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SUMMARY:—

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IN order to place the tomb of General Grant in the mausoleum, where it is to rest permanently, it has been necessary to "translate" it a distance of about thirty feet, to the spot selected for the site of the imposing structure which is to be built over it. The original tomb was of brick, on a foundation formed of a single slab of concrete, fourteen inches thick; and, by inserting timbers and jackscrews under the foundation, the whole affair, weighing about a hundred tons, has been raised about fifteen feet vertically from its original position, and then moved laterally to the central point of the new mausoleum, and lowered into its place; of course, without opening the tomb, or disturbing in any way the remains of the dead hero. With more sentimental people, this transfer of the tomb would have been marked by some ceremony, but the New Yorkers appear to have looked upon it simply as an engineering feat, and no one but the workmen and a few reporters seem to have witnessed it.

A GOOD deal of dissatisfaction is felt in Boston at the conduct of the Chauver competition for the five-year Paris Scholarship. It will be remembered that the competition was announced as a double one. The first step was to submit drawings, and the authors of a certain number of the best drawings were to engage in a final competition, of which a detailed programme was given. Naturally, as no restriction was placed on the character or number of the drawings to be submitted in the first trial, some sent mere sketches, sufficient, however, to show their skill of hand, while others sent several finished drawings. It is asserted that, instead of simply selecting the competitors for the second test, and then throwing all the drawings aside, so that all might start fair in the second contest, the drawings of the first set were considered in the final award. Of course, the result might have been the same, but it is impossible to be too careful in carrying out promises made in this way with scrupulous fidelity. Not only does proper respect for the time and labor spent by the competitors require that the slightest shadow of misunderstanding should be avoided, but the success of the admirable enterprise is dependent on the first impressions of it which circulate among students of art. If there is the slightest suspicion that victory in such a contest can, by any mistake, misunderstanding or carelessness fall to any but the one most worthy of it, its value as an incentive to exertion will be at an end, and the only candidates who will present themselves will be of that discreditable class which prefers to enter even the temple of Fame through the back door.

ONE of the most remarkable strikes on record came to an end the other day. The Iron-moulders' Union of San Francisco, numbering only one hundred and forty members, has been on strike for two years, and on the second anniversary of the commencement of the strike, November 3, the union surrendered unconditionally, and declared the strike off. Forty core-makers joined the moulders in the strike and the surrender. The two years' struggle has cost these one hundred and eighty poor men more than one hundred thousand dollars in money, or nearly six hundred dollars apiece, and three lives have been lost. We need not say that our sympathies are all with the men. How much anxiety and privation, how much fortitude, patience and resignation, the homes of these poor people have witnessed during the last twenty-four months, will never be known in this world; and, after all, they return to their work under conditions worse, if possible, than those which they found intolerable two years ago. The most distressing part of the whole, to every thinking person, is that certain men are heartless enough to make a thriving business out of such strikes; to devise systematic and extensive schemes for gaining control over their victims, and for concocting pretexts for strikes, and to fill their pockets with money contributed, in return for their alleged leadership, by men who have not enough to buy bread for their children. Some time, we believe, a way will be found for settling industrial disputes without ruining either party to them, but no one can say how many innocent people must suffer before the way is discovered.

IT is proposed to have the Fine Arts Building of the Chicago Exposition made a permanent structure, to be transferred to the municipality after the exhibition is over. The Tro-adero Palace was built in this way for an exhibition building,

THE United States Customs law, relating to the importation of antiquities, gives the collectors, to say nothing of the antiquaries, a good deal of trouble. Under the statute, "antiquities" are admitted into the United States free; but the line where antiquity stops, and modernism begins, is not sharply defined, and it is not unnatural that collectors should have some difficulty in giving an off-hand decision as to where it should be drawn. One collector ruled that antiquity "left off" at the year 1500, and that everything made before that date was to be admitted free, while works of art manufactured subsequently were modern, and dutiable. This view seems to have been a very sensible one. Historians of art usually accept the year 1500 as the date of the beginning of the Renaissance age, and there has been no well-defined artistic epoch since, so that the close of the Mediæval period may with great propriety be called the termination of antiquity in the custom-house sense. Some collectors, however, are much more strict. Mr. Henry G. Marquand, of New York, recently imported a statuette of Eros, of ancient Greek workmanship, and at least two thousand years old; but the collector held that it was not entitled to free entry, and ordered a tax of fifteen per cent on the cost to be paid. About the same time, Mr. George F. Baker imported a Chinese jade vase, which was reputed very ancient; but the collector thought it was not ancient enough to satisfy the law, and demanded twenty per cent duty on it. As the object of making the exception in the statute was to favor the importation of works of classic art, for the advantage of students, it would certainly seem that a Greek statuette, at least, should have the benefit of it, and both Mr. Marquand and Mr. Baker appealed from the collector's decision to the United States Circuit Court, which reversed it in both cases, and ordered the duty remitted.

THE United States Government, which declines to allow architects to import photographs as tools of trade, has, through its Board of General Appraisers of New York, promulgated a ruling which, in the eyes of some of the members of the profession—theatre architects we will say, may possibly be accepted as an offset to the unjust ruling we have protested against. The Board of General Appraisers has lately declared that tights are an actress's "tools of trade."

but was made a permanent structure, and now shelters a valuable collection which could hardly be accommodated anywhere else. The Art Building of 1876, at Philadelphia, was built of stone, with the idea of making it permanent, and it was, indeed, retained in its place; but a great part of its construction was so cheap and bad that a large outlay is annually required for repairs. Whether Chicago needs so large a building for permanent fine-art purposes is doubtful, although it might be useful for something else. The Trocadéro Palace, which is probably about the size of the Chicago building, is of very suitable dimensions for a museum of comparative sculpture, which, naturally requires a collection comprising a great many objects; while the Palais de l'Industrie, which was also once built for a temporary exhibition, gives excellent accommodations for the annual *Salon*, with its four thousand new pictures; but it will be long before Chicago needs any such space for a *Salon*, and materials for a museum of comparative sculpture are practically lacking in this country; so that it could hardly be utilized for anything more than to hold a huge collection of casts.

IF we were to make a suggestion independent of the architectural merit of the various buildings, it would be that the Horticultural Hall, or whatever building corresponds to that, would probably be the most useful of all as a permanent structure. Even now, all our large cities contain enthusiastic horticultural societies, or florists' clubs, or gardening societies, which hold frequent exhibitions in the largest halls they can hire, and find their exhibitions crowded with people. So great is the popularity of a good flower-show, that, a few years ago, a single florist, Mr. Klunder, of New York, hired the Metropolitan Opera House, engaged an orchestra, and filled the place, not with roses or chrysanthemums, but with a mere miscellaneous collection of plants; yet the house was crowded, at a dollar admission, and Mr. Klunder is said to have cleared all his expenses, and a handsome sum besides, which he made over to some charity. So, the enormous Madison Square Garden was occupied all last week by a chrysanthemum show, carried out by the proprietors of the place as a private speculation, which no doubt proved a profitable one, although sixty-five hundred dollars was given in premiums alone, and the other expenses must have been very large. In fact, all over the country rose shows, chrysanthemum shows, fruit shows, orchid shows, winter flower shows, summer flower shows, spring bulb shows, azalea shows, rhododendron shows, and so on, follow each other in rapid succession, and the universal complaint made with regard to them is that no place can be found large enough to show all the good flowers that are offered, and accommodate, at the same time, the people who wish to see them. For Chicago, the Columbian Horticultural Building would give exactly what is needed, and in exactly the right place, and it would add very little to the cost of the structure to make it permanent. It is to be remembered, also, that a building of this sort can be used for many other purposes besides exhibiting flowers. While a picture-gallery may not be a good place to show flowers in, a room that is good for displaying flowers is sure to be excellent for showing pictures and sculpture. The Casino at Ghent, built by the Horticultural Society expressly for flower-shows, is used by the Fine Arts Society for picture-exhibitions; and the sculpture at the Paris *Salon* is, or was, placed in the court-yard of the Palais de l'Industrie, lighted from the top by a temporary skylight, just as it would be in a horticultural building.

A REMARKABLE sculptor recently died in Italy. This was Vincenzo Vela, who was born in the Canton Ticino, in Switzerland, in 1822. He was apprenticed, when a mere child, to a stone-cutter, but showed such remarkable talent in design that, when he was fourteen years old, he was sent to Milan to work on the sculpture of the restorations of the cathedral. At Milan, he used his opportunities for study with great diligence, and became a pupil of Cacciatori, then a sculptor of repute. In 1848, Vela obtained a prize in competition, and from that time was kept employed, generally on important commissions.

A CORRESPONDENT of the *Boston Transcript* writes from France that he understands that the convention of the American Institute of Architects is to be held in Boston, and, as he supposes that a large share of their time will be taken up with the discussion of Mr. Franklin W. Smith's

scheme for a vast National Museum at Washington, he hopes that a strong effort will be made by the Boston architects in the convention to have a resolution passed, proposing Boston as a more suitable place for such a museum than Washington, which, as he says, is not, and can never be, a metropolitan city. As this letter was not published until more than a week after the convention adjourned, the writer of it will not feel hurt at learning that the Boston members did not follow its suggestion, and, in fact, we doubt if Mr. Smith's scheme was mentioned, or thought of, during the convention. Even if it had been, the probability that the convention would have adopted any such resolution is very slight, and the Boston architects would have been the last to press it. Whether Washington is properly the metropolis of this country may perhaps be doubtful, but there is no doubt that Boston is not, and never will be. It may excel in some respects, and, indeed, it is likely to assume great importance as a seaport before many years; but as a location for a National Museum, containing objects of interest to the people of the whole country, it is quite unsuitable. Moreover, whatever the metropolitan character of Washington may be in a commercial sense, it seems to us that it is just the place for such a museum as Mr. Smith proposes. The residence of the chief executive of the nation, and the seat of legislation, will always have a certain superiority of rank over towns prominent merely in business matters, and will attract tourists and visitors as no other place can; while, under our system of government, the Federal city belongs to all the people, without any sectional affiliation whatever, and is thus peculiarly suited to institutions of national interest, or national magnitude. Apart from these considerations, moreover, the character of the city, and of the institutions already existing there, accord particularly with great museums and similar establishments. The very absence of commerce and manufactures combines with the vastness and dignity of the public buildings to give Washington a character of grandiose leisure well suited to study, while the extent of the collections already provided there, with the incomparable facilities afforded by the Library of Congress, now one of the largest libraries in the world, would, if such a museum as Mr. Smith contemplates could be established in addition, offer to students opportunities hardly to be found anywhere else.

THE town of Meiringen, in Switzerland, was destroyed by fire not long ago, for the second time within a few years.

Many of our older readers will remember the curious wooden village, of one street, with the huge, projecting gables of the houses nearly meeting overhead, and a cascade closing the vista under them, which lay, rather out of the way of tourists, to the right of the Brunig route from Interlaken to Lucerne. In 1879, this wooden village was completely swept away by a fire, and, for a time, it was doubtful whether it would be rebuilt, but the extraordinary prosperity which has reigned in Switzerland for some years past seems to have come in time to save it, and it was restored, but in more substantial materials, stone being generally used for walls in place of planks. Quite recently, manufactures had been established there, and the town was growing rapidly, when it was again overtaken by a conflagration which, although less complete than the former one, destroyed the principal factories, as well as great numbers of dwellings. It is sad to think how rapidly the old wooden architecture of Switzerland is being swept away. A decade ago, it was replaced, as it disappeared, by new erections in the same style, that style which, according to Viollet-le-Duc, has been handed down without essential change from the time when our Aryan ancestors practised it in the mountains of Central Asia, before their migration to Europe; but the last few years have brought a melancholy transformation. Studding and clapboards now replace the old construction of superimposed timbers, and, where a semblance of the ancient construction is attempted, the beautiful low-relief carving which decorated the heavy timbers in the old work is counterfeited with a pattern jig-sawed out of quarter-inch stuff, and nailed on.

REPORTS continue to come in of the failure of natural-gas wells, and their complete exhaustion appears to be merely a question of time. Meanwhile, many consumers, unwilling to risk the sudden failure of their supply of fuel, are removing the pipes, and remodelling their furnaces for burning coal.

ITALIAN ARCHITECTURE.—I.

ANTIQUITY.

From a House in Leyden, Holland. From *Architektonische Rundschau*.

ITALY has witnessed the passage of many peoples over her territory, the greater part of whom have left but very faint traces of their movements. Of the mysterious Pelasgians we will say nothing; and as for the Etruscans, the historian of their architecture finds only scattered remains to aid him in his work,—a few walls and tombs, but not a single temple; the temple has, however, always proved the most important structure of primitive peoples.

The earliest Etruscan constructions encountered are walls of defence. Some of these belong to the so-called polygonal system (Fiesole and Volterra), a system possessing certain points in common with that employed at Tiryns. Others are of the rectilinear type, the *opus quadratum* of the Romans; examples of these are seen at Sutri and Falerii, at Tarquinii and at Rome, where the older walls of the time of the kings are of this kind. But the Etruscans were not merely wall-builders; owing to the character of the country in which they dwelt, they developed great skill in hydraulic engineering. In the ruins of their cities evidence is found of their proficiency in the art of damming streams and constructing canals of derivation, draining-ditches and sewers; and these are always works of importance. Every one is familiar with the Cloaca Maxima, the famous drain at Rome, formed by the Tarquins, and which is the most remarkable of the Etruscan constructions that have come down to us.

Before entering on the study of Roman architecture, which was directly engrafted upon the Etruscan, attention should be directed to the development of the architecture which flourished in Sicily and southern Italy. According to the popular idea, the flowering-out of art in lower Italy, or Magna Græcia, and in Sicily, was subordinate to Grecian influence. But it now appears that such was not wholly the fact, and it may therefore not astonish us to be told that certain Doric monuments in Sicily antedate Greek colonization. Signor Despotti-Mospignotti, in a very learned treatise on architectonic rationalism (*"Della Razionalità architettonica"*; Firenze, 1852), attempted several years since to prove that the creation of Doric architecture was effected in Italy, not only previous to the introduction of all Greek influence, but also at a period when the Greeks were still an uncultured and coarse people. The author presents an array of arguments in support of his theory which Signor Taccani likewise warmly defends (see *"Storia dell' Architettura in Europa."* Milano, 1855).

It is certain that no examples of Doric architecture are found in Greece as ancient as some in Italy; nor is its development there logical and in conformity with the common laws of

reason as it is in Italy. Specimens of the earliest Italo-Doric are seen in the Ortygian temple of Syracuse and in the older temples of Selinus and Agrigentum; of its more advanced and already more robust character, in those later Sicilian edifices which are in the style of the Syracusan Minervium; of a yet later type, with a tendency to decadence, in the Olympium of Agrigentum and in the Temple of Concord; of its clearly decadent style, in the altar of Syracuse and in the altars of Acræ, Solonte and Egesta; and finally, of its completely degraded forms, in still more recent edifices in Sicily. Lastly, Signor Basile, a Sicilian architect, has directed attention to the fact that the so-called Temple of Vesta at Tivoli is in a Corinthian style, which does not exist in Greece and which closely resembles fragments found at Solonte, Pompeii, Palestrina and Lilybæum (see *"La Sicilia artistica e archeologica,"* Part I). In this so-called Temple of Vesta, the capital, with the entire order to which it belongs, offers an example of Corinthian art entirely unlike that exhibited in the Temple of Jupiter Olympius at Athens (by the Roman architect Cossutius), and also differing totally from that of the Choragic Monument of Lysicrates and that of the Tower of the Winds, at Athens; and it has even no points in common with the Italic examples of Roman character.

Certainly the Italic capital as seen in temples dedicated to Italian divinities, and generally found in cities antedating the foundation of Rome, must have passed through a primitive period, a period of maturity, and also a period of decadence. We see, in fact, at Marsala, examples of a coarse and decadent construction; at Solonte, some of rather remarkable workmanship, and at Tivoli, various specimens of the most exquisite forms. It is my belief that there is recognizable here an Italo-Corinthian type which grew up in Italy in accordance with a natural national evolution. It may be asked how the diversity between the Tuscan-Doric and that of Sicily came about. The capital discovered in the hypogæa of Vulci, in 1834, in the tumulus of Cucumella, goes to show that this great diversity was perhaps only partial. The Etruscan order may then have been merely a corruption of the Doric of Southern Italy. The Etruscans always delighted in strength and they found in the forms of the so-called Tuscan-Doric greater virility, and an appearance of greater power and resistance than in the type represented in the capital of the tumulus of Cucumella.

The character of this sketch makes it impossible to push investigations in this line farther, and we therefore turn to Rome.

Roman architecture, as has already been said, was directly engrafted upon the Etruscan before being subjected to any Italo-Greek or Greek influences. But this remark suggests the double source of Roman art. The Romans occupying the centre of Italy, between the Etruscans and the Italo-Greeks, did, in fact, build up their architecture out of elements derived from both these sources. Down to the third century before our era their temples were the work of Etruscan architects; but after the Persian wars Rome was brought under the sway of Greek art.

This is not the proper place to discuss in detail the anatomy of Roman architecture. However, I must recall, in a general way, the fact that the Romans developed on a broad scale the system of arches and vaults; and that, among the orders which they adopted, the Corinthian was most in favor during the Empire. The Roman colonnades and porticos are Corinthian, with a few exceptions.

Roman art reached its highest stage of growth at Rome, although the power of this mighty people was so wide-spread. Setting aside the aqueducts, triumphal arches, temples and baths, which do not properly come within the scope of this sketch, I will content myself with pointing out the sumptuous structural and decorative development of Roman architecture; it maintained its vitality in Italy, not only after the fall of Rome, but even in the midst of Greek influences. I do not refer to its revival there in the fifteenth and sixteenth centuries, after the brief reign of Gothic art. But I do desire to emphasize the fact from the outset that Roman architecture has always found the warmest support all through Italy; the study of it opened up the most brilliant period of Italian architecture and formed the basis of its style.

THE MIDDLE AGES.

The Roman-Christian Style, the Byzantine, the Lombard and the Gothic.—Christian architecture had its birth in the catacombs. The catacombs served as burial places for the early

¹ From the French of Alfredo Melani, in Pianat's *Encyclopédie de l'Architecture et de la Construction*.

