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A WELL-KNOWN firm of plasterers in New York, the Power Brothers, have, no doubt innocently, fallen into a rather serious trouble. It appears that they are the contractors for the plastering of the new Havemeyer Building, and their men, following the objectionable practice common in New York, mixed a large amount of plastering-mortar on the floor of one of the rooms in the building. The floor is said to have been calculated for a load of two hundred pounds per square foot, but the mortar-mixers kept adding to their pile of material until they had about one hundred and twenty tons heaped on a section of floor measuring fourteen by fifteen feet, and carried by a single girder, thus bringing on the floor a weight of more than a thousand pounds to the square foot. Several men were at work in a sub-cellar, beneath the room containing the pile of mortar, when the girder suddenly snapped in two, precipitating the flooring and the mortar into the cellar, instantly killing two men, and slightly injuring two others. Mr. Michael Power, one of the contractors for the plastering was immediately arrested, with the contractors for the masonwork, and compelled to give bail, to await the result of the inquest.

PROFESSOR WARE, of Columbia College, has for several years been doing a great service to the public, as well as the profession, by acting as mediator, so to speak, between those who wish to build and the architects whom they wish to have to design and supervise their buildings. Architects do not need to be told that the history of the misunderstandings which have habitually attended the relations of these two parties would be one of the most doleful productions ever written. Nearly every large public building in this country is a monument to the gigantic blundering of some one, and it is notorious that respectable architects, feeling sure of being hampered by ridiculous amateur stipulations in regard to arrangement or design, and not feeling by any means sure that their work or themselves will be fairly judged or treated, have long left public competitions alone. With the appearance of Professor Ware as adviser in such matters, their attitude has, however, altered. In those cases where the greatest confidence has been shown in his judgment, and the most satisfactory result has been obtained, he has prepared the programme of competition, besides judging the designs. In this way, aided by his long experience in office business, he has been able to get for his clients the benefit of the largest amount of professional knowledge and thought in the competitive sketches, with the imposition on the competing architects of the least amount of costly and useless pictorial finish; and in this way

he has not only attracted more and better architects to enter the competitions under his charge, but has made it much easier to compare the designs and point out to others their varying merits. The last great competition which has been intrusted to him is that for the Philadelphia Bourse, a building which will cost a million and a half dollars. The programme of the competition, which is restricted to Philadelphia architects, is so excellent that, although it is necessarily rather long, we publish it in full, as a model to which we know many people will like to refer. With such a programme, carried out in the way proposed, the new building is sure to be a masterpiece of arrangement and design. It is folly to say, as many people do, that competitions only lead to disappointment, both for owners and architects. If owners choose to concoct a plan for themselves, or hire a third-rate draughtsman to concoct one for them, and then tie architects down to following it, or if they choose to make their own selection from a set of plans of which only a highly-trained expert can understand the exact significance or the structural consequences, they have no one to blame but themselves if the arrangement which they were so proud of having made turns out, in execution, to be only fit to excite the laughter of persons more extensively acquainted with buildings of the kind; or if the gaudily-colored drawings which seemed to them so attractive prove, in the process of carrying them out in brick and stone, to have been made without reference to the laws either of gravitation or common-sense. Committees often silence the still, small voice which tells them that they are doing a foolish thing, in imposing their whims of arrangement on architects, by saying that the latter will tell them if they have made any serious mistake; but the fact is that competing architects will not, and ought not to be expected to do so. All competing architects know that if they vary in the slightest degree from the exact terms of the programme, they lose all legal right to compensation for their labor, and, as architects do not like to work for nothing, any better than other people, they either abstain from taking any part in the competition, or conform to its terms without comment, whatever may be their private opinion of them. Moreover, even where liberty is allowed competitors to vary at discretion from the suggestions offered by the committee, few architects have the courage to do so, even though they see how the arrangement proposed might be greatly improved, for the reason that all architects know, from long experience, that it is useless to offer any advice to a client for the improvement of a plan which the latter has devised. No matter how bad they may be, the arrangement, and even the details of design, which a non-professional man “dashes off” for himself in a spare half-hour are, in his eyes, usually more precious than anything that any architect can work out by a week's hard study. If he is an irascible person, he will furiously resent any suggestion on the part of the architect in regard to modifying them; while, if he is good-tempered and reasonable, he will apparently yield, only to return by degrees to his original idea, so that, in most offices, the habit of unquestioning obedience to everything proposed by a client that does not actually involve improper construction is much too firmly established to be laid aside for the purpose of trying the dangerous experiment of tampering with the production of the united genius of a dozen committee-men. In all successful competitions, therefore, the competing architects are left as untrammelled as possible, and no one knows better than Professor Ware how to separate essentials from non-essentials, and secure the first without interfering with the liberty in regard to the latter which will be most advantageous to the design.

PROFESSOR AITCHISON, in one of his Royal Academy lectures on Saracenic architecture, tells a story which throws a good deal of light on the way in which the Moorish ornament, which seems to us so rich and complicated, was probably executed. Soon after the Indian mutiny an English artist, Mr. Lundgren, went to India to make sketches of the natives. While travelling in the Punjab with an interpreter, he was one day overtaken by a storm, and both he and the interpreter took refuge in an unfinished tomb. The ceiling of the tomb was covered with fresh plaster, and there was an old mortar-tub inverted on the floor, as if the plasterer had just completed his work. Soon afterwards, a man came in, with three laths in his hand. He broke the ends of the laths into points of different shapes, and standing on the tub

scratched some triangles on the ceiling. Then, beginning at one end, he modelled with the laths a most elaborate floral pattern in the wet plaster. Lundgren watched him until he finished his work and went away, and then remarked to his interpreter that the plasterer was the cleverest man he had ever seen. The interpreter replied that, on the contrary, he was an idiot. Lundgren remonstrated, saying that he had himself been a painter for forty years, but that he could not do such a thing "out of hand." The interpreter persisted that the man was no better than an idiot. "His father," he said, "was a clever man; he could do five patterns; he had three sons: one could do three patterns, one two, but this idiot could only learn to do one." Upon this, Lundgren began to change his mind, and said, "Oh! if he has been all his life doing this one pattern, it is not so extraordinary as I supposed." Bourgois's curious book shows how simple most of the Arabic patterns are, when dissected; and it is quite possible that the artistic endowments of the men who modelled them on the walls may have consisted more in a few trade secrets of geometrical combinations than in a highly developed feeling for form or color.

THE Berlin *Bautechnische Zeitschrift* imparts to its readers some rather startling information in regard to a "New Revolution in Industry." It appears from its account that a scientific man of Berlin has succeeded, by the application of an electric current, and cheap and common acid, in separating iron from any ore, at a cost eighty per cent less than that of reduction by means of a blast furnace. Not only iron, it further appears, can be separated in this way, but copper, gold and silver ore may be treated in the same way, with equal success; and in all cases the metal separated is perfectly pure, and therefore of the most valuable quality. We are informed that the inventor of the process, who has secured the monopoly of it in all civilized countries, has for three months past been conducting it on a practical scale, for the benefit of a number of distinguished German and American capitalists, who propose to form a gigantic international company, which will scatter electric reduction-works in all the mining regions of the world. The results of operation on a large scale show that the estimated saving of eighty per cent in the cost of reduction is rather less than the actual economy, so that the profits of the company are expected to be enormous. The inventor has consented, we are told, to assign his patent to the company for the modest sum of fifty million marks, or twelve million dollars. We are promised further details of the process later, so it would be premature to discuss it, but we must confess to some misgivings as to the result of an attempt to extract the gold from a block of auriferous quartz by means of an electric current and an acid, however it might be with iron. The whole account, indeed, has something of a Keely-motor flavor, and, as the Germans are notoriously gullible in the matter of investments, it is not impossible that a foundation might be artfully laid, by means of such newspaper articles, for a gigantic stock operation, at the expense of thousands of humble investors.

THE *Bautechnische Zeitschrift* makes a sensible observation in regard to thawing frozen water-pipes, which we have never heard before; to the effect, in brief, that a frozen pipe should be thawed out thoroughly, beginning, if possible, at the lower end, and continuing the operation to the upper end. Every one knows that water expands on freezing, and most people imagine that it is the first freeze which bursts the pipes. The contrary, however, is true, and it would appear that pipes of average strength, if properly watched, might bear several freezings, provided they were completely thawed between the freezings. The first expansion by freezing, according to the writer of the article, is accommodated by the lengthening of the frozen column in the pipes. As the ends of the ice-cylinder are free to move, the mass pushes forward into the unoccupied portion of the pipes, without expanding laterally with sufficient force to cause fracture. As the cold increases, however, the mass of ice, like nearly all other known substances, contracts. The rate of contraction is much greater than that of the metal of the pipes, so that, in a severe freeze, the ice-cylinder would be smaller than the bore of the pipe, leaving an open space around it. While affairs are in this condition, if an attempt is made to thaw the pipes, the small space intervening between the ice-cylinder and the walls of the pipe is filled with water. Then, if the pipes are allowed to freeze again, this water freezes between the old cylinder and the walls of the pipe, and, although the amount of new ice

formed is small, its powers of expansion are very great, so that, being resisted on one side by the ice-cylinder, and on the other side by the pipe, the pipe must yield. The way to avoid such a result is, as before stated, to thaw quickly and thoroughly, so that no opportunity may be left for water to creep in around the cylinder and, freezing there, burst the pipe.

THE little country of Roumania has just completed the most perfect specimen of defensive fortification which exists in the world. Every one knows that the modern fortress is no longer a polygonal bank of earth, still less an enclosure surrounded by a stone wall, but an iron or steel box, with a dome-shaped cover, projecting slightly above the ground, and provided with cannon, and with means for turning the whole affair in a horizontal plane, so as to bring the gun to bear in any direction. Two of the earliest of these "turtle-backed" forts are to be found at the entrance of the Dutch naval station of the Helder, but, since the construction of these, similar ones have been built in nearly every country in Europe. Experience has, however, shown that the domed forts are vulnerable at the embrasures. From every other part of the surface, especially if a liberal coat of grease is applied before the battle, cannon-balls or shells will glance off, without doing any injury; but, with the accurate weapons of the present day, a shot aimed at an embrasure will often produce a terrible effect. To meet this difficulty, some turret forts are so made that, after the gun is discharged, the whole turret sinks beneath the surface of the ground, and is thus protected from shot; but the apparatus for effecting this transformation is heavy, and difficult to work, and the movement exposes to injury the metal rim which protects the edges of the turret. It has therefore been proposed to make the turret oscillating, so that, after the gun is fired, the whole affair may be tipped partly over, bringing the embrasure below the protecting "avant-cuirasse," and leaving nothing exposed but the smooth and slippery surface of the dome. According to *Le Génie Civil*, the details of this system have been perfected by the Commandant Mougin, and the Roumanian administration, convinced of its superiority, has ordered the first working example to be built for it by the company of Saint-Chamond, in France, and set up among the defences of the great military post of Bucharest. The completed fort is found to work to perfection, and it must be, as *Le Génie Civil* says, a most curious sight to see, the monster turtle, consisting, to appearance, of nothing but a uniform shell of steel, incline itself until the muzzles of its guns are exposed, fire them, and, in five seconds, conceal its sole vulnerable point again beneath the protecting shield.

THE new School of Architecture connected with the University of Pennsylvania is now taking steps to establish a travelling-scholarship for the future benefit of some one of its graduates, and is about to open at the Pennsylvania Academy of Fine Arts building an exhibition of the competitive examination-drawings, the measured drawings of foreign work and the sketches made *en voyage* by the several holders, past and present, of the Rotch, McKim, Columbia College and *American Architect* travelling-scholarships. The object of this exhibition is to excite public interest in the movement to such a degree that the needed fund for endowing the scholarship may be easily and rapidly secured. Knowing the character of much of the work that has been accomplished by the score of young men who have won these much desired honors, it seems to us that the exhibition cannot fail to have a considerable interest for the public and be of very material aid in loosening those purse-strings which seclude so large a part of the nation's wealth. The great usefulness of these scholarships cannot but be plain to every thoughtful person, but it would be a mistake to allow visitors to the exhibition or those who may contribute to the endowment fund to suppose that the work hung upon the Academy walls was all or even the most important result which is being achieved by these benefactions. The real essence of benefit lies in the cultivation of the mental artistic fibre of the beneficiary, in the stimulating of his imagination, in the broadening of his powers of observation, and in increasing his knowledge of precedent and example. The immediate results of this may or may not be such as to be detected in the work shown upon the walls, but if they do not show there it is none the less certain that they will declare themselves later in life and affect the man's whole life work which, as it in turn has a good and visible effect on the public, it is that public's interest to make sure it shall be of the best and most desirable character.

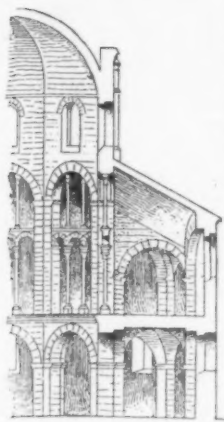
BYZANTINE ARCHITECTURE.¹—II.

Fig. 4. Transverse Section of Charlemagne's Chapel at Aix-la-Chapelle.

fied these, it is true, and they built new edifices, but their architecture retained the peculiar features of the original types, whose influence they were unable to shake off. Neither in Syria nor in Spain did the Arabs construct mosques at first, but contented themselves with consecrating the Christian churches to Allah. Historians of Arabic art distinguish in the latter country a primitive Byzantine period extending nearly to the end of the tenth century.

In the Middle Ages, under the first race of kings and, consequently, long before the time of Charlemagne and the pilgrimage of the year 1000, relations existed between the West and the East, in which Byzantium was so powerful that the princes of France, Germany and Italy sent ambassadors thither. It was owing to the influence of this intercourse that Charlemagne reared at Aix the superb chapel which was consecrated by Pope Leo III in the year 804.

