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SOME of the younger architects in New York seem to have originated a movement which may become important hereafter. Under the name of the Beaux-Arts Society, a corporation has been formed, intended, as its articles of incorporation say, "to cultivate and perpetuate the associations and principles of the École des Beaux-Arts, of Paris, and to found an Academy of Architecture, for the purpose of architectural exhibitions and training, and to establish and maintain a library of architecture, and also a club-house." The Trustees of the Corporation are Messrs. Charles F. McKim, Ernest Flagg, Richard H. Hunt, Walter B. Chambers, William A. Boring and John M. Carrère. As New York already possesses a school of architecture of the highest class, modelled, so far as its teaching of design is concerned, on the Paris École des Beaux-Arts, besides a beautiful exhibition-hall, and an admirable library of architecture, to say nothing of the League rooms, which form as pleasant a club-house as a young architect could wish to be admitted into, it is not easy to see what pressing need remains to be provided for by the "Beaux-Arts Society," but the Trustees of the new Society, at least, are well known for their wealthy and influential connections, and if they can show that they have in hand a work of real use, the public has confidence enough in them to respond liberally to any call for pecuniary support that they may make.

BOSTON architects should not fail to note a recent decision of the Board of Appeals on the question of what constitutes a basement. Under the new building law, every building more than four stories in height must have the two lower stories of fireproof construction; and another provision of the statute defines a basement as a lower story having more than half its height below the level of the street. A firm of architects designed a house, containing four stories entirely above ground, and one story buried in the ground so far that the middle line of its height, while slightly above the curb level, was considerably below the grade line of the grass-plot which intervened between the house-front and the sidewalk line. The plans and specifications called for nothing more than the usual construction; but the Inspector of Buildings, perceiving, from the elevations, that more than half the height of the lowest story would be above the curb level, held, as he was bound to do, that, as this was not the basement story, under the definition given by the statute, it could be nothing

else than a regular story, and the building was therefore five stories in height, and must have the two lower stories fireproof. It would seem as if the difficulty might be easily met by excavating the cellar a few inches deeper, so as to lower the median line of the basement to the necessary extent to satisfy the law; but the statutes regulate the level of cellar floors in Boston, and the necessary lowering could not be effected without contravening the law in another point, or unduly reducing the height of the basement ceiling. In this perplexity, the parties carried their case to the Board of Appeal, which has now decided that the statute provision is intended to apply strictly only to buildings fronting substantially on the street-line; and that where a grass-plot, graded toward the street, intervenes between the house-line and the sidewalk, a lower story, the middle line of whose height comes below the ground-line, at the building, is to be regarded as a basement, although such middle line may be above the line of the curb.

MR. GEORGE H. EDBROOKE, an architect widely known in Chicago, where, with his father a well-known contractor and his brother who was Supervising Architect under the last administration, he lived for many years, and known also in New York, where he had of late practised, died in the latter city, by suicide, a few days ago. Mr. Edbrooke, both in Chicago and New York, enjoyed an excellent reputation, and had a good business. His last important building, the Brooklyn Savings Bank, which is to cost about a quarter of a million, is not yet complete, and he had recently finished another building of about the same value. He also designed the Adams Express Company's building, and one of his buildings in Chicago is that on Clark and Lake Streets for the Sibley Seed Co. Notwithstanding his success, or, perhaps, as a consequence of the mental strain incident to so much responsibility and anxiety, he had of late fallen into despondency, the preliminary stage, no doubt, of cerebral disorganization.

A GREAT deal of talk has been made within the last week or two in connection with the design for the Columbian medal. The dies for the medal are in preparation at Washington, and the medals themselves are to be struck at the Mint. It seems that Mr. St. Gaudens, the designer, naturally kept his model from public view until it should be delivered to the Government officials, and this conduct served to sharpen the public curiosity in regard to it. The managers of the Page Belting Company, of New Hampshire, to whom a medal had been awarded, took it into their heads that a drawing of the medal would form an interesting decoration for the new calendar which they proposed to send to their customers at the beginning of the year; and, as the medal itself was not yet available, they sent a draughtsman to Washington, to make a drawing from the dies, or from Mr. St. Gaudens's model. The draughtsman was shown the plaster model, and made, from memory, it is said, small drawings, which were engraved, and appeared in the Belting Company's calendar as representations of the Columbian medal. No sooner had the calendars been distributed than protests began to be heard against the design of the medal, as shown in them. The matter was called to the attention of the Senate Committee on the Columbian Exposition, and the members of this committee, after examining the model, requested the Secretary of the Treasury to have work on the dies stopped, on the ground that the nude figure represented on the reverse of the medal was indecent. Secretary Carlisle thereupon wrote to Mr. St. Gaudens, inviting him to design some drapery for his figure, and the intimation was made that, if he did not wish to do so, the Treasury designers would provide it; or, if he objected to having his model tampered with, it would be abandoned, and a different design, by another artist, would be immediately prepared and carried out.

THIS communication appears to have found Mr. St. Gaudens in a very unamiable frame of mind. To the reporters who called to see him on the subject he said, according to their account, that he would not change his design, or make another; and he is alleged to have characterized the draughtsman who made the picture of it for the Page Belting Company as an "idiot," and a "New Hampshire ass." More than this, it

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is said that Mr. St. Gaudens has employed counsel to demand damages from the Belting Company for caricaturing his work. The last circumstance introduces a curious complication into the dispute. In order that a jury may determine just how much damage Mr. St. Gaudens has suffered at the hands of the Page Company's draughtsman, it is obviously necessary that the original model, from which the drawing was made, shall not be altered before the jury sees it, and the Page Company has therefore taken the precaution to notify the Government officials not to change it, or, at least, to take an exact cast of it before alteration. What will be the result of the dispute no one can tell. The newspapers have, to a certain extent, taken sides in the matter, some thinking that it is absurd to object to a figure which is no worse than those on hundreds of antique coins and medals, while others support the Senate Committee in the belief that the design is not suited for its purpose. To our mind, the latter have the better side of the case. It is true that antique coins show nude figures, but antique coins were made for people who usually went half-naked, and to whom a short tunic, with a pair of sandals, was quite sufficient for the ordinary attire of a woman, and even superfluous luxury for a man. To people thus trained, a nude figure was no more shocking than it would be to a baby; but the fact that the Greeks and Romans, who were accustomed to seeing women doing housework *en chemise*, and field-slaves laboring in Nature's garb, endured, not, indeed, without remonstrance, the representation of naked persons in sculpture, by no means proves that we, who carry into private life the reserve and propriety which the ancients maintained only in public, show nothing but ignorance in objecting to the nudity of Mr. St. Gaudens' straddling figure. Whatever may be said of the representation made for the Page Belting Company, it is no "New Hampshire ass," but Mr. St. Gaudens himself, who chose the attitude of his personage, and one does not need to be prudish to find this attitude unnecessarily and obtrusively offensive. If an actual individual were to present himself in such a manner in the dressing-room of a swimming-club, he would be voted a cad by his associates, and it seems to us that Mr. St. Gaudens's idea, of presenting to the public the Genius of American Industry, or whatever else it may be, under an aspect which would be regarded in real life, even under the most intimate relations, as vulgar and insulting, has been very properly objected to by the authorities.

THE Municipal Council of Paris has for many years assisted boys who wished to enter the Department of Architecture at the École des Beaux-Arts, by granting them scholarships, in cases where they were too poor to pay their own expenses in the School, and yet showed talent and industry enough to indicate that they would distinguish themselves in such a career. Very recently, however, the Council has voted to discontinue all these scholarships, on the curious ground that there is now an "excessive number" of architects in Paris, and that it is "useless, and perhaps even dangerous" to encourage children to enter a profession "already so overcrowded." The Council, in passing the vote, unanimously declared that its action must not be taken as a reflection on the instruction given in the School of Fine Arts, but only as the result of a conviction that the results secured by means of the scholarships did not correspond with the sacrifices necessary for maintaining them.

THE *Architect* (London) assumes quite an individual and solitary position when, under as late a date as January 12, it speaks of the late World's Fair as the "costliest of architectural fiascos." We heartily hope that the insularity of the editor may not be disturbed, and echo his aspiration that it "would be more advantageous for people at a distance, if tourists who visited the exhibition could be persuaded to refrain from trying to convince those who wisely remained at home that the World's Fair was an event in universal history and inaugurated a new era." We hardly believe, however, that a good many German, French, Italian, Spanish and some English critics who are generally held to be as competent and well informed as they are broad-minded and amiable, can be induced to recall the opinions greatly at variance with that of the *Architect's* editor which they have already pronounced. If the Fair was a "fiasco" in any particular it was in its overshadowing the rights of exhibitors by the too great attractiveness of its architectural features.