Christians [see "Funerary Architecture"]¹. Some writers have maintained that they were used for the interment of the dead without distinction as to religious faith; but the researches of Signor G — B. de Rossi have shown conclusively that this was not the case.

It is needless for us to enter into details concerning the catacombs. And, as their most characteristic features are the paintings, I will merely direct attention to a work by M. Lefort which may serve as a guide to persons desirous of visiting, for the purpose of studying them, the Roman and Neapolitan catacombs; the latter are more beautiful and more spacious than the former, but are in great part obstructed by the caving-in of the earth and by the graves of the victims of the plague of 1656, who were buried there.

We come now to the Christian basilicas, which took the place directly of the catacombs; it is to Rome, therefore, that we must look for the different primitive types of these edifices. After the conversion of Constantine, certain Roman structures belonging to the imperial estates were converted into basilicas; others were reared in different quarters of the city and the suburbs. We have also absolute proof that, in the fourth century, the Constantinian basilica was constructed in the imperial palace of the Lateran; the basilica of St. Peter in the imperial gardens of the Vatican; that of Santa Croce in Gerusalemme in the so-called Variani gardens — this last is sometimes called the Sessorian basilica — and on the Esquiline the basilica frequently termed the Liberian.

There is proof also that Pope Saint Damasus built near the Theatre of Pompey, on ground belonging to himself, the basilica of San Lorenzo, which still perpetuates his name; and near the gardens of Sallust, Anastasius reared the basilica Crescenziana; outside the walls of Rome rose in the same century, the basilica of St. Paul, and on the Agro Verano and Suburbano of Constantine the basilicas consecrated to San Lorenzo and Santa Agnese. Others were erected in the next century (the fifth), as those of San Clemente, Santa Sabina and Santa Bibiana and still others in the sixth century, before 536, the year which witnessed the outbreak of the war between the Goths and Byzantines — a war fatal to Italy and especially to Rome.

Among the Roman basilicas, that of St. John Lateran has always ranked first. Another of the principal ones (or patriarchal, as the four largest were termed, namely; St. John Lateran, Santa Maria Maggiore, St. Paul's and St. Peter's) is the Liberian basilica, so named from the pope who founded it, and to-day known as Santa Maria Maggiore. It dates from the fourth century; the largest of these basilicas, and in fact the largest in Christendom, was St. Paul's, the vicissitudes of which every one is familiar with. St. Peter's will be spoken of later. The basilica of San Clemente, erected on an older structure, should also be mentioned here.

Among the early basilicas in the neighborhood of Rome, that of Saint Elias near Nepi [sixth century?] should not be forgotten; it is not as well known as it deserves to be, although it was probably restored in the eleventh or twelfth century.

All these churches show their immediate connection with pagan art, which persisted in Italy down to a much later period. It was at this time, just after Constantine had removed his capital from Rome to Byzantium, that the Romanesque architecture of Italy was brought under a foreign influence, which was, of course, Oriental.

The existence of this influence has been questioned; Salazar, in a well-known work, "*Studi sui monumenti dell' arte meridionale dal IV al XIII secolo*," writes in an exaggerated fashion on this subject, as he also does when he refuses to recognize the importance of Byzantine art in decorative development. It cannot be denied that Byzantium exercised an active influence on Italian art during the Middle Ages, both before and after the year 1000. In fact, Lombard architecture in its advanced stages manifests evident Byzantine traces. And who does not recall the school of Monte Cassino? The famous Abbé Didier (Victor III † 1088), of Longobard origin, returning to Italy from Constantinople, brought with him the germ of Greek civilization. Didier summoned colonies of Greek artists to Monte Cassino, which thus became a centre of the artistic and literary activity of those times. It is true that the influence of Byzantine art in Italy was not general and did not develop everywhere in the same measure. In some regions it made a deep impression, in others not. For example, the part

it played in the south is evident. Lenormant is therefore right (see "*La grande Grèce*," 1881, t. II) in giving great prominence to the importance of the Greek element in the history of the Southern Italy of this period. In the north, this influence was not long in showing itself at several different points. Ravenna and Venice were the two cities which felt its effects most directly.

Odoacer, the first barbarian to take up his abode in Italy, settled at Ravenna, where he was killed in 493 by Theodoric, who with his Ostrogoths captured the city at that date, after a three years' siege, and made it the capital of his new kingdom. The rule of the Goths lasted seventy years and, as long as Theodoric lived, constituted the glory of Ravenna.

Byzantine art can be studied more advantageously at Ravenna perhaps than in the East itself, and certainly one can understand here better than elsewhere the real extent of the influence of oriental art in Italy.

It was in consequence of a journey to the East which Archbishop Ecclesius made in company with Pope Gregory I in 525, that the Church of San Vitale at Ravenna was built; this shows that San Vitale, which is the most remarkable and the most purely Byzantine church of Ravenna, may be a few years older than Santa Sophia. The Byzantine style was then brought into Italy in the sixth century. The octagonal church of San Vitale resembles the celebrated chapel at Aix-la-Chapelle, built by Charlemagne (774-814) between 796 and 804. The Ravenna church is, however, much older than that of Aix-la-Chapelle. In fact, it was completed and consecrated under Archbishop Maximian (546-556). Charlemagne, impressed by its originality and beauty, copied it in the circular church of Aix-la-Chapelle. The only difference between the two edifices lies in the structure of the vaults and in the constructive disposition dependent upon it. It would, however, be absurd to assume that the characteristic style of San Vitale had no prototype. The Temple of Minerva Medica at Rome traces the path to this type, which proclaims the advent of the cupola boldly placed on a polygonal base. Ravenna, which might be termed the Italo-Byzantine Pompeii, while the basilica of San Vitale was being reared, witnessed also the construction of Saint Apollinaris in Classe, under the direction of Saint Ursicino (535-538) (cf. Tarlazzi, "*Mem sacre di Ravenna*," page 48), a splendid Byzantine monument dedicated by Archbishop Maximian (549).

St. Apollinaris Nuovo, also at Ravenna, was erected by Theodoric in the early part of the sixth century. It was at first called San Martino in Cælo aureo. It seems to have received the other appellation under Archbishop John VIII (872-882). The porch was rebuilt in the sixteenth century; the choir was reconstructed by Ursicino Lunardi, and again later still by Francesco de Meldola. The interior is grand, with its arches adorned with a fine border and an admirable frieze above, on which we seem to find the memory of the ancient Panathenæa revived. It is a monument of the sixth century; but here, as in Saint Apollinaris in Classe, the plan of the antique Latin basilica has been preserved, which clearly demonstrates that maintenance of ancient traditions to which we have referred above: it is an example not to be overlooked. I have said that San Vitale is the most Byzantine church of Ravenna. This is an important point; it was begun a few years before Saint Sophia. In the essential differences between it and the Church of Constantinople some have recognized the presence of a national school of architecture, which, according to them, existed at Milan between the fourth and fifth centuries (see Hubsch, Gueber's translation, "*Monuments de l'architecture chrétienne, depuis Constantin jusqu'à Charlemagne*"; Paris, 1886). But, even if it be admitted that such a school did exist, it certainly had some relationship to the Byzantine school, for it seems to me that the Oriental traces remarked even in Lombard decoration cannot be ascribed wholly to a national source. The Byzantine spirit was not blindly followed in Italy, but in becoming acclimated there it necessarily associated itself with local traditions and adapted itself to different materials of construction.

Turning to Venice, our attention is immediately fixed upon Saint Mark's, which strikes the imagination as an Oriental dream. The appearance of Byzantine art here was much later than at Ravenna. And at Venice, that association of which I have spoken above, is evident in Saint Mark's (in which Ramée was unwilling to concede any connection with Byzantine art), in the old part of the Church of San

¹ Vol. XXVII, No. 741, p. 147.

Giacomo del Rialto, and in the Church of Santa Fosca di Torcello; but most of all in Santa Tosca, which according to some writers was reared in the ninth century and according to others much later. The oldest document concerning Santa Fosca is dated 1011 [cf. Corner, "Notizie st. delle chiese di Venezia," page 572]. The plan is Greek; the columns and capitals of the interior are evidently Roman. The apse (ninth century) is very characteristic; it has some points in common with that of the Cathedral of Murano (ninth century), which was built under a slight Arabian influence.

The origin of St. Mark's is referred to the first half of the ninth century (829), that is to the time of the removal of the body of Saint Mark from Alexandria to Venice. The Doge Justiniano Partecipazio then ordered the erection of a church in honor of the Saint. Later, this edifice was destroyed (976) and it was rebuilt on a larger scale by Pietro Orseolo I. The present basilica retains few traces of the Church of Orseolo. In 1043 the doge Domenico Contarini began to reduce it to its present form. It was completed according to the historians, by Domencio Selvo (1071?). But the work was continued after the eleventh century and the church as it now exists may be considered as belonging to the beginning of the twelfth century. As for the architects of St. Mark's, no names have come down to us. M. Bayet, in treating of this subject, asks if they were Greeks [cf. "L'Art Byzantin," p. 303]. The Orient, in fact, had perhaps a powerful influence at Venice on art and the artistic industries.

Signor Cattaneo remarks in his work entitled "*L'Architettura in Italia da s. VI al Mille circa*," (p. 267), that the Italo-Byzantine art, on reaching the lagoons, found, at the outset, an adversary in Greek art; but toward the middle of the ninth century it succeeded in triumphing over its rival. In this way good elements of production were introduced and the Italo-Byzantine art of Venice bore fruit superior to that of the other Italian cities.

We may note, in passing, that the only really Byzantine monuments that were constructed on Gaulish territory were of Italian importation. Notre Dame at Aix-la-Chapelle, for example, was built by Charlemagne in imitation of San Vitale, and Saint Front at Périgueux, which was founded at the beginning of the eleventh century, was copied from St. Mark's.

Moving southward, in search of examples of that flowering-out of Byzantine art of which we have spoken, we find that there are very few recognizable traces of it in Tuscany and Rome. The earliest evidences of a Byzantine tendency at Rome are seen in the Church of San Stefano al Celio, erected by Pope Simplicius, between 468 and 482 (see de Rossi, "*La Basilica de S. Stefano Rotondo*"; Rome, 1886).

The best known Byzantine monuments of the south are found in Sicily—the Cathedral of Monreale, with its celebrated cloisters, the Cathedral of Cefalu, the Capella Palatina and the Martorana. But let me recall the fact that Arighis, duke of Benevento, in the eighth century ordered the construction of a church in that city, dedicated to Saint Sophia, on the model of the one erected by Justinian. And we find later examples, at Molfetta, Bari, Canosa and other places, of the cupola united to Latin forms. It is needless to add that Greek influence on decoration is everywhere very pronounced.

The architecture of the Sicilian monuments named above is not wholly Greek, but they belong to a type composed of numerous elements which form a very complete and homogeneous ensemble. The splendor of their mosaics, the richness of their marbles and the originality of their architectonic forms have made them celebrated, and they are indeed worthy of admiration and of study. But research has thus far failed to settle definitively the question of their origin. The discussions concerning them have been recently earnestly reopened by the investigations of Abbé Gravina, the author of a fine monograph on the Cathedral of Monreale. The question resolves itself into the determination of just what influence has been exercised on architecture by the divers peoples that have ruled Sicily at different epochs, and what is due to national currents. As to the time at which these monuments were constructed everything points to the period of Norman rule, that is the twelfth century. M. Gravina's presentation of the case, the logical consequence of which is the destruction of the entire historic edifice of Sicilian mediæval architecture, cannot be discussed here, but it must be said that his arguments are in no way conclusive.

The Cathedral of Monreale, which was founded by King

William, was already well advanced in 1174, as was also its beautiful monastery. Yet I do not think the church and decorations were entirely completed in 1182; the work must, however, have been very far along then. It is perhaps unnecessary to say that this is one of the richest and most characteristic of Italian edifices.

The cathedral of Cefalu is older than that of Monreale, but by only a few years. Although it is in the same style, it is less elegant and less ornate. It was founded in 1131, by King Roger, who also began the Capella Palatina in 1140. I should be glad to speak of several other Sicilian structures, but will confine myself to a brief reference to the church of Santa Maria del Ammiraglio, called the Martorana, the work of George of Antioch, King Roger's admiral, finished in 1143, and annexed in 1433 to the convent of nuns established by Aloisa Martorana; also to the celebrated Cathedral of Palermo and the palace of the Cuba. The reader is referred to the following table, in which are grouped certain Sicilian constructions belonging to the same style.

Edifice.	Date of Foundation.	Founder.
Cathedral of Cefalu.	1131.	King Roger.
Capella Palatina.	A little before 1132.	King Roger.
Cathedral of Messina.	A little before 1132.	King Roger.
La Martorana.	A little before 1143.	George of Antioch.
The Holy Trinity.	1150.	Chancellor Matthew.
Cathedral of Monreale.	A little earlier than 1174.	William II.
Monastery of the Holy Spirit.	A little earlier than 1178.	Archbishop Gautier.
The Cuba.	1182.	William II.
San Pietro la Bagnara.	1182.	William II.
Cathedral of Palermo.	1185.	Archbishop Gautier.

It will be noted that the erection of all these magnificent structures is comprised within a short period of fifty-five years.

While an art was developing in Sicily in which Greek influence was thus predominant, in the north of Italy, and especially in Lombardy, the so-called Lombard architecture was making its most vigorous flights. Lombard art is full of interest to us, whether considered in itself or as the basis of the Gothic, but, for obvious reasons, it can be only briefly treated here. It took definitive shape, as is well known, in the ninth century, and continued to develop even after the terrors of the year 1000, which long assumed an importance that modern criticism has much underrated. Lombard art then carries us back of the year 1000, the period which we had reached in our study of the Sicilian monuments. And earlier than the ninth century, before the country was overrun by the Longobards, what style of architecture prevailed there? It will be remembered that Alboin, the Longobard king, invaded Italy in 568, and that the Longobard kingdom then established lasted for more than two centuries, until Desiderius and Adelgisio, aspiring to the possession of the entire peninsula, were driven out in 774.

It may not be as difficult to answer this question as would at first appear. Very little Longobard architecture has come down to us; besides, no one can maintain that a period of artistic progress in Italy could have resulted from the unfortunate invasion of this people. It is in no way probable that they brought with them any new constructive element; the fact that they employed Italian architects is in itself a powerful argument in favor of this view: all the artists of that day so far as known, bore Italian names and, according to Clericetti, they were largely *Comacini*.

(To be continued.)

UNITY BUILDING, CHICAGO. — The Unity Building in Chicago, the tallest in the world, is almost completed. Although it is sixteen stories high, the perpendicular is said to be only a little more than half an inch out of plumb; and one of the first civil engineers in the country has recently reported that the foundations are thirty-three and one-half per cent stronger than the average. The exterior of the building has often been described, but not the interior. The main entrance rises in a Roman arch to the second story. The grand hall or corridor is wainscoted in marble, and the gallery affording entrance to the offices on the second story is also of marble. Six elevators having a front of silver-plated metal-work run from the basement to the sixteenth story. The stairway is of steel, with marble steps, and everywhere through the building is seen the combination of silver plate and marble. The partitions between offices are of hollow tile and crystalline glass, the wainscoting and woodwork of oak, and the floors of white maple. The illumination is furnished by electricity. The light-shaft extends from corridor-floor to roof and is lined with white porcelain brick. In the Unity, the Auditorium and the Rookery, Chicago, now has three of the largest buildings of their kind in the world. — N. Y. Evening Post.

THE BOSTON ARCHITECTURAL EXHIBITION.



AN extraordinary phenomenon is presented in Boston—an exhibition of architectural drawings that some one goes to see!

Our acquaintance with such exhibitions dates back for many years, and covers nearly all the important ones ever held in this country, and some in other countries, but our recollection is that we have generally been the only person there at the time of our visit, and even the attractions of the League exhibitions in New York, which always include a beautiful collection of furniture, draperies, and decorative pictures, have rarely, in our experience, succeeded in drawing ten persons together at any given time. In Boston, this year, on the contrary, although the exhibition is one of architectural drawings simply, without a single piece of bric-a-brac or furniture, the room is actually animated by the number of interested observers. Just before leaving the large exhibition-room at the time of our last visit, we counted eighty people in it, and it was really difficult to get a good view of some of the drawings, without waiting for the group around them to disperse. This, moreover, was in the middle of the afternoon of the fifth day of the exhibition, when there was no special attraction offered, and when the number of spectators would naturally be much smaller than in the evening, which is the time that we have generally chosen for our own visits to such places.

There are several circumstances that will help to account for this unwonted popularity of architectural drawing among the Bostonians. One is, undoubtedly, that the exhibition is free; and we hope that the lesson will not be lost upon the managers of such exhibitions hereafter; for the amount of money received for entrance-tickets is always so small that it is well worth considering whether, if it were given up altogether, it would not be more than made up directly by the increased sale of catalogues, to say nothing of the indirect advantage of attracting and interesting a larger public. This year a certain attraction is also probably to be found in the fact that the exhibition is held in the great hall of the new Public Library, a building about which great curiosity is felt in Boston; but, with all due allowance for the effect of these extraneous circumstances, there is still a large remainder of evident public interest, which cannot be attributed to anything but a most gratifying development of the public taste and knowledge in matters of architectural art.

On the whole, the exhibition which has so excited the popular interest is quite worthy of it, and five hundred better architectural designs and drawings were never collected under one roof in this country. It is impossible for an architect to take a general survey of them without a feeling of pride at the power and independence with which American architecture is advancing towards a development which may be far off, but which will be a very brilliant one. Even now there are buildings in this country which will be revered centuries hence by architects as the first transitional examples of the new style; and when the contemptible colonial chicken-pox has spent its force, and architects and their clients begin again to use their artistic sense freely, we shall see more and more the results of the energy with which American architects have been training their eyes and hands, and collecting resources of observation and recollection, for the past twenty years.

However, to return from the future to the present, we find, in looking about the room, that a great many of the drawings are familiar to us, from having been previously shown at the League exhibitions

in New York, or, in some cases, at the exhibition of the Architectural Club in Boston two or three years ago. The principal works so exhibited have already been mentioned in these columns, and many of them have been illustrated here, so that we are disposed, for once, to pass over what will be the most interesting part of the show to the general public—the extensive collections of large designs from such skilful hands as those of Messrs. Peabody & Stearns, Hartwell & Richardson, Walker & Kimball, Rotch & Tilden, Winslow & Wetherell, Hardenbergh, Kirby and Little, and devote ourselves principally to the work of the debutants, including the debutantes, for three ladies appear as contributors.