(See plan, *American Architect* for July 12, 1891). This circular structure was evidently inspired from the rotunda at Ravenna; like the latter it comprises a central octagon 48 feet in diameter covered by a domical vault and encircled by aisles or two-storied galleries, 21 feet wide and with broad openings into the main hall. (See section, *American Architect* for July 12, 1891). The porch, with two stories, is identical with that at Ravenna; on either side

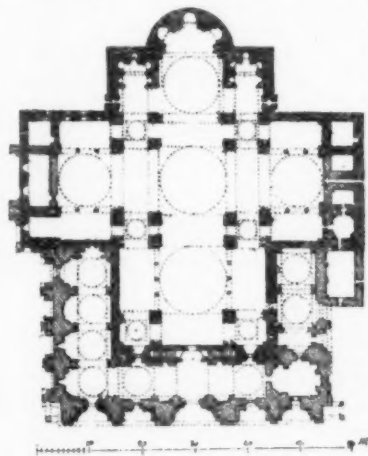


Fig. 6. Plan of St. Mark's, Venice.

is a tower in which are stairways leading to a tribune which communicates with the upper galleries running around the nave. The difference between these two rotundas lies in the form of the dome and the disposition of its vaulting. At Ravenna the spherical dome is fitted to the octagonal walls of the drum by means of pendentives, while at Aix the vault is octagonal as well as the support. But the diversity in the constructional system is especially apparent in the galleries of the *pourtour*, which in the palatine chapel of Charlemagne are better joined

to the dome supports, and are of themselves much better disposed than at San Vitale. In the former the dome supports are comparatively frail and the mass of the masonry is distributed to the outer wall; this is a sixteen-sided polygon connected to the octagon by a series of vaults on alternately

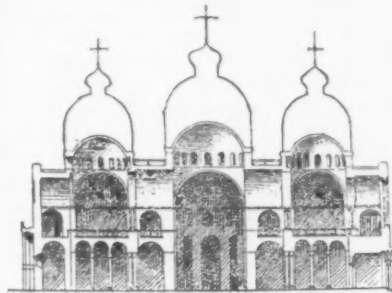


Fig. 7. Longitudinal Section of St. Mark's, Venice.

square and triangular plans. Transverse ribs springing from pillars engaged in the piers or the outer wall form sixteen flying-butresses which distribute the thrust of the dome to their supports (Fig. 4). The lower galleries are covered with groined vaulting on which the flooring of the upper galleries rests; the latter are covered by light rampant barrel-vaults which receive directly the roofing of slabs of stone or terra-cotta or even of sheets of lead or bronze.

In the time of Charlemagne intercourse between the East and West was greatly extended and, though it declined somewhat, later on, owing to the disasters of the period, it was again wonderfully augmented early in the eleventh century, as a result of the reaction following the termination of the prophetic year 1000. A vast number of pilgrims from western countries visited the Holy Land, going or returning by way of Constantinople; by their tales of the splendors of Byzantine civilization and their descriptions of its admirable monuments they roused in Europe the enthusiastic desire to emulate the peoples of the Orient. Greek monks who had taken up their abode in Southern Italy, at Rome, in France and in Germany also contributed powerfully to the spread and development of these ideas. Venice, in northern Italy, was like a Greek city; its prosperity was dependent upon the maintenance of its independence of both Lombards and Franks, and the nominal suzerainty of the Greek emperors which it affected to recognize, was the essential condition of its success; the oldest Venetian monuments, Santa Fosca and San Marco, naturally therefore resemble the structures of Constantinople.

The church or rotunda of Santa Fosca, on the island of Torcello near Venice, exhibits a marked resemblance (see plan, *American Architect* for July 5, 1891) in plan and architectonic arrangement to the Theotokos, built at Constantinople at about the same time, that is toward the end of the ninth century. The constructional details of the dome are especially remarkable; it does not rest on strongly accused pendentives as in the Theotokos, but the transition from the square to the octagon is effected by means of superimposed squinches, so that the pendentives at the angles of the octagon are of only slight importance and are imbedded in the rubble-work of the cap of the hemispherical dome (Fig. 5).

Saint Mark's, as has already been remarked, was not constructed on the plan of Santa Sophia but on that of the church



Fig. 9. Longitudinal Section of the Church of the Monastery of Daphni, near Athens.

¹ From the French of Edouard Corroyer, in *Planat's Encyclopédie de l'Architecture et de la Construction*. Continued from No. 854, page 80.

of the Holy Apostles, reared by Justinian; according to trustworthy historians and archæologists it was begun in 1043 and covered, if not finished, in 1071; the work of enlarging and decorating it went on for centuries (Figs. 6, 7). Its indisputable Oriental origin is easily accounted for in view of the relations which existed between Constantinople, the Levant and Venice.

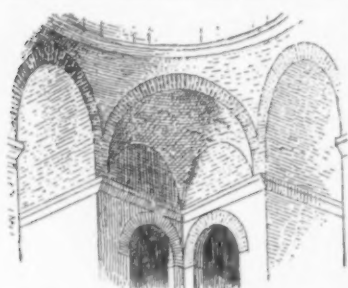


Fig. 10. Church of the Monastery of Daphni: Details of the Squinches and Pendentives of the Dome.

Down to the tenth century Venice monopolized the commerce of the East and that of a part of the Occident. In Sicily, at the opposite extremity of Italy, where the domination of the Eastern emperors antedated the settlement of the Normans by two centuries, the forms of the Greek church are found combined with those of the Latin basilica and sometimes the dome on pendentives occurs, as in Santa Maria dell' Ammiraglio at Palermo, later termed the Martorana. (See plan, *American Architect* for July 5, 1891, also the accompanying Fig. 8).

The churches erected in Greece in the ninth and tenth centuries bear the Byzantine stamp both in the general dispositions and in the constructional details; the church of Daphni near Athens and that of Saint Nicodemus in the city itself resemble in plan and structure the Theotokos, of the ninth century, and SS. Sergius and Bacchus, of the sixth. The first of these is attached to the monastery of Daphni, six or seven miles out from Athens, and was erected in the ninth century (see plan, *American Architect* for June 21, 1890);



Fig. 11. Lateral Façade of the Church of the Monastery of Daphni.

it is one of the religious edifices of the Grecians that recall Byzantine traditions most clearly. It comprises a central nave surmounted by a dome borne on very curiously disposed squinches. The apse with two small apses, all covered by groined vaulting, open on the east; their recesses are polygonal on the outside but semicircular within and the vaults take the

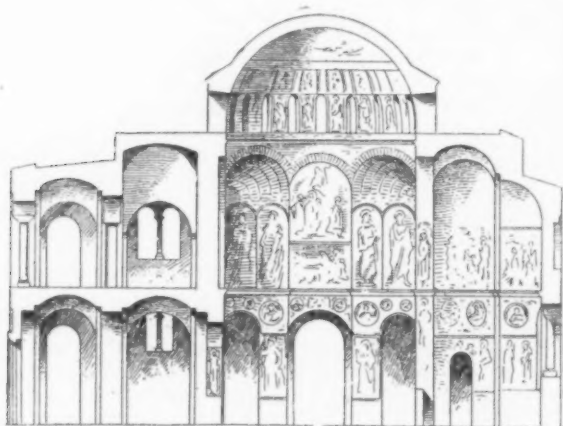


Fig. 12. Church of St. Nicodemus at Athens: Longitudinal Section from the Narthex to the Apse.

form of a semidome (Figs. 9, 10, 11). The external walls are in stone with the courses and joints marked by rows of bricks; the vaulting on the inside is of brick faced with brilliant mosaics.

Saint Nicodemus is one of the largest churches in Athens. (See plan, *American Architect* for June 21, 1890.) It was built

about the tenth century in accordance with Byzantine principles, though modified by the Grecian constructors. The central nave is crowned by a circular dome, the base of which is embellished with windows and suggests that of the Theotokos; but the course adopted in fitting the dome to the square walls is different. The architect, either not daring to rest the dome on four pendentives or seeking a novel effect, set it on four great niches, or, more correctly speaking, on four squinches, making the transition from the



Fig. 13. Longitudinal Section of the Church of Ottmarsheim (Alsace).

square to the octagon and from the octagon to the circle by eight equal tympanums constructed on the extrados of the arches. The edifice is covered by a flat roof above which rises the dome (Fig. 12).

Byzantine art was introduced into Russia along with the religion of the Greek Church. There were scarcely any but wooden structures there down to the tenth century. The earliest stone churches were built by Byzantine architects and decorated by Byzantine artists.

Russian art, however, rapidly took on a national character, and the Greek elements were mixed with others of Oriental, Occidental and Asiatic origin; the dome ceased to be carried on spherical pendentives, but was supported on a series of arches or of superimposed squinches. Externally, it assumed a bulbous form, and

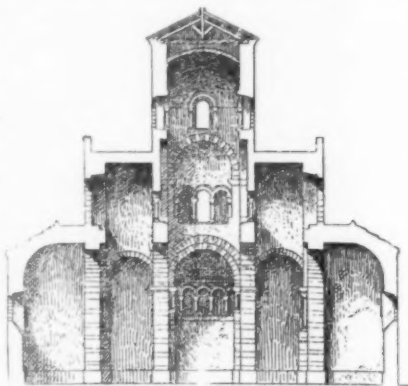


Fig. 14. Transverse Section of the Church of Germigny-les-Prés.

the general architectural style, while still exhibiting some Persian and Indian survivals, soon acquired the peculiar character which it has very happily retained.

In Germany, Byzantine influence showed itself in the eighth century, and it is probable that Charlemagne contributed greatly to its extension. A large number of churches were erected in the valley of the Rhine; notable among these is the church of Ottmarsheim, in Upper Alsace.

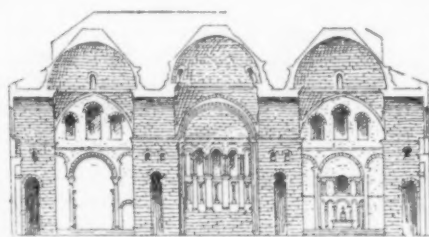


Fig. 15. Transverse Section of St. Front, at Périgueux.

(See plan, *American Architect* for July 12, 1891). According to Romanesque chroniclers, it was built by Vernher, Bishop of Strasburg and founder of an abbey of the order of Saint Benedict. We can trace here the Byzantine tradition of the architects of Aix-la-Chapelle, if not in the exact reproduction of plan and forms, at least in the mode of construction (Fig. 13).

In France, the original productions of Byzantine art there may still be seen. At Germigny-les-Prés there is a church which is contemporary with the Palatine chapel of Charlemagne. (See plan, *American Architect* for July 12, 1891). It is an exceedingly interesting structure, because it possesses all the characteristics of the Byzantine churches (Fig. 14) of Constantinople antedating the ninth century, and of those built at Athens at the beginning of the ninth century. At the same time, it bears a strong resemblance to the ancient pratorium of Mousmieh in Central Syria, constructed by the Romans in

the second century of our era. Though Byzantine architecture was more rapidly transformed in France than in Italy, its influence is clearly traceable in both countries. The great churches of Venice and Périgueux (compare the plan of Saint Front, *American Architect* for July 12, 1891, with that of Saint Mark's, *American Architect* for July 5, 1891), which are nearly contemporaneous, both bear evidence of their Oriental affiliations; but the same idea was differently interpreted in the two countries. Saint Mark's is the copy of a Byzantine work—the Church of the Holy Apostles, reared at Constantinople by Justinian—but constructed according to Roman methods; it was an importation, and remained a unique production, or nearly so. Saint Front, on the other hand, while reproducing the dispositions of its Oriental model—the Church of the Holy Apostles, so faithfully described by Procopius—was quite differently constructed, and displays more science in the art of building (Fig. 15).

The Aquitanian architects, who had long been familiar with Syrian traditions, assimilated Byzantine processes, as they had already acquainted themselves with those of Roman antiquity. Out of these divers elements, perfected by them and adapted to their constructional system—in which stone appears in all the simple beauty of cleverly-constructed combinations—there was soon formed an art of building which was new to Europe after the year 1000. Possessed of an individual and original character, it exercised, in its turn, a considerable influence on Romanesque architecture, and was certainly one of the main factors in the extraordinary development of the latter in the first half of the eleventh century. EDOUARD CORROYER.

EQUESTRIAN MONUMENTS.¹—I.

CONCLUSION.



IN place of prefacing these papers with promises and statements as to what would be their scope, it has been thought best to postpone explanation to the end, and even now a few words will suffice. After having during a couple of years in a desultory way collected material relating to equestrian statuary, there seemed to be promise that the subject was small enough and compact enough to be treated

with a considerable degree of thoroughness and yet not form a series of more than a dozen or fifteen papers, and in this belief the work was sketched out and the process of filling-in began. The difference between hap-hazard garnering and the results to be obtained by systematic digging and delving amongst the literary archives of all civilized peoples soon became apparent, and the subject was seen to be not so small a one as at first thought, but as these same researches revealed the fact that no one had ever carried on a similar investigation, zeal was stimulated rather than checked. Moreover, from time to time it appeared that, at last, facts had been secured touching every important piece of equestrian sculpture, but this agreeable delusion has been dispelled so often that at length the possibility of making a complete record has been recognized as a veritable *ignis fatuus*, and it has been decided to close the series at this point without waiting to complete researches already begun, without waiting for replies from correspondents in various parts of the world and without attempting to lay before our readers more of the material already in hand and in various stages of preparation. The fact that some of the cuts first made ready for the press remain unused on the shelves will serve to show how the process of elaboration and filling-in has expanded the undertaking as originally conceived.

It would not be proper to close these papers without considering in a cursory way those pieces of equestrian sculpture which may be classified as ideal rather than historical. The class is a large one, and if it be made to include statuettes it would be hardly possible to make an enumeration: still there are statuettes, such as Fremiet's "St. George and the Dragon" and Barye's "First Consul," so broad and sculptural in treatment that it is not possible to consider them as other than manikin colossal statues.

It is in ideal work that an artist should most fully declare himself and should be able to give expression to whatever of poetry there is in his soul, and if ever a sculptor succeeded in so expressing himself it was when C. B. Birch modelled the lovely face of his altogether charming "Lady Godiva," the loveliness of which is here imperfectly declared even by the sculptor's own sketch. What the "British matron" says to herself or to her spouse as she passes the plaster model of this group in the Crystal Palace at Sydenham, where it has

been sent since it was shown at the Royal Academy in 1884, may be left to the imagination; at all events it is plain that her comments cannot have any bearing on the manner in which an eleventh-century lady's dress was fashioned. Satisfactory as the whole group is it is to be hoped, however, that if ever Birch has occasion to carry this subject into bronze he will succeed in imbuing the fair lady's palfrey with a perception of the dignity and seriousness of his coming task.



Lady Godiva: a life-size Model. C. B. Birch, A. R. A., Sculptor. From *The Royal Academy Illustrated*.

A more poetic and appreciative attitude might be conceived than that which a horse takes when knocking a too-persistent fly from his foreleg.