LE GENIE CIVIL has a study of the subject of the disposal of city garbage, which is beginning to attract attention all over the civilized world. As usual in sanitary matters, the English have made more progress than any other nation, and many English cities, among them Manchester, Leeds, Birmingham and Southampton, get rid of their household wastes in the most effectual manner, by burning them. It is obvious that it is one thing to burn garbage, and it may be quite another thing to do so economically; but the English engineers have studied the best mode of applying heat, until they have succeeded in reducing the cost of incineration to a low, and comparatively uniform point. Where the work is carried on at a large scale, as at Southampton and Manchester, the fresh garbage can be reduced to dry cinders at a cost of about sixty cents a ton, the fuel being economically applied, and the waste-heat utilized in various ways. At Southampton, the waste-heat is used for making steam, a part of which drives air-pumps, and the compressed air from the pumps is led to various points in the sewerage system, and there applied to lifting and forcing the sewage through the pipes; while another part drives engines and dynamos, which supply some forty arc-lights, and two hundred incandescent-lights. At Hastings, the waste-heat is also utilized under steam-boilers, and the steam is employed to pump sea-water, for washing the streets and for flushing the public water-closets and urinals. In other cities, steam so obtained serves for cutting hay, for feeding horses, for mixing mortar, and for disinfecting clothing. The waste products from the garbage itself, as treated in England, are not of much value. The matters are completely incinerated, so that nothing remains but ashes and cinders, which are, however, ground with lime, and form a rough cement, which is sold for two dollars a ton, and answers for making pavements and artificial stone. In most parts of England, the serious mistake is made of picking out the tin cans, bottles and similar articles from the garbage before treating it. It is hardly necessary to say that anything which has once come in contact with waste matters of this sort ought to be sterilized by a high heat, before it is allowed again to get into human hands. No doubt, it would add to the cost of the process to roast the rubbish in the ovens with the garbage, and separate it afterwards, but this is nothing in comparison with the increased security so obtained. To show how extensive is the field for this sort of sanitation, *Le Génie Civil* remarks that the City of Paris gathers, and transports to the suburbs, eight hundred thousand metric tons of garbage and offal per year, at an expense of fifty cents per ton. To burn it would cost, under present conditions, about sixty cents per ton, and there would be a certain additional expense for transportation to the incinerating ovens; but, as it says, if we consider the cost of the sickness, loss of business, and loss of life, which would be avoided by a more hygienic mode of treating these dangerous substances, the balance is greatly in favor of the quick and effectual disposal by fire.

THE Hansa House at Antwerp, has recently been destroyed by fire. This house, as its name indicates, was built by the famous Hanseatic League, an association of trading towns in North Germany, for the accommodation of its Antwerp interests. Two-thirds of its cost was raised by subscription among the Hanse towns, and the remaining third was contributed by the municipality of Antwerp, which found the trade with the Hanse towns very profitable. The architect was Floris de Vriendt, of Antwerp. The building covered more than an acre of ground, and contained storage accommodations for the Hanse merchants, besides banqueting and reception rooms. At the time of its erection, in 1564, the Hanseatic League comprised one hundred and sixty-seven cities and towns. As time went on, many towns were detached from the League, through force or diplomacy, by the neighboring princes, until, in 1630, only one lifetime after the building in Antwerp of the splendid House of the Hansa, the League was reduced to three cities, Lübeck, Hamburg and Bremen. These three held, jointly, the title to the property for two hundred and thirty-three years more, but, as it lost its original use to them, they rented it for various purposes. It was for a time used as a Protestant church, but, when the commercial importance of Antwerp began to revive, it was taken for a grain store. In 1863, the three cities which owned it sold it to the Belgian Government, which, later, conveyed it to the municipality of Antwerp.

THE FRENCH RENAISSANCE.¹—I.

ALTHOUGH in the sixteenth century the French Renaissance followed the general direction dictated by the Italian Renaissance, its causes, sources and tendencies, not less than its characteristics, possess numerous wholly distinctive features, which proclaim the complete freedom of its movement in the presence of foreign influences.

The French Renaissance, like the Italian, made its début in sculpture, and, in this respect, it is first in date. Sienna, Florence and Rome were not yet out of their Byzantine swaddling-clothes, when the Cluny school of France, according to Viollet-le-Duc, but more accurately speaking, the Burgundian and Languedocian schools, began to exhibit well-defined indications of emancipation as regards conventional methods. But these matured in the Gothic style, which alone developed them and benefited from them.

All this is, moreover, inseparable from the normal progress of French sculpture. When, after four or five generations of artists had painfully trained themselves, sculptors felt that their eyes were sufficiently accurate and their hands sufficiently skilled, they cast aside their foreign models and approached the enlightened study of nature. The introduction of statues in the composition of tombs, in the twelfth century, forced them to portrait-work, a style in which they soon excelled and which has since become to us in a certain way national. About 1245, as soon as the basilica of Saint-Denis, which was being reconstructed by order of St. Louis, appeared far enough advanced, the King had rebuilt, at his own expense and with all possible magnificence, the sepulchral monuments of his predecessors; at the same time he had his own tomb executed, together with those of several members of his family. This great work and others of less importance undertaken in various provinces, notably at the court of the rich counts of Champagne, had the effect to keep artists in the beaten path, from which, however, nothing else tended to turn them. Whatever may be said to the contrary, the painters and sculptors of the Middle Ages did not hesitate to attempt to depict the nude. They had tried their hand at it, very unsuccessfully, no doubt, but with an evident aspiration toward something better, in the Romanesque edifices of Burgundy and Forez (this remark is suggested to us by a very convincing collection of designs shown us not long ago by a learned archaeologist of Forez, M. Thiollier). They succeeded quite well in these efforts in the thirteenth century, of which no other proof is required than "this torso of Eve, modelled with extreme care, one of the most beautiful specimens of the art of the time, and which holds its place worthily in the first museum of France, among the masterpieces with which it is surrounded." It comes from the old rood-loft of the cathedral of Bourges, the remains of which were described in 1892, by M. Octave Roger, in a pamphlet full of interesting details.

The impetus was so strong that the movement was not affected by the Hundred Years' War. We see, on the contrary, fresh progress forcing its way, at most diverse points. We see sculpture, fettered for a time in the meagreness which architecture inflicted upon itself, escaping from an absolute dependence upon the latter. It is true that this movement was not universal or rather that it did not exhibit everywhere the same characteristics. Here, owing to its contact with architecture, sculpture was subservient to mannerism and commonplaceness; there it brooked no guidance except of its own accord, gradually meeting a marked decadence with a revival which was destined sooner or later to evoke other monumental forms.

A glance at the art of the second half of the fourteenth century will furnish important instruction as to this point. About 1340, there were executed at Toulouse, for the Cordeliers and at the expense of a bishop of Rieux, statues of the twelve apostles, "remarkable for a sincere and clearly expressed feeling for nature." Three courts, those of the popes at Avignon, Charles V at Paris, and the dukes of Burgundy at Dijon—to which may be added the court of the magnificent duke, Jean de Berry, and the unfortunately too ephemeral court of Louis d'Orléans—furnished work or protection to artists whose manner gives us clearer and clearer glimpses of a new era. Burgundy especially, safe from the shocks which involved the existence of the Capetian kingdom, and governed by princes fond of pomp and luxury, in the last ten or fifteen

years saw produced, at Dijon, its capital, under the preponderant inspiration of the Netherlands sculptor, Claux Sluter, masterly works, which had a most striking effect upon mediæval art and commanded attention from far and near. From all parts of France sculptors came to the Chartreuse at Dijon to study the admirable statues of the well of Moses, the church portal and the sumptuous mausoleum of Philip the Bold. One alone, however, was able to carry home with him all the benefit to be derived from such a pilgrimage; this was toward the end of the fifteenth century; the artist was the immortal Michel Colombe, a Breton, who was not merely one of the precursors, but, so far as sculpture is concerned, the father of French Renaissance.

One may wonder why the architects stood so long with folded arms in the presence of the innovating tendencies of their brothers, the portrait painters. Let us say at once that a revolution in the art of building in the fourteenth or fifteenth century was not to the same degree imperative upon them.

Pointed architecture, forced by pitiless logic upon a career which a great social upheaval alone could have cut short, had not in the fourteenth century completed its necessary evolution, and, if this was accomplished in the following century, it was scarcely conceivable, even to the most receptive minds, what was to close it and succeed it. Barely is there discernible under Louis XI, notably at Notre-Dame de Cléry and at Saint-Aignan d'Orléans, an attempt, the possible consequences of which are deserving of notice. In the polygonal apses of these two edifices, owing to the dispositions of such a plan and to the difference of diameters which determined the excessive stiling of the *formerets*—a case, which had, moreover, often presented itself since the beginning of the thirteenth century, the *routain*, half way up, at least, is merely a vertical partition, the monotony of which it was thought to relieve by introducing a rose-window with mullions. Carry up the partition to a level with the keys, replacing the bulging top of the vault by horizontal surfaces, make the partitions open-worked throughout, and you have the flat ceilings, supported by through-carved ribs, which make the church of La Ferté-Bernard, and Saint Peter's of Caen and of Tillières so piquant. Is it possible that this was the point of departure of those novelties that people were seeking? Although any change in the inner framework of the vaulting may be considered pre-eminently as pointing to the regeneration of architecture, it would be imprudent for us to pronounce definitely here, for the march toward antiquity in a way enveloped these transformations while they were in the process of being wrought.

It may, however, be affirmed with certainty that the revival of Greco-Roman traditions was not itself the inevitable goal of this rejuvenation of art, attempted or realized, in the fifteenth century.