Among the architects who have exhibited before, but who occupy this year much more conspicuous positions than formerly, Mr. J. L. Faxon and Mr. H. L. Warren are particularly to be noted. Mr. Faxon, as we have good reason to know, has made a thorough study of Sicilian and Italian mosaic decoration, and we are glad to see that not only his clients, but other architects, are to have the benefit of the results of his labor. Besides some extremely interesting and conscientious color-studies of mosaics at Monreale and Ravenna, he shows a design for the interior of a church at Detroit, presenting a low dome, decorated with mosaic effects, which suggest, perhaps, Monreale as much as Ravenna, but are simplified and adapted with great cleverness and artistic feeling to the circumstances of an American congregation. Naturally, it will be a difficult task to inculcate Yankee fresco-painters with the color-sense of the Byzantine or Saracen workmen; but, if Mr. Faxon is only moderately successful in carrying out his scheme, his church will be one of the notable architectural objects of the country.

Mr. Warren's principal exhibit, his set of drawings for the Troy Orphan Asylum, has been reproduced in these pages, so we need only call attention again to his beautiful plan and the refined picturesqueness of the group, as shown in his perspective drawing, picture which is another, showing the hospital and the rear entrance arch, which is new. In addition to these, however, Mr. Warren shows some measured drawings and sketches from English subjects, several competitive drawings and other works of importance.

For an architect in active business, Mr. Warren, as shown in his pen-and-ink perspectives, keeps his hand well in at sketching. Mr. Richardson and Mr. Walker, also in pen-and-ink, and Mr. Peabody and some others in color, show no intention of letting their skill disappear for want of use; but many architects, including even Mr. Blackall, one of the most brilliant pen-and-ink sketchers in the country, seem to find it necessary to get expert assistance for their larger drawings. Although this is, perhaps, financially wise, the art of architectural drawing loses by the defection of so many of its once valiant champions, and exhibitions also lose very much by the appearance of sameness of style among the most important works. If Street, Nesfield, Norman Shaw, Ernest George, Jackson and Waterhouse can afford time to make their own perspective drawings, our architects, apart from the unfortunate heads of what the Frenchmen call the American "*usines d'architecture*," ought to be able to do so, and their artistic reputation would gain in consequence, however it might be with their pocket-books. The Boston public is probably not peculiar in taking nearly as much interest in the rendering as in the design of the various drawings. Two young girls, students from the Museum of Fine Arts, to judge from the business-like way with which they inspected the collection, were looking closely at a pen-and-ink perspective as we passed. "I want to see how they get their effects," we heard one of them say; and there is no doubt that variations in treatment, such as are at command, almost without limit, in pen-and-ink work, will be appreciated by many others besides architects.

But to return to our subject. As usual in such exhibitions, there are a great many sketches on the walls, generally of foreign buildings, and executed in pencil, pen-and-ink or color, as the case may be; and we find represented, besides several old friends, many new aspirants for fame. Among these, Mr. J. H. McGuire has three or four clever works, whose only fault is the common one of being too brilliant and effective. Water-colorists, not primarily architects, almost always fail in representing architectural subjects by drowning the architecture in chiaroscuro, "masterly" brushwork and startling cloud-effects. Mr. McGuire's architecture, in itself, is much better and more understandingly rendered than is generally the case in such sketches, but an instructive contrast with them is to be found in Mr. Walker's colored church designs, across the rooms, which gain infinitely in feeling by their delicacy of color; and in a beautiful sketch close by, from Mr. Brunner's skilful hand, which is as thoroughly architectural as anything could well be, but is pretty in color besides.

If any one imagines that real color effect cannot be had without brilliancy, he should look at Ross Turner's wonderful little sketches from Wilton. These curious studies are extremely rough, being in three or four washes of body color, on tinted paper, with hardly an attempt at drawing, and still less in the way of chiaroscuro; but the color is so unerringly true that neither shadow nor outline are needed to show the hand of a consummate artist.

Messrs. Stone, Carpenter & Willson, of Providence, who have not hitherto exhibited much in Boston or New York, appear in a brilliant fashion, with some beautiful working detail-drawings, at a large scale, of the Lyman Gymnasium, and a considerable number of picturesque designs for houses and other buildings, very cleverly drawn. Messrs. Cram & Wentworth, of Boston, show some pretty

houses, besides a set of pen-and-ink drawings for a church, which rival anything in the room, both for design and rendering. Mr. Bosworth, who is well known in Boston as a clever draughtsman, has some rather unpractical looking, but very picturesque designs; and Messrs. Chapman & Frazer, E. R. Benton and Loring & Phipps, make a highly creditable entrance into the ranks of the architects who have something to show, and know how to show it.

Last of all, we must mention Miss Lois Howe's design for the Woman's Building at Chicago, which is not shown half so prominently as it should be. Miss Hayden's design, which is now being carried into execution, is well known from the newspaper reproductions, but Miss Howe's, which received the second prize, is little inferior. Instead of Miss Hayden's strictly Classic, colonnaded treatment, Miss Howe chose an Italian style, studied effectively as well as delicately, but perhaps less suited to the grandiose character of the group than the other. However that may be, it is a work with which any young architect might be well satisfied, and we hope that such exhibitions hereafter may contain an increasing number of examples of feminine achievement in the most intellectual of all the arts of design.

THEATRICAL ARCHITECTURE.¹—III.

STAIRCASES AND PASSAGEWAYS.

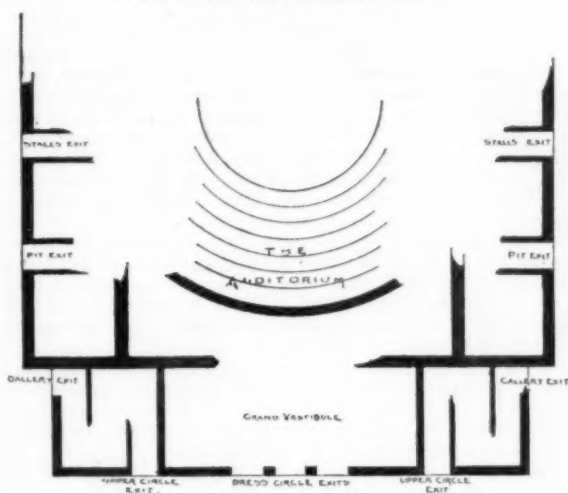


Diagram showing Uniformity in the Arrangement of Exits, with two separate Entrances or Exits to each Division of the Auditorium.

A GREAT deal that I have already said about exits of necessity relates also to staircases and passageways, which under no circumstance should be common to two divisions of the audience.

Passages should be as short as possible and straight, without any sharp turns: tortuous passages are an unmitigated evil.

In staircases the most important point to observe is the number of steps in a flight. Too often we find long, breakneck flights of twenty or more steps. I can call to mind one theatre with a straight long staircase from topmost gallery to street, so that if a man tripped on the top step he must roll down some eighty or a hundred steps to the bottom. On the other hand, how common it is to stumble over a single and unexpected step in a dark corridor or passage, and how easy it would be to overcome these slight differences of level by sloping the floor gradually; single steps or flights of two or three steps should never be permitted.

Six to ten steps in a flight have been found to be a very good and safe average. Each flight should be intersected by a square landing to make a break or rest in the ascent or descent: even where a staircase is broken up into flights in this way not more than two flights of six steps should be in one line. A staircase, square on plan, with an equal number of steps on each side of the square, is the best form for a public building. No winders should be allowed; the steps should be of the same width their whole length. No two steps should vary in height and width; uniformity in rise and tread is all important, as any irregularity might cause a stumble and a fall. In the general run of theatre staircases in London, that is in such staircases as the gallery and circle, exclusive of the "grand staircase," the usual height to be found for the rise is eleven inches, and the common width for the tread seven inches. This makes a fairly comfortable staircase without being extravagant with space; it is however the extreme limit that should be allowed. In grand staircases where space is freely given, the rise would, of course, be less and the tread more, say four inches rise to fourteen inches tread.

On both sides of all staircases and corridors, supporting hand-rails should be fixed on strong iron brackets, built into the walls. These hand-rails should be continuous from the top of the staircase to the bottom.

The material of which to form the steps and landings, and the manner of supporting them would be better considered below after

we have studied the materials best suitable to theatre building in general. I will therefore delay any description of the construction of staircases, passages and corridors, and confine myself to the question of planning.

In constructing staircases the steps must be solid square steps, cast and moulded in the best Portland cement concrete, the necessary strength being attained in long steps by an iron bow girder embedded within the thickness of the steps. Spandrel steps are inadmissible, as are also those constructed of "treads" and "risers"; the steps must be solid and square and have a good bearing on the walls, and should be built up with them, not inserted after, thus avoiding cutting away and weakening the brickwork for their reception. Brick arches should be turned under landings to support them—they are better than iron girders. The same system of support should be used for the passages and corridors, the floors of which should be concrete. As concrete steps wear slippery, they should be tooled to a rough surface, where not covered with carpets.

Staircases must be enclosed on all sides with brickwork and no open well left; the steps must in all cases be supported by walls at both ends and not merely tailed into the wall, as they are apt to snap off short when under the influence of fire. The roof over a staircase must be of concrete.

CORRIDORS.

The corridor behind each tier of the seating should be of sufficient superficial area to hold the whole of the occupants of each tier behind and around which they are situated. These corridors should be divided from the auditorium on the party-wall system already described, with brick walls and fire-resisting doors, so that immediately the audience left their seats they would be in perfect safety away from any fire or smoke that might be filling the auditorium. The width of the corridors should be in excess of the exits leading out of them. The cloak-rooms should open into the corridors, but should not be in the line of exit, otherwise those getting their wraps would block others from going out. No obstruction should be allowed; where seats and lounges are provided they should be in recesses.

SEATS AND GANGWAYS.

No place of public entertainment should be allowed to have at one time more people within it than can be seated in the fixed chairs and seats provided in the auditorium. A theatre in my opinion should be licensed like an omnibus or a cab to hold so many, and any breach of this license by the management should receive punishment. The late Mr. Barnum gained golden opinions among the British public, because he, when at Olympia, numbered every seat in the house, allowed no standing in the gangways, and "booked" his cheap seats as well as the expensive ones. The result was that there was never a crush, although thousands flocked to see the show twice daily.

The licensing of theatres in this manner is greatly objected to by managers, who, when a popular piece is running, naturally do not like to turn away money. "Standing room only" is a notice that should never be seen, for after the seats are filled the house contains the number of people the architect has based his calculations upon when providing accommodations and exits; any number in excess of this, taxes the staircases and passages beyond the limits for which they were designed.

The number of seats in a row, without intersecting gangways, requires some limit. Side gangways are absolutely necessary, and where there are many seats in a row a central gangway is also needed; but diversity of opinion exists as to the benefit of a central gangway and it would appear that the objections are, that people are allowed to stand in the gangways and obstruct the view of those behind and that they block the means of exit. This was nearly the cause of a disturbance on the opening night of the Royal English Opera-House. Were people not allowed to stand, the evil would cease.

Gangways should be from three feet to three feet six inches wide and should intersect every ten to twelve seats so that every five or six people could go into a gangway to the right or to the left. Nothing is more annoying than to have any late comer pushing by some dozen people to reach his seat. Every second row of seats should have a door at the end of the row delivering into the corridor outside the circle, so that the whole audience could simultaneously leave the auditorium. In Austria cross gangways are provided between every six seats.

The width and size of the seats depends first upon the class of theatre being built and secondly upon what part of the theatre they are to be placed in. By the regulations enforced in London each person is allotted a space of one foot six inches by two feet three inches, but this would scarcely be sufficient for the dowager in the stall although it would be ample for the occupants of the gallery.

All seats should be securely fixed to the floor so that they could not be overturned, and become an obstruction. Where they are in the form of chairs, the seat should be made to tip up automatically when the occupants rise. The substance of which the chairs are made should be non-inflammable, iron frames being preferable. In Paris and throughout Austria there is a rule that all the chairs must tip up, and that the gangways must be kept clear and not obstructed with additional loose seats or camp-stools, or used as standing-room. In Berlin also, movable chairs in the gangways are prohibited.

¹ By Ernest W. E. Woodrow, A. R. I. B. A. Continued from No. 826, page 56.

A clever German invention came under my notice a short time back. It was an automatic folding chair, the seat and arms of which folded against the side frames, and thus formed gangways from back to front as well as from side to side, the actual space that was originally occupied as seats being converted into passage-space on the rising of the audience; the whole floor thus becoming a chequered series of gangways.

DOORS AND BARRIERS.

All doors and barriers must be so hung that they open outwards, and fall back flush against the wall when open. Entrance and exit doors that are four feet six inches wide should be hung in two folds. Doors that are opened to admit the public, must of necessity open inwards, and, to prevent mishaps when used as exits, they should swing both ways, and open outwards as well, but when they are open inwards they should lock back automatically against the walls, in such a manner as to require a key to release them, then there would be no fear of their obstructing the exit.

Barriers should be hinged, and so arranged as to allow the audience to pass the pay-box one by one; at the same time they should open outwards and leave the full width of the passage for the egress of the audience. Barriers should not be fixed in any way by bar, bolt, or chain, but swing freely outwards. Fixed barriers which require lifting out of slots or sockets should never be permitted, as they might not be "unshipped" before an alarm drove the audience out of the auditorium back into the passages.

What fastenings to place upon doors has been a difficulty not yet quite solved; what is needed is a fastening that will give way by pressure from within while it remains a secure obstruction to opening the door from without. An automatic "panic bolt" is in general use in London and consists of a horizontal bar across the door about three feet six inches from the ground, pressure on this bar releases the bolts and lock in one action and at the same time the doors fly open. Espagnolette-bolts turned by a lever handle are also much used, and answer the purpose well. Barrel-bolts should never be employed, the Sunderland disaster, where a barrel-bolt caught in the floor and prevented the door from opening, has taught a dreadful lesson of how great loss of life may arise from trifling blunders. In this disaster there was no fire, only a false alarm, yet many perished. Locks are bad, padlocks worse, for keys are seldom forthcoming in moments of panic. A door barred and padlocked is hard to break open. No fastening should be allowed but of such kind as the audience can undo, either automatically or by one simple action.

For the exclusion of draughts all internal doors should be self-closing, and, where lobbies are formed they should be of the maximum width of the exit. Curtains before doors are a mistake, as they are likely to be pulled down and become entangled in the feet of the people. Another drawback is, that they hide the exit doors. Where doors are to remain open they should be fastened back against the wall, for when a half-door once becomes closed the public never think of helping themselves by opening it. I have often noticed a crowd leaving a public building by half the width of the exit, one of the doors being bolted; it is not one in a thousand, when once through the door, who would take the trouble to benefit those behind him by opening the other wing.

Doors which open onto staircases should not open directly onto the steps, but be set back so as to leave a square landing: for a door to open suddenly and unexpectedly onto a flight of steps is most dangerous.

PAY-BOXES AND OFFICES.

It is in the arrangement of such details as these that the architect can materially help the manager in providing what is termed "a cheap house to run." Some theatres are much more profitable to work than others, because the internal arrangements are such that it requires few attendants to look after the house and the audience. With this in view, pay-boxes may be so planned, that from one box pay-windows can open into two or more entrance-passages, and one attendant clerk can receive the money for two or more divisions of the audience; this is especially easy, where automatic machines are used for the delivery of the tickets.

Pay-boxes, and the box-office, or booking-office, should be permanent parts of the building, and not be loose boxes in passages, on staircases or landings, which could be overturned by the pushing of a crowd. The pay-boxes should be so placed that the treasurer can keep his eye over his staff, and when planning the treasurer's, secretary's and manager's offices it should be borne in mind that a great deal of business is transacted in these rooms during the daytime, as well as at night: from the treasurer's office the whole staff of actors, actresses, bandsmen, stage-carpenters, scene-shifters and cleaners are paid weekly, and in the acting-manager's room the whole of the business arrangements of the theatre, both before and behind the curtain, are settled. A waiting-room common to these offices, with provision for two or three clerks should be placed in connection therewith.

CLOAK-ROOMS, LAVATORIES, SALOONS, ETC.

Every division of the audience should have all such accommodations as these distinctly to itself, and the doors thereto must not open onto the line of general exit. When arranging the auditorium it must not be forgotten that saloons and foyers are needed for the public to assemble in during the *entr'acte*. In opera-houses the "crush-room" is a great feature, and in modern theatres smoking-rooms are always provided.

OUTSIDE BALCONIES.

In cases of fire in theatres, it is the inability of the fire-brigade to enter the building and assist the unfortunate and imprisoned crowds, through the staircases being choked with human bodies, that has caused so much loss of life in fires in this class of building. To avoid a repetition of such disasters I strongly advocate the adoption of outside balconies to every tier of the auditorium, as well as to the dressing-rooms. French-windows opening outwards onto them, fastened only by an automatic "panic-bolt," should be placed on all sides of the house, and external escape-staircases should lead down from balcony to balcony to within a short distance of the ground and within reach of outside help; wherever external aid has been possible the loss of life has been nothing compared with other cases where the municipal brigade could not approach the people. It would be impossible to allow the outside escape-staircases to go right down to the ground, otherwise the security to the property would be destroyed.

These balconies could be made a pleasing architectural feature, and the Savoy Hotel on the embankment is a good example of what can be done in this way. In the summer months the balconies would become agreeable lounges: in variety theatres, such as our Alhambra or Empire, they could be planned so that a view of the stage could be obtained from them; in this manner they would become an additional attraction to the house and be made to pay.

WINDOWS AND SKYLIGHTS.

In Austria such importance is placed upon the desirability of having plenty of windows that a special rule is framed that "all parts of the house must be well and sufficiently lighted by windows." It is a great blunder to make a theatre dark, for where there is darkness there is sure to be an accumulation of dirt and rubbish, and where there is such accumulation there is danger of fire: as experience has taught us, spontaneous combustion has often been caused by oily rags, oil and sawdust, and other rubbish swept out of sight into odd dark corners by the careless cleaner. There is yet another reason for advocating daylight as a provision against fire: where a theatre has plenty of windows lighting all parts, artificial light is unnecessary during the day, and the cleaners and workmen have not to go about with lamps or naked lights to see to do their work. Carelessness in the use of matches, candles or lamps, firemen tell us, is the origin of many a conflagration.