A better foil to the pleading calmness of Lady Godiva's face could not be found than is presented by the anguished countenance of another undraped female who may be conceived to be a partner in the crime for which Mazeppa suffered. Legend does not say what was this erring woman's fate, and Mr. Lawes may be quite right in assuming that her indignant husband awarded to her the same fate to which he consigned her lover. This group, too, is still only in the model stage, and the sculptor has at different times sent us photographs which show how he is still making changes—radical ones



Lady Godiva: a life-size Model. John Thomas, Sculptor. From the *Illustrated London News*.

too—in the hope of better expressing his conception. But as none of these later view has retained the haunting look of the lost woman it seems preferable, in spite of the sculptor's objection, to reproduce here his model as it was shown, half-size, at the Royal Academy of 1888.

As yet neither of these interesting groups has secured to itself a more permanent form than is due to plaster. In this particular

¹ Continued from No. 851, page 44.

John Thomas was rather more fortunate than Birch, for his "Lady Godiva," shown at the Royal Academy of 1861, has been reproduced at a small scale by Minton in earthenware, a material which is rather less perishable than plaster.

Birch was no more fortunate with another equestrian group than with his Lady Godiva — which we sincerely hope will some day be cast in bronze. He disputes with Balzico the palm for conceiving a horse stricken down in battle, a pose which these sculptors alone seem to have attempted. The Italian's effort, which is comprised in his monument to the Duke of Genoa at Turin, is not a little absurd, largely through the ungraceful action of the Duke as he dismounts, but also because of the sprawling action of the horse. In Birch's group, on the other hand, the action of both man and horse is graceful. Death has said to them simply "Stop!" and the law of gravitation is doing the rest. It is a pathetic and yet an exhilarating incident, but it lacks some of the qualities of a great work since it does not really rouse keenly painful feelings in the spectator. In fact one is more likely to exclaim "Oh! the poor beast!" when he sees the group at Turin than when he looks upon Birch's animal, which was exhibited at the Royal Academy in 1879, with the title of "The Last Call."

Another good group by an English sculptor of the day, so good that it was purchased by the Trustees of the Chantrey Fund, is Thomas Brock's large bronze group now in the South Kensington Museum to which has been given the name "A Moment of Peril." The group shows a considerable imaginative force on the part of the sculptor and a rather unusual capacity for expressing emotion. Not a few sculptors have tried to represent a terrified horse — Clark Mills, John Rogers, Kiss, Wolff and others — but not one has succeeded, as has Brock, in catching the hopelessness of terror which is in this horse more clearly expressed than is his helplessness. The group cost about \$11,000 and few will feel that the sculptor was overpaid. Placed upon a low platform pedestal in the upper story of the Museum it is in such a position that it can be easily examined and the fidelity of the workmanship appreciated. It was exhibited at the Royal Academy in 1880 and 1881.

There are Indians and Indians, and the presence of the anaconda declares this to be a South American native and not the red brother that Englishmen made acquaintance with during the stay of Buffalo Bill's "Wild West Show" in London some three or four years ago. Perhaps Brock paid due attention to ethnical considerations and racial traits, perhaps not, but it would make not much difference either way; the red man of poetry, legend and art is a very different being from the actual uncivilized or semi-civilized native who is driven from pillar to post, from one reservation to another less desirable, at the behest of white land-grabbers who have political pulls. So it is that Brock's naked huntsman bears only a general resemblance to the "Sioux Chief" modelled by Dallin and shown in plaster at the Salon of 1890. Dallin, by the way, actually used as his models the Indians and horses of the Wild West Show which happened to be at the time exhibiting in Paris. The fidelity of the workmanship and the placid but watchful pose of the Indian gained for the young sculptor commendation from the older critics.

Visitors to the World's Fair next year are likely to have an opportunity to see how another English sculptor conceives the certainly misused and ill-understood aboriginal whom our government assumes to protect: in the English section of Fine Arts will probably be shown Adrian Jones's large bronze group, styled the "Last Arrow," though in view of facts a more appropriate and

significant title would be the "Last Buffalo," for the group shows a mounted Indian at full speed discharging his last arrow into the flank of a flying bison.

Ideal sculpture, or painting for that matter, may be separated into at least two classes, namely, those whose inspiration is drawn from legend and those where it is drawn from a single incident of possible or ordinary occurrence. In a certain measure one class of subject may be treated with as much of poetical feeling as the other, but the legendary subjects are more likely to be poetical in suggestiveness than are the incidental. To the first class belong Birch's Lady Godiva and Lawes's corollary to the Mazeppa incident; so, too, does Le Duc's joyous and charming group of a Centaur and Bacchante — so suggestive of Ovid's seductive verses — which was first shown in plaster at the Salon of 1878, the next year in bronze and is now to be seen in the Museum at Caen; and so does the large and complex group of Centaurs and Lapithæ which John Lough in his early years presented to the Pennsylvania Academy of Fine Arts and which now holds an honored place in its new building, though one can hardly maintain that the composition is in any way suggestive of poetry unless some Fiji battle-hymn could be discovered that would symphonize with the contorted and tormented group — an extraordinary and, all things considered, a really remarkable composition. It is singular that this group of brittle plaster-work, with arms and

legs and tails projecting from the main mass in every direction, should be one of the exhibits which survived uninjured the conflagration which, in 1845, destroyed a part of what was then the Academy building on Chestnut Street, a disaster which, amongst other things, caused the destruction of a Murillo obtained from the collection of Joseph Bonaparte which escaped the attention of the fireman who, kept drenched by a hose-stream, succeeded in cutting from their frames West's "Death on a Pale Horse," and some other paintings. Perhaps it was West's picture that suggested to Connelly the idea for that other singularly disagreeable and inartistic equestrian group, "Honor arresting the Triumph of Death," which is now shown in all its repulsiveness



A Moment of Peril. Thomas Brock, R. A., Sculptor. From the Magazine of Art.

as a small bronzed plaster model in the same building.

Perhaps no ideal equestrian group is so clearly allied with poetry as the colossal marble group which Bruno Kruse exhibited at the Hamburg Art Exhibition of 1884; here again, as in the Lady Godiva, the essence of the sculptor's idea is to be detected in the charming expressiveness of the female face as, bending over the warrior's shoulder, she whispers encouragement and bids him keep his mind fixed on the happiness he may shortly find when, as becomes an undaunted though conquered warrior, he finds himself translated to Walhalla. The precise function of the Valkyr, or battle-virgin, in Norse mythology is not clearly known to us, and the presence of the winged figure beside the horseman may indicate that his is the soul she will soon conduct to the ever-to-be-desired halls above and hence she may be held to be invisible to her companion; or it may be she is understood to be a recognized and acknowledged comrade who not only encourages with word and gesture, but actually indicates which one of the opponents is ordained to fall before his sword.

The group, which in the illustration is shown awkwardly distorted because of the point of sight, is probably in reality much better than it appears to be, for it attracted a good deal of attention because of which the sculptor was encouraged to undertake a companion piece, which was to represent a Valkyr conducting the soul of a

slain hero up to Walhalla. The group here shown is the property of Herr Heinszen who erected it in a suburb of Hamburg named Uhlenhorst.

This group, except for the vague suggestiveness in the female face, was worked out with a good deal of German hardness and dryness, but yet did not lose its poetical effect; while another group, lacking

there is poetry of idea there are five which are merely incidental, almost ephemeral, in their nature, which have form but express no meaning, which give pleasure to a cultivated mind only so long as they are before the eye but, having no lesson to convey, no meaning



A Valkyr Guiding a Warrior to Battle. Marble Group. Bruno Kruse, Sculptor. From *Die Gartenlaube*.

wholly the technical finish of the German work, and in handling hard to the verge of remote archaism, is full of feeling and a kind of derived poetry as well. It is the group by John Currie in the portico of the observatory at Dumfries, Scotland, which represents Old Mortality stretched out upon a flat tombstone and resting from his task of restoring its inscription, while beside him, a wholly independent figure, stands, gently dozing, his old pony, almost his life-long companion. The figures, life-size, are cut in red sandstone and the rudely modelled stiff-legged little pony with his rope bridle adds a touch of pathos to what is really a very attractive conception.

The few ideal groups in which a poetical conception has been worked out may indicate that sculptors are not the "all round"



Amazon and Panther, Berlin, Prussia. August Kiss, Sculptor.

artists they would like to be held—somewhat unintellectual, may be, perhaps even illiterate, capable of perceiving and preserving surface beauty, but unable to translate into physical expression a subtle mental feeling; or it may merely indicate that they thoroughly know the world they live in, and have learned that those who can understand and appreciate the exquisite beauty of some half-revealed idea do not usually belong to the money-spending class who buy their wares. Be this as it may, for one group in which



The Lion Hunter, Berlin, Prussia. Albert Wolff, Sculptor.

to express, are forgotten as soon as they are out of sight. These incidental subjects are the ones that usually please the masses: they are essentially popular in intention and execution.

The most typical members of this class are to be found in the two groups which flank either end of the broad flight of steps that leads up to the Old Museum in Berlin. One of these, Kiss's group of the "Amazon and Panther," so affected the imagination of the masses that a popular subscription was started to procure money to cast it in bronze, subscriptions even being taken up in the churches. The result was that in 1845, six years after the model was first exhibited, the group was set in place. It is a most excellent work of its kind, and can easily be procured as a statuette of one size or another and possibly may be had at full size. At any rate, a cast was shown at



The Sachsen Ross, Hanover. Albert Wolff, Sculptor.

the exhibition of 1851 in London and took a first prize, was afterwards brought to this country and burned with the Crystal Palace in New York, and at the present moment the Fairmount Park Association is raising a fund to procure for the great Philadelphia park bronze replicas of this group and of its companion at the other end of the Museum steps, Wolff's "Lion Hunter,"—of which the lion is the most interesting portion.

Professor Wolff evidently turned to this old work of his when he

was called upon to model that singular piece of heraldic sculpture, the colossal "*Sachsen ross*," or Saxon Horse—the rearing horse being the emblem of the kingdom of Hanover—which stands in front of what is now the Polytechnic School at Hanover but was formerly the castle of the Guelphs. The pose of the two horses is essentially the same, but in the way of balance the Hanoverian figure seems to lack distinctly the assistance lent it in Berlin by the rider, and still more by the trampled lion, features which certainly help to draw attention from its weaknesses. Nevertheless it is a remarkable figure because of its size, which, in turn, makes extraordinary the fact that the huge mass is balanced upon the two hind feet only, unaided by the tail or any supporting accessory figure beneath.

The Hanoverian Horse is the most noted instance of the uncaparisoned, unaccompanied horse in ideal sculpture. Portraits of racers, hunters and famous sires there are, such as those by Boehm already mentioned and a few in this country, like the small one over the grave of Ten Broeck at the place of John Harper in Kentucky. But of the ideal horse we can recall but one other example, the fine animal by Rouillard which now stands in bronze in the garden in front of the Palais du Trocadéro at Paris.

Perhaps to this short list should be added one example at least of the work of the wonderful blind sculptor Vidal—blind since his twenty-first year—whose talent has been conspicuous enough to win him more than one award at the *Salon*. The subject here shown is styled "*Après la Bataille*—*Cheval Arabe*," and in conception is pathetic enough. It is, however, a subject better suited to statuette scale than to full-size work. In fact there seems to be

is distinctly connected with legendary history and is properly to be classed in the group of poetically conceived subjects; and moreover, if the sculptor chose to give his statue the name of some personality of the time, as he might so easily do, it would at once become by that fiction an exactly historical subject and any scale would be appropriate.

Somewhat the same line of argument might be applied to sundry statuettes which serve the purpose of race-cups, and also to the



"Avant la Fantasia," Bronze Statuette. J. A. Dampé, Sculptor.

something in the nature of the incidental subject that makes it more suited for statuette than for full-size work, and as one of the most useful functions of incidental sculpture is to preserve enduring records of morals and customs and the changing fashions of the day, records that to be of real value should be numerous so that they may be readily brought into comparison as in a museum, it is providential that the statuette size seems to be prescribed for them. It does not seem possible that there could be any real attractiveness in a colossal statue of such a subject as Dampé's study of an Arab horseman at Tangiers that was shown under the title "*Avant la Fantasia*," at the *Salon* of 1886, or that Méne's bronze group of huntsman and hounds—so excellent a piece of work as to have won a place for itself in the Luxembourg galleries—could have any more of real interest if executed at a large scale than has that large and uninteresting stone group of similar name modelled in 1862 by C. Raymond Smith and now standing on the terrace behind Eaton Hall near Chester. Such subjects as these, mere fashion-plates in the round, should by general consent be limited to statuette size and Frémiet, who, if anybody could, might be able to make any equestrian subject whatsoever acceptable at full size has always treated such subjects as statuettes, as witness "*L'Aieul*," the mountebank's pony, and others. In one instance, in the "*Knight Errant*" at Lille, he has departed from this rule, if it may be called such, and has modelled it at full scale. But this subject



Waterloo, Bronze Statuette. Adrian Jones, Sculptor.

spirited and interesting bronze statuette exhibited at the Royal Academy in 1889, to which Adrian Jones has given the name of "*Waterloo*"; but in most cases they will give most satisfaction—the "*Moment of Peril*" and the "*Last Call*" to the contrary, notwithstanding—if they always remain statuettes.

A fair proof of this deduction may be found at Liège, in Belgium, where, decorating the balustrade which surrounds the small park on the Boulevard Frère-Orban, are four large bronze groups, two of which represent, one the untamed bull, the other the tame and harnessed (European fashion) ox; while the corresponding groups on the other side of the park represent, one a modern rendering of the time-honored horse-tamer, the other a common draught-horse in



Après la Bataille. Vidal, Sculptor.

harness. The sculptor, Léon Mignon, has certainly done his work well, and for the purpose and in the spot where they are placed, they are well, well enough, but they unquestionably suggest the French clock and the mantel-shelf.

One piece of equestrian sculpture it is difficult to class: it is in a sense ideal, and yet historic. Perhaps the safest thing is to put Steell's "Alexander and Bucephalus" at Edinburgh in a class by itself, and label it "intensely academic." It was erected in 1884 in St. Andrew's Square, though it had been modelled fifty-two years before the money for casting it in bronze could be raised by public subscription. It is ten feet high.

Here we will leave man's noble friend and servant, much loved yet much abused, whom we have studied under some five hundred different aspects, and found him to be generally the feature of the sculptor's work that gave it an imperishable value. We have observed him standing, walking, rearing, trotting, galloping; we have seen him tame and wild, placid, startled, terrified and dejected; we have seen him grieving, and have rejoiced with his joyousness; we have studied him in wood, marble, plaster, lead, bronze, silver and gold, and we feel that no material is too good and no effort too great to do justice to an animal who, through all time, has with unanimity been styled noble.