Nor can we doubt that conditions were favorable to a return to the so-called Classic antiquity, from the Rhine to the Pyrenees, during the greater part of the Middle Ages. Under the Merovingians, Chilpéric and Brunehaut strove to this end in the arts, in literature and in institutions; and, under the Carolingians, Charlemagne thought to have succeeded in the attempt by his palatine academy, by his edicts, by calling in the aid of numerous Italian or Byzantine workmen, and by the frequent use of columns and materials taken from ancient edifices. At the height of the Romanesque era, Provence and, to a certain extent, Burgundy, remained Classic in all that did not concern too closely the structure of the vaulting, maintaining the elements, profiles and ornamentation of the Ionic and, more especially, the Corinthian orders; Saint-Front of Périgueux revived a mass of details which, nine or ten centuries earlier, would have been very appropriate for the pagan Vesonna; the Corinthian capital, abandoned for a time in certain provinces for the godrooned capital, the cubical, the storied, and some others difficult of classification, regained its ascendancy everywhere in the first half of the twelfth century and was instrumental in paving the way for the Gothic capital. Suger, the man who best represents and who really personifies the transition from the Romanesque to the Gothic, was brought upon Classic teachings; he knew Horace and Lucan by heart and cites them on all occasions; he saw the monuments of Rome and became enamored of them; he coveted for his basilica of Saint-Denis, the columns of the Baths of Diocletian; he adopted for the decoration of his façade, the old systems of mosaics and bronze doors. He moved forward only when forced to do so by the admission which his high

¹ From the French of Anthyme Saint-Paul, in Planat's *Encyclopédie de l'Architecture et de la Construction*.

intelligence could not escape, of the needs of the monumental art at his time, an admission in its nature opposed to any backward steps. It was these circumstances, which his reason did not heed without a struggle, that made him an innovator. This kindly regard for antiquity was the prevailing spirit among his contemporaries. One of them even dared to address to the illustrious abbé, who was then living or had died but a short time before, a lyrical poem of wholly heathen versification and thought. At Saint-Denis also, a not very distant successor of Suger—it was in the middle of the reign of Philip Augustus—erected at the centre of the cloister a large stone basin for the ablutions of the monks, on which figure in medallions, with their names and attributes, the chief divinities of Olympus. It may be seen to-day in the second court of the Palais des Beaux-Arts at Paris.

But the structural principle which the basilica of Saint-Denis had seen decisively manifested soon became paramount to all existing tendencies and swept them away, especially when the applications of it were fixed by lay architects who were less bound down by tradition. From the beginning of the thirteenth century, architecture was launched by them upon a career which it was condemned to pursue to the last. Toward the close of the fifteenth century, this career seemed nearing its end; it was prolonged languishingly, protected by the constructors' spirit of routine. The maintenance of the Gothic style was also, doubtless, in a measure the result of Flemish influences which spread from the Vosges to the Pyrenees and which one finds, during the entire fifteenth century, represented by painters or sculptors from the Low Countries, in most of the art centres: at Paris, Bourges, Rouen, Angers, Toulouse and Arles, not to mention Dijon again.

Flanders, still more than France, clung to Gothic tradition; she proved this at home until the second half of the sixteenth century; she proved it under a quite piquant form during the reign of Louis XII, at Brou, near Bourg-en-Bresse, where, for the tombs, and, perhaps, also for the church, in the place of designs conceived in the Renaissance style by the Frenchmen, Michel Colombe and Jean Perréal, plans were adopted by the Flemings Van Boghem—who had charge of the work conjointly with Colombar of Dijon—and Conrad Meyt, which were unreservedly true to the old ideas. The Dijon school, Colombe excepted, in no way modified the condition of things which turned the eyes of Frenchmen toward the North rather than the South.

However, a movement in the direction of Italian teachings could not be indefinitely postponed independently even of the expeditions of Charles VIII and Louis XII, without which we could, if necessary, account for everything. In general, we spread the arts but little; and, if the aforesaid expeditions did have some appreciable results, this was due to a few wealthy priests, fond of pomp and free from all artistic prejudices.

This does not mean that the immediate causes of the French Renaissance were, as in Italy, or in the same proportion as there, religious. The liturgy, which among us had so resolutely combated Greco-Roman traditions, in so far as they were inconsistent with the proprieties of Christian worship, and which had been amply satisfied by the creation of the Pointed structure, could not, while maintaining the same forms—and it was in no way yet disposed to sacrifice them—lightly return to the dispositions whose inconveniences it had so successfully obviated. The master-masons found here, then, in their routine, an ally, and at every insinuating or innovating proposition they could triumphantly ask, "Of what use?" The late Gothic, thin, complicated and stiff, was indeed shocking to good taste; but no matter, it had not failed in that for which it was originally designed. There, it was invulnerable.

It is in the motives less closely connected with the system of ribbed vaulting, in decorative or commemorative works, in the details and certain dispositions of seigniorial or bourgeois dwellings that the Flamboyant style could find successful rivals, and it is just there that it was attacked.

If we see prelates figuring honorably in the Renaissance movement, we must ascribe it less to the fact that they were priests than that they were feudal lords. Enriched by the privileges of the "commendam," which enabled them to accumulate the revenues of several livings, and but little absorbed by the needs of their abbeys or their cathedrals, which they neglected wholly or relegated to a secondary place, they sought

glory in the construction of fine palaces, in adorning their churches, when they deigned to pay any heed to them, with purely decorative and easily executed monuments; they preferred to do this rather than sink their individuality in huge edifices that had been begun long before them, or in structures which, if begun by them, would probably, owing to their exceptional size, be finished, if ever, only after they were gone. For this reason, the great cathedrals had comparatively little to gain from the munificence of the princes of the Church during the sixteenth century.

It was in a tomb, erected not in one of the provinces near the Alps, but in the very centre of the basin of the Loire, that the Renaissance suddenly burst upon the vision of our ancestors, nearly a quarter of a century before the reign of Louis XII. This work, the origin of which M. Léon Palustre has recently discovered and discussed, is the mausoleum executed at Le Mans by the Italian Francesco Laurana, celebrated especially as a medallist to the Count of Le Maine, Charles of Anjou, who died in 1473. The tomb, which is quite like a cradle, rests on two narrow masses reinforced on each side by bands of black marble terminating in lion's claws. The height is occupied by a scotia, a broad curved surface and two cavettos; then comes a border of godroons, which form a sort of frame around the recumbent statue of the count. But the statue and the costume reflect the ideas of the Middle Ages. A cartouch, supported by two cherubs, bears the epitaph of the deceased, as in the ancient tombs.

This innovation was, however, too abrupt, too premature, and it remained a dead letter. In Le Maine we must come down to the year 1496, to see ventured, in the framing of the famous Saint-Sépulchre of Solesmes, a Corinthian capital and a few arabesques; at the same period and not very far from there, in the Angevin château of Le Verger (Fig. 1), a few

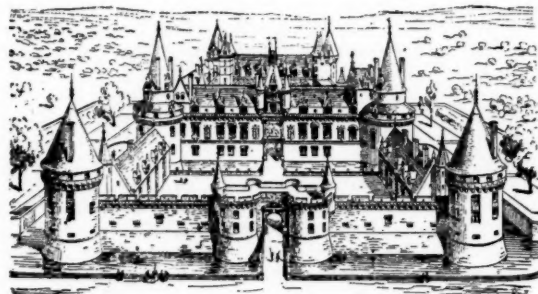


Fig. 1. Château de Le Verger.

analogous details are mixed with the Gothic, gradually taking precedence over the latter as the construction advances. This gradual introduction of the Renaissance elements was better suited to the situation of French art and of those who presided over its destinies, whether artists or rich amateurs; therefore, it marks distinctly the dawn of that noble period which was to be termed the "Age of Francis I."

[To be continued.]

PUBLIC SQUARES.¹—I.

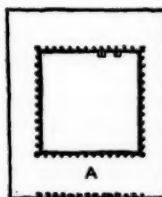


Fig. 1. Market Square, Delos.

IN antiquity the planning of the city in general, and the public square in particular, was considered a work of art. Public places and public buildings were regarded by the Greeks and Romans as the best means of city decoration, and their remains and the restorations made from them show the magnificence and splendor of their architectural treatment. The public square of the Greeks, the agora, was the centre of political and commercial intercourse. In maritime cities, it generally lay near the sea; in inland places, at the foot of the hill on which stood the old feudal castle. Being the oldest part of the city, it naturally became the focus, not only of commercial and political, but also of religious life. In the older Greek cities it was not an artistic whole with a distinct architectural design; its confines were generally irregular. In the cities founded at a later period, a regular construction was followed which seems to have been initiated by the colonies of Asia Minor.

¹ A graduating thesis by T. M. Newton of the Architectural Department of Columbia College, New York.

The description by Vitruvius ("Architecture" v. I.) of an agora evidently refers to the splendid structures of post-Alexandrine times. According to him it was rectangular in shape and surrounded by wide double colonnades. The numerous columns carried architraves

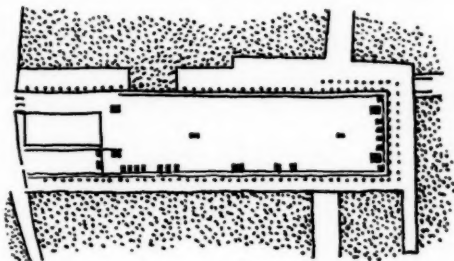


Fig. 2. Forum Civile, Rome.

of common stone or of marble, and on the roofs of the porticos were galleries that served as promenades. This, of course, does not apply to all the agoras even of later date; but upon the whole, the remaining specimens agree with this description of Vitruvius.

The beautiful market-place of Delos is shown in Figure 1. It lies on a terrace near the small harbor of the town, and consists of a quadrangular court surrounded by a Doric colonnade. The western colonnade has a number of doors which were the entrances into the agora from the terrace. Richer and larger was the agora of Aphrodisias in Caria. It occupied an area of 213 feet by 525 feet, and the enclosing wall was adorned on the outer and inner sides by an elegant Ionic colonnade containing marble benches.