In nearly all old theatres a window in the auditorium is unknown, and in the majority of dressing-rooms these were considered quite unnecessary; but surely for everybody's comfort and health, public buildings must be clean and sweet, but they cannot be that when they are dark and never see the light of day.

Trade refuse and rubbish should be placed in a specially built receptacle, which should be cleared daily.

The advantages of windows in permitting access to the building in case of fire we have already seen, and the benefit for ventilating purposes we shall consider later; but there is still one more point to remember, never should iron bars or ornamental grilles be fixed in front of windows, and the reason is obvious, as they are then useless as means of escape to the fire-ladders.

Where light is obtained by skylights there is always a danger during a fire of falling materials breaking through the skylights and spreading the fire to other parts of the building, and this danger is increased when other premises overtop the theatre. To mitigate the evil, the skylights should be protected on the outside by strong fixed galvanized-iron wire guards.

[To be continued.]

J. ELIE DELAUNAY.



"La Peste à Rome."

ANOTHER of France's greatest men has passed away. Cut off as he was in what may be called the prime of life, the void caused by Delaunay's death will not easily be filled. Other portrait-painters there are whose reputations may be greater amongst the

general public—such men as Carolus-Duran, Bonnat and Chartrain; but among the select few who know, Delaunay's art as a portraitist stands, perhaps, the highest not only in France but in Europe. He was essentially a painter of character. He did not care a jot for beauty as separable from truth, and, if his sitter happened to be plain, he took a pride in making his or her plainness attractive. The portrait of a lady with a glove in one hand is an instance of what may be done with a plain face. Orchardson also has this talent, this power of accentuating the beauty of ugliness, but to how few is it given!

Delaunay was a native of Nantes, and was born in 1828. Coming to Paris when quite young, he entered the École des Beaux-Arts, studying under Lamothe and Flandrin, and winning the Prix de Rome in due course. His finest and one of his earliest subject-pictures is well known to those who have visited the Luxembourg gallery, "La Peste à Rome," a vigorous and original composition, drawn with immense power and very fine in color. For vigor of action, there are few figures one can recall to mind which equal that of the Angel of Death striking at the doomed house; while for utter misery and hopeless despair, the group crouching down in the dusk have never been surpassed. Such a work from a young man must have set people thinking that an artistic giant was in their midst. A few less satisfactory works followed, works of a more or less conventional order, and now and then Delaunay obtained commissions for decorative work in the churches. But for some reason or other, probably the man's inherent modesty and lack of push, he was to a certain extent ignored by the State, and so dropped into portraiture. The same fate befell another great artist, Paul Baudry, who nearly passed through life before his talent was much appreciated. But Baudry was a younger man, and, though no courtier, was fortunate in finding friends among the Orleans family, and so came to the fore earlier in life, and was commissioned to execute work for the Grand Opéra and the Law Courts. Delaunay worked for the Opéra, for various convents and churches in a lesser degree, but it was only quite recently that he was commissioned to decorate a portion of the new Hôtel de Ville and the staircase of the Louvre. Here we should have seen him at his best, probably; but the end has come before he had done much, and others will have to complete his work.

Among his portraits, by which he will probably remain most popular, his "Mme. Bizet," in widow's dress, will come back to every one's memory. How very few painters could make anything really artistic out of woman, even a pretty one, swathed in *crêpe*; yet this *tour de force* was accomplished by Delaunay. His "General Mellinet," resplendent in uniform and covered with decorations, is a magnificent portrait, and, with his usual love of any little peculiarity characteristic of his model, Delaunay has made much of the sword-cut on the old soldier's cheek. Many an artist would have turned the wounded cheek away from the spectator. Gounod, an old fellow *Prix de Rome* of the painter, Regnier, Meilhac and Cardinal Bernadon, are a few of the men whose portraits one remembers; and the Mesdames "Three Stars," by Delaunay, were always attractive to visitors to the *Salon* in the Champs Elysées, to which Delaunay remained faithful after the split consequent upon the medal-awards of the Universal Exhibition of 1889.

Delaunay will be missed by a large number of friends and fellow-workers: for his friends, the void will not easily be filled. As to France, doubtless the death of such men makes room for the younger spirits, and talent has never been wanting in the artistic paths of that country; still, the losses of the last few years have been great. Paul Baudry, Jules Bastien-Lepage, Chapu, Meissonier, Boulanger and a host of smaller men have passed away; but their work remains, though the greater part be hidden away from the public gaze.

S. BEALE.

REPORT ON TESTS OF FIRE-RESISTING MATERIALS.

BOSTON, MASS., October 28, 1891.

MESSRS. CHARLES S. WHEELWRIGHT AND ASSOCIATES:

Gentlemen,—The undersigned, forming the committee who were requested to conduct the test of slow-burning building materials on October 15, would submit the following:—

The tests were held in two buildings erected in a vacant lot on Park Street, for the purpose of demonstrating the efficiency of slow-burning construction, and also of various materials designed to retard free combustion. In addition to asbestos paper and ordinary lath and plaster, the materials manufactured by the following companies were used, being contributed by their representatives,—King's Windsor Cement Dry Mortar Company, Clinton Wire Cloth Company, New Jersey Wire Cloth Company, Magnesio-Calcite Fireproof Company (who man-

ufacture a fireproof paper), Stark, Edson & Co. (manufacturers of "Albamural," which is a fireproofing material in general appearance similar to kalsomine).

The buildings were constructed of two-inch tongued-and-grooved spruce plank placed upright and held by a grooved plate at the top. They were covered by flat plank roofs tinned on the upper side.

The larger building was 12' x 16', divided into four cells, with a fire-door in each partition and one at the eastern end. The other building measured 12' x 12', being divided into three cells, and situated three feet from the larger building. Scuttles about two feet square were placed in the roof over each cell, but they were opened when the fire was started. The entrance at the front of each cell was provided with doors made of two-inch plank tinned on the edges and on the side toward the fire.

For the purpose of obtaining approximate temperatures in the buildings at the test, four links furnished by Mr. Morris Martin of the United States Electric Fire-Alarm Company were hung on steel wire in the upper part of each cell, and the melting points of these links were stated to be as follows: lead, 626 degrees; antimony, 842 degrees; aluminum alloy, 1,292 degrees; brass, 1,850 degrees. Each of the cells was lined with fire-retarding materials, to which detailed reference will be made below.

After the buildings had been thoroughly examined by those present, the fuel was placed in each cell, consisting of kiln-dried hickory wood piled to a depth of nearly four feet, and also piled to the depth of over five feet in the space between the two buildings. This wood was thoroughly wet with kerosene oil, and the fires were lighted at 12.21 P. M., simultaneously in each cell. Although the fires burned very fiercely, the buildings resisted the flames admirably, and we considered that up to 1.30 P. M., or an hour and ten minutes after the fires were started, any burning of the buildings could have been extinguished with a pail of water.

The heat of the fire was too severe to allow near enough approach to make very careful or accurate observations of the interior until after the fire was extinguished by the fire department, who applied a hose-stream upon the fires, beginning at 1.52 P. M. After the fires were extinguished, careful observations were taken of the conditions of each cell as it was at the time, and later further examinations of the floors were made after the ashes had been removed.

Cell No. 1. The right side was lined with King's Windsor cement dry mortar on wood lath; left side, with lime and hair mortar on Eastern plaster-board; front with King's Windsor cement dry mortar on wood lath; ceiling, with King's Windsor cement dry mortar on Clinton wire-lath. The floors were of two thicknesses of No. 1 magnesio-calcite covered by a board floor.

Small pieces of the skim-coat fell at various times during the fire. At 1.45 P. M., both the right and left sides were considered intact. After the fire was extinguished, it was found that the plaster was off at one place on the right side, that it had bulged on the ceiling, and that the back had burned through. The top floor was burned for about five feet from the door, and a hole near the door was burned through.

Cell No. 2. On the right side King's Windsor cement dry mortar was laid on Eastern plaster board, and on the left the same material on porous terra-cotta lumber. On the rear, the front, and the ceiling the same was laid on Clinton wire-cloth. The floor was of porous terra-cotta lumber.

The interior of this cell was intact at 1.45 P. M. After the fire-department had extinguished the fire, it was found that a hole had burned through at the back. The board floor was burned away, but the terra-cotta lumber below remained intact.

Cell No. 3. On the right side King's Windsor cement dry mortar was laid on porous terra-cotta lumber; on the left, the rear, the front, and the ceiling King's Windsor cement dry mortar was laid on Clinton wire-lath. The floor was of King's Windsor cement dry mortar covered with a board floor.

During the fire some pieces of skimcoat fell. At 1.45 P. M., both sides appeared to be intact; but after the fire it was found that the plaster was bulged somewhat on the right, and that the plank on the left and the ceiling had been somewhat burned and a hole burned through the rear. The board floor had burned away for about five feet from the door, and three small holes were charred away in spots near the doorway.

Cell No. 4. This cell was lined with King's Windsor cement dry mortar laid on New Jersey wire-lath, and covered with a coat of albamural. The floor had King's Windsor cement dry mortar under the upper floor.

During the progress of the fire it was noted that the plaster or the finishing coat had scaled off; and, after the fire was extinguished, it was found that the timber backing to the wire lath had charred away in some places, but that the wire lath stood very well, holding itself in position in some places to a height of four feet without support at the back. The floor near the doorway was burned to the dry mortar.

Cell No. 5. The ceiling and walls were covered with King's Windsor cement dry mortar laid on wooden lath. Asbestos paper was laid under the top boards of the floor.

During the fire this cell did not offer so much resistance to the flames as the others, and it was here that the plank of the building was ignited several times. At 1.45 P. M. it was found that the lath and plaster had fallen on both sides of the cell; and, after the fire was extinguished, it was also found that the rear had been burned



ufacture a fireproof paper), Boston Fireproofing Company (who manufacture porous terra-cotta lumber), New York Eastern Plaster Board Company (manufacturers of cellular blocks of plaster-of-Paris

through. It appeared that the heat followed the lath nails, charring the plank around them, and in that manner prevented it from holding up to the partition. The top floor was badly charred, and the asbestos paper did not appear to hold in place.]

Cell No. 6. This cell was lined with two thicknesses of No. 0 magneso-calcite, over which was laid King's Windsor cement dry mortar on wooden lath and a coat of albamural over all.

At 1.30 P. M. the partition between No. 5 and 6 fell, having been weakened by the fire reaching the side toward cell No. 5. At 1.45 P. M. it was found that the wood lathing had fallen in several places from walls and ceiling, for the reason, as stated in the description of the previous cell, that the heat appeared to follow the nails of the lathing. The magneso-calcite remained on the walls in very good order. The top floor was charred through near the door, but there were traces of dry mortar which had stopped its further burning.

Cell No. 7. This cell was lined on the right, the front, and the top with lime and hair mortar laid on No. 19 Clinton wire lath one-fourth-inch mesh held by strips of seven-eighths-inch band iron. The left and rear were lined with King's Windsor cement dry mortar laid on the same material. The floor was of No. 4 magneso-calcite covered by the top floor.

This cell resisted the fire more completely than any other, the only effect being a few cracks on the right side, which may have been caused by a fire stream when directed on the hot material. It should be said, however, that this cell was the only one in which all of the links were not melted, and the brass link remaining unfused showed that the temperature must have been between 1,292 and 1,850 degrees. In all the other cells the temperature must have exceeded 1,850 degrees.

The adjacent ends of the two buildings were covered on the right side with King's Windsor cement dry mortar upon wooden lath. At the left the plank wall was covered with No. 0 magneso-calcite, upon which King's Windsor cement was laid upon wooden lath. The intense heat upon both sides of the ends of the buildings charred each of them through.

There were shutters placed upon the ends of the buildings. The wooden shutter covered with tin was somewhat injured and the wood badly charred. The shutter covered with one-eighth-inch magneso-calcite, before the tin was applied, was in excellent condition. The fire-doors in the partitions in the larger building all yielded during the fire. The immediate cause of their failure appears to be the use of screws in attaching the hinges, and in this respect as well as others they all differed from what is known as the standard tin-covered fire-doors, which require that all attachments to the doors shall be made by bolts and not by screws.

The doors in the partition were held in position, after the hinges gave way, by the mass of fuel piled on either side. The doors covered with asbestos paper or with magneso-calcite, before applying the tin, were somewhat distended by the gas generated by the heated wood, which could not escape readily, as was the case in the doors not covered except by the tin, where the gas could escape at the seams.

The doors at the front of the cells were tinned only on the edges and the side toward the fire, and were able to resist the heat of the fire for only about an hour, the cause of the failure in each case being the conduction of heat along the lines of the screws at the hinges. These doors would undoubtedly have fallen earlier had they not been open a great portion of the time during the fire.

In conclusion, we would say that the heat of the fires apparently exceeded that of an ordinary burning building, and that the results of these experiments are exceedingly valuable and reflect a great deal of credit upon the enterprise of their projectors.

Among the principal facts established at this test we wish to call attention to the great resistance to fire afforded by the solid plank construction, the walls being in themselves adequate to prevent the spread of a fire until it has reached a quite large extent; and such construction should in many instances be used in place of ordinary joisted partition. While it is not claimed that such solid plank partitions are equal to a brick division in resistance to fire, yet there are many places where the difficulty of supporting a brick wall would render such a division out of the question, and yet a plank partition could be placed as readily as one supported on joist.

The porous terra-cotta lumber and the Eastern plaster board both presented a high resistance to heat, and were unaffected by exposure to the fires.

The secure bond of the wire lath, especially when re-enforced by band iron, proved the value of this material in securely holding plasters when exposed to fire.

The magneso-calcite proved its value for re-enforcing tinned fire-doors and shutters, resisting the fire, and yielding only when the material to which it was attached fell.

The King's Windsor cement dry mortar resisted the fire in a most efficient manner when the support at the back remained, and, moreover, did not crumble as a result of heat or of streams of water played upon it when hot, as was the case with the ordinary lime mortar.

Respectfully submitted,

C. J. H. WOODBURY,

Vice-President Boston Manufacturers Mutual Fire Ins. Co.

C. M. GODDARD,

Secretary New England Ins. Exchange.

D. L. LORD,

Superintendent Public Buildings, Chelsea, Mass.

Committee.

EQUESTRIAN MONUMENTS.¹—XLIV.



First Prize Model for the Statue of Gen. Robert E. Lee. C. H. Niehaus, Sculptor.

Of works relating to the civil war, written and published south of Mason and Dixon's line, we at the North have little knowledge, and when some Southern book bearing on the war is met with, it always seems to contain the most perverted historical statements that it is possible to conceive. Doubtless the books published at the North seem to sympathizers with the Confederate cause equally inaccurate, and the contained statements and descriptions are to them quite unrecognizable in view of a more intimate knowledge of facts and circumstances. One of the beliefs that Northerners have entertained during the last thirty years—rightly, perhaps, wrongly, it is extremely likely—is that with all their unselfishness, devotedness, tenderness and all the other womanly virtues which are shared by women the world over, the women of the Confederacy were pugnacious to a degree.

To this persistence of purpose and obstinacy of spirit—not necessarily unamiable traits of character—it seems fair to attribute in large degree the curious involutions that resulted at length in the erection at Richmond of Mercie's equestrian statue of General Robert E. Lee, which was illustrated in the *American Architect* for January 10, 1891.

It was a foregone conclusion that the hero paramount of the Southern cause should sooner or later be honored with a suitable monument, and shortly after his death, in 1870, the Lee Monument

Association was organized and began to secure subscriptions in all the late Confederate States. Apparently, the steps taken by this body did not satisfy the ladies, and at a later date they formed the Ladies' Lee Monument Association, and for several years these two bodies existed and labored as separately constituted and organized societies, working for a similar but not a common object, and, as circumstances seem to indicate, with a somewhat antagonistic spirit. In spite of



Gen. Robert E. Lee: a Model. Clark Mills, Sculptor.

the warmth of feeling which the movement kindled, the growth of the funds in the hands of the two treasurers was slow, for even the glimmer of returning prosperity had hardly begun to show

¹ Continued from No. 827, page 70.

itself. But at length, in 1877 it was found that the joint funds had so grown as to warrant some action, and artists were asked to submit models for an equestrian monument, quite on the usual terms — no pledge given, no prize offered, no jury announced. Still the theme was an inviting one, and a score of models were at length gathered in the Capitol at Richmond in November, 1877. Here the ladies made their first stand, for they declared that the money they had raised should not be used for the execution of any model submitted. The judgment of the ladies may have been quite unimpeachable, and their action may simply have placed their ability as art-critics above the reach of dispute and discussion; but whether it was so or not, their action was final as to this first competition, and the score or more of sculptors had but wasted their time and money — as they probably had done at other times in their careers.

The first competition was a fiasco beyond cavil, but it was not altogether discouraging, the two associations at least had discovered that the world was full of artist gudgeons who were quite willing to snap at a hook that was entirely bare of bait, and so a second competition was announced and as the result four models were submitted

these men and of their friends that the award would be made to one of them rather than to an outsider, and it is not unlikely that the efforts of their friends had a prejudicial effect on their chances and helped to cast a tinge of unpleasantness over these very unsatisfactory competitions. For this reason it was decided that the third set of models and designs should be sent to Washington to be exhibited and adjudged where there was a better chance to form an unbiased judgment. So many designs and models were submitted in this third competition that it was not found possible to provide for them in the Corcoran Gallery as was intended and so Carroll Hall was prepared for the exhibition — which is said to have been the most notable of its kind that has ever been held in this country.

The expert jury, consisting of J. Q. A. Ward, Augustus St. Gaudens, sculptors, of New York, and Edward Clark, architect to the Capitol, were appointed as the competition neared its close, and they, it is alleged, made but a single visit to the exhibition and upon that somewhat cursory examination based their decision — an easy thing to do if the prize-winners were really first in merit and the rest nowhere, but not a very satisfying method if the degrees of excellence



Vercingetorix: a Model. F. A. Bartholdi, Sculptor. From the *Gazette des Beaux-Arts*.



Francis I, Cognac, France. A. Etex, Sculptor.