Alexander and Bucephalus, Edinburgh. Sir John Steell, Sculptor. From the Art Journal.

Over the grave of many a horse has a grateful owner raised a costly monument, suitably inscribed, and there is many a kind-hearted owner to whom his dumb friends would doubtless like to pay a similar tribute. In a certain way, this has been done in one case, for Mrs. John Stetson has placed over the grave of her father, S. D. Stokes—a well-known trainer and rider in his day—in Woodlawn Cemetery, New York, the three-quarter-size marble figure of a horse just rising from his sleep, as who should say: "I, too, hear Gabriel's trumpet, and my beloved master shall reach the Happy Hunting Grounds as quickly as any red man of the plain."

The figure, executed at a cost of \$2,000 by E. F. Piatti after a sketch by Matt. Morgan, is, perhaps, the only thing in equestrian sculpture that suggests the possibility that horses, too, have souls.



LAWES.—Charles Bennet Lawes was born in 1843, and is a son of Sir John Bennet Lawes. He was educated at Eton and Cambridge and studied sculpture under Foley and Professor Hagen of Berlin. He has produced the following works, "Hesitation," "Summer-time," a large equestrian group, and a large relief entitled "The United States of America." Mr. Lawes was the defendant in the celebrated case of *Belt vs. Lawes*.

THOMAS.—John Thomas was born in Chalford, Gloucestershire, in 1813 and began life as a stone-cutter. He became an excellent carver and finally obtained the patronage of Sir Charles Barry, who entrusted to him the greater portion of the ornamental sculpture of the Houses of Parliament. His decorative and architectural sculptures are very numerous, among them being the colossal lions on the entrance piers of the bridge over the Menai Strait, a fountain at Holyrood, and bas-reliefs and other sculptures in the Sultan's Palace at Constantinople, at Euston Square Station, London, and at Buckingham Palace, Balmoral, Frogmore and Windsor. He also designed the great majolica ("St. George and the Dragon") fountain, executed by Minton and shown at the International Exhibition of 1882, and now in front of the Bethnal Green Museum. At the same exhibition was his model for a monument to Shakespeare. His works in sculpture include statues of Sir Hugh Myddelton, in London, and of Joseph Sturge, in Birmingham, and the following ideal works, (besides many other statues and busts): a large marble group of "Boadicea and her Daughters," an equestrian group of "Lady Godiva," "Una and the Lion," "Musidora," "Undine," "Ariel," and a "Water Nymph," the latter belonging to Queen Victoria. Thomas also practised architecture with success and designed these buildings, among others: the National Bank at Glasgow, Sir Morton Peto's mansion at Somerleyton, Preston Hall near Aylesford, Headington Hill House at Oxford, and the Regents Park Chapel. He died in 1882.

KRUSE.—Bruno Kruse was born in Hamburg about 1856, and was the son of a wood-carver. After following his father's avocation for some time, he studied at the Dresden Academy of Fine Arts, and later under Professor Schilling, whom he assisted in the execution of the national monument in the Niederwald. Kruse has modelled two large companion groups representing Valkyrs and warriors.

DAMPT.—Jean Auguste Dampt was born at Venarey in 1858, and studied under Jouffroy and Dubois. His "St. John" is in the Luxembourg. Among his sculptures are "Ishmael," "Mignon singing," "At the Forge," "Coquette," "Diana regretting the Death of Acton," "The End of a Dream," and statues of Boule on the Hôtel de Ville at Paris, and of Bizet in the foyer of the Opera Comique.

VIDAL.—Louis Navatel, called Vidal, was born at Nîmes in 1831, and was a pupil of Barye and Rouillard. His numerous sculptures are mainly of animals and include "A Couchant Panther" at the Museum of Orleans, a "Lioness" in the Museum of Nantes, a "Bull" in the Museum of his native town, and a bas-relief of a "Lion" in that of Montpellier. Vidal has been blind for the greater portion of his life.

STEELL.—Sir John Steell was born in Aberdeen in 1804, and studied his art in Italy. His numerous works include statues of Scott and Burns in Edinburgh (replicas of each being in Central Park, New York, and other cities), and of Allan Ramsay, Professor Wilson, Dr. Chalmers, and the Queen, in the same city. He executed for Edinburgh equestrian monuments to Prince Albert and the Duke of Wellington, and his "Alexander and Bucephalus" is also there. Sir John was knighted in 1876, having early in his career been appointed Her Majesty's Sculptor for Scotland, and was a member of the Royal Scottish Academy. He died in 1891.

JONES.—Adrian Jones is a young English sculptor, formerly a captain in the Horse Guards, who has exhibited various works of sculpture at the Royal Academy and the Grosvenor Gallery during the last few years. They include equestrian figures entitled "The Last Arrow," "Waterloo," "Forward," and "Triumph, Design for a Quadriga." He has also modelled "Camel Corps, Nile Expedition," an equestrian group of "Duncan's Horses," and another of a huntsman and dogs, the latter being executed in silver for a testimonial to a Master of Foxhounds.

(The end.)

SCALES AND IMBRICATIONS.¹—II.



Fig. 23.

CABINET-makers, joiners and carpenters learned soon and skilfully, too, how to use these ornamentations,

and to create beautiful and appropriate combinations in which the different grains of the various woods created the brilliancy of color, blending themselves wonderfully. They became in a short time skilful and practical colorists in the fine and delicate decorations of roofs and turrets, with their graceful waves, executed daily for the numerous Swiss houses which are built with as much taste as ingenuity. As good samples can be found in great number everywhere within the reach of all, we give only as a specimen,



Fig. 24.

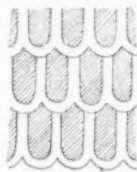


Fig. 25.

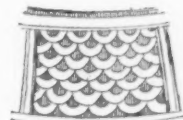


Fig. 26.

part of the top of a piece of furniture, on which are mingled the blackness of ebony, the brown of mahogany and the tinted yellow of the pine.

In drawings, vignettes and engravings on metal or bone, scales are frequently used, although the artist cannot make use in this case of the numberless resources of relief or the striking vibrations of color. He is obliged to limit himself to indicating his ornamentation by fine outlines, and by shading with light strokes of the pen, and very often a fine effect is the result (Fig. 23, cul-de-lampe of the eighteenth century.)

By this brief enumeration of some of the decorative features which scales present, even while they keep the first form, without any other embellishments or modifications, one can see how numerous were the services they rendered in their primitive simplicity, and how largely they satisfy the fancy and the caprice of the present day. Nevertheless, the inventive genius of the decorator, always on the scent for something new, did not content himself with this elementary idea. The beautiful clothing given by the Creator to every kind of creature does not satisfy the decorator and so he tries to embellish

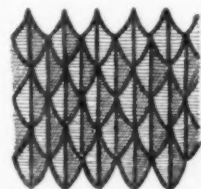


Fig. 27.

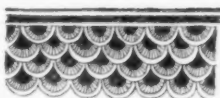


Fig. 28.

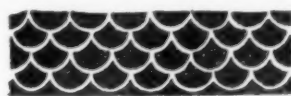


Fig. 29.

and vary it. In his turn he has made a new creation. From that time, scales as well as other primordial types of ornament, became also endowed with secondary accessories and were used as frames for slight drawings, or underwent some modifications of shape.

¹ From the *Revue des Arts décoratifs*. Continued from No. 853, page 67.

It should be noticed, however, that if many other ornaments have lost their true meaning, through the modifications to which the artist has submitted them, so that their origin was almost forgotten, the same cannot be said for scales. All their additions and modifications, as we shall see farther on, have conformed sufficiently to the original type. They keep their aspect; they are truly scales, genuine or imitated,



Fig. 30.



Fig. 31.

plain or embellished. They change little in character; their shape always indicates a protective envelope, or the image of a net of undulating waves. The design, whether plane or in relief, is simply more or less light, coquettish or rich.

The different representations of this ornamentation, although numerous, can be classified into eight categories, namely;

(1) Simple or natural scales; (2) edged scales; (3) ornamented scales; (4) trefoiled, festooned and lambrequined scales; (5) scales called German scales; (6) polygonal scales; (7) interrupted or alternated scales; (8) interpreted scales.



Fig. 32.

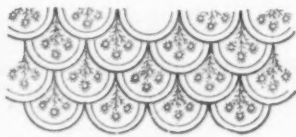


Fig. 33.



Fig. 34.

Like the following kinds, they form by continuous repetition of the same design, flat or projecting, an ornament without special direction, motionless, distributed by rectilinear or curvilinear bands, and by the repetition of the band; an ornamentation like a netted sheet, which may be applied equally on plane or curved surfaces.

(2) *Edged Scales*—Edged scales are natural scales, but more projected or put in relief by a line or band bounding the shape and



Fig. 35.

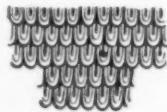


Fig. 36.

underlining it. In a word, it is the shape adopted since ancient times by industries whose creations have no relief and which draw all their effect from the color of the various lines. Thus in Figure 24, the Egyptian weaver has separated with an edge of yellow the scales, alternately red and green, of the sacerdotal clothing; on

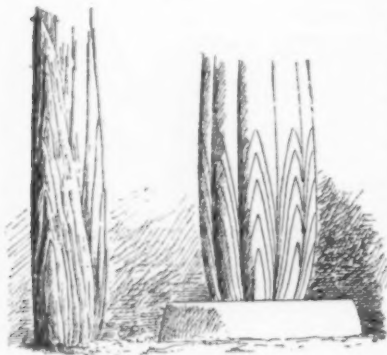


Fig. 37.

bricks found at Khor-sabad (Fig. 25), the enameller accentuates pale green scales by a broad yellow band. Sometimes the band widens and occupies half of the scale; it seems to double it, as may be seen over and over again on the porcelains of Rouen, as indicated by Figure 26, the scales of which are traced with dark blue, the background of the scale with light blue, and the middle in yellow ochre. On the numberless Greek vases with imbrications, it is only with a

Turin (Fig. 27), the scale is not only indicated by a thick line for a border, but also by a fillet of the same thickness, drawn through the middle, simulating the central axis, and the limit of slant of each face, as though the scale were shaped with a slanting edge. Finally,



Fig. 38.



Fig. 39.



Fig. 40.



Fig. 41.

when the objects are decorated with incrustations, veneering, marquetry, etc., it is the wood, leather, gold, copper or steel surrounding the scales, which forms a fillet or border, as on this enamelled plate (Fig. 28). Sometimes this part, being of metal, is large enough to receive a fillet and a striped band, as can be seen on a Hindoo vase in the Museum at South Kensington (Fig. 29).

Ornamental Scales.—These have been used since the first epochs of history. As shown by many documents, as soon as the decorator had furnished this design with a border, he tried to make it still more beautiful by covering (without profusion, however) the central ground with small ornamentations. As these are included in so small a space, they are, as a rule, very simple and light; moreover, they always contribute to the primitive idea, and simply accentuate



Fig. 42.



Fig. 43.



Fig. 44.

these hape or beautify it. Consequently the greater number of these added ornaments come, as to disposition, under the laws which rule circular or radiating decorations. Some are arranged like rays starting from the centre of the curve, as on this Indian stuff (Fig. 30); others are developed according to straight or curved radii, starting from the angle included between the two scales of the preceding rank, after the manner of the palm-leaf or the flower (Figs. 31 and 32), or again as in the blooming branch of the pavement of Pondol, near Jurançon (Fig. 33), or of the lengthened bud, with



Fig. 45.



Fig. 46.

blue and yellow background, which is so common on the dishes with metallic reflections in the Museum of the Louvre (Fig. 34), or finally, of the trefoil (Fig. 35), projected in light tints or in brilliant metal on the black background of this Indian object, exhibited at London in 1851. Often, according to the same laws, the ornamentation consists of repeating the shape by redundancy, by following concentric parallel lines to the outer circumference. Thus the Greek ceramist will use a series of successive fillets or borders, bounding a centre of stone similar to a scale, as may be seen on a vase in the Museum of Athens, with black figures on a yellow ground (Fig. 36); the Egyptian decorator will interpret by equal fillets the fibres of the scales of the fruit of the papyrus, that he may ornament with it the bases of columns (Fig. 37); he will do likewise when he essays to conventionalize the small leaves of the calyx of the flower, as on a capital of the temple of Luxor (Fig. 38). The potter of the sixteenth century repeats the scale border twice with putty color, and once with yellow; then he arranges between these bands a red background, with small blue lines directed toward the radii; and finally, he emphasizes the centre with a spot (Fig. 39); often he was satisfied with a single point, like a pearl, fixed at the extremity of the scale; as for instance, a white spot on a yellow scale bordered with black, as on this piece of Athenian earthenware (Fig. 40) or placed at the middle of the curve, as upon this pottery (Fig. 41), or accompanied, as an emphasizing feature, by a crescent which underlines it, as in this sample of Venetian glass of



Fig. 47.



Fig. 48.

the sixteenth century (Fig. 42). Sometimes several spots are grouped together at the centre, like the metallic spangles the Indian embroiderer has fastened on this red velvet cape (Fig. 43) in the Museum of the Louvre. On a piece of cloth from the clothing of the god Ammon, the three red spots are like a flower at the extremity of a small green trunk (Fig. 44); on the outside bay of the nave of the Abbey aux Dames at Caen, the pearls or spots are grouped like the modest flower of the fields, protected by its leaves (Fig. 45). Elsewhere the point or pearl gives place to a little rose, or a natural flower conventionalized, like this simplification of the aster on an Indian stuff (Fig. 46); or the design is replaced by a trefoil of the same color as the scale, but a little darker, such as is used so often by the Chinese in inlaid enamels, and the bodies of dishes and cups (Fig. 47). This little three-leaved spot, resembles the regular spreading out of the shaded part, which one notices in the scales of certain fishes. Finally, one sees at times ornamentation with a border, and with the middle wholly filled with a design of leaves, grouped by threes, and having the shape of a curvilinear triangle, as indicated by Figure 48, which shows a bit of sculpture from the Cathedral of Bayeux.