The stoa, as an independent structure, was used both as an ornament of streets and squares and as a place for walks and public buildings. Its simplest form is that of a colonnade surrounded by a wall. This back wall offered a splendid surface for decoration, and was frequently adorned with pictures.

The entrance to the agora was marked by a gate of columns, temples and other public buildings; statues of the gods and heroes, and works of art were artistically arranged both upon and around it.

The open places for worship were considered of the greatest artistic importance, and the temple-enclosures of the acropolises at Pergamon, Eleusis, Olympia and other places were in the highest degree noble creations of the art of building cities and public squares.

The forum was the public square of the Romans and the remains of the fora of Rome, Pompeii and other cities give us an idea of the grandeur of these parlors of the cities of antiquity. Many writers have described their construction and the life upon them. As in the Greek agora, we find here arcades, temples and similar monumental buildings as well as monuments, altars, and public places of worship.

From the *fora civilia*, reserved for civic intercourse, are distinguished the *fora venalia*, which were used for market-places and mercantile pursuits generally.

In Rome itself there were, besides the Forum Romanum, several other *fora civilia* originated by the growth of the city and by the desire on the part of the emperors to gain popularity by the erection of splendid structures for common use. Whole blocks of houses had frequently to be bought for the purpose. The Forum of Julius Cæsar, surrounded by double colonnades and adorned with the splendid temple of Venus Genetrix has almost entirely disappeared.

We mention besides, the fora of Augustus, Vespasian, Nerva and of Trajan, the latter surpassing all the others in size and splendor.

The fora were rectangular in shape, uncovered and enclosed on the sides, and were frequently used for exhibitions, gladiatorial combats and *palestra* (Fig. 2).

The characteristics of the forum were reflected in the interior courts of the dwelling-houses and in the modern interior courts of the palaces of southern European cities built according to the Roman tradition.

Among the squares of the Middle Ages are to be distinguished three, the "Signoria," the "Duomo" or church square and the "Mercato."

The Signoria was a square usually serving as the fore-square to the most important palace. It was often enclosed by an arcade or colonnade which served as a loggia to the surrounding buildings and also as a covered walk.

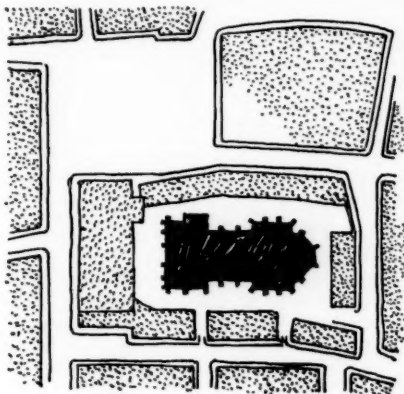


Fig. 5. Old Market, Stralsund.

The Duomo, was the square on or near which the house of God, the baptistery, the campanile and the bishop's palace were united.

The church is seldom an independent structure, being usually connected on one or more sides with the cloisters, schools and similar buildings. The square with these buildings often constitutes the glory of the Mediæval city and may be compared with the Grecian temple-enclosure. The cathedral square of Pisa is a most beautiful example, and the dome, the baptistery, the clock-tower and the campo-santo speak in the monumental language of the marble.

The Mercato was the market-place and with the Signoria has its prototype in antiquity. It was decorated frequently by a large well

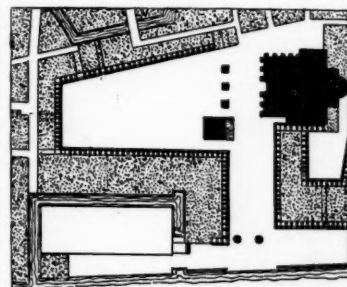


Fig. 6. Piazza of St. Mark's and the Piazzetta, Venice.

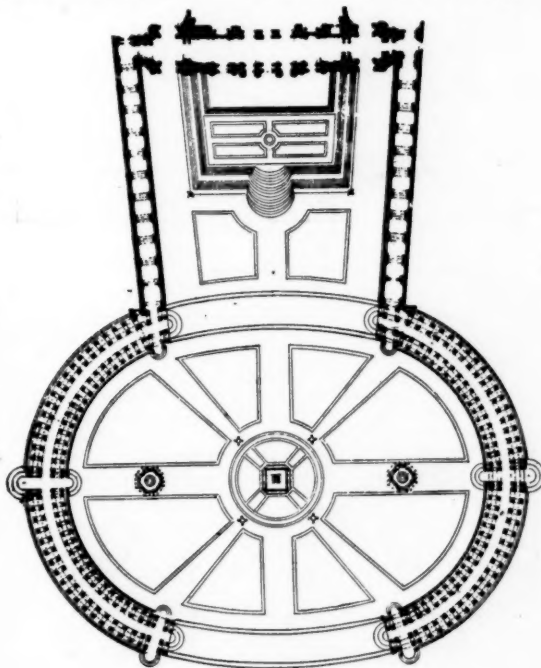


Fig. 7. The Piazza of St. Peter's.

in the centre, or by fountains, and contained the public scales. In Mediæval German cities the city-hall usually faced on the market-square; it was also customary to place the church in the background, and, although not in the square, a good view could be had of it over

the low market-houses (Figs. 3, 4, 5). The minor religious buildings that at first surrounded these churches have since been removed and their sites now constitute some of the most beautiful church squares in Europe.

The Renaissance square has its prototype in the Roman forum. Particularly in Italy it was the custom to enclose the piazza in straight or in curved lines by arcades and colonnades, either free standing or connected with the buildings. The richest decorations consisted of obelisks, statues and fountains.

The Rococo period exhibits the highest development of the public square in modern times. The Piazza of St. Mark's (Fig. 6) with

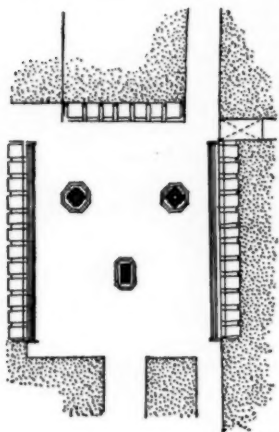


Fig. 8. Piazza dell' Annunziata, Florence.

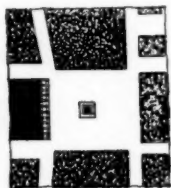


Fig. 9. Piazza Colonna, Rome.

its rectilinear surroundings, and that of St. Peter's (Fig. 7) with its curvilinear colonnade give evidence of the high development to which the artistic treatment of the square was carried in this period.

Besides the open places entirely surrounded, some are found enclosed on three sides and open on the fourth; to these belong the

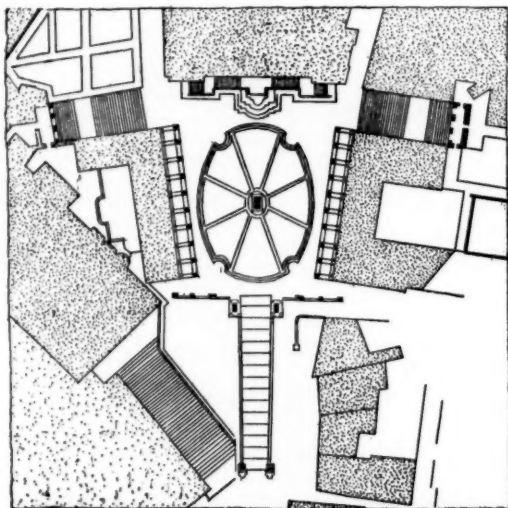


Fig. 10. Piazza del Campidoglio, Rome. 48m. x 68m. x 79m.

Piazza Pitti and the Piazza dell' Annunziata (Fig. 8), Florence, the Piazza Colonna (Fig. 9) and the Campidoglio (Fig. 10), Rome. The last is particularly worthy of mention.

The characteristics of the Italian square travelled north with the Renaissance, but especially with the later Renaissance and the Rococo. Their influence was felt in France and Germany as shown by such remarkable works as the Tuileries and the Place des Vosges,

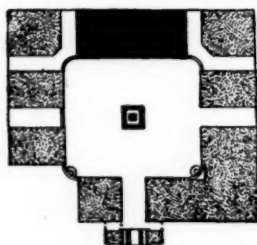


Fig. 11. Place Stanislaus, Nancy.

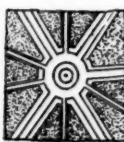


Fig. 12. Place d'Eylau, Paris.

Paris, the Schlossplätze, Berlin, the Stanislaus Place at Nancy (Fig. 11), and the residence squares of the cities of Vienna, Versailles, Stuttgart, Carlsruhe, Coblenz and numerous fore-squares of

public buildings. These fore-squares were surrounded by the building and its wings on three sides as shown in the Schlossplätze at Coblenz.

The nineteenth century has produced but little artistic city planning, although there have been in the latter half of it more building

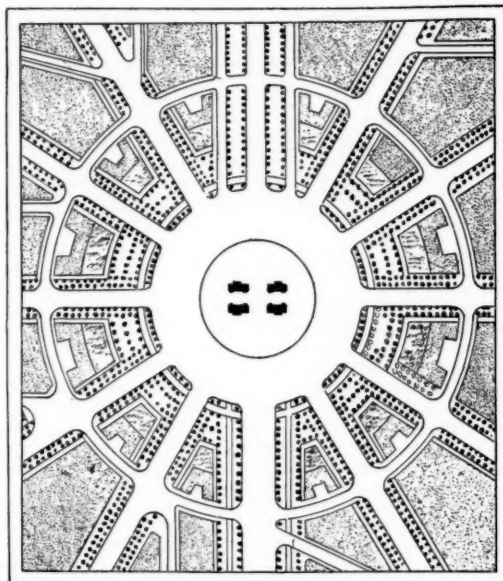


Fig. 13. Place de l'Etoile, Paris.

activity and city enlargements than in any previous time. The work of surveyors and contractors too often takes the place of that of the artistic designer, and although they cannot be dispensed with, they should at least be directed by city officials who have been educated in the art of city planning. With us, size, rapidity of construction and dollars seem, in most cases, to have usurped the place of all artistic considerations.