Gen. Robert E. Lee: a Model. T. A. Mills, Sculptor.

in November, 1878, a result which in the eyes of the ladies was even less satisfactory than before. After this no active movement was made until 1884 when the Ladies' Lee Monument Association decided that they could manage the affair without the aid of the older society. Accordingly in July, 1884, they issued a new invitation for designs for an equestrian statue to be submitted May 1, 1885, promising as inducements prizes of \$2,000 and \$1,000. The limit of cost was set between \$150,000 and \$200,000, and the site selected was announced to be Libby Hill, overlooking the James — a very excellent site. The date of closing the competition was several times extended by public notice, but at length February 1, 1886, was fixed upon definitely as the limit.

The two competitions already held had excited no little partisan feeling, for it so happened that among the competitors were two sculptors from Richmond itself, both men of ability and both soldiers under Lee. One, however, was a personal and somewhat close friend of General Lee and was, moreover, a permanent resident in the city: the other had for some years been working with much success in Rome and consequently the models he sent had to run the risk and incur the cost of the long voyage. It was naturally the hope of

were not very marked. However this may be, the first prize was awarded to C. H. Niehaus of Cincinnati, and the second to M. J. Ezekiel, who sent his model from Rome, and whose efforts in the three competitions had cost him some \$5,000. An honorable mention also was bestowed on the model of M. Alfred Lanz, the author of the equestrian statue of General Dufour at Geneva.

As no pledge was given that any prize-design would be carried into execution, Mr. Niehaus, a young and comparatively unknown artist, ought not to feel particularly disappointed — under the circumstances. Mr. Ezekiel's case, however, was different, for though for some time resident in Rome, he was none the less a Virginian in good standing. But the work was not to fall to him, nor yet to the other Virginian sculptor, E. V. Valentine, but to an alien who did not know Lee, who had no special sympathy with the "lost cause," and whose model, seemingly, had not enough of merit to attract the favorable notice of the members of the jury, one of whom, at least, should have been familiar with this artist's style, for it is alleged that Mercié owes his good fortune in no small degree to the good offices of one of the members of the jury who, if he did not urge his appointment, yet gave it be understood that in his opinion the best

result could be obtained only through placing the work in the hands of a sculptor of Mercié's known ability.

When it had become apparent that the third competition was a success, the Lee Monument Association perceived that if they did not wish to be left out of the reckoning altogether they must join hands with the ladies, and a coalescence took place accordingly.

After the close of the exhibition in Washington, the models and designs were taken to Richmond and again exhibited in the Capitol.



The Victorious Alexander. P. Puget, Sculptor.

The names of the authors were now known and the discussion became all the more animated in consequence,—the result being that Mercié was selected as the sculptor, provided he could, in another model, show a better grasp of General Lee's character and produce a more statuesque pose.

The model which Mercié sent to the competition exhibited General Lee upon a galloping or rearing horse trampling upon, and supported by, the bodies of wounded or dead soldiers—an animated and perhaps successful pose, but not just the one to



Gen. Robert E. Lee: Portion of a Model. A. E. Harnisch, Sculptor.

use in these days for the statue of a man who although a soldier was also a humanitarian. This trampling upon slaves or soldiers in sculpture is a relic of the uses of antiquity and the farther we get from those days the less this device seems to be used. John Sobieski at Warsaw, and Christian Ernest at Baireuth may be excused for their unkind thoughtlessness, for their statues were executed long ago, and the modern statue of Francis I at Cognac, by Etex, relates to a period when there was a good deal of trampling underfoot of other classes than soldiers; but aside from these the fashion has practically passed away. In the case of ideal statues or statues of long-dead, historical personages

one does not feel the same sort of sentimental objection that made the manner so disagreeable in the Lee case. No one could object to Bartholdi's treatment of the equestrian statue of Vercingetorix which exists as a model in the Museum of Clermont-Ferrand or to Puget's Alexander which is in the Louvre.

With a Frenchman's courtesy Mercié did not insist on his own opinion as to what would be artistic and proper, but, having his attention called to the advantages of a quiescent pose, speedily produced a model in the desired attitude, and this having been accepted by the joint societies, he proceeded to carry it into execution with all

the expedition needful to take advantage of the current low price of bronze-casting, a phase of the commercial conditions of the times which is said not to have been without influence in deciding the question of ultimate authorship in favor of the foreigner. Here it should be noted that the combined funds of the two societies amounted, not to the \$150,000 or \$200,000 which the ladies announced was to be the cost of their monument, but to less than one-half of the smaller sum, and that this single fact must have simplified extraordinarily the



Gen. Robert E. Lee: a Model. G. R. Firth, Sculptor.

task of the jury who, knowing that artists' estimates were usually exceeded by forty per cent or more in execution, could, of course, perceive that models estimated by their authors as being, perhaps, possible of execution within the limits of the largest sum named in the programme could not, short of a miracle, be obtained for the \$60,000 in hand.

Mercié agreed to finish his group in bronze for \$12,000, but later the price was increased to \$18,000, because the people were carried away by the fantastic notion that the man who did his utmost to dismember this country was as worthy of praise and veneration as the man who did his utmost, nearly a century earlier, to weld it together, and that, consequently, since there was in Richmond an equestrian statue of George Washington measuring so much and weighing so much, it was necessary that, in the matter of pounds and feet at least, the statue of General Lee should be its equal. The circumstance is instructive, and the picture of art being bought because it can be had cheap, and greatness measured with a foot-rule, is one that is eminently American. In consequence of this sentiment the size of the monument was increased and this, in turn, led to an increase in the cost, which is summarized broadly as follows:

Bronze group	\$18,000
Pedestal	41,500
Fees, prizes and expenses	18,000
	\$77,500

The commission was given to the sculptor in June, 1887, and the unveiling of the completed structure took place May 29, 1890; but before this could take place the archaeological citizens of Richmond, jealous for the fame of their idol, consulted the records and discovered that when Crawford's "Washington" reached the wharves of the city the enthused populace helped to unload it from the ship, and then drew it with their own hands to the proposed site, so that unless the city were to be allowed to pay greater homage to Washington than to Lee, the new statue, in its turn, must be dragged through the town by hand, and this was done. But in place of being drawn to the site on



Gen. A. S. Johnston, New Orleans, La. A. Doyle, Sculptor.

Libby Hill the statue was dragged to the other end of the city and set up in the middle of a barren and featureless plain, and all because land-speculators were able to pull enough wires to have the site changed. Whether the surroundings are eventually to be brought to some harmony with the monument remains to be seen.

The pedestal, about forty feet high, upon which it is placed is of granite and was designed by the architect Paul Pujol, the actual work being done in this country, some of the sculptured features being modelled by Casper Buberl. The engineer in charge of the

erection of the statue, which weighs about fourteen tons, was C. P. E. Burgwyn.

The final outcome of the many competitions, discussions, intrigues and bargains is a monument which, whatever its shortcomings may be, bears more strongly than does any similar monument in the country the impress of the fact that its authors were trained and skilful artists in their several callings.

Who the many disappointed competitors were it has not been possible to discover, but as an incomplete record may be better than none, we will say that in one competition or another models were submitted by C. H. Niehaus, M. J. Ezekiel, Clark Mills, Theodore A. Mills, his son, Edward V. Valentine, Albert E. Harnisch, Vinnie Ream, M. H. Mossman, Gilbert R. Frith, Alfred Lanz, D. B. Sheahan, C. Buberl and J. A. J. Falguière.

Some of these and possibly others took part in more than one of the competitions; thus Ezekiel and Frith sent fresh models to each competition, while Harnisch sent models to the last two. Harnisch's are worthy of note because he linked allegory with historical portraiture more closely than did other competitors. In his 1878 model, Lee's charger was lead by a youthful genius chanting the praises of the hero, while the model submitted in the last competition was still more elaborate—and costly of execution. In this the allegorical figure, now the genius of the South, sounds his trumpet so as to call out to the defence of their country not only the central equestrian figure of Lee but subordinate equestrian figures of four of his generals.

If after twenty years of effort the impoverished South could raise only some \$75,000 for a monument to the commander-in-chief of her armies, it is not to be wondered at that other of the noted leaders in the Confederate service remain unhonored by the sculptor's genius, and yet we feel certain that many of the best works of the kind will be found eventually in the South, statues that will always have a pathetic interest for they will symbolize not only faithful but un-availing effort. The North has been too hasty in the matter of statues and monuments: with commercial zest it has gone ahead and created its memorials out of hand, in a hit-or-miss manner which has had the usual result; but while so doing the very results of its actions have had an educational effect on the people, have trained to better work the hands of those who modelled the existing statues and have shown the younger generation that profit and honor is to be reaped in this country by those of them who possess natural artistic ability. It is these reasons that lead us to say that the South is likely to possess some of the most artistic memorials of the civil war that are to be created in this country.

Still, besides the Lee monument, one other equestrian statue of a Confederate leader has been erected, and that to a man who like Lee served in the Mexican War with distinction and, the senior of Lee and the leaders of the Union Army, had reached a higher rank than any at the time the rebellion declared itself.

Just inside the entrance gate of Metairie Cemetery at New Orleans is the equestrian statue of General Albert Sydney Johnston, surmounting the turf-covered tomb of the Army of the Tennessee, in whose Gothic vault beneath lie the bodies of forty-eight members of that army. This statue, the work of the sculpter Alexander Doyle, was unveiled April 6, 1887, having cost about \$20,000. The group is about twelve feet high and weighs only 3,000 pounds. Still in spite of its size it commemorates a great man and though many think his conclusions were mistaken ones, few will dispute the rightfulness of one line of his epitaph which declares that "His life was one long sacrifice of interest to conscience."

LEE.—Robert Edward Lee, a son of General Henry Lee, was born at Stratford, Va. January 19, 1807; graduated at West Point, 1825; served with distinction through the Mexican War; superintendent of the military academy at West Point, 1852-1855; resigned his commission as lieutenant-colonel in April, 1861; joined the secessionists, and was appointed general; in June-July, 1862, after several battles, forced McClellan to abandon his movement against Richmond; commanded at Antietam, September 17, 1862; repulsed Burnside at Fredericksburg, December, 1862; in May, 1863, fought the battle of Chancellorsville; in July was unsuccessful at Gettysburg, and retired to Virginia; in 1864 fought the battles of the Wilderness, Spotsylvania Court-house and Cold Harbor; made commander-in-chief of the Confederate armies, February, 1865; evacuated Petersburg and Richmond, April 2; surrendered to Grant at Appomattox Court-house, April 9; after the war, became President of Washington College, Lexington, Va.; died October 12, 1870.

MERCIE.—Marius Jean Antonin Mercie was born at Toulouse in 1845, and studied under Jouffroy and Falguière. He won the Prize of Rome in 1868, and has since received many honors. The Luxembourg contains his "David." His most important works are "Gloria Victis" and "Quand Meme," the first at Paris, the second at Belfort; the equestrian figure entitled "The Genius of the Arts" over the grand entrance to the Louvre; the group for the tomb of Louis Philippe in the Orleans Chapel at Dreux; the statues to Arago at Perpignan and to Victor Massé at Lorient; the monument to Thiers at St. Germain; the equestrian statue to William II at Luxembourg; that to Lee at New Orleans; the figure of "Fame" on the summit of the Trocadero, and those of "Glory" and "Sorrow" on the tomb of Paul Baudry in Pere Lachaise. With Falguière, he has executed the monument to Admiral Courbet at Abbeville, and the Lafayette Monument at Washington. He is the author of numerous ideal figures and portrait-busts. He has also been very successful as a painter, his picture of "Venus" being in the Luxembourg.

NIEHAUS.—Carl Henry Niehaus was born in Cincinnati in 1855, and studied at the McMicken School of Art and Design in that city, and afterwards at the Royal Academy of Fine Arts in Munich, where he won a first prize for a group entitled "Fleeing Time." His works include the statue of Garfield in Cincinnati; those of Garfield and Governor Allen in the Statuary Hall in the Capitol at Washington; and statues of Thomas Hooker and John Davenport for the Connecticut State Capitol. He won the first prize in the Lee monument competition at Richmond in 1886, and has received a commission to execute one of the bronze doors for Trinity Church, New York. He has produced various ideal works and busts.

HARNISCH.—Albert Ernst Harnisch was born in Philadelphia in 1842, and studied under J. A. Baily. Later he went to Italy, where he has worked for a

number of years, his studio being in Rome. His most important work is the monument to Calhoun in Charleston, S. C. He has produced many ideal works, among them being "Love in Idleness," "Wandering Psyche" and "Boy in the Eagle's Nest," and numerous portrait-busts.

FRANCIS I.—Francis I was born at Cognac in 1494, and succeeded his cousin, Louis XII, in 1515. He conquered the Milanese the same year; became a candidate for the imperial crown, which was, however, obtained by Charles V, who formed a league with England and the Pope against Francis, who was defeated at Pavia, 1525, and taken prisoner. He was confined in Madrid until the next year, when he continued the war until 1529, and later until 1544; promoted art, science and literature; died in 1547.

ETEX.—Antoine Etex was born in Paris in 1808, and studied under Dupaty Pradier, Ingres and Duban. His works in sculpture include, in addition to a great quantity of ideal works, the following: a colossal statue of St. Augustin in the Madeleine, Paris; the tomb of Gericault, now in the Museum at Rouen; the monument to Ingres at Montauban; those to Vauban in the Hôtel des Invalides, Paris, and to Lecourbe at Louis-le-Saint; also, the reliefs of War and Peace on the Arc de Triomphe; the equestrian statue of Francis I at Cognac; and statues of Marshal Fabert at Metz; of St. Louis on one of the columns of the Barrière du Trône, Paris, and of Charlemagne at the Luxembourg. His statue of St. Benoît and his painting of "Eurydice" are in the Luxembourg galleries. Etex, who was renowned also as a painter, architect, engraver and writer, visited the United States in 1853, and executed many commissions. He died in 1888.

VERCINGETORIX.—Vercingetorix was an able Gaulish commander, and chief of the Arverni. He was general-in-chief of the tribes of Celtic Gaul which waged war against Julius Caesar in 52 B. C. He defended Gergovia with success, and compelled Caesar to raise the siege. The Gauls having been defeated at Alesia, Vercingetorix, to spare the effusion of blood, gave himself up to the victors. He was taken to Rome and put to death about 45 B. C.

BARTHOLDI.—Frederic Auguste Bartholdi was born at Colmar in 1834, and studied under Ary Scheffer and Seitz. His works include the colossal statue of Liberty in New York Harbor; the statue to Lafayette in New York; the frieze on the tower of the Brattle Square Church in Boston; monuments of Martin Schongauer, Admiral Bruat and General Rapp at Colmar; of Vauban at Avallon; of Champollion in the Collège de France, Paris; of Rouget de l'Isle at Louis-le-Saint; the monument to the painter, Gustave Jundt; the monument to Paul Bert at Auxerre, and that to Gambetta at Ville d'Avray. He has also executed the Lion of Belfort, several monumental fountains, the designs for the palace of Longchamps at Marseilles, and numerous ideal works and portrait-busts.

ALEXANDER.—Alexander the Great, son of Philip of Macedon, was born in 356 B. C.; ascended the throne, 336; took Thebes, 335; crossed the Hellespont, 334; defeated the Persians at the Granicus, and Darius at Issus, in 333; took possession of Egypt and Phœnicia; marching again against Darius, defeated a million Russians at Arbela; conquered Media and the northern and central provinces of Asia; crossed the Indus, 327, and defeated Porus; on his return, died of fever at Babylon, 323.

PUGET.—Pierre Paul Puget was born at Marseilles in 1622, and studied in Italy. Puget worked not only as a sculptor, but as a painter, a designer of ships and an architect. His sculptures include several works in Toulon and Genoa; "Milo of Crotona," "Perseus and Andromeda," a "Hercule Gaulois," a "Victorious Alexander," "Two Child-angels," and "Alexander and Diogenes," all of which are in the Louvre; the "Plague of Milan," "The Sleep of the Infant Jesus," "The Assumption of the Virgin," a medallion portrait of Louis XIV, a statue of Apollo and one of a Faun. He died in 1694.

JOHNSTON.—Albert Sydney Johnston was born at Washington, Ky., in 1803, and graduated at West Point in 1826, but resigned his commission in 1834, having previously served in the Black Hawk War. In 1836 he entered the army of Texas as a private soldier, rising to the rank of commander-in-chief, and afterwards serving as Secretary of War of the Republic of Texas. He was a colonel in the United States army during the Mexican War, and then served as paymaster, and in 1857 commanded the expedition to Utah against the Mormons. In 1860 he was given the command of the Department of the Pacific. Resigning his position on the outbreak of the Civil War, he joined the secessionists, and was appointed commander of the Department of Kentucky and Tennessee, and occupied a fortified position at Bowling Green, Ky. The capture of Fort Donelson by the Union army in February, 1862, rendering this untenable, he retreated southward into Tennessee, and afterwards joined Beauregard at Corinth, Miss. Here he collected a large army, and attacked Grant at Shiloh on April 6, 1862, but received a mortal wound on the first day of the battle.

DOYLE.—Alexander Doyle was born in Steubenville, Ohio, in 1858, and studied sculpture in Italy under Dupre, and in the Academies of Rome, Florence and Milan. Among his works may be named the equestrian statue of Gen. Albert Sydney Johnston at New Orleans; statues of Lee and of Margaret Haughery, and one entitled "Calling the Roll," all in the same city; statues of Senator Benjamin H. Hill and of Henry W. Grady at Atlanta, Ga.; of Garfield in the Garfield Memorial at Cleveland, Ohio; of General Steedman at Toledo, Ohio; of Sergeant Jasper at Savannah, Ga.; of General Schuyler for the Saratoga monument, and of "Peace" for the Yorktown monument. He has also executed the New Haven Soldiers' Monument and eight colossal allegorical statues in marble for the Indiana Capitol.

ILLUSTRATIONS

[Contributors are requested to send with their drawings full and adequate descriptions of the buildings, including a statement of cost.]

THE UNION LEAGUE CLUB, BROOKLYN, N. Y. MR. P. J. LAURITZEN, ARCHITECT, NEW YORK, N. Y.

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

HOUSE FOR PATRICK MORAN, ESQ., PITTSBURGH, PA. MR. C. M. BARTBERGER, ARCHITECT, PITTSBURGH, PA.

