Walpole. In the present century Stowe has more than once been the temporary home of the exiled royal family of France; and it is now offered "to be let or sold, owing to the death of the Comte de Paris." Stowe belonged to the Canons of Oseney, near Oxford, till the Reformation, when the broad acres of the estate were given, for a short time, to Wolsey's great college at Oxford. Four centuries ago, in 1592, it was conveyed to the Temples, one of whom soon afterward erected there a mansion, which was enlarged by Lord Cobham, through whom it passed to the Grenvilles, and so to the Dukes of Buckingham. The estate having become involved in debt, the place was dismantled in 1848, when the furniture alone was sold by George Robins for upward of £70,000. The last Duke lived again at Stowe, but after his death the property passed into female hands. Some idea of the size and grandeur of Stowe may be formed from the fact that its grand front is 900 feet in length. Its gardens, roseries and collections of foreign trees and shrubs are among the finest in the kingdom, and so also are its statuary and sculpture, both inside the house and in the adjacent grounds; and the Grecian and Italian temples which diversify its "Elysian Fields" are full of classical inscriptions, chiefly from the pens of scholars and statesmen of the last century. The gardens were originally laid out by Bridgeman, but were largely altered and improved by Kent and by "Capability" Brown. — *The London Times.*