The Public Square and its Relation to the City Plan. — The public square with its architectural accessories is the most important means of decoration at the command of the designer of the city plan.

The position of the square in the city quarter, its place and its furnishing, depend upon the purpose for which it is to be used.

Public squares are classified with respect to their purposes, as traffic squares, market squares, garden squares and architectural squares. The same city square may serve two purposes, as seen in Figures 12 and 13, which are not only traffic squares but also architectural squares on account of the monumental character of the buildings surrounding them; or two squares, each serving its own purpose, may be combined, in which case they are called double or twin squares (Fig. 14). There are many so-called city squares which we shall not discuss as they are merely incidental to the street crossings and enlargements.

(To be continued.)

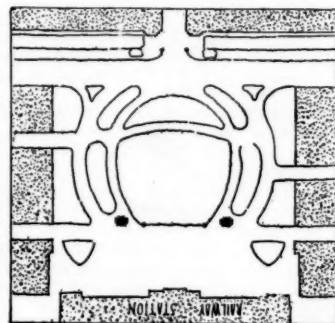


Fig. 14.

AN AERIAL BUILDING FOR THE ANTWERP EXHIBITION. — One of the curiosities of the great exhibition to take place next year at Antwerp will be a literal castle in the air. We understand that a company has been formed to carry out the plan of M. Tobianski, an ingenious engineer, who has designed a sort of raft, having an area of about 180 square feet, and made of bamboo canes and steel and aluminium piping. Upon this is built a most luxuriously fitted-up restaurant. The raft is to be held floating in the air 500 feet above the ground, by a number of balloons; and an arrangement of anchoring by means of cables will, says M. Tobianski, prevent the restaurant from rocking even in the strongest wind. Two small captive balloons, each holding from eight to ten persons, will serve as lifts to keep up communication between the aerial restaurant and the earth. There is to be a regular system for supplying gas to the balloons, and at night the exhibition will be lit up by an immense electric-light projected from the raft. The whole thing can be lowered to the ground, by specially constructed windlasses, in about ten minutes. — *Invention.*



THE NEW WATER-SUPPLY THREATENED.—
THE STREET-PAVEMENT QUESTION.—DE-
STRUCTION OF THE PAINTING "LE ROI
S'AMUSE."—THE ST. NICHOLAS HOTEL.
—THE WEDNESDAY CLUB'S BUILDING.—
THE MERCANTILE CLUB'S HOUSE.—
OTHER NEW BUILDINGS.

PURIFICATION of the water-supply is the most important question that presents itself to the City of St. Louis at the present time. That the quality of the water now forced upon the people is a disgrace has long been recognized, and now that the new works on the Mississippi River at the Chain of Rocks are nearing completion, at an expense of over \$6,000,000, the city authorities are beginning to recognize that they will be worthless from the fact that the Chicago drainage-canal is also nearing completion. To those not acquainted with the topography of the country surrounding St. Louis, we wish to explain that the Chicago drainage-canal empties into the Illinois River, which in turn empties into the Mississippi about sixty miles above St. Louis. The polluted waters of the canal will thus form part of the water-supply of St. Louis. An extensive sampling of water in both the Mississippi and Illinois Rivers is now being conducted under the supervision of the City Chemist and Board of Health Commissioners. A dangerous amount of nitrates and nitrites have been discovered in both these streams, especially at the mouth of the Illinois. Investigations have not progressed far enough to estimate the amount of filth which will undoubtedly pollute the city's water-supply, but the gigantic problem now presents itself as to just how effectually and how cheaply the water can be rendered fit for use. We will give the city authorities the credit of being most thorough in the investigations now in progress, but we blame them most unrelentingly for not having taken decisive action when the drainage-canal was begun. Now they might as well try to stem the tides of the ocean, as at the present writing the City of Chicago is actually delivering the pollution of that well-known Chicago River into the unfortunately swift but unsullied current of the Mississippi.

There are lively times in the City Council as far as street-improvement bills are concerned. The champions of asphalt, telford and granite pavements are making themselves heard in such loud tones that the Board of Public Improvements has decided that such scenes as those which recently took place at the City-hall shall not be repeated. Many bills for the reconstruction of various streets have been presented, and as there is "money" in them all, there has been a lively scramble for the contracts by the various companies. The latter have sent postal-cards to the owners of property fronting the streets proposed for reconstruction, asking them to exert their influence at the Board of Public Improvements meetings in favor of their respective pavements. Some owners have guided their actions according to these requests, while others have absolutely refused to agree to any kind of improvement. The latter are obstructionists, and the city in its plans does not consider them. The streets to be improved are mostly in the West End district, covering a large area, and the fight is to be waged between the upholders of the two light-traffic pavements, asphalt and telford. The latter pavement, as laid in St. Louis, consists of a course of rubble-stone overlaid with a course of macadam, and the latter topped with a heavy course of Meramec gravel. This is a good pavement if well maintained, but experience has proved that from lack of maintenance (arising more from the cost of same than anything else) it is nothing more than an excuse for macadam, and a costly one at that. The Board of Public Improvements is a unit in favor of asphalt, as its use for light traffic has been a great success in St. Louis. Property on asphalt-paved streets has doubled in value, which is not to be wondered at when it is considered that drivers will go out of their way to travel on this pavement. Asphalt is a little more costly than telford, but lasts many years longer. The cost of maintenance is less than in any other pavement, and the asphalt company itself assumes the expense of a few necessary repairs.

A well-known painting by Garnier, the French artist, was recently destroyed in the Laclede Building, this city. It was hung in the office of the late S. A. Coale, and on being placed in the freight-elevator for removal from the building was caught between the floor and elevator-car and torn to shreds. The handsome frame holding the canvas was broken to pieces. The picture was valued at \$100,000, a rather absurd valuation. The picture, "Le Roi s'amuse," represented Pope Alexander Borgia, his sister Lucretia, and a number of cardinals near by, witnessing the dancing of a nude figure who held a waving scarf in her outstretched hands. It is a question whether the central figure of the group represents Alexander Borgia or Louis XIV, but the balance of opinion is in favor of the former. The picture was not owned by Mr. Coale but by a wealthy St. Louisian who does not wish to have his name known. It has been exhibited in all the countries of Europe, and reached

the United States after banishment from England on account of the extreme nudity of the dancing figure. It is said that the picture can be made whole by a new process recently invented, but this is little satisfaction and little consolation to its unknown owner. Mr. Coale was a great admirer of the nude in art. The country, and St. Louis especially, has lost one of its most eminent art critics through his death.

St. Louis was not passed unnoticed at the recent New York Architectural League Competition, Mr. Harry G. Clymer carrying off the second prize, a silver medal, for his design of a church in the Colonial style of architecture. Mr. Clymer's drawing is now on exhibition at the New York Art Museum.

The St. Nicholas Hotel on Eighth and Locust Streets is fast nearing completion so far as the building itself is considered, and it is hoped that it will be ready to open by summer. Messrs. Adler & Sullivan and Ramsey, representing the Chicago firm of Adler & Sullivan, are the architects. The building is seven stories in height with a very high roof imbedded with very attractive tiling. So far as general details go it is quite a success, but there are minor points which in our opinion deserve criticism in so far as they are extreme to a degree. In the first place, the front of the building facing on Locust Street is graced with four bays running from the second to the sixth floor. The two of these nearer the corner of Eighth Street are divided by a couple of extremely diminutive windows to each of the four floors. They are not only very much out of proportion and very inappropriate but are not of the same size as the corresponding windows dividing the two western bays. In a description these might seem minor defects, but a glance at the building will quickly reveal them, on account of the general symmetry of details. If many-shaped turrets, oval, round, square, and diamond-shaped windows, numerous wings and variously sized and shaped doorways and arches were the rule, there would be a loop-hole for the architects. Then, the small windows are very suggestive of toilet-rooms. We hope they are not intended for such, because at no time should these be at the front of a hotel, even in connection with suites of apartments. A very pretty balcony extends along the seventh floor on Locust Street and along a part of same on Eighth Street. It is done in yellow terra-cotta in keeping with the yellow brick and terra-cotta of which the building is constructed. The seventh floor will be assigned to the main dining-room and a ball-room. The latter, it is said, will be a copy of Louis Sherry's in New York, but will outshine the former in extent and sumptuousness. It will be of white-and-gold, with spectators' boxes, and the floor will be of polished bird's-eye maple. The structure is entirely fireproof.

One of our great objections to the hotel as well as to the Union Trust Building on Olive Street is the extended use of terra-cotta, to the total exclusion of stone. Truly enough stone is used in the entrances to the hotel, but in the remainder of the building there is none to be seen. We agree with a well-known writer on architecture, that there is something very mechanical about terra-cotta: it presents no strict individuality of design, which is one of the real charms of true art, from the fact that we always think of it as being turned out "by the mile," so to speak. We do not wish to sneer at all terra-cotta work, however, as the above-mentioned writer would have us do, because we know of many efforts in this direction which are worthy of appreciation.