HOUSE OF MR. C. M. BARTBERGER, ARCHITECT, PITTSBURGH, PA. DESIGNED BY HIMSELF.

HARRIGAN'S THEATRE, THIRTY-EIGHTH STREET, NEW YORK, N. Y. MR. F. H. KIMBALL, ARCHITECT, NEW YORK, N. Y.

A COMPETITIVE DESIGN FOR THE FIRST BAPTIST CHURCH, BRIDGEPORT, CONN. MR. ARNE DEHLI, ARCHITECT, NEW YORK, N. Y.

STABLE FOR MR. M. S. HERSHEY, LANCASTER, PA. MR. C. EMLÉN URBAN, ARCHITECT.

[Additional Illustrations in the International Edition.]

CHATEAU D'ECOUEN, SEINE ET OISE, FRANCE. RESTORATION PROJECTED BY M. V. A. DUTOCC.

[Photogravure.]

CHATEAU D'ECOUEN: THE PLAN.

[Photogravure.]

CHATEAU D'ECOUEN: PORTICO OF MICHAEL ANGELO'S "SLAVES."

[Photogravure.]

CHATEAU D'ECOUEN: LOGGIA ON THE GRAND TERRACE.

[Photogravure.]

CHATEAU D'ECOUEN: PAVILION ON THE COUR D'HONNEUR.

[Photogravure.]

DETAILS OF THE SEATS IN THE THEATRE OF BACCHUS, ATHENS, GREECE.

[Photogravure.]

FLANK OF THE NEW PARLIAMENT-HOUSES, VIENNA, AUSTRIA. BARON HANSEN, ARCHITECT.

[Gelatine Print.]



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

THE CALVERT MEMORIAL, ST. MARY'S, MD.

BALTIMORE, MD., November 7, 1891.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—In your issues of August 22, August 29 and September 12 last, there appeared certain statements relating to the Calvert memorial or monument erected just previously in the graveyard attached to St. Mary's Church, St. Mary's City. The first of the articles containing the statement in question was in a letter from your correspondent here describing the ceremony of unveiling and quoting, as it seemed, a portion of the address made by the Bishop of Maryland on that occasion. The remaining statements, taking exception to your correspondent's words, were contained in letters from a certain "Calvert" of this city.

In the last of "Calvert's" letters appears the paragraph, "The matters to which I especially take exception in your correspondent's letter are his statements that his [Lord Baltimore's] first charter was given to him while a Protestant and that the Calvert family soon returned to the church of their early allegiance."

With the consent of the Bishop of Maryland, with whom I am pleasantly connected both professionally and personally, and on whose words, as quoted by your correspondent, the subject matter of Calvert's letter is hinged, I desire to correct some misstatements.

The exact words of the Bishop on the subject of the charter were: "His first charter was sought and gained while he was thus still an Anglo-Catholic." The "he" referred to was George Calvert, Lord Baltimore, who "sought and gained" his first charter in America in 1622 for Newfoundland and had a second one issued for Avalon in 1623 (April). See page 178, Wilhelm's work entitled "Sir George Calvert"—a book the facts of which were collated with the greatest of painstaking care. The Sloan MSS. (Maryland Historical Society) say that in 1624 (new style 1625) George Calvert announced his conversion to the Roman Church and asked to be relieved from his position of Secretary of State. Can any further evidence be wanted that the first charter was given while he was still a member of the Church of England? In relation to Maryland Mr. Scharf says that in 1631 he (George Calvert) received a grant of land from

the James River to the Roanoke but the old Virginia company opposing the grant, Calvert returned patent and accepted in lieu thereof territory lying to the north of the James and south of the New England grants, but as the charter did not pass the great seal until after his (George Calvert's) death the renewal was made to his son Cecilus—re'd June 20, 1632.

In relation to the second statement, the bishop's words were, "The Calvert family after a while returned to the church of their early allegiance." Whether ninety or a thousand years intervened, "after a while" covers the interim, and the fact remains that the majority of the Calvert family have since then been church members.

"The grand spirit of toleration" (whatever is meant in this regard thereby) was due in Maryland to the working of the charter (with its express stipulations that edifices for the worship of the Church of England only should be built, etc.), and to the man Cecilus Calvert. But can any one deny that George Calvert, brought up in the Church of England, gained his tolerant feeling in this church, and retained it—a most unusual circumstance—after his change of faith. Cecilus Calvert no doubt inherited this tolerance partly and was partly brought up to it. It was the offspring of the Church of England.

Yours truly,
T. BUCKLER GHEQUIER.

BUILDING MANY HOUSES FROM ONE PLAN.

BOSTON, MASS., November 7, 1891.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—We have prepared ten different sets of plans, from which fifty houses will be erected, five from each set.

Will you kindly state what, in your opinion, should be the basis upon which to compute the fee for our services, in harmony with the schedule established by the American Institute of Architects, superintendence not to be included. The houses average in cost \$1,200 each. You will understand, of course, that the amount of drawing required is no greater than would be needed if but ten houses were to be built. The drawings, however, are adequate as instruments of service in the erection of fifty houses.

Very respectfully yours,

[We should not like to undertake to say what charge, under such circumstances, would be in conformity with the Institute schedule. It was decided in a Massachusetts court, some years ago, where a number of stores were built together, exactly alike, that the proper and legal compensation to the architect was five per cent on the cost of the whole block. For such small houses as those mentioned, we think that most architects would consider the usual three and one-half per cent, for drawings alone, on the cost of the whole number of houses not too large. It is true that the amount of drawing may be no greater than it would be for a smaller number of drawings, but if a careless draughtsman makes a mistake in a framing-plan, or miscalculates the headroom of a staircase, in one set of drawings, the architects may have to pay for remedying the defect in each of the ten houses built from that set, so that the drawings will need special care, and, even with such care, the responsibility is worth a good deal.—EDS. AMERICAN ARCHITECT.]

THE COMMISSION ON MANTELS, ETC.

TACOMA, October 28, 1891.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—Is it usual or proper for an architect to charge an additional fee at all for designing fixed interior fittings to residences such as sideboards, mantels, etc.? It has been my custom so to do and my schedule which I issue to all clients, calls for it. However the propriety of so doing as a recognized custom never before arose in my practice as at present, and though I do not anticipate abandoning a small additional remuneration for such special work, I should like to know whether general practice or even special practice has sanctioned so doing. I charge five per cent additional on cost of all such fittings over and above the five per cent included in my general commission for completing a house with all its fixtures.

Very truly,
H. S. KISSAM.

[We think that your practice agrees with that of most architects.—EDS. AMERICAN ARCHITECT.]

THE LIMIT OF CORNICE PROJECTION.

October 24, 1891.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—To what extent do the authorities in Boston and cities generally allow the cornice and other like ornamental features to project over the street line? The inspector here forbids it, so that when a new building is to be built between others that are on the street line we are compelled either to set back from the line or omit projecting ornament altogether.

Yours truly,

INQUIRER.

[We have never heard of any limit being set in this country, either by the law or by inspectors, to the projection of string-courses or cornices over the street. Possibly a string-course of abnormal projection, near enough to the ground to be in the way of people passing on the sidewalk, might be objected to by an inspector, but we have never known such a case to arise, and there seems to be no restriction placed on cornices, in any of our large cities, beyond the rule that stone cornices must balance on the wall sufficiently to be safe. A stone cornice in Boston is said to project five feet over the street line, and some terra-cotta cornices in New York must have about the same projection.—EDS. AMERICAN ARCHITECT.]

PRIZES AWARDED IN CHICAGO.

CHICAGO, ILL., November 3, 1891.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—The James W. Ellsworth prize is to-day awarded to Frank W. Benson of Boston for the painting called "Twilight," and the Art Institute of Chicago prize to Gari Melchers of Paris for the picture called "The Pilots," both in the present exhibition at the Art Institute.

Yours truly,

W. M. R. FRENCH, Director.

THE JAMES W. ELLSWORTH PRIZE.

The annual prize of three hundred dollars, provided by Mr. James W. Ellsworth, will be awarded to the painter of the best picture in the exhibition, painted in the United States by a living American, and not previously exhibited in Chicago or vicinity. No competitor to take the prize a second time.

THE ART INSTITUTE OF CHICAGO PRIZE.

The Art Institute will confer a second prize of two hundred and fifty dollars, to be awarded to the next best oil painting by a living American, not previously exhibited in Chicago or vicinity. No competitor to take the prize a second time.

The awards will be made by a committee of three, composed of Frederick W. Freer, James H. Dole and John H. Vanderpoel, during the first two weeks of the exhibition.



THE PITFALLS OF ARTISTIC COPYRIGHT.—During the month of August a case has been decided, fraught with matter for anxious thought and discontent for artist and publisher alike. The facts are simple enough. Mrs. Earnshaw painted a picture which she called "On the Threshold," and on April 9, wrote a letter to the conductor of the *Queen* newspaper, giving him permission to publish it. In May the picture and copyright were sold to Messrs. Keep, the color-printers, who in accordance with legal requirements duly registered their property. Having reproduced the picture, Messrs. Keep sold it, together with the copyright and the fifty-five thousand copies they had struck off, to the Publishing Company, without, however, making any alteration in the registration. Meanwhile, the *Queen* published "On the Threshold," and were duly sued by Messrs. Keep, the case coming before Mr. Justice Williams. The judge decided that Mrs. Earnshaw's letter was not a license—presumably as no "consideration" was given for it—and, estimating the damage at sixteen pence per copy, awarded something like £700 to the plaintiffs. The conductor of the *Queen* appealed from what to the lay mind appears an inexplicable hardship, and the case came before a strong court, consisting of Lords Justices Lindley, Fry, and Lopes. They unanimously upheld Mr. Justice Williams's decision that Mrs. Earnshaw's letter was no license; but came to this curious conclusion, Lord Justice Lindley dissenting: that Messrs. Keep, although registered proprietors, could not sue, as they had parted with their property, while the Publishing Company, although the real proprietors, could not sue, as they were not registered as such. In consequence of this, the *Queen* escaped punishment for a fault that was none of the conductor's, but on a subtle technicality; while the other suitors lost their action on equally unsatisfactory grounds. Lord Justice Lindley held that the registered proprietors of the copyright could sue as trustees on behalf of the Publishing Company; but, although this appears a common-sense view to take of the situation, he was out-voted by his more precisely-literal colleagues. This case, an interesting and a "leading" one, is of great importance to all publishers. The result amounts to this—that an artist can give a publisher permission to reproduce a work of his, and then, without further notice to him, may damage him, either negligently or even purposely, by selling the work to another publisher, who, becoming owner of the copyright by purchase, would sue the unsuspecting man who trusted in the artist's good faith. By a curious paragraph in our ridiculous copyright law, a volume of engravings or other reproductions of pictures becomes a "book" if ever so little general description of the pictures accompanies it, and failing that it is a "production of art." In the former case, the issue of the volume does not constitute legal "publication"; in the latter it does, and woe to the person who comes within the meshes of the law. In "*Royal Academy Pictures*" we have always been careful to take advantage of this provision of the law, as well for our own protection as for that of the artists who so courteously come to our support. But for that slight precaution, under the present state of the law as interpreted by four of our judges, scores of injunctions could have been launched against us, and untold damages be claimed and recovered. This may be common law, but is it common-sense?—*The Magazine of Art*.

STEEL CHIMNEYS FOR MERCANTILE BUILDINGS.—Steel chimneys are being erected in connection with some of Chicago's tall buildings. The Fair building has at present the tallest under construction. The chimney when completed, will be 250 feet high, being considerably higher than any other in the city, the highest at the present time being the one at the Gottfried Brewing Company's plant at Archer and Stewart Avenues, which is 175 feet. The outside diameter is 9 feet 5 inches, while the steel varies in thickness from 5-32 at the top to 3-8-inch at the bottom. The lower 75 feet of the chimney is lined with fire-brick 8 inches deep, formed to fit the shell compactly all around. Above this it is lined with hollow tile. This lining is supported at intervals of 25 feet by angles riveted to the steel shell; in other words, the chimney is

lined in a manner similar to blast-furnaces and foundry-cupolas, and no expansion by heat can lessen its strength. The joints are all hot-riveted. The steel shell is carefully protected from corrosion and from any attacks of the weather by painting inside and out. The weight of the chimney is spread to the foundations in the same general way as that of the columns of the building, the base or foundation on which it rests being constructed in the same manner. The ground is first covered with a layer of cement, then two layers of steel rails in cement and one layer of I-beams, on which the cast-iron shoe which takes the shell of the stack rests. The capacity of the chimney is 12 60-inch boilers 20 feet in length. This is the first time this material has been used in the construction of the chimneys of mercantile buildings. The magnitude of the building and the necessity of economizing in space, the foundations for the columns occupying about all the ground, led the architects to adopt steel as the material for this purpose. Brick has been used almost entirely heretofore, but upon investigation it was found that the weight of a brick-chimney of this size would be almost 700 tons, while of steel construction it would weigh, including the linings, a little less than 250. The outside diameter of the present chimney is 9 feet 5 inches, while, were it constructed of brick, it would be 16 feet 6 inches, thus making a great saving in space. Another consideration was the time consumed in construction. A brick chimney of this height, 250 feet above the sidewalk, should not be built faster than 2 1-2 feet a day on account of the settlement and the setting of the mortar, while of steel it can be erected at the rate of 20 feet a day. Another important consideration is that it costs only about 60 per cent of what a brick chimney would cost. Steel has been used in the construction of chimneys for iron-mills and factories.—*American Gaslight Journal*.

COMPRESSED AIR-SUPPLY TO THE TOWN OF OFFENBACH.—This industrious little town is near Frankfort-on-the-Main, where the International Electrical Exhibition is now in progress. It has just completed and started an interesting air-supply, similar to the much larger enterprise at Paris. This is the first town in Germany where an arrangement of this kind has been inaugurated, and the air is chiefly used for small motive-powers. The work has been executed by the firm of A. Riedinger, of Augsburg, and they have now, we believe, in hand the erection of another complete plant for a town in Switzerland. At present there are about 23,000 feet total length of cast-iron main, with twenty-six valves, about 5,000 of one foot diameter, 5,000 feet of three inch diameter, and 13,000 feet of four inch diameter. The joints are all made with india-rubber rings. This network of pipes, after being laid in the streets, was tested with the following results: With a pressure of six and three-fourths atmospheres kept up for seventy hours, the loss per hour was only 1.99 cubic meters, or 0.028 cubic metres per hour per kilometre. The pumping-station is a handsome building lighted by electricity, and containing the steam-compressors, boilers, air-reservoirs, etc. This air-compressor is kept up to six atmospheres, and at the time of our visit the engine was running very regularly and well. The steam-engine is of the compound horizontal side-by-side type. It is condensing, and has two cranks with a fly-wheel between them. The steam expands, as usual, in two cylinders, but the novel feature is that the air is compressed in two other cylinders, which are placed tandem, one after each steam cylinder. The first compresses air up to two atmospheres, and the second completes the pressure up to six atmospheres. A special arrangement cools the air in the cylinders and in the receiver between them, by means of water-jets. The efficiency of the whole machine is estimated at 87 per cent. The steam cylinders are about 22 inches and 31 inches in diameter by 3 28 feet stroke; the air cylinders are about 16 inches and 24 inches in diameter, and have the same stroke, as each air-piston is worked direct by rods from the back of the corresponding steam piston. The engine is said to consume fifteen and one-half pounds steam per indicated horse-power per hour. The most remarkable feature is the high speed attained by the air-pumps, viz, 75 revolutions per minute, or equal to 400 feet per minute. Altogether it is a most complete and interesting installation.—*Engineering*.

INTERESTING ARIZONA RUINS.—The Phoenix, Arizona, antiquaries are very much interested in the discovery of an aboriginal fort in the valley of the Gila, about ninety miles below this city. The discovery was made by some miners who became lost in the desert and wandered by it. It is the largest and most peculiar structure found in the valley up to this date, and it is expected that it will furnish some clue to the history and identity of the original inhabitants. The ruins lie about four and one-half miles back from the Gila River, and cover about a mile square. In the centre is the fort, still in a remarkable state of preservation, and it would to-day be impregnable without cannon. It covers an area of about six acres, and is built in a very peculiar way. The first table is about twenty feet in height, and is made of dirt, with a wall of boulders laid in cement around the outside. On top of this, and of the same height, though only half the size otherwise, is the second table, walled up as the first. On this a smaller one of the same height, and on top of that is the fort proper, constructed of stone, and durable. The edges of the tower tables were used as gardens, and around the walls are hundreds of boulders brought from the river, doubtless for the purpose of casting down on the heads of a foe. In the top fort are many skeletons and human bones, and in all probability the place was besieged and the people died of starvation. A ditch four and one-half miles in length runs by the base of this structure, and brought water from the Gila. It is well-defined and about thirty feet in width, though it is stopped up and no water runs through it. It is one of the most desert parts of the Territory, and no one has ever found it before. A party is being organized and will investigate it during the coming week.—*St. Louis Globe-Democrat*.

RAIN, FOG AND ELECTRICITY.—W. N. Jennings in *Electricity*, says apropos of the fact that a heavy downpour of rain usually follows the discharge of lightning, the experience of another observer is of interest.

During a recent conversation with Professor Samuel A. King, the well-known aeronaut, upon the subject of atmospheric electricity, he furnished a reason for this occurrence, stating that he has often observed from the car of a balloon the progress of a thunder-storm immediately beneath him. From a portion of a cloud-bank covering a large portion of the heavens a band of flame shot out in the direction of an isolated cloud, some distance away, which immediately lost its cloud form and fell earthward as a volume of rain. The Professor is of the opinion that as soon as the isolated cloud gives up its electricity it releases a tension which holds the molecules of matter apart and precipitation in the form of rain is the result. Perhaps, then, thunder is due to the explosion of oxygen and hydrogen forming rain, and its subsequent echo in space. The United States Government has recently made inquiries into the subject of photo-lightning, and it is to be hoped the matter will be taken up and investigated thoroughly, as the results of the labor will certainly be of practical value in the future. At midnight, September 15, last, I noticed flashes of lightning illuminating my bedroom. A camera was loaded and an excursion into the country taken, hoping to obtain a few new photographs of Jove's handiwork. The night was very foggy, and the flashes of light (very frequent and vivid) gave only blurred images of trees in the foreground. At 1:30 A. M., as I was about despairing of obtaining photographs, a sudden streak of lightning shot right through the fog, followed by a heavy peal of thunder, and in less than thirty seconds the fog had entirely disappeared, being precipitated by the electricity in the atmosphere. In these rain-producing days, perhaps, some inventive genius will take a hint from this occurrence for the dissipation of fog on a large scale by introducing large power-driven Holtz machines on shipboard, and sending a stream of electricity into the fog-laden air from various points along the rigging, thus producing a clear area in the neighborhood of the vessel. And who knows, perhaps, by an extension of the system, some day we may see a fogless London.