Among these various styles of ornamental scales, very few are drawn from the subject itself. Besides the concentric parallel lines, the radiating lines, the spots, the points, which are in a certain sense representations of the stripes, projections, brilliant spots or wavy lines on the shining envelope of the fish, or which resemble the fibres of the small leaves of the bulb, all the other kinds of additional decoration such as flowers, roses, leaves, etc., come from mere fancy. They are trifles; but these trifles are often charming, and always full of graceful effects. Everybody has occupied himself with embellishing a geometrical shape in good taste, and has tried to divide one's ornamentation according to laws and good judgment, without even a thought of connecting it with some symbolism, and with good reason, for indeed, it would be entirely useless, inasmuch as the derivation is always sufficiently respected without keeping special account of it, a thing which might be very difficult to do.

L. PASSEPONT.

[To be continued.]

THEATRE BUILDING REGULATIONS.¹—III.

STRUCTURAL WALLS.



ITALIAN CANDELABRA
WROUGHT-IRON

THE next regulation of the London County Council is in reference to the thicknesses of walls. All theatres must be enclosed with proper external or party walls of brick or stone.

The thickness of such walls must not be less than the thickness prescribed by the Metropolitan Building Act, 1855, for walls of similar height and length in buildings of the warehouse class.

[Paris.] Paris goes farther than this under this heading, and defines that the three divisions of the theatre must be separated by solid walls of brickwork and be entirely enclosed and divided by incombustible materials.

[Hamburg, Brussels, St. Petersburg.] In Hamburg no hollow walls are allowed. The walls separating a theatre in Brussels from adjoining buildings must be carried up five feet above such adjoining buildings. All walls, ceilings and roofs of theatres in St. Petersburg must be constructed of non-inflammable materials.

[New York.] In New York the exterior walls of theatres must be built of stone or brick, and any façade or front constructed of iron filled-in with brickwork must be of such thickness as to make

the brickwork, independent of the facing, conform to the building laws. Interior walls of masonry must separate the auditorium from the stage, from the entrance-vestibule and from any rooms over it, as well as from the corridors and refreshment-rooms.

[Paris.] In Paris the walls at the back of the stage and the side walls must have a level surface without breaks or sets off.

PROSCENIUM-WALLS.

The regulations as to proscenium-walls are somewhat similar in all countries.

[London.] In all theatres in London where a stage with a proscenium shall be erected, such stage must be separated from the auditorium by a brick proscenium-wall not less than thirteen inches in thickness, and such wall must be carried up the full thickness to a height of at least three feet above the roof, such height being measured at right angles to the slope of the roof, and carried down below the stage to a solid foundation.

Not more than three openings are allowed in the proscenium-wall, exclusive of the proscenium-opening, and none of the openings may exceed three feet in width and six feet six inches in height, and each of such openings must be closed by a wrought-iron door not less than one-fourth of an inch in thickness in the panel, hung in a wrought-iron frame so as to close of itself without a spring.

No opening formed in the proscenium-wall is permitted at the lowest part to be at a higher level than the floor of the stage.

All the decorations around the proscenium must be constructed of fire-resisting materials.

[New York.] The height to which the proscenium-wall must be carried, in New York, above the roof is greater than in London, being four feet. Another provision peculiar to New York is, that above the proscenium-opening there must be an arch of fireproof materials, or an iron girder covered with fireproof materials to protect it from the heat; if a girder is used a relieving-arch is required over it to carry the wall above.

[Paris.] In Paris, in addition to the proscenium-opening the other openings allowed are only such as the Theatre Commission may determine necessary for the firemen.

PROSCENIUM-CURTAIN.

[London.] One of the new regulations brought into force this year for the first time in London is that demanding a fire-resisting or smoke-proof proscenium-curtain.

The regulation reads:

"The proscenium-opening shall be provided with a fire-resisting screen to be used as a drop-curtain, of such pattern, construction and gearing, and with such arrangements for pouring water upon the surface of the screen which is towards the stage, as may be approved by the Council."

In this London has followed an example set by other cities years since, but more details are to be found in other regulations. This being an important point in theatre construction I am compelled to dwell on it rather fully.

[New York.] The New York authorities require that the proscenium-curtain shall be placed at least three feet distant from the footlights, and the opening fitted with an asbestos or fireproof curtain. If of metal, it must be made with an iron frame well braced in sections, and sliding at each end in iron grooves securely fastened to the brick wall. Each section of the iron curtain must be filled-in with wire mesh-work, the mesh being not less than No. 14 American gauge. The curtain must be raised at the commencement and lowered at the end of every performance.

[Brussels.] The curtain required in Brussels is a metallic wire curtain, "or other apparatus sufficient to intercept the passage of smoke in case of fire, and to prevent fire being communicated from the stage to the auditorium."

[St. Petersburg.] Still further details are given in the St. Petersburg regulations, all of such great value that they must not be passed over. The curtain must be stout, durable and non-inflammable, so that in the event of fire it will not easily bend by weight or pressure of gaseous vapors, nor break by falling of the side wings, nor allow smoke to pass in quantities to be dangerous to human life, nor be destroyed by the great heat of the flames at the commencement of a fire. The curtain must be so constructed that it may be easily let down, without danger to the man in charge of it, in event of fire. The act-drops in St. Petersburg must be non-inflammable.

[Hamburg.] In Hamburg provision is made for the permanent fixed decorations over the proscenium-opening being fitted closely to the iron curtain. These decorations have to be of incombustible materials.

[Berlin, Paris.] In Berlin the fire-curtain is only allowed to be raised during a performance or rehearsal, and in Paris the wire-gauze curtain demanded has to be hung with combustible cords, with counter-weights suspended by metallic ropes to check the rapidity of the descent.

[Mons, Antwerp.] The report of the Mons Board of Works advocates a water-curtain as advisable, and in Antwerp, metal curtains of full size and small mesh are required.

[London.] The London County Council leave the special pattern of the curtain open to their approval in each particular case, thus allowing scope for improvements in inventions. Other authorities seem to prefer specifying the material to be used, which I do not think altogether a wise proceeding.

¹ Continued from No. 854, page 86.

DRESSING-ROOMS.

[London.] The new rules as to dressing-rooms, enforced by the London County Council, are very full and embrace most of the regulations of foreign countries. They are that all theatres must be provided with a sufficient number of dressing-rooms, which shall be arranged in a separate block of buildings, or divided from the place of public resort by party-walls, with only such means of communication therewith as may be approved by the Council.

All dressing-rooms must be constructed of fire-resisting materials, with an independent exit from such dressing-rooms leading directly into a thoroughfare or way.

All dressing-rooms must be ventilated to the outer air by windows in the external walls.

The walls of all dressing-rooms must be hung, for decorative purposes only, with materials completely adhering to the surface of such walls.

No dressing-rooms may be situated more than one story below the street level.

Sufficient and separate water-closet and urinal accommodation, properly ventilated to the outer air, must be provided for the use of the male and female artists.

Considering what the theatre dressing-rooms of the past have been these rules are none too strict.

[New York.] There are further constructional details given in the New York requirements which it would be well to follow. The walls separating the dressing-rooms from the stage, and the partitions dividing the rooms and passages must be of fireproof materials, and all the doors in the partitions must be of wood covered with tin or iron on both sides and the edges, as well as the frame.

Where wainscoting is used in New York it is not permitted higher than six feet, and the space between the wainscoting and the wall has to be filled-in with fireproof materials.

Special rules are enforced in New York as to the fitting-up of dressing-rooms and cupboards, as well as other parts of a theatre with shelving. These shelves are not permitted to be of wood, but must either be of metal, slate or other incombustible material.

[Paris.] The details to be noted in the Paris rules are that the prompter's and musicians' lobby shall be enclosed with incombustible walls, and shall be ceiled, paved with tiles, flagged or cemented. No dressing-room is allowed to be erected on the stage, a custom frequently followed. The doors of rooms, lobbies, offices, etc., have to be provided with a wicket, placed in such a position as to allow the fireman when on patrol to make an inspection of the rooms, etc. With regard to flooring, where parquet is used it must be fastened upon the flooring. Hat-pegs, curtains and door-hangings are not allowed nearer than two feet, three and one-half inches to a gas-jet.

HEIGHT OF THEATRES, ETC.

[London.] The London County Council declares that no theatre may be constructed underneath or on the top of any part of any other building, and that no theatre may have more than three tiers or horizontal divisions, including the gallery, above the level of the pit.

Where the front seats of the gallery are separated from the gallery by a partition, the seats do not count as a separate tier.

Where the first tier or balcony extends over the pit, stalls or area, the height between the floor of the pit and the first tier may not be at any part less than ten feet, and the height between the floor of the highest part of the gallery and the lowest part of the ceiling over the same may not be less than twelve feet.

In all theatres, the floor of the highest part of the pit, or of the stalls where there is no pit, may not be more than six inches above the level of the street adjoining the principal entrance to the pit, and the lowest part of the floor of the pit or stalls may not be more than fifteen feet below such level.

[St. Petersburg and Italy.] In St. Petersburg, theatres must not contain more than four tiers of boxes and galleries besides the pit; and in Italy tiers of boxes shall not exceed three in number, exclusive of the gallery. The pit, also, shall be on the level of the street, or not more than six feet six inches above it.

[New York.] The Council's regulations are the fullest on this point, but in New York special provisions are made to prevent the introduction within the structure of any hotel, boarding-house, lodging-house, factory, workshop, manufactory or store, with the exception of such as are strictly required for the theatre use. This use we shall deal with hereafter.

ENTRANCES AND EXITS.

I have already referred briefly to the regulations as regards exits, but, as I have now to dwell more fully on the subject, it will be as well to repeat the Council regulations on this point:

[London.] "Two separate exits, not leading into the same thoroughfare or way, shall be provided to every tier or floor of such premises.

"If any tier or floor shall be divided into two parts, two separate exits, not leading into the same thoroughfare or way, shall be provided to each of such parts.

"Such exits shall be arranged so as to afford a ready means of egress from both sides of each tier or floor, and shall lead directly into a thoroughfare or way."

The number of exits required in foreign countries for each tier

varies but little from the law laid down in London. In Italy, three exits are required for the pit, each delivering separately into the street.

[Hamburg.] For every two hundred persons for which accommodation is provided in Hamburg, there must be, at least, one exit.

[St. Petersburg.] To each intersecting passage in St. Petersburg there must, on the ground-floor, be a corresponding separate exit into the corridor surrounding the auditorium, and for every one hundred and fifty visitors there must be one exit, not less than four feet eight inches in width. In galleries, dress-circles and amphitheatres, the exits to the surrounding spaces must be not less than four feet eight inches in width for every fifty spectators.

[Glasgow.] One foot for every seventy persons is deemed sufficient for Glasgow, and where, also, separate exits are provided for different floors or sections, the exit for each floor or section must not be less than four feet.

[Brussels.] Three feet three inches is required for every one hundred persons for Brussels.

[Hamburg and Austria.] In Hamburg, for every two hundred persons, at least one exit must be provided, and in Austria it is defined that the exits must be of such a number as to allow the theatre to be emptied in four minutes. The size of the doors is specified to be four feet ten inches by nine feet eight inches high.

[New York.] New York requires each exit to be at least five feet in the clear. Every theatre accommodating three hundred persons must have at least two exits, and, when accommodating five hundred persons, at least three exits must be provided, and for every additional one hundred persons or portion thereof there must be an additional width of twenty inches.

To obviate any difference of level existing between the exits from the parquet and the stage and the level of the external corridor, the New York rules require gradients to be employed of not less than one foot in every ten with no perpendicular riser, and from the auditorium into the side open spaces or external corridors there must be two exits from each tier including the parquet and each and every gallery.

At least two independent staircases are needed in New York from the stage leading directly to the outside, one exit on each side of the stage.

WIDTH OF EXIT-DOORS.

[London.] The Council's regulation as to width of exit-doorways is that all doorways used by the public shall be at least four feet six inches wide in the clear, with doors hung in two folds made to open outwards towards the thoroughfare or way.

We shall find when we come to the County Council rules for width of corridors, etc., that no less width is allowed than four feet and six inches which is deemed sufficient for four hundred persons. Six inches is required for every additional one hundred persons using the exit over and above the stipulated four hundred.

[Italy.] There is a rule in Italy that an attendant must be provided at the expense of the management, one for every exit, or for more than one in the same line and within a short distance of each other, such attendant to be provided with a key and to be in readiness to open the doors in case of emergency. This appears to be a very unwise rule, as it places the whole safety of a vast audience in the hands of one man, who in case of danger would most likely be the first to run away and take care of himself. The Council's rule is far better and reads: "All exit-doors having fastenings shall be fastened by automatic bolts only, of a pattern to be approved by the Council; but where such doors are also to be used by the public for entrances, they shall be fastened with espagnolette or lever bolts only, of a pattern to be approved in each case by the Council, and fitted with lever handles at a height of three feet six inches from the floor.

"All barriers and internal doors shall be made to open outwards, with no other fastenings than automatic bolts."

As a whole, the Italian regulations are very strict and one is surprised to find such a weak point in them.

[Brussels.] In Brussels the external doors only may have locks, which must all open with one pass-key; every emergency-door must have a key, placed in a glazed box within reach of the public. This is also a very bad arrangement, as any evil-disposed person could take the key away and leave the door fast locked.

[St. Petersburg.] The St. Petersburg rule is much more like the new London regulation, and is that doors and windows (which must be casement-hung) must be supplied with easy-working apparatus for opening them, with handles not lower than two feet six inches from the floor. Bolts are not permissible.

[New York.] One rather wonders that in a city like New York, automatic panic-bolts are not insisted upon; the rule there is, that movable bolts are permissible which must be kept drawn during the performance. I only ask the question: Supposing by any unforeseen oversight or negligence they or some one of them are not withdrawn—?

[Berlin.] Berlin merely asks for all doors to be unlocked during the performance, and Hamburg that the fastenings on the side next the audience shall be of such a pattern as to be easily and quickly opened by the public: the act of opening shall not necessitate stooping down, the knob must not be above the shoulder and the fastening must be as simple as possible.

No locks, monkey-tail, flush or barrel bolts, or locking-bars, or other obstructions to exit, are allowed to be used on any doors, gates or barriers in a London theatre.

E. A. E. WOODROW.

(To be continued.)

THE PHILADELPHIA BOURSE.



Christian Lamp.