Plans are at present being prepared by Mr. W. Albert Swasey for a very handsome building to be used by the Wednesday Club, an organization of ladies belonging to most of the best families in St. Louis. It will be on Grand and Washington Avenues in the midst of the best residence section of the West End. It will be five stories in height, and cost in the neighborhood of \$250,000. The style of architecture will be Grecian Ionic. The first two stories will be of marble imported from Carthage. The remainder of the building will be in buff Pompeian brick with marble trimmings. The central portions of the two façades will be recessed for the third and fourth stories, large Grecian Ionic columns occupying the recesses and supporting the fifth story. The first floor of the building will be occupied by shops of a character most suitable to the needs of the locality, Turkish and plunge baths, gymnasium and reading-rooms. The second floor will be occupied exclusively by dentists' and physicians' offices. The Wednesday Club, a literary organization, will have on the third floor a lecture-room 50' x 80', and accommodating about four hundred people. There will be a small entertainment-hall on the same floor, to be used by dancing classes. The St. Louis Decorative Art Society will occupy the fourth floor, together with the music-rooms adjoining. A small theatre, to be decorated in the Empire style, will occupy the fifth floor, the other half being taken up by the Morning Choral Society's hall, and smoking and toilet rooms, foyer, dressing-rooms, etc. It is the intention to have the seats of the theatre removable, and thus it can be used for balls. In such cases the Choral Society's hall will be used for the supper-room, and will be connected by dumb-waiters with the caterers on the first floor. The club expects to derive its chief revenue from rentals for the shops. It is the intention to have no shop-wagons standing in front of the building at any time, the large court in the centre of the building opening onto the alley dividing Washington Avenue and Olive Street and enabling the wagons to reach the shops in the rear. The attic will be quite as commodious and well fitted up as the rest of the building: it will be divided up into rooms and lighted by skylights for the use of artists and photographers.

The Mercantile Club has just finished its very attractive clubhouse on Sixth and Locust Streets. It is one of the most unpretentious but prettiest buildings in St. Louis. The style of architecture is French Renaissance with many modifications to suit the uses to which the building has been put. The central portion of the Locust-Street façade is five stories high with a very high pitch roof joining at right angles with the roofs of the two wings which face on Seventh Street and the alley respectively, and end on Locust Street. The latter are seven stories in height on account of the two extra stories in the roof. There is a very elaborate piece of carved stonework over the Locust-Street entrance, which has attracted much attention.

The Planters' House, fronting on Fourth, Pine and Chestnut Streets, is now receiving the finishing touches as far as the exterior of the building is concerned. When completed this will be the finest and largest hotel in St. Louis, and one of which her citizens may justly feel proud. It is ten stories in height and is in the shape of an E, the three branches running at right angles to Fourth Street, and thus the two courts facing that way. The main wing or backbone of the building runs along the alley connecting Pine and Chestnut Streets. The courts will be interrupted as far as the first story is concerned, the latter being unbroken from Pine Street to Chestnut Street. This was found necessary on account of the great need of the valuable space, which would otherwise be lost. The two roofs at these points are each surmounted by a covered promenade. The roofs of the latter are supported in part by four Roman Doric columns, the latter being connected by a very tasteful stone balustrade. There are two bays to the façade of each wing, and two each on the Pine Street and Chestnut Street sides, extending from the third to the tenth floor in all cases. The building is constructed of dark-buff brick, with Bedford-stone trimmings, and will be absolutely fireproof throughout.

The Collier estate is finishing a block of seven-story buildings, bounded by Fourth and Vine Streets and Washington Avenue. The architects are Shepley, Rutan & Coolidge, of Boston, Mass. The buildings are intended for retail business purposes, and the construction is on the slow-combustion plan. The first two stories are of iron and are recessed, large iron Corinthian columns occupying the recesses at suitable intervals, and supporting the upper stories of the structure. There are defects in the buildings, such as the entasis of the columns, which is painfully apparent. Then, on account of the two lower floors being recessed, the five remaining stories have the appearance of being on stilts, reminding one of the lake-dwellings in India and Japan. We will concede that there are remarkable show-window possibilities with such an arrangement, but this end is attained at the sacrifice of architectural beauty.

There is a large number of fine buildings now going up in St. Louis, several apartment-houses and hotels, other than those we have mentioned, as well as commercial structures, and a number of fine churches, in whose construction many original ideas have sprung up. All this activity tends to erase many old and ramshackle structures which were veritable fire-traps and a menace to their several districts.

THE EXCAVATIONS IN GREECE.

AN apparently well-informed correspondent sends the following communication to the *New York Tribune*:—

ATHENS, December 6.

Dr. Waldstein has two qualities which are useful as an archaeologist: the enthusiasm which leads him to hunt diligently for something worth finding, and the enthusiasm which makes the most of that which he does find. When I saw him a few days ago he had just come from Argos where, under his superintendence, the American School has been digging for the last month. His face was radiant with that joy which illumines the face of a Western miner when he has struck a good lead, and he was ready to declare that the find this year was the richest that the American School has ever made. He even thought that it might compare favorably with the glorious results which in past days the Germans had achieved at Olympia. There is nothing like the wine of discovery for intoxicating the archaeologist. In talking with Mrs. Schliemann the other day she spoke of the importance of imagination for the archaeologist, especially in impelling exploration, but I venture to add that it is perhaps as useful in estimating the value of his discoveries. Certainly Dr. Schliemann owed his extraordinary success to a faith based on the glowing imagination which impelled him to use his spade where no archaeologist had used it before; but how his imagination did flame over what he dug up! And well it might. Such personal exaltation is one of the privileges and compensations of the discoverer. Sooner or later a whole platoon of critics will clip the wings of his fancy and chill the halo round his head until it condenses into perspiration on his brow. But he is a poor digger who when he first comes out of the trench, cannot convert these drops on his forehead into prismatic beads, glowing with all the colors of the rainbow. Doctor Waldstein is safe from the scalpel of the critics for at least several months to come, since his discoveries in the shape of some thirty-five baskets of pottery and various marble fragments are securely shut up in the National Museum, where no one can write them up but himself.

Two years ago, when the excavations were made by Dr. Waldstein at Eretria, a New-York weekly religious paper published a cable dis-

patch announcing the discovery of the tomb of Aristotle. The dispatch was preceded by an array of "scare heads" several fives deep, and by a startling number of exclamation points, altogether too hysterical and ejaculatory for the sobriety of a religious paper, whose motto should be, "Swear not at all; let your yea be yea and your nay, nay." Dr. Waldstein was obliged to write, correcting the exaggerated statements sent to America by cable, and which three thousand miles of submersion under the ocean had not cooled off. And when I was at Eretria some time ago with the German School, I found that the German professors smiled rather incredulously when I spoke of the tomb of Aristotle. Their interpretation of the discovery, I suspect, would be much like the examination-paper of the boy who wrote, "Homer was not written by Homer, but by somebody else of the same name." Unfortunately, not having provided myself with a copy of that dispatch, and not being well fortified by Dr. Waldstein's argument, I could not convince Dr. Dörpfeld or Dr. Walters that Aristotle had a daughter or that the tradition should be disregarded which buried him at Chalcis instead of at Eretria.

The work of the American School at Argos this last year was in continuation of that done the year before when Dr. Waldstein had every reason to be jubilant over his finds at the Heraeum. The time devoted to excavating was all too short, but the work was prosecuted with a large force and with great energy. Mr. C. L. Meeder, Mr. Richard Norton (a son of Professor Norton, of Cambridge), and Mr. Lithgow, all students of the American School were in the field, directing the large force of men and packing the finds. Mr. Washington has given the benefit of his large experience. A little scouting has been done at Sparto but with only negative results. On the other hand, bushel after bushel of pottery has been taken out at the Heraeum and removed to Athens. I went to look at it last week, but could only see what lay upon the surface. Of the marble fragments there is an interesting female figure, a relief, forming part of the metope. It is very graceful, but the head and arms are unfortunately wanting. Two marble heads, one of them lacking the eyes and the brow, are tantalizing in their imperfection. Then there is a torso, representing a statue with a woman clinging to it. But the pottery, of which there is a vast amount, is the chief thing; and its value is that most of it is of work antedating the middle of the sixth century, B. C. There is a good deal of Mycenaean ware, also geometric work, Corinthian, black-figured and some red-figured ware, but the general absence of the latter has been rather remarkable.

While the locking up of the finds in the archaic rooms in the National Museum protects Dr. Waldstein from the annoyance which might come from exaggerated and sensational reports when the American School is not in session, adherence to the plan during the rest of the year is a matter which seriously cripples the usefulness of the School. The embarrassment grows out of the failure of the School to secure, as it was once thought might be done, Dr. Waldstein's whole time. His position at Cambridge, England, now engages him for the greater part of the working year. Courtesy and usage require that the discoverer should have the exclusive privileges of working-up and publishing the results of his finds. On the other hand, the Greek Government does not allow materials to be taken out of the country. Dr. Waldstein's enforced absence in Cambridge deprives the school not only of his presence, but the invaluable experience the students would have in working-up under his direction the material which, under the auspices and in the name of the School has been excavated. Thus the material discovered a year ago lies still in the museum, and the School has had no open session this year because it could not make bricks without straw. In the interest of the students some new arrangement should be effected. Either Professor Richardson, who is coming next year as permanent director, should have full charge of the excavations, or it should be understood that professors and students are to have the use for original study of the material which Dr. Waldstein in the service of the school has unearthed. I hope that before another year the committee will decide upon some plan which will not have the obvious defects of the present arrangement.