LUMINOUS PAINTS IN ALL COLORS.—A German contemporary gives the following series of receipts for these paints, which may prove useful. All the above paints can be used in the manufacture of colored papers, etc., if the varnish is altogether omitted, and the dry mixtures are ground to a paste with water. The luminous paints can also be used as wax colors for painting on glass and similar objects, by adding, instead of the varnish, 10 per cent more of Japanese wax and one-fourth the quantity of the latter of olive oil. The wax colors prepared in this way may also be used for painting upon porcelain, and are then carefully burned without access of air. Paintings of this kind can also be treated with water-glass. For orange luminous paint, 46 parts varnish are mixed with 17.5 parts prepared barium sulphate, 1 part prepared Indian yellow, 1.5 parts prepared madder lake, and 38 parts luminous calcium sulphide. For yellow luminous paint, 48 parts varnish are mixed with 10 parts barium sulphate, 8 parts barium chromate, and 34 parts luminous calcium sulphide. For green luminous paint, 48 parts varnish are mixed with 10 parts prepared barium sulphate, 8 parts barium chromate, and 34 parts luminous calcium sulphide. A blue luminous paint is prepared from 42 parts varnish, 10.2 parts prepared barium sulphate, 6.4 parts ultramarine blue, 5.4 parts cobalt blue, and 46 parts luminous calcium sulphide. A violet luminous paint is made from 42 parts varnish, 10.2 parts prepared barium sulphate, 2.8 parts ultramarine violet, 9 parts cobaltous arsenate, and 36 parts luminous calcium sulphide. For gray luminous paint, 45 parts of the varnish are mixed with 6 parts prepared barium sulphate, 6 parts prepared calcium carbonate, 0.5 part ultramarine blue, 6.5 parts gray zinc sulphide. A yellowish-brown luminous paint is obtained from 48 parts varnish, 10 parts precipitated barium sulphate, eight parts auripigment and 34 parts luminous calcium sulphide. Luminous colors for artists' use are prepared by using pure East India poppy oil, in the same quantity, instead of the varnish, and taking particular pains to grind the materials as fine as possible. For luminous oil-color paints, equal quantities of pure linseed oil are used in place of the varnish. The linseed oil must be cold-pressed and thickened by heat. — *Building World.*

FAILURE OF A SWIMMING-BATH.—A serious accident occurred on Wednesday week at the new swimming-bath at Stafford, the formal opening of which had been fixed to take place on the following day. The water had been turned on for the first time, the mayor and several members of the town council being present, and the large swimming-bath was filled to overflowing, when the wall of the bath burst. Fortunately the accident happened on the side nearest the river, and the escaping water did consequently little damage. The baths have been erected from designs by the borough surveyor. The Corporation staff cleared the site and put in the foundations, and then invited tenders for the different branches of the work. Mr. Bromage, of Longton contracted for the builder's work; the amount of his contract being £4,500. The engineering part of the contract amounted to £1,025. The swimming-bath is ninety-one feet by forty-one feet wide, in the clear. The bath itself is eighty feet long, thirty-three feet wide, and from three and three-fourths feet to six and one-half feet in depth, with a surface area of 2,640 superficial feet, and contained 89,437 gallons of water. — *Building News*

THE LONDON ATMOSPHERE.—At what elevation is the air of London purest? According to Mr. W. J. Prim, who gave evidence before the Select Committee on House of Commons Ventilation, at about thirty or forty feet from the ground. Lower than that you get the dust, higher than that you get the smoke from the chimneys. Mr. Prim made certain experiments with frames of wood covered with blanketing material put at different elevations—one on the top of the clock-tower at Westminster, another on the highest point of the roof, and others at various heights down to the court-yard. After five-hours' exposure there were found to be more smuts at the high elevations than at the low, but on the level of the courtyard there were considerable quantities of dust.

On the whole, Mr. Prim came to the conclusion that the purest level was between thirty and forty feet, and that nothing was gained by going higher, unless you went very high indeed—say, some 400 or 500 feet. All this is rather fatal to the common notion that the highest stories of the tallest blocks of flats are especially desirable for their salubrious air. — *Pull Mall Gazette.*

EFFECT OF SUNLIGHT ON TOOLS.—It is not, says *Iron*, generally known that the light of the sun and the moon exercises a deleterious effect on edge tools. Knives, drills, scythes, and sickles assume a blue color if they are exposed for some time to the light and heat of the sun; the sharp edge disappears, and the tool is rendered absolutely useless until it is retempered. A similarly prejudicial effect has been exercised by moonlight.

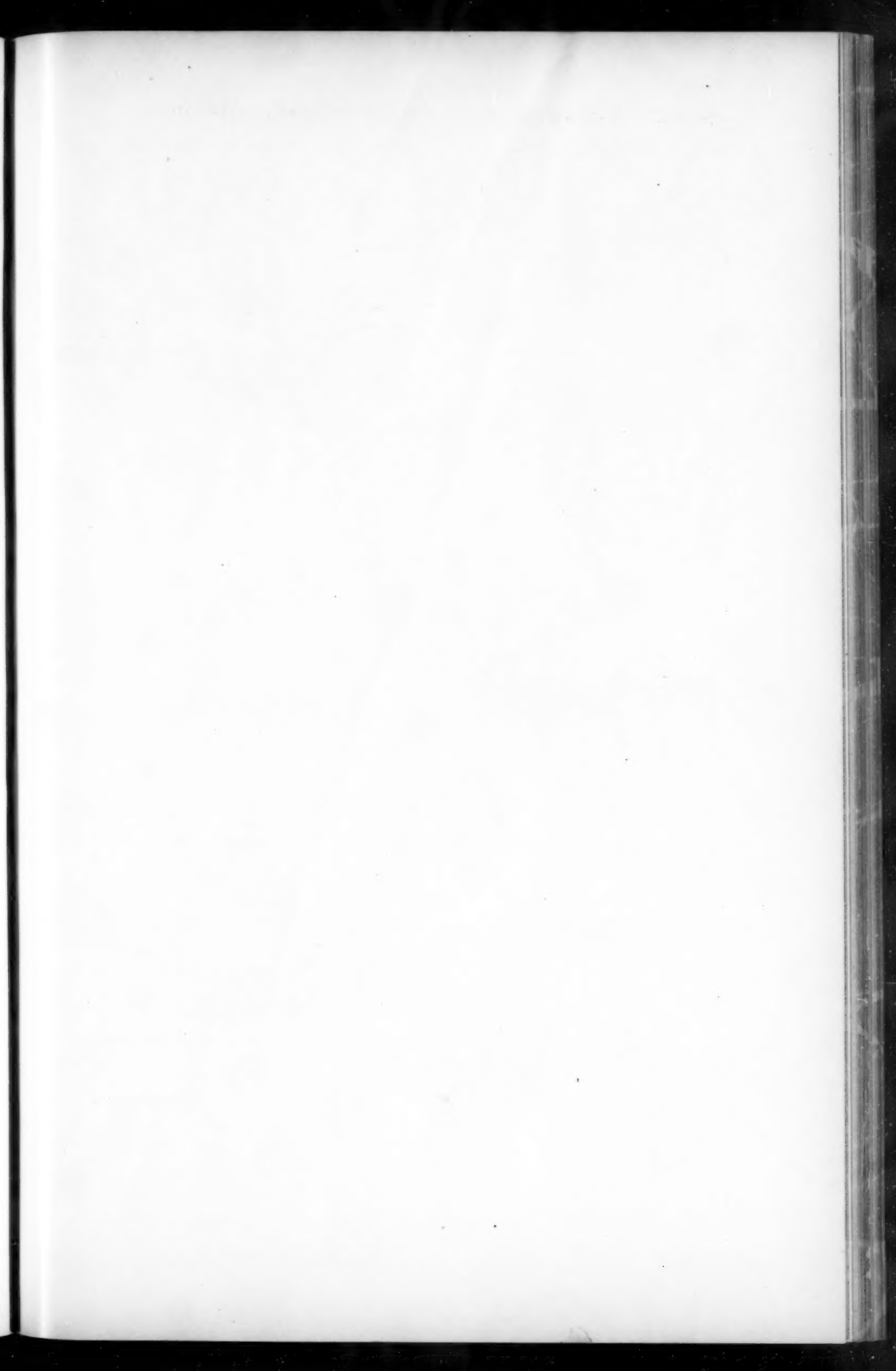
THE BORGHESI COLLECTION.—The celebrated collection of pictures that belonged to Prince Paolo Borghese is not to be scattered, as the owner has been assisted by his brother, Prince Torlonia. The collection will be removed to the little palace at the Porta del Popolo in Rome, the well-known Villa Borghese. In its present form the villa dates from 1782, while the old building and the fine grounds are of the time of Cardinal Scipio Borghese, nephew of Pope Paul V. The Villa Borghese formerly held the sculptures which Napoleon I bought from the then Prince, the husband of his sister Pauline, and removed to the Louvre. In the present collection, the result of later discoveries, is Canova's figure of Pauline Bonaparte as "Venus." Prince Torlonia took the name of his father-in-law. — *Philadelphia Telegraph.*

MODERN ADOBE BRICK.—A well-known brewer of Sacramento, Cal., has been so favorably impressed with the adobe brick manufactured for the repairs to old Sutter Fort, near that place, that he is contemplating the erection of a large adobe store-house. In fact, it is stated that he has contracted with the individual who manufactured the Sutter Fort material for 40,000 adobe brick. These brick are made of mud and straw, and one adobe brick is of about equal dimensions with four ordinary brick. It is stated that adobe brick are less affected by the rays of the sun than are burned brick, thus making them peculiarly adapted for the purpose contemplated. — *Brickmaker.*

NEGATIVES AND THE UNITED STATES CUSTOMS.—Our amazing tariff has perpetrated another neat little joke on itself. Last month the protest of John A. MacSorley & Son, of New York, as to duties levied on certain photographic negatives imported May 27, 1891, was decided adversely to the appellants. The negatives were assessed for duty at 60 per cent. The importers claimed that they were entitled to free admission on the ground that they were taken by an American citizen who practiced amateur photography on his journey abroad; but the wise tariff wagged its hydrocephalic head, and decreed that if America is not a good enough country for American amateurs to go Kodaking in, they must contribute a fine towards the protection of our scenery from foreign competition. — *The Collector.*

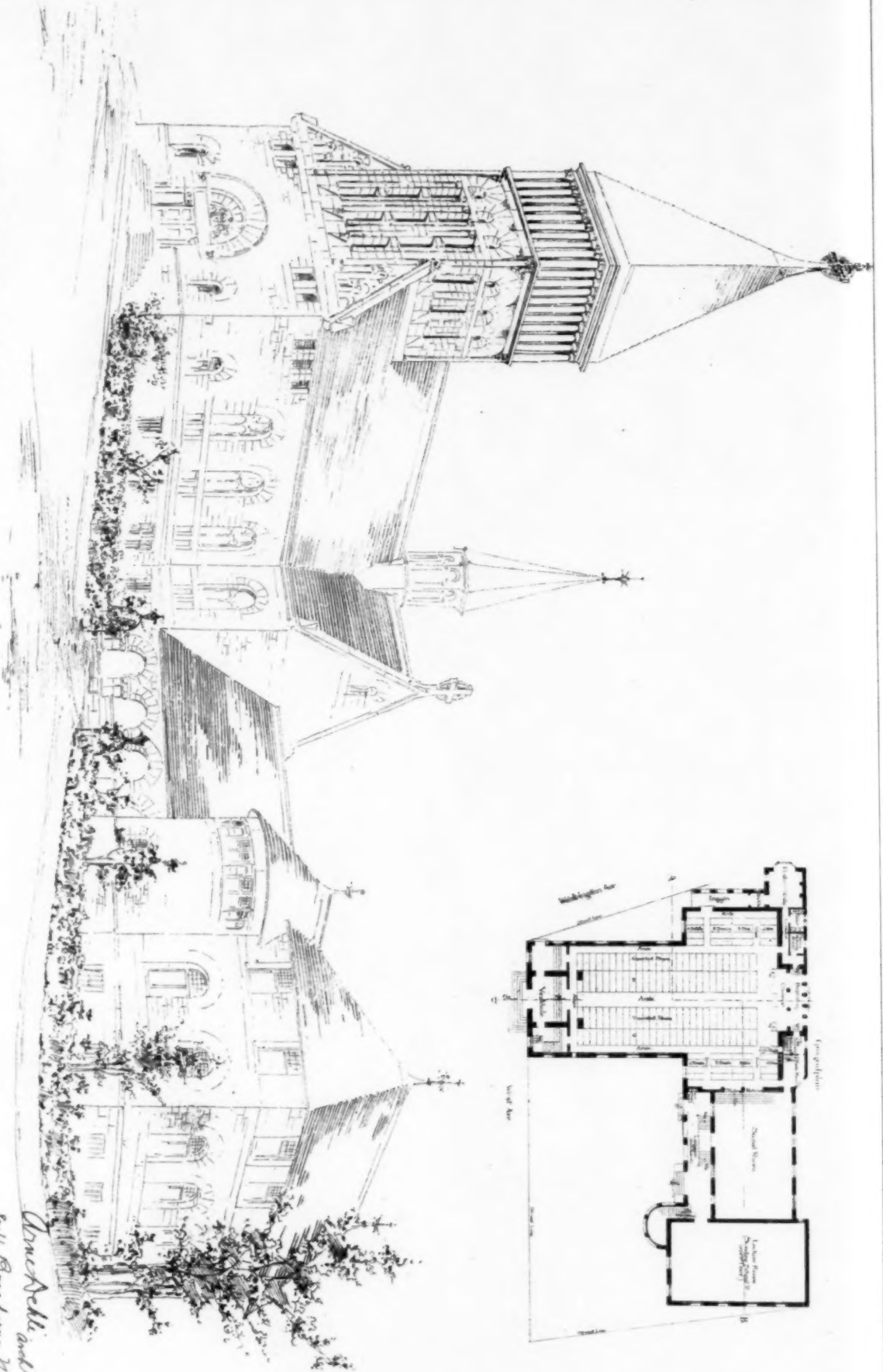
TRADE SURVEYS

THERE are fewer interesting facts and features on the surface of trade this week than for some weeks past, but such evidences as are visible all point in the same direction as signals during the past few weeks. There is no change whatever to note either in the monetary, commercial, railroad or manufacturing conditions. The country at large is just now engaged in the commendable business of paying off its debts. Railroad companies are endeavoring to reduce liabilities, and to put a portion of their indebtedness in better shape, for which exercise of financial ability there is a good deal of room. Agricultural interests are taking advantage of the present opportunity to reduce indebtedness. A great many industrial concerns in the West are also lessening their obligations. This tendency will continue, and it is quite probable that a larger amount of indebtedness will be wiped out this year than has been wiped out during any one year in the past. Financiers, a year or so ago, thought they saw the elements of coming depression in the heavy aggregate indebtedness of the business interests in the country, and this fact was the subject of a good deal of quiet discussion. It is true, the favorable conditions prevailing during the past three or four years had stimulated the spirit of investment and of progress to a great degree, and it was, perhaps, best in the long run that a slight reaction should set in early this year, as it did. It is impossible to say what might have been the outcome of continued activity in speculation and an unguarded expansion of industrial capacity. Both these tendencies have been put under check during this year. Prices have been either steadily declining, or, after reaching a low point, have been stationary. This is the present condition of things throughout the business world. The rate of interest on money, however, has been fluctuating, according to the necessities of borrowers, and there is complaint now among borrowers that money is too dear, but they are obliged to pay the ruling prices. The steady imports of gold are favorable on the one hand, and the heavy exports of cereals continue to give confidence to exporters, manufacturers, bankers and business interests generally on the other. Prices have, it is safe to say, reached their lowest limit, but it is difficult to explain why large users of material make such restricted provision for the coming winter and spring, unless the explanation is, as above intimated, that buyers generally are waiting until the reaction sets in, which must follow the present debt-paying policy. It is, in fact, this very thing that is keeping trade in check, and it is well that it is so. The country is not yet ready for a general expansion of values. What is needed for general and permanent prosperity is the expansion of the agricultural area. The manufacturing interests have already developed up as far as it is safe; a balancing of these great interests must be maintained. The present year's prosperity has given an impetus to activity in the agricultural direction. As soon as farming begins to pay, it will be followed with more zeal. For a long time farming has been synonymous with poverty, but, as soon as that avocation yields ample or satisfactory returns, a balancing tendency of interests between the two great factors of agriculture and manufacturing will set in.