THE Building Committee of the Directory of the Philadelphia Bourse, which is to occupy the whole block of ground between Fourth and Fifth, Merchant and Ransdall Streets, below Market Street, and will probably be accessible from Chestnut and Market Streets by approaches about opposite the middle of the building, have sent out about one hundred and thirty copies of the plans and specifications to architects who now have offices in this city, and who are invited to present designs for the building. To the author of the design considered best by the committee, acting with the advice of Prof. William R. Ware, of Columbia College, New York, their professional adviser in the conduct of the competition and in the exami-

nation and judgment of the designs submitted, will be awarded the carrying out of the work. To the authors of the fifteen next best designs, prizes of \$500 each will be awarded. The following rules for the competition have been adopted:

The designs will first be sent to the committee's professional adviser. He will employ a competent person to throw out all drawings or sets of drawings not made in conformity with the requirements and instructions hereinafter given. The remainder he will examine, and will select those which he finds to be the best among them, at least five in number, which he will hand over to the committee with his comments and any recommendations he may have to make.

The committee will then appoint one of the competitors thus selected as architect of the building, if in their judgment and that of their professional adviser they are warranted in so doing. The architect shall, if necessary, revise the preliminary drawings submitted to suit the requirements of the committee; he shall furnish a full estimate of the cost of the building, complete working-drawings, with details where required and full specifications for the work. The architect will retain in his hands the architectural supervision, and will have entire control of all matters of arrangement and design, and all alterations and changes therein. The architect will also have control and direction of all work of sculpture and decoration.

The committee will employ at its own expense a Superintendent of Construction. The person selected will be a constructing engineer of proven ability, skilled in structural work, who will revise and approve all structural details. He will superintend the work of construction from the beginning of the work to its completion. The Superintendent of Construction will be directly responsible to the committee and the Board of Directors, but will cooperate and work in harmony with the architect, and under his direction. He will draw all contracts, subject to the approval of the committee, and will be held responsible by the committee for the proper performance of the work done by the various contractors.

If, as may happen, the committee find themselves unable to choose, upon the evidence before them, between two or more of these candidates, they will invite the competitors among whom their choice then lies to present, under the instructions of the committee, such further explanations or drawings as the nature of the questions at issue may require, and, if they find it necessary to do so, will institute a second competition among them, for which a sufficient time will be allowed. The committee will then, after consultation with their professional adviser, select one of the competitors so invited to be the architect of the building, and will execute an agreement with him in accordance with the terms and provisions of Art. 5.

But if the author of the selected designs proves to be, by reason of youth or inexperience, or for any other reason, an unsuitable person to put in sole charge of so important a work, the committee reserve the right to associate with him some other architect, to be agreed upon between him and the committee, and to divide the commissions between the two according to the division of the work and of the responsibility.

The committee, in consultation with their professional adviser, will assume the entire labor, responsibility and expense of making estimates for the work on the basis of the designs selected by them, employing a competent surveyor to that end if necessary. No estimates are to be submitted by the competitors.

All drawings will be returned to the competitors as soon as the committee have made their selection, and they will not be shown to the other competitors nor to the public without the consent of their several authors, previously obtained in writing. Nor shall anything

shown in any of the rejected designs, or otherwise suggested by any one of the successful competitors, which is original with him as to this competition, be adopted and made use of in the building without the consent of its author and proper remuneration being made him, the amount thereof to be agreed upon between him and the committee, and, in case of disagreement, to be referred to their professional adviser, whose decision shall be final, not only in regard to the amount to be paid, but as to the real existence of any such claim.

Any information which the committee, or any member of the committee, or their professional adviser, may find proper to communicate to any one of the competitors in answer to questions or suggestions will be made in print, and will be simultaneously communicated to all the rest. Such questions or suggestions must be made before May 7, 1892, and should be addressed to the undersigned.

The final action of the committee, and the report to them of their professional adviser, will be communicated to all the competitors.

The building will cover an area of about 130 feet by 364 feet, making nearly 47,500 square feet. Fourth Street is about six feet lower than Fifth St.

The main floor, which will be substantially on the level of Fifth Street, will be chiefly occupied with the great hall of the Bourse, which will extend the whole width of the building, and be about 250 to 275 feet in length, more or less. This room should be about 35 feet high at the sides and about 50 feet high in the centre, with skylights. There will be galleries at the side or ends, about 20 feet from the floor.

The floor of this room will be clear, except for the necessary columns. There should be ample arrangements for blackboards.

There will be entrances to this hall on each side, opposite the passages to Market Street and to Chestnut Street. Corridors 20 to 30 feet wide will also lead to Fourth Street and to Fifth Street, at the ends of the hall. In the four corners of the building will be accommodation for banks or other business, covering 2,000 or 3,000 square feet each. Proper provision will be made on this floor for public and private telegraphs and telephones. A receiving-room for parcels and packages, lavatories and water-closets are to be provided either on the main or basement floor, and elevators and staircases to the gallery, to the stories above, and to the restaurant and cellar below. Eight passenger elevators and one freight elevator are needed.

The cellar, besides giving accommodation to the heating and lighting apparatus and the boilers and machinery for running the elevators, is to have a large coat room, a barber's shop and a public restaurant. The boilers and machinery may be placed outside the building, under the space not covered by it, and under the adjacent sidewalk. The rest of the cellar may be used as vaults for the institutions at the corners of the buildings and for storage, and for the exhibition of heavy manufactures.

The mezzanine, or gallery story, is to have at either end, over the banking-rooms and corridors, large meeting-rooms, or exchanges, and reading-rooms, covering about 2000 square feet each, more or less. Along the sides or ends of the building will be arranged a series of small rooms opening from the gallery, for use as offices. These may be 12 or 15 feet square.

The stories above are to be divided up into offices of convenient size and shape, large and small, so as to secure the maximum of light and air and of rental value. These may either be made to run round a central court, which will light the large hall below, or they may be arranged in transverse suites running across the lot and lighted from intermediate courts or areas opening upon Ransdall Street.

The upper story of all will be used for an exhibition room for the display of manufactures.

The building is to be shown as ten stories in height, of which the first should be about 20 feet high and the second 15 feet high, as has been said. The third should be about 15 feet high and the remaining stories 11 feet from floor to ceiling, except the top story, which should be at least 15 feet high. It may be lighted from the roof, and most of the windows should be about 7 feet from the floor. There is to be no tower.

The outside walls of the lower stories are to be of some light-colored stone, and of the upper stories of light-colored brick, with stone or terra-cotta work.

The building is to be a fireproof, steel-frame structure, and the total cost complete, including machinery, is not to exceed \$1,500,000.

THE STEVENS ARCHITECTURAL TOUR.



architectural tour through France on bicycles, under the leadership of John Calvin Stevens, of Portland, Me., is meeting with great favor among architects and architectural students. Already, the following gentlemen have sent

in their names as members of the tour: Walter F. Price, Chester H. Kirk, Albert Kelsey, Louis Hickman, of Philadelphia; James H. Morse, Wm. E. Evans, Wm. W. Bosworth, Wm. C. Chase, George P. Fernald, Boston, Mass.; S. G. Slocum, H. P. Fowler, New York City; Arthur Woltersdorf, Chicago; Elmer Grey, Milwaukee; Ernest Wood, Quincy, Ill.; John Calvin Stevens, Portland, Me.; F. W. Fountain, Woonsocket, R. I.; Fred H. Gouge, Utica, N. Y.; W. Wathers, Ithaca, N. Y.

The party starts from New York July 30, lands at Boulogne-sur-Mer, and devotes fifty days to Normandy, Touraine and Brittany. The marvels in the Gothic, Renaissance and Mediæval architecture of France are included in this route. The roads of France are the best in the world, and on this account the bicycle will prove a delightful mode of locomotion. The cost of the round trip will be in the neighborhood of \$300. There are three vacancies in the party, and early application should be made by any one who wishes to become a member.



BOSTON ARCHITECTURAL CLUB.

STONE walls do not a prison make, nor does everything that is used to cover the interior surface of a wall ensure that a good hygienic condition is aided by its use. These broad wall-surfaces of our rooms, which it is the fashion to treat with one application or another, more for the sake of producing an effect, than with the promoting of health and comfort as a chief object, have more to do with the health of the inmates of such room than is often suspected.

From the hygienic standpoint an interior wall-surface is most admirable when it is finished in enamel, varnish, shellac, paint or a glazing size of some kind, the most valuable size being soluble glass.

If the surface be protected so that injurious dust, vapors or acid gases cannot be given off from the compositions which are used in producing the decorative effects it is immaterial, nearly, what materials are used in producing effects so far as hygiene is concerned.

There is so much risk in using either paper-hangings or stuff-hangings in a room unless they have been pronounced innocuous by a chemist, there is so much housekeeper's work in keeping painted walls clean, and so much added fire-risk in finishing rooms in natural woodwork, that inventive decorators have turned their attention to producing some medium that can be safely used with good effect on interior wall-surfaces. The favorite line of research has been with a view of applying to some woven fabric a substance composed of whitening and vegetable or animal fibre mixed with oils or gums and constituting a medium that can be moulded, modelled and colored in divers ways.

One species of this production, the result of the efforts of Mr. L. Haberstroh, is just now exhibited in its manifold applications at the rooms of the Boston Architectural Club, where the walls have been hung with specimen panels and preliminary sketches executed in a highly satisfactory manner so far as workmanship goes and hardly less so when considered from another standpoint. Such an exhibition partakes more or less of the nature of a "crazy-quilt" and it is not at all fair to attempt to form a judgment from a panel having a surface of half a dozen square feet which is not at all unlikely to belie and belittle the broader effect of the room for which it is actually intended.

The most agreeable feature of the Haberstroh method of decoration is that it so largely partakes of the merit in the way of accidental values, in both design and color, of hand-work.

As an exhibition, however, the most interesting things shown are the small scale sketches in color for proposed works, for in them the color scheme and arrangement can be seen and appreciated, the full-size panels being of value mainly as showing the possibility of carrying them into execution.



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

HOUSE OF JOHN H. HANNAN, ESQ., EIGHTH AVE. AND CARROLL PL., BROOKLYN, N. Y. MR. C. F. H. GILBERT, ARCHITECT, NEW YORK, N. Y.

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

COMPETITIVE DESIGN FOR THE CATHEDRAL OF ST. JOHN THE DIVINE, NEW YORK, N. Y. MR. W. HALSEY WOOD, ARCHITECT, NEW YORK, N. Y.

WE felt that the singularly effective and unusual draughtsmanship shown in producing this drawing was done such scant justice (because we were compelled to photograph it as it hung on the walls of the Academy of Design, where it was exhibited) in the *American Architect* for May 9, 1891, and so we asked that the drawing should be sent to us so that a negative could be made under less disadvantageous circumstances. Even now, the reproduction does not do justice to the draughtsman, for as our prints have to be made with one quality and tone of ink, it is not possible to produce the very luminous and aerial effect, which in the drawing itself is produced by using inks of varying strengths.

THE BUILDING FOR THE POSTAL TELEGRAPH CABLE CO., NEW YORK, N. Y. MESSRS. GEO. EDWARD HARDING & GOOCH, ARCHITECTS, NEW YORK, N. Y.

This building is to be erected at the corner of Broadway and Murray Street. The first four stories will be of Indiana limestone, and the remaining portion of a light gray brick and terra-cotta. The two upper stories and part of the main story will be occupied by the company for their offices, and the balance will be divided up for an office-building. It will be made entirely fireproof, with Portland cement floors, no wood being used in its construction except for doors and trim.

CHATEAU DE MARTAINVILLE, FRANCE.

"THE LAST CALL." MR. C. B. BIRCH, A. R. A., SCULPTOR.—GROUP FOR A PUBLIC PLACE. MR. C. B. LAWES, SCULPTOR.

SEE article on "Equestrian Monuments," elsewhere in this issue.

[Additional Illustrations in the International Edition.]

SCULPTURED WOODEN PANEL, STYLE LOUIS XV, FROM THE MUSÉE DES ARTS DÉCORATIFS.

[Photogravure.]

FIREPLACE IN THE COUNCIL CHAMBER OF THE HOTEL DE VILLE, COURTRAI, BELGIUM.

[Gelatin Print.]

This piece of Flamboyant architecture dates from 1527. The upper row of sculpture represents the Virtues, the middle row represents the Vices, the lowermost row declaring in what manner the rewards or punishments are meted out. The central statuette represents Charles V, while upon his right is Justice and on his left the Infanta Isabella.

BANK BUILDING, FRANKFORT, GERMANY. HERR ROTTER, ARCHITECT.

[Gelatin Print.]

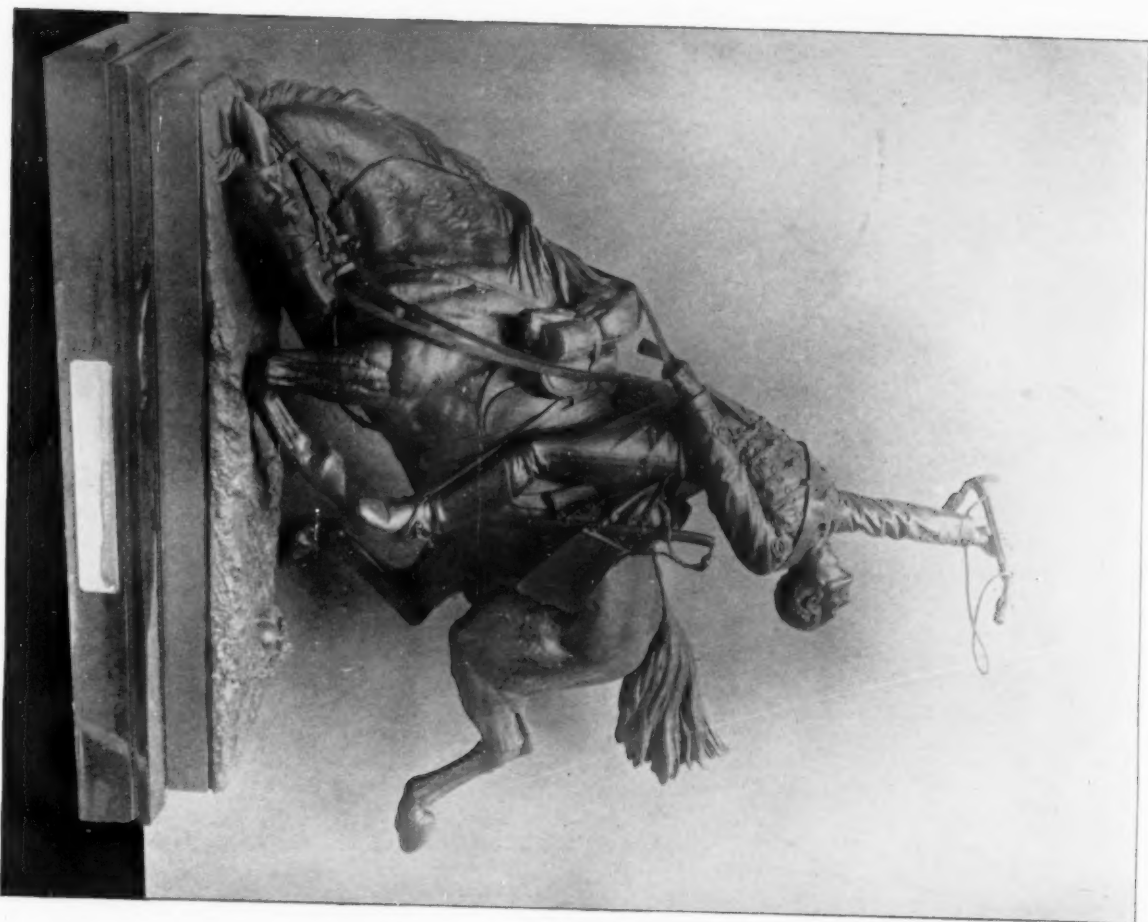
COMPETITIVE DESIGN FOR THE BATTERSEA INSTITUTE. R. WATSON.