The French School continues work at Delphi with most encouraging results. It has a large job on its hands and is doing it with intelligence and energy. I hear that recent finds are of much interest. It will soon go to work on the temple terrace. On account of the diphtheria which invaded the School in the winter it has held scarcely any open sessions.

The German School, under Dr. Dörpfeld, pursued its excavations nearly all last winter in Athens in the vale which lies between the Pnyx and the Areopagus. The results have been of great interest. An old road has been found running nearly along the same course as the modern road which runs above it. The tracks of wagon-wheels may be seen just as they are seen at Pompeii. There are remains of dwelling-houses. But the most important discovery is an extensive and connected system of water-works which Dr. Dörpfeld believes is the Enneakrounos, constructed by Pisistratus. Certainly it is not difficult to find the nine pipes implied in the name. But the difficulty is that the situation is not where we should expect to find the Enneakrounos in relation to the spring of Kallirhoe, unless we assume, as Dr. Dörpfeld does, that that name was successively applied to two places. Further studies and excavations may be necessary to establish the identification, but, by whatever name it

was called, this water-system is an example of the pains which the Greeks took and the expense they endured to get a full supply of good water for their cities. For purposes of comparison Dr. Dörpfeld, on his island trip, which it was my pleasure to join, visited the remains of the great water-works on the island of Tamos, which Herodotus describes as one of the wonders of the world. Entering the narrow entrance on the hill-side near the town of Tigani, we soon found ourselves in a great tunnel eight feet high and eight feet wide, extending clear into the heart of the mountains, with a channel for the water on one side. Herodotus states that the tunnel was worked from both sides and that the sections met in the middle. It is of interest because it was made at the time Pisistratus made the aqueduct for Athens and it is quite possible that both were built by the same engineer.

Dr. Dörpfeld devoted much time last year to verifying his theory of the structure of the Greek theatre. His new book is nearly ready and may be expected to appear in print this winter. Briefly stated, his theory is that the origin of the theatre is found in the circular dance plat which gave rise to the circular orchestra, in which actors and chorus both appeared. The spectators' room, an amphitheatre with inclined seats, was afterward added. The stage, as its Greek name implies, was first a tent for the accommodation of the actors, afterward a permanent building. The proskenion was a series of columns with pictures between them, serving as a support for the scenery and screening the actors when they passed from the orchestra through a doorway in the middle. The proskenion was first a provisional and afterward a permanent structure. There was no stage whatever, and none was needed, for the spectators all commanded a full view of the orchestra below in which the performance was given, just as the actors in a modern circus are perfectly visible from the seats which surround it. Dr. Dörpfeld's theory is supported by the literary evidence which Höpken and Prof. J. W. White, of Harvard, have collected. They show from the nature of the Greek play that the chorus and actors could not have been separated by a stage twelve feet high, as Vitruvius says.

But the best proof of the tenability of Dr. Dörpfeld's theory is found in the theatres themselves. I have visited this year the theatres at Athens, the Piræus, Epidaurus, Megalopolis, Argos, Thorikos, Eretria, Oropos and Delos, and in none of these, save Eretria, is there the slightest sign that anything in the shape of a stage ever existed. What at first sight appeared to be a stage at Eretria is seen to be the skene left so high, because as this theatre was constructed on a level plain, the orchestra was sunk deep into the ground. At Epidaurus a chorus of German students was organized. It was remarkable how well one could hear high up in the last seat of a theatre accommodating 15,000 people. There was not the slightest difficulty in distinguishing chorus from actors, even when sitting down in the second seat above the orchestra.

The English School, though making experiments at another point mainly concentrated its field-work at Megalopolis, wisely preferring to do thorough work at one place than to scratch the surface here and there. With maps, drawings and photographs, Mr. Ernest Gardner, the director of the English School, showed at one of its sessions how much had been accomplished. I have since visited the excavations themselves where Mr. Loring and Mr. Benson have been directing the work. When the English began digging at Megalopolis there were traces of the great theatre, the largest in Greece, but the auditorium was overgrown with vegetation. An immense deal of labor has been necessary to remove the mass of earth, but the result has been of the greatest importance. It is surprising how soon, after a few successful excavations, the last Baedeker drops out of date. Thus Baedeker in 1889 says: "The Thersilion, or town-hall (named after its founder), in which the 10,000 delegates from all Arcadia assembled, lay to the west of the theatre, but no remains of it are extant." This is no longer true. The whole foundation and a large part of this immense building, with many of its columns and ornaments, have been revealed. An idea of its size may be formed from its length, 510 feet. Other groups of buildings have been discovered and excavations have been carried on at both sides of the river which divided the town. It is interesting to note that a plan of the town and buildings drawn by Curtius from the descriptions of Pausanias was found to be remarkably correct, a new proof of the general accuracy of Pausanias and of Curtius's success in interpreting him.

It was the discovery, two years ago, of the steps of the Thersilion, directly opposite the theatre, which led Mr. Gardner to suppose that he had found the remains of a loggion, or stage, which, if true, would have been fatal to Dr. Dörpfeld's theory that in the classical Greek theatre no stage existed. Mr. Gardner's discovery was published somewhat too hastily as a refutation of the Dörpfeld view. But no sooner had Dr. Dörpfeld seen the plan of the excavation than he said: "I am sure, if you look carefully, you will find that what you suppose to be a stage is a stylobate, and you will probably see the marks of columns upon it." Dr. Dörpfeld had not seen the excavations when he made this suggestion; it was the fruit of his training and experience as an architect. Sure enough when the stones were examined the rings where the columns had stood were plainly visible. He also pointed out that the three lower of the five steps were of later construction than the upper ones. When the excavations were further continued it was found that what really had been discovered was the portico of the Thersilion. Mr. Schultz, the English architect, has since found the drums of many of the columns and portions

of the entablature. In his lecture last winter Professor Gardner frankly admitted that what he had naturally supposed to be a stage had proved to be what Dr. Dörpfeld suspected. He withdrew entirely, therefore, his arguments based upon his first supposition. He advanced, however, the idea, that a wooden stage of some sort had been used. He based this new argument on the supposition that as the three lower steps are conceded to be later than the two upper ones, there must have been a blank wall before these steps were added, and this space was probably filled with a stage. Dr. Dörpfeld, on the other hand, maintained that the Thersilion was erected first—a large building with portico and two steps. Afterward the theatre in front of it was constructed. The circular orchestra was dropped say three feet lower into the ground, which compelled the addition of three steps, making five in all, so that one could descend from the portico into the orchestra. Great interest was manifested, therefore, in the visit of Dr. Dörpfeld and the members of the German School to the English excavations at Megalopolis. Mr. Gardner and his associate, Mr. Loring, who worked for the last two years at these excavations, laid great stress upon a supposed difference in tooling for determining the relative age of parts of the structure. Dr. Dörpfeld, on the other hand, maintained that the same tools were used through successive centuries, and are, in fact, used to-day; that, therefore, the date of workmanship could not be derived from it. When, however, we come to examine closely the steps and seats at Megalopolis, no real difference of tooling could be found. What Messrs. Gardner and Loring had supposed to be a difference of tooling was simply a difference of wear. Unfortunately, Mr. Gardner was not able to be present. Mr. Loring, however, made a re-examination after Dr. Dörpfeld's visit, and was convinced that the English argument would have to be abandoned. He, therefore, declined to sign the report which Mr. Gardner and Mr. Schultz prepared. While he was not ready yet to accept Dörpfeld's theory as against the testimony of Vitruvius, that the Greek actors were on a stage and the chorus were below, he gave up the argument, so far as Megalopolis is concerned, and left Dr. Dörpfeld in possession of the field. The withdrawal of Mr. Loring greatly weakened the English case.

The disadvantage of premature publication appears in the use which Professor Jebb, naturally enough at the time, made of the supposed discovery at Megalopolis in his article "Theatrum" in Smith's "Dictionary." "By this example," said Professor Jebb, "the existence of a raised stage in the Greek theatre of the fourth century, B. C., is placed beyond doubt." But alas for human certainty! When we read that article it is necessary to be reminded that the assumption on which it was based has been wholly withdrawn.

SINCE the foregoing matter has been in type the following letter relating to it has been published in the *New York Evening Post*—

"SIR: I wish to protest, through your columns, against the publication in the *New York Tribune* for December 31, 1893, of a letter from Greece, under the date, 'Athens, December 6.' To my certain knowledge, the letter was written last April, and all the statements it makes with regard to events happening 'last month,' 'a few days ago,' etc., are entirely false when published under the date given. Among other inaccuracies, the excavations at Argos made by the American School, under the personal supervision of Dr. Waldstein, are represented as taking place in November, when, as a matter of fact, they are carried on in March, and only in March, each year, that being the only time when Dr. Waldstein is in Greece.

"As a member of the American School for the year 1892-'93, I attended all the lectures and went on the expedition mentioned by the *Tribune's* correspondent, and of course know all about the work of the School for that year. There are certainly persons enough in New York interested in the School to make it important that any such detailed information about its work as is here given should be accurate as to time and season. MARY H. BUCKINGHAM."

BALTIMORE, JANUARY 9.

THE MOSQUE AT DAMASCUS RECENTLY BURNED.