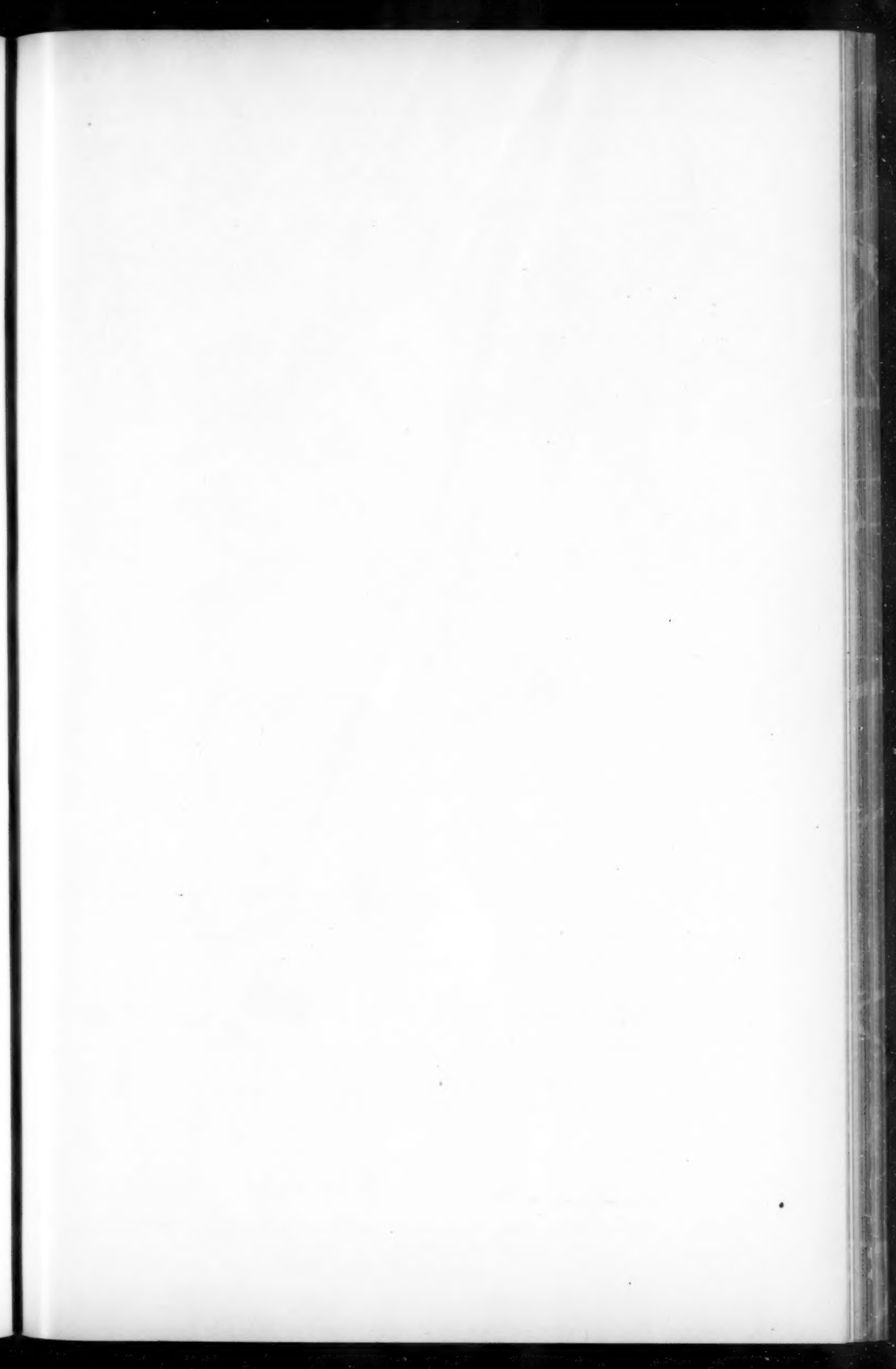


COMPETITIVE DESIGN
FOR
THE FIRST BAPTIST CHURCH
BRIDGEPORT, CONN.

Perspective View.



*Doneville and
814 Broadway N.Y.*



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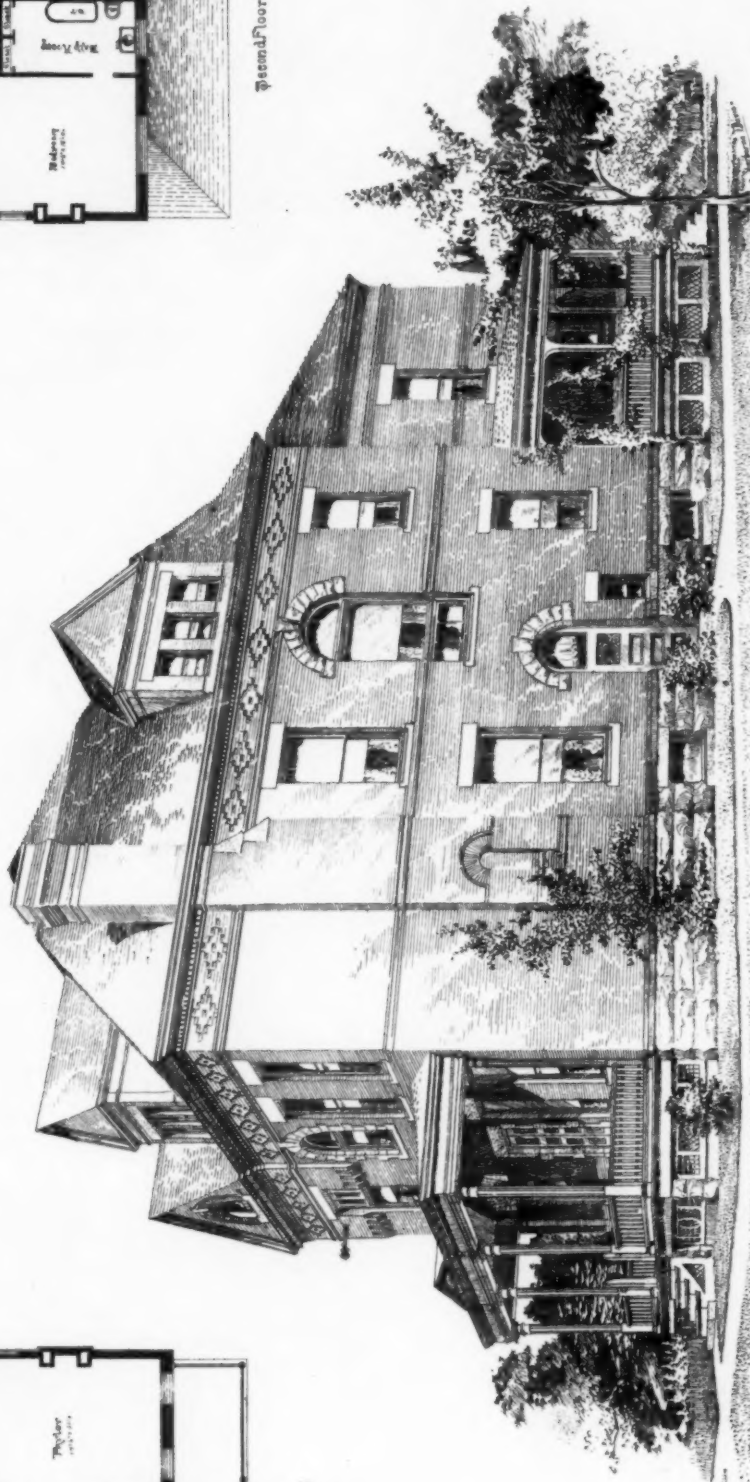
C. M. BARTBERGER, ARCHITECT.

HOUSE FOR
MR. C. M. BARTBERGER.
PITTSBURGH, PA.

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Second Floor Plan



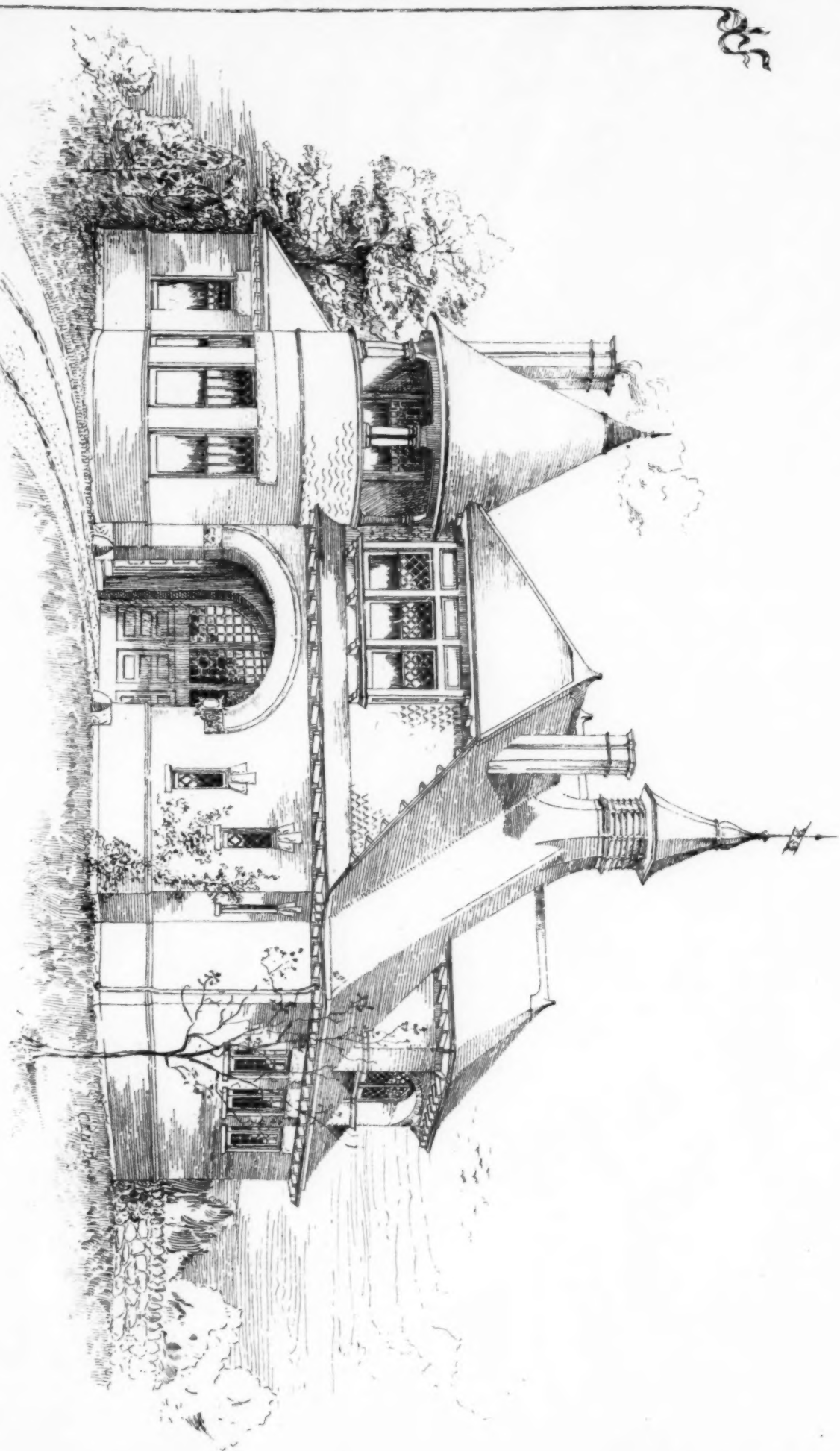
RESIDENCE FOR MR. PATRICK MORAN
FAIRMOUNT AVENUE - PITTSBURGH, PA.

C. M. BARTBERGER, ARCHITECT.

HELMUTH, SMITH & CO. BOSTON.

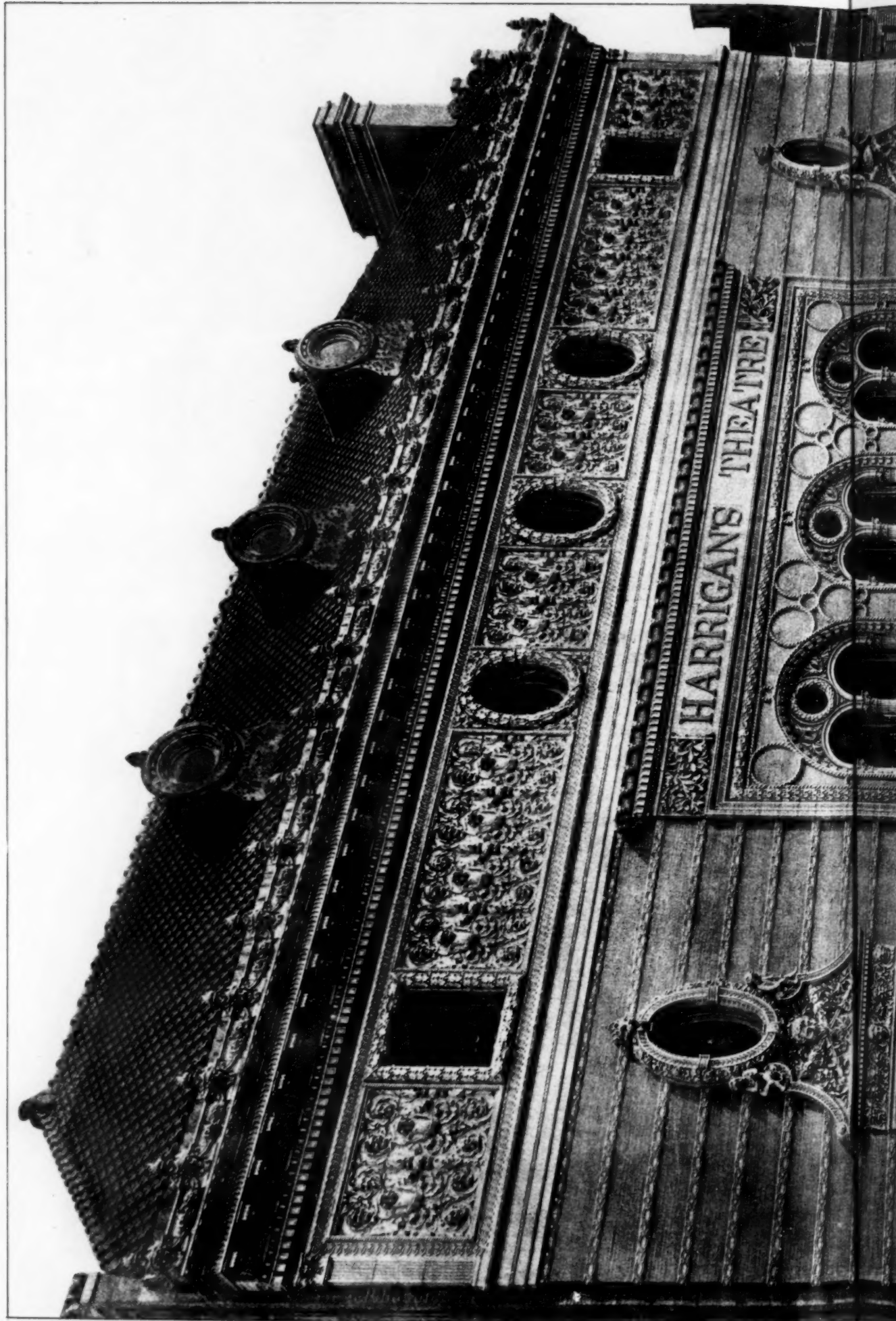


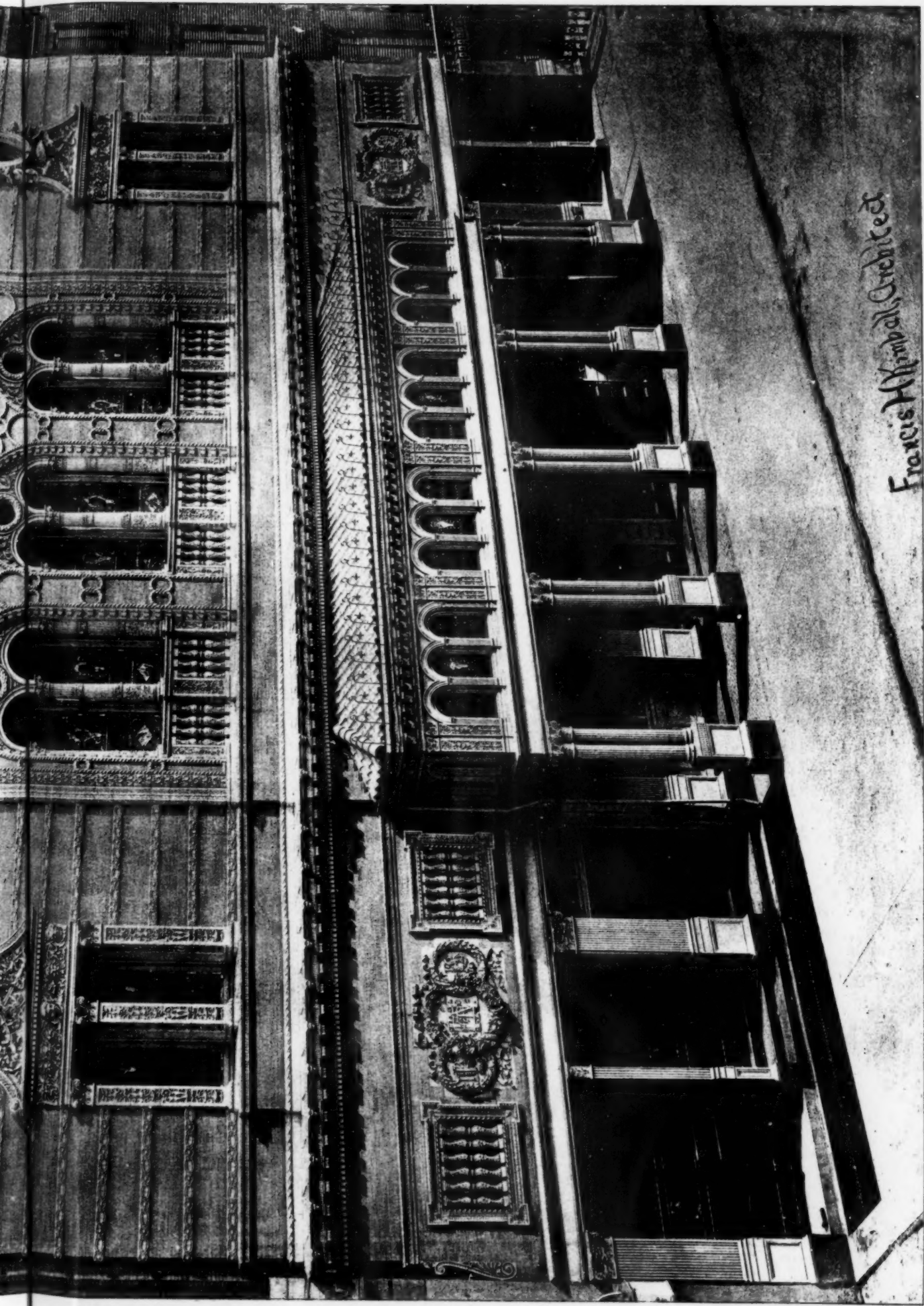
First Floor Plan



Stable for Mr. M. J. Herhey.
Lancaster, Pa.

C. T. Melen Urban, Architect.





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Francis Hibbard Architect