DESIGN FOR OXFORD TOWN-HALL. MR. WALTER HANSTOCK, OF BATLEY, ARCHITECT.

THE buildings have been grouped and arranged according to the competition instructions as near as possible, the principal front being to St. Aldate's Street, the second front to Blue Boar Street, and the other sides blocked in by old property. Two open wells are arranged, each 70 feet by 27 feet, to give direct light to the internal part of the buildings, as shown on the ground and first-floor plans. The public hall is placed immediately behind the front entrance, and is 100 feet by 60 feet, with gallery on two sides and one end, and well lighted by windows on each side. The council-chamber, on the first floor to St. Aldate's Street, is 45 feet by 40 feet, with gallery over, with mayor's parlor and committee and ante-rooms adjoining. The assembly-room or banqueting-hall is 60 feet by 35 feet, on the second floor, and on the centre of St. Aldate's Street elevation, and in close connection with the council-chamber and official rooms. The section required for public library purposes is placed at the junction of St. Aldate's Street and Blue Boar Street, on the ground, first, and second floors, as in instructions. The police accommodation is in the rear of the building to Blue Boar Street, occupying basement, ground, first and second floors. The parade-room for police, 90 feet by 60 feet, is on the basement floor and under the public hall. The sessions court, which is situated in the rear, and on the ground-floor level, is 50 feet by 40 feet, and 60 feet by 40 feet in dimensions over gallery. Separate entrances and corridors have been given to each section of the accommodation, with the object of keeping each part as secluded and quiet as possible.

NEW ENGLISH PRESBYTERIAN CHURCH, MOLD, NORTH WALES. MR. T. G. WILLIAMS, ARCHITECT, LIVERPOOL, ENGLAND.

THE memorial-stones were laid on October 3, 1891. The site upon which the church and schools are being erected is near the railway station. The main elevations of the church front Westminster Road and Chester Street. The church is intended to seat 450 persons. The front portion is semicircular on plan, and the sittings are arranged in a gallery form, with stepped aisles leading to the body sittings. The school buildings are at the rear, and contain on the ground floor a school-room to accommodate 200 persons, three class-rooms, and minister's vestry and conveniences. A large school-room is to be constructed above these that will accommodate 250 persons, the access to same being from a separate staircase and entrance in Westminster Road. Heating-cellars, boiling-rooms and coals will be placed in the basement. The walls are to be built of stone from Gwern-y-mynydd Quarry, and the dressings in freestone from Westminster Quarry. The interior is to be fitted up in pitch-pine, having exposed hammer-beam principals.



THE LAST CALL. C. B. BIRCH, A.R.A., Sculptor.

"Forth darts the squadron at the trumpet call
 "Gallops yonder serried ranks bright with the fire;
 "Nearer one fierce volley sped and rider fell;
 "The trembling was broken on his lips again."



STUDY FOR A GROUP IN A PUBLIC PLACE. C. B. LAWES, Sculptor.

"They bound me on . . .
 "Upon his back with many a thong;
 "They hoisted him with a sudden lash."



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[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.]

ILLICIT-COMMISSIONS.

LOS ANGELES, CAL., April 30, 1892.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—Your correspondent X. Y. Z., of March 26 of *American Architect*, brings writer to know there are still some architects besides himself who have not yet bowed the knee to the modern god; popularly named Boodle.

Scarcely a day passes with me but some one calls, and takes the opportunity before leaving to say there is a certain percentage in case their goods are specified, or, if a contractor, a lump sum is hinted at, if their bid is accepted. Sometimes I wish I could use physical strength and kick them downstairs to the street. Again, I pity them when they significantly nod their heads and hint that So-and-so takes and expects to get a commission. They generally apologize and are happy to find one man who acts uprightly to their clients, and go on their way rejoicing.

A variety of causes may be given for such a state of affairs:

First. The irresponsible man who has a smattering perhaps of carpenter's work conceives the idea of "running" an architect's office, that it pays better than anything else. His shingle is hung out—after a job is secured; a draughtsman is employed or perhaps taken into partnership, and if the "misfit" carpenter is a good talker work for a time can be had for the newly-fledged firm of "Architects." Many such men before opening such offices have violated all laws—human and Divine. Are such men liable to have any qualms of conscience if they steal through the builders or material-men? Not any.

The remedy for this state of affairs is to have laws passed whereby only men who have characters to lose, and who have passed thorough examinations on architecture and construction can practise architecture.

Second. Owners are to blame. They seek to cut architects down in their charges, saying that So-and-so offered "to do all my work for two per cent," or perhaps less if the work is extensive. The architects in turn cut their rates, arguing to themselves that if they don't some one else will. They then cannot exist and must steal. Stealing is the cause effected by the owners.

Here in this city I will undertake to state not more than five or six architects look for or collect fees as laid down by the American Institute of Architects. When this is so, can you wonder that commissions (if you will) are collected from others than their clients by our architects?

Third. Moral stamina is much needed in almost every department of life. Godliness is at a discount. The existence of the Supreme Being is often questioned. If men (and women too) practically say this ends all, can they be so much blamed if they enjoy all they can get regardless of a hereafter:

"Or else, neglecting a' that's guid,
They riot in excess!
Baith careless and fearless
Of either heaven or hell!
Esteeming and deeming
It's a' an idle tale!"

Here, architects are a by-word: many who have formerly relied on them implicitly will hire any kind of a mechanic to look after their buildings rather than trust their interests in the hands of such men.

EX NIHILO NIHI FIT.

"MURDER AND ANARCHY!"

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—In a late issue of your paper you use language unworthy of an American and if we are to accept the teachings of Jesus Christ, you are as much a murderer as Ravachol or any of those like him. When you advance the idea of killing any human being you are a murderer according to the teachings of the New Testament. You should show by your superior modes of education and punishment that you are above the anarchist. As to the cover of the manhole being throw up in the air in the manner you describe, I have grave doubts of its authenticity. It is known to the more intelligent anarchists, and to some others, how to destroy a whole city in a few hours. It can be done by the water pipes, by the gas pipes and by electricity or the electric wires of a city. The city might be enveloped in flames in a few hours from now and one man might do the whole of it and at the same time might be miles away. If he failed the first time all he could do would be to try again until he accomplished his desired ends. As to explosions that can be done in the same way. Place a certain chemical in the meter of each place of business on the first of the month and by the increase of the voltage or power an explosion would ensue that would make the Ames building totter to the foundation. "One stone

would not be left upon another." That manhole affair may have been the effect of some one experimenting. We have in our city one of the most noted anarchists in the world. He is a quiet citizen obeys the laws, was born in the state of Maine, of honest American parents, was at Chiagao previous to the explosions and knew personally every one in the plot as originally planned. What have you against Joe Clinkard. Good memory. (One who knows.) You.

You are a murderer as much as any man who seeks to kill his fellows. Justice from on high.

[We commend to our correspondent the reading of Sheridan's "Rivals," as he might find useful the system of oburgation invented by Bob Acres. "Meters and man-holes!" "Gas-pipes and trolley-wires!" and similar expletives should find favor with a Boston anarchist.—EDS. AMERICAN ARCHITECT.]

AN OLD FLAT ROOF.

BALTIMORE, MD., May 5, 1892.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—Can information kindly be given through your columns as to what is now considered the best preparation to use upon a flat roof of small area, about fourteen feet by twenty feet, surrounded by a brick parapet, with slight fall and water outlet in one corner. There is already an old tin roof that has been covered with a species of asphalt, running up the parapet over tin flashing. This has not proved water-tight. It is desired to put some efficient preparation over the whole that will bear being walked upon, and be durable and tight.

Yours truly,

"ARCHITECT."

[We should prefer to take off the old tin roof, and put on a new one, of tin or copper, with an open-jointed floor over it for walking upon. It is next to impossible to get asphalt to adhere to the side walls of a building, or to flashings, so as to make a tight roof. Possibly the ordinary tar-and-gravel composition, over four or five plies of tarred felt, would answer the purpose for a time.—EDS. AMERICAN ARCHITECT.]

"RIFT-SAWN."

MINNEAPOLIS, MINN., May 5, 1892.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—In some belated structural notes belonging to the article on "Better Wood Construction," and appearing in your issue of April 9, the term "rift-sawn" was used to denote boards cut parallel with and near to the slabs, or as the opposite of "quarter sawn." This the editor of the *Northwestern Lumberman* corrects in your issue of April 23. Any one reading the notes carefully could hardly have mistaken the meaning, as the terms used were fully explained by way of guarding against the different meanings attached to trade terms in different localities. However, the editor of the *Lumberman* will have less trouble in establishing himself as authority with me than with the dealers from whom I got the use, or misuse, of the term.

Yours truly,

F. G. CORSER.

TO PURCHASERS OF "SAFE BUILDING."

NEW YORK, N. Y., May 2, 1892.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—My attention has been called to the fact that the body of Table XL at the end of the second volume of "*Safe Building*" has been printed upside down. Will you kindly have this corrected and oblige,

Yours very truly,

LOUIS DE COPPET BERG.

[At the request of the publishers we would state that this error, which occurred in electrotyping, has been corrected for all future issues, and that correct copies of the table will be supplied, upon application, to all holders of incorrect copies. The error is detected by noticing that in the misprint copies the legends on the plotted lines read upside down as the book opens.—EDS. AMERICAN ARCHITECT.]

A NEW SANDSTONE.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—In reference to your editorial, relating to the wonderful find of a brown Caen stone quarry in Georgia. Having a personal knowledge of Caen and Aubigny and a large number of the oolites of England, I have taken the liberty of forwarding to you a small sample of stone from a property in West Virginia, a district in many respects similar to the Bath district, but especially in its many mineral springs, as the well-known Rockbridge Springs, White Sulphur Springs, etc., will readily testify, which seems to me to come nearer the color, at least, of Caen stone than "rich chocolate brown," though, on comparing them side by side, it is at once apparent it is more intense in shade than Caen. I have treated this stone with sulphuric and hydrochloric acids without any appreciable effect. As my tests were somewhat rough, not being a chemist, whom would you suggest as authorities to thoroughly analyze it, and also to test it for crushing, etc.?

I may add that its weathering qualities seem, so far as being able to judge by its use as tombstones, to be very good, the lettering and carving (?) on stones executed in 1820 being as good now as when

they left the hands of the monumental mason; while in the same churchyard marble tombstones fifteen or twenty-five years old are weathered and granulated.

Yours truly, SCOTUS.

[The sample of stone sent is of a strong yellow-ochre color and very fine, even grain. Tests for crushing-strength are made on the great Emery testing-machine at the Arsenal at Watertown, Mass., by the United States Government, at a charge simply sufficient to cover the cost of attendance and preparation of the specimens. Chemical tests can be made by any expert chemist, but the best test of all is that which has been already applied—exposure for a long term of years to the actual influence of the atmosphere. If the stone lies favorably for quarrying, and is of uniform quality throughout an extensive deposit, and is free from seams and defects and liability to fade or darken, it seems to us that it will be a valuable building material. The strong yellow color, different from that of any other building stone in common use here, would, it seems to us, be valuable in city buildings, as it would keep its brightness and freshness long after a stone of less lively shade had grown dingy. — EDS. AMERICAN ARCHITECT.]

NOTES AND CLIPPINGS

EFFLORESCENCE ON BRICKWORK.—The white salt-like exudation found on new brick buildings is, of course, well known to our readers as saltpetreing—a chemical action. Two German chemists have concluded that the efflorescence is due to the formation of sulphate of lime and sulphate of magnesia, owing to the coal used in firing the kilns, which contains sulphide of iron (iron pyrites) and which becomes decomposed in the kiln when the sulphur is oxidized and taken up by the bases, lime and magnesia of the bricks. Thus, bricks containing large quantities of carbonate of lime or magnesia are subject to this discoloration, as the bricks absorb a large percentage of sulphuric acid. When wood was used as fuel instead of coal this discoloration was not experienced. One German chemist attributes the inferiority of modern bricks to this sulphate, which causes a disintegrating action in the material by the alternate deliquescence and crystallization that take place. As a remedy, it is suggested that the kilns should maintain a temperature of from 40° to 60° Centigrade at the early stage. Other authorities say that sea-sand should be avoided as mainly the cause of the formation of chlorides; clay containing pyrites or much magnesia should not be used. By mixing the mortar with any fatty matter the evil may be reduced. Dampness is favorable to efflorescence. The causes, however, have been known to be mainly attributable to the fuel used in burning the bricks and lime—the coal fires, the sulphur from which converts the lime or magnesia in the clay into sulphates. Hence the value of burning the bricks with coke or wood. We see many recent red brick houses, gate piers and viaducts, like that carrying the Chatham and Dover line through Dulwich, disfigured by this white efflorescence. Architects should be careful to specify the qualities of bricks—that they should be burned with fuel not charged with sulphur, or that the clay should be free, if possible, from pyrites or magnesia. — *Building News*.

FLARED COAL-TAR FOR WATERPROOFING.—According to the *Revue des Travaux Publics*, the use of coal-tar as a means of rendering masonry impervious to water is much favored in France. There are two ways of preparing the tar for this use—boiling and flaring. The former method is suitable for surfaces intended to be exposed to the atmosphere, while the latter is appropriate for surfaces to be covered up by masonry, earth, etc. By adding to the coal-tar a paste made by dissolving India-rubber clippings in benzine, a coating may be obtained which is still more resistant, elastic and durable. For roofs the heat-absorbing quality of these black varnishes may be overcome by dusting them with any permanent white earth before they are quite dry. For masonry to be covered up, the use of flared tar is highly recommended. This is prepared by boiling the tar in a caldron, and filling a bucket two-thirds full from it. The tar is then lighted at the surface, and allowed to blaze for fifteen or twenty minutes, being constantly stirred the while with an iron rod. When a drop from the blazing bucket upon cold stone has the consistency of thick soup, the flare is extinguished by covering down the bucket with an iron lid. The tar will then be reduced to one-third its original bulk, and it must be spread as rapidly as possible upon the work with a cod-tail brush of vegetable fibre—care being taken to dip often, so as to prevent its cooling and hardening prematurely. If the flaring process is prolonged beyond the proper moment, the result is a brittle product like sealing wax. When the flare is stopped at the right time, the resultant tar adheres very firmly to any surface, and can be immediately covered up with earth. It has a skin both hard and tough, underneath which is a viscous layer about 1-25 of an inch thick, which preserves its integrity for any length of time. — *Scientific American*.

HOUSECLEANING WITH A BALLOON.—There is one part of the county jail yet to be cleaned which has given the warden much worry. In the centre of the building there is a dome 111 feet from the floor and totally inaccessible except by balloon or high scaffold. Around the dome are several strong barred windows, and they, like the balance of the dome's interior, are absolutely black, showing in strong contrast with the white walls below. How to clean the dome has been a puzzle that every official about the building, including the judges of the court have endeavored to solve. The County Commissioners suggested a scaffolding, but the cost would run up to \$200, and that was considered too much for a simple cleaning of windows and a couple of coats of whitewash on the dome. Block-and-tackle and other schemes have been suggested, but all were discarded as impracticable but one. That one is an idea of the warden's which may be put into execution unless a better one is presented. He proposes to send a man up in a hot-air

balloon to do the work. He figures that a canvas bag ten feet high and about five feet wide would support a man in perfect safety if filled with hot air, and he proposes to keep up the supply of air by building a big fire on the flagstone pavement under the dome. A volunteer from among the prisoners will be called for. He will be attached to the balloon seated on a chair, and provided with a mop or whitewash brush as the work to be done may require. The balloon can't get away, and a rope will connect it to the floor so that it can be pulled down at will. — *The Pittsburgh Dispatch*.

THE EXPORTATION OF ITALIAN ANTIQUITIES.—The correspondent of the *London Times* at Rome puts a new light upon the demand of the Italian Government for the sequestration of the pictures of the Sciarra collection which have been conveyed surreptitiously to Paris. He says: "The case, which will serve as a precedent for all the other collections of the nature of the Sciarra, though it has nothing to do with the ordinary commerce in ancient works of art arises from the fact that the collection was left to the ancestors of the present head of the family on the condition that it should be held for the public enjoyment and be always accessible on stated days to visitors. The quality of property in trust was long ago settled by the Papal tribunals, and therefore does not depend on the recent Italian laws, it having been decided by those tribunals that the pictures could not be sold. The claim for their recovery and return does not depend on the law forbidding exportation without the consent of the Government, which would only make a case of smuggling of it, but on the public right to the use of the pictures conferred by the legislators of former generations and repeatedly confirmed by the courts. The head of the family is, in fact, only the custodian of a public trust, and has no more right to sell one of the pictures, which were all carefully catalogued, than he would a piece of entailed estate." — *New York Evening Post*.

MEXICO TO BUILD THE TEHUANTEPEC SHIP RAILWAY.—It is reported that the government of Mexico has made a contract with Mr. E. L. Corthell, the well-known engineer of Chicago, Mr. Hampson, formerly of Fairfield, Ia., and Mr. Stanhope, an English resident of the city of Mexico, to complete the railway across the Isthmus of Tehuantepec, between the Atlantic and Pacific Oceans, which was begun by an English company some time ago. The government has two millions of dollars in hand for this work, which it is said will be given to Mr. Corthell and his associates as a subsidy, together with the right to organize a company, issue securities, and build the terminals, and the two harbors for the largest class of vessels. Mr. Corthell has been in the employ of the Mexican Government for several years, and is just completing the extensive jetties at the harbor of Tampico. — *Scientific American*.

TRADE SURVEYS

THE situation in the business world has not improved. Money is abundant in the banks. Collections are difficult in the smaller towns and cities throughout the country. Stocks are kept as light as possible in both wholesale and retail circles. Travelling agents report it difficult to make large sales. Manufacturers are working in a hand-to-mouth way, avoiding overproduction, keeping in sight customers' actual needs. As regards the probabilities for the summer, it is impossible to assert at this time that an improvement in prices will take place. There is a widespread feeling that the volume of business will considerably increase, and one reason given is the abundance of money and the low rate of interest; at the same time, there are several reasons for saying that the present dullness will probably continue until the opening of autumn. Prophets who have been predicting an improvement ever since the opening of the year are obliged to admit that trade conditions are no better now than two or three months ago. The distribution of merchandise is kept within the limits defined by actual necessities. Small merchants throughout the country are very stubborn and conservative, and seem to apprehend in their cautious dealings a stringency in money matters. In the heavier industries, there is but little of encouragement to note. Consumption of iron and steel is heavy, but stocks are large, and prices lower than they have been for years. In the machinery-manufacturing lines there is greater activity than for years, due to the heavy demand from the users of electrical equipments. The makers of boilers and engines are also very busy, and prices for work have slightly advanced. The builders of locomotives are quite busy again, and two or three of the larger works have a summer's work secured. During the past week, several very large orders for box-cars were placed, and also for passenger-cars, as well as for railway equipments. The transportation interests will continue to be heavy buyers. Large orders are about being placed in Lake ship-yards for craft to supply the increasing demand for Lake tonnage. Two large steam vessels will probably be built at Philadelphia. Great activity is reported in all the Delaware ship-yards. An improvement has set in in a number of industries throughout the South Atlantic States. A good deal of activity is drifting into the well-established industries there, and is showing itself in extensions, particularly in cotton mills. There is also an increase of activity in a good many of the cotton mills in the Gulf States, and the lumber industry of those States is also being strengthened by additions of outside as well as of local capital. There is a noticeable improvement in the smaller industries west of the Mississippi River, growing out of the favorable agricultural conditions, but there, as well as East, complaints are that prices are very low. Cotton is improving in demand, but prices continue below a remunerative point. The farming interests are liberal buyers. The carriage and wagon industry throughout the West is particularly prosperous. Within a week or two past, announcements have been made of the intended construction of several new lines of road, and inquiries have been made for material at rail-mills. While the general condition of the country is satisfactory, there is lacking the vitality which gives confidence. Manufacturers have nothing to do but wait improving conditions. The textile interests are satisfied with the distribution of goods. The boot and shoe interests are quite prosperous. Paper-mills report an active demand for almost all lines of goods, and there is a steady increase of capacity, particularly in the Northwest.

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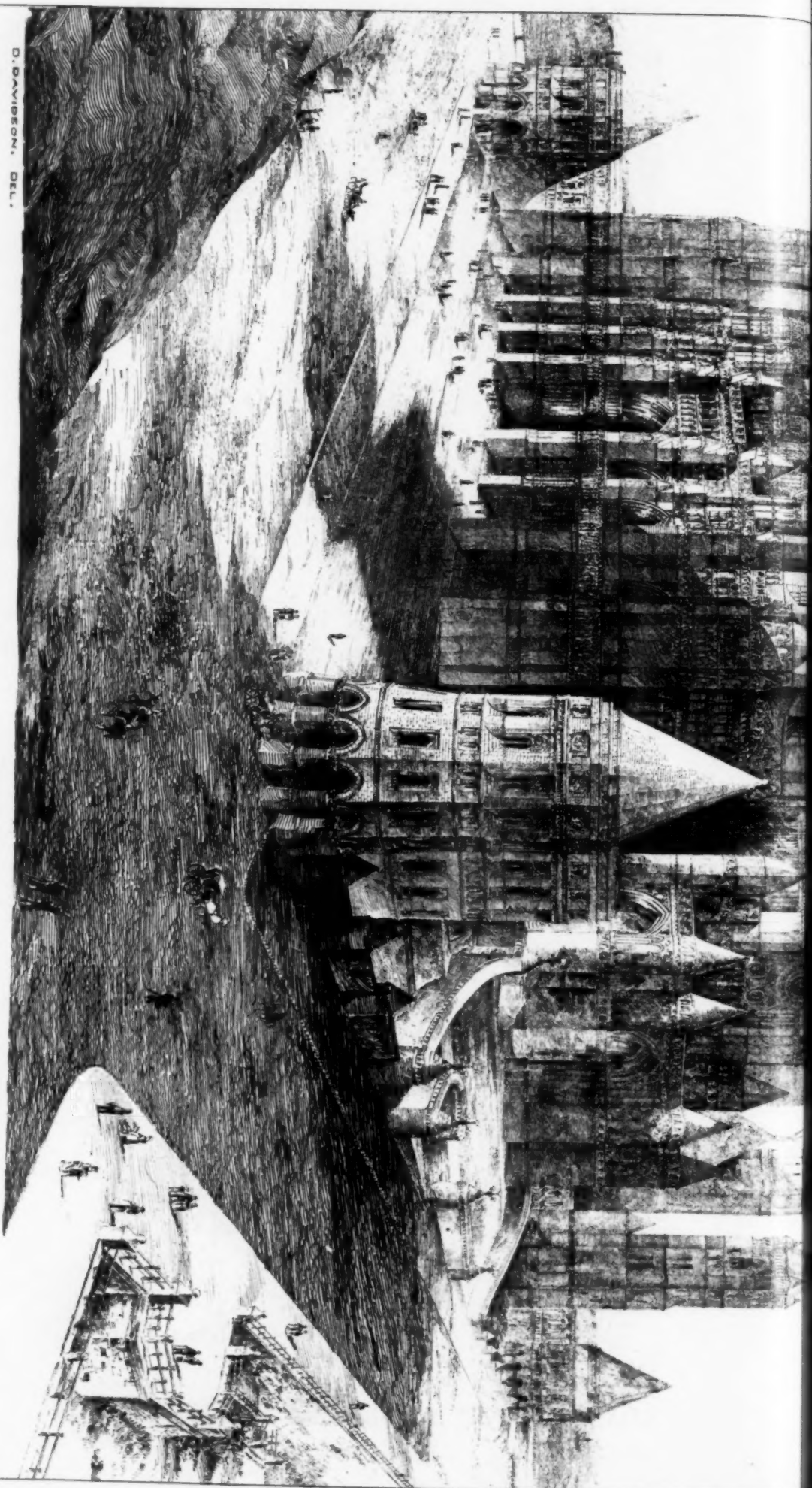
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William Halsey Wood.
Architect.

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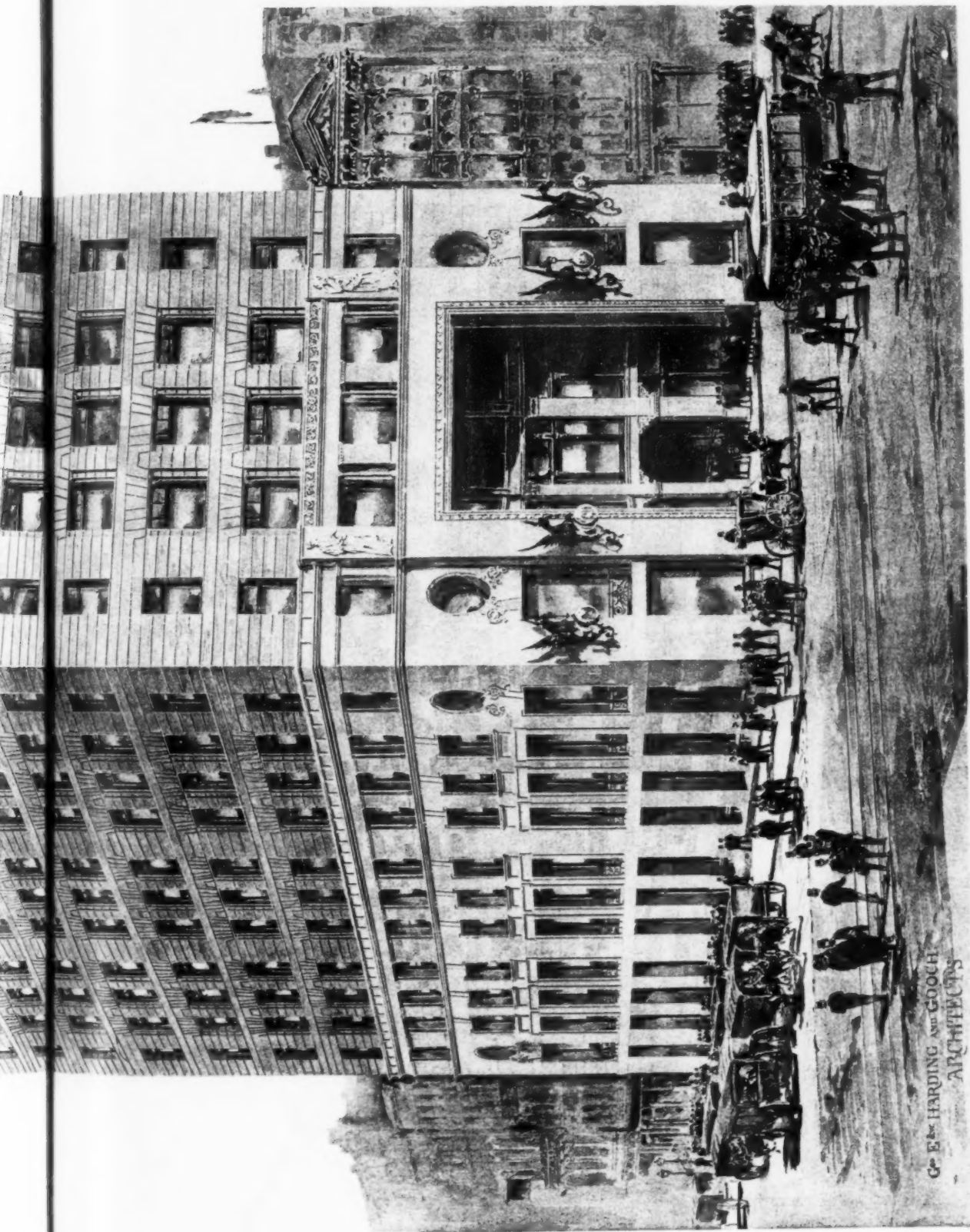
AMERICAN ARCHITECT AND BUILDING NEWS, MAY 14 1892

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