CONCERNING the mosque that was burned a few weeks ago at Damascus, the *Boston Herald* publishes the following extended description:

"Damascus is famed for the number and beauty of its mosques, but the most celebrated is that known as the Great Mosque, which was formerly the Christian Church of St. John, which was recently destroyed by fire. It was the most important historical site in Damascus, and it is presumed to have originally been an open space, the centre of which was occupied by an altar dedicated to the idol god of the Syrians long previous to the time that Abraham travelled in this direction for the purpose of going 'into the land of Canaan.' Several hundred years later, when the Greeks and Romans were here, a heathen temple stood upon the spot, with altars and courts, colonnades and triumphal arches. After Christianity became the established religion of the Byzantine empire, the temple was converted into a church and dedicated to St. John the Baptist, and the Moslems of to-day have the belief that his head still remains in the cave where it is said to have been placed by the monks of that church.

"When, in the seventh century, Damascus fell into the hands of the Mohammedans, the church was occupied by Moslems and

Christians alike, the former taking possession of the eastern part, while the Christians were allowed the use of the western part. But this division did not long continue on an amicable footing, for the Christians were not only expelled from their place of worship, but were forbidden to enter the inclosure of the sacred edifice, and from thenceforth the entire structure was transformed into the Mosque of St. John, which name it continued to bear down to the time of its destruction.

"In exterior appearance it was not so imposing at the present day as formerly, for it is now so closely hemmed in with bazaars and houses that its outside is almost entirely concealed from view. The church was in the form of a basilica, and the space between the inclosing walls of the quadrangle upon which it stood was about 500 feet long and 350 feet broad. It occupied nearly one-half of that space on the south side of the quadrangle, and but few changes were made in the interior plan since it was transformed into a mosque. The open court on the north occupied much the largest part of the quadrangle, and the ancient out-buildings in it were removed, and fountains and minarets erected in their place.

"It is said that the mosque would hold 30,000 persons, and its interior dimensions being 431 feet by 125 feet, and was divided into three aisles by two rows of columns, 20 in each row, which extended the whole length of the edifice. The columns were about twenty-four feet high, and most of them had Corinthian capitals. Along the north side of the mosque was another row of columns, which were encased in masonry, and the space between them was taken up by many windows and doors, through which access to the mosque was gained on that side. The triple roof rested upon two tiers of arches, supported by the rows of columns, and was said to be covered on the outside with lead. In the centre of the mosque and the transept of the ancient church there were four massive piers, above which rose a dome about 120 feet high and 100 feet in circumference. Colored glass was in the windows on the south side of the mosque and along the walls, and on some of the columns were extracts and texts from the Koran.

"Almost the whole of the marble floor was covered with prayer-carpet of different sizes and patterns, and on these the true believers performed their daily prayers. In the mosque were a number of striking objects. Looking eastward were the great dome-shaped frames, with their hundreds of lamps and the numerous chandeliers suspended by long chains from the arches and lofty roof. The minbar, or pulpit, and the mirab, or praying niches, in the south wall, with their slender marble columns, were quite attractive and suggestive. The most sacred spot in the edifice was the cave, above which was the shrine of St. John the Baptist. It was situated between the third and fourth column to the right of the dome, and near the south wall of the eastern part of the mosque. It was enclosed by a quadrangular wall built of fine courses of polished marble, upon which stood 20 square columns, 6 on each side and 4 at either end, counting the corner columns twice. The cornice was elaborately ornamented by extracts from the Koran in large letters, and above the shrine rose a ribbed dome resting upon an octagonal structure and surrounded by a gilded crescent. The height of the dome was about 25 feet.

"Including the colonnade on the east, north and west, the large open court enclosed by the walls of the mosque was about 450 feet long and 180 feet broad. The columns in the northern colonnade were encased in masonry and supported 24 horseshoe arches, upon which rested an upper tier of 50 smaller round arches. The sides of the masonry piers were ornamented with various patterns in panel work, and elaborate designs in rich arabesque adorned the capitals, while the arches were painted on the inside with alternate black-and-white irregular squares, presenting a striking and checkered appearance. The upper tier of arches was composed entirely of layers of black-and-white limestone, and the combined effect of these varied designs and different colors in the colonnade gave it an appearance eminently Oriental and attractive. More than half the number of Corinthian columns remained to view in the eastern and western colonnades, and the arches in the upper tier were supported by smaller columns of the same order of architecture.

"The Saracenic structure over the fountain in the middle of the court was quite imposing, with its eight columns and its many arches, and the domed pavilion above them was large and attractive. It was called 'the dome of the water-spout,' and its name was probably suggested by the constant and refreshing sound of the plashing waters from the numerous jets. Here, before entering the mosque, the faithful made their ablutions, and in the pavilion above this octagonal basin some of the religious ceremonies were conducted. In the eastern part of the court was situated 'the dome of the hour,' and a curious structure near the western end was called 'the dome of the treasure,' under which the sacred books and records of the mosque were deposited.

"There were three minarets to the mosque. The central one was known as 'the minaret of the bride,' and the gallery where the muezzin proclaimed 'the call to prayers' was reached by a spiral stairway of 160 steps. This was the eldest of the three, and was built up square, with four galleries. The western minaret on the south-west side of the court was the most beautiful, being octagonal, built in receding sections, like a telescope, with three galleries. The loftiest of the minarets was the minaret of Jesus, so-called from a Moslem tradition, that on the morning of the judgment-day Jesus will descend from heaven upon it and sit in judgment upon all the

nations of the earth. This minaret was built upon a square tower, octagonal in shape, tapering to a point and surmounted, as were the other two, by a crescent. There were two covered galleries in the tower, and two open ones on the spire of the minaret.

"The style and workmanship of three periods were to be distinguished in the building. There were the massive foundations and exterior colonnades of a Greek or Roman temple. There are, next, the round-topped windows and ornamented doorway of the early Christian church. Over the door was an inscription in Greek to the following effect: 'Thy kingdom, O Christ, is an everlasting kingdom, and thy dominion endureth throughout all generations.' Then come the minarets, dome and arcades of the Saracenic origin.

"There is no doubt that the destruction of property in connection with the mosque was very great, but it cannot be possible that an edifice built entirely of stone, and of massive masonry, is wiped entirely out of existence."

RUSTLESS COATING FOR IRON.



following is a translation by Mr. Frederic W. North of a paper read before the Paris Société d'Encouragement by M. Octave de Rochefort-Lucay, on the new Bertrand processes for coating with magnetic-oxide and enamelling iron and iron-carburets, and on a new process of tinning for cast-iron:—

Messrs. Barff and Bower were the first to practically coat iron, steel and cast-iron with magnetic-oxide, so as to form, at the cost of the metal itself, the protective layer that is obtained usually from paint, or from enamelling, etc., with a thin coating of a metal that is not oxidizable.

The Bertrand processes are more simple than those of Bower and Barff, and are based on a new discovery in chemistry, and may be stated thus:—If a thin adherent film of another metal is formed on the wrought-iron or on the cast-iron, and this iron or cast-iron, heated to 1,000°, is exposed to a current of oxidizing-gas, the oxygen penetrates through the film, oxidizes the iron or the cast-iron, and under these conditions, magnetic-oxide is the result. The formation of magnetic-oxide, thus obtained, continues indefinitely, and the thickness of the coating of oxide increases according to the period of exposure to the oxidizing current, providing the temperature remains at about 1,000°.

As to the film of metal deposited in the first instance, it disappears in some obscure way, forming oxides which mingle with the magnetic-oxide or volatilize according to the nature of the metal of which they are composed. M. Bertrand had then to find the best metal and the best method for depositing it on the article to be coated, and he has found that bronze, a mixture of copper and tin, gives from a practical point of view every satisfaction. For depositing this bronze on the wrought-iron and cast-iron, M. Bertrand uses electricity or wet-baths, and uses sulphophenolic acid.

The following is the method adopted in the Bertrand manufactory for an oxidation:—The article is cleansed (the cleansing is not indispensable), then dipped a few moments in a bath containing a solution of sulphophenate of copper and tin. The coating of bronze being formed, the article is immediately washed with cold water and dried with sawdust. The article dried is put into a furnace. Oxide forms, and at the end of fifteen to thirty minutes (according to the articles) the article is taken out, sufficiently oxidized. The coating produced varies from $\frac{1}{10}$ to $\frac{1}{4}$ of a millimetre.

M. Bertrand uses electricity to ascertain if the coating is of sufficient and uniform thickness, and in doing so he makes use of bells. If in putting the two wires in contact with the oxidized article the bells ring, the current passes—the oxidation is insufficient; if it remains silent, the oxide formed is of sufficient practical thickness because it prevents the electric current from passing.

Process for Tinning Cast-iron.—M. Bertrand has also used sulphophenolic acid to obtain tinning on iron. He dissolves salts of tin in a mixture of water and sulphophenolic acid at the rate of one per cent of tin salt, and five per cent of sulphophenolic acid. In this mixture the article, which is previously cleaned, is dipped; and is at once covered with an adherent coating of tin, and afterwards by the means of rotating brushes in wire and cloth, the coating of tin is polished, and a result obtained which is both effective and cheap.

Process for Enamelling.—There are not more than two processes for enamelling cast-iron. In the first, called hot, the iron, heated to a vivid red, is powdered with a flux-powder (borosilicate of lead), distributed with a sieve, then it is heated, and when the flux fuses, it is powdered afresh with glass more soluble, forming the glaze of the enamel. This process, the only direct enamelling, is dangerous to the operator, and even impossible for large articles, nor does it allow of decorations. The second process consists of dressing the cast-iron either by three distinct and successive operations in the furnace with a kind of pottery. In the Bertrand enamelling, the article is first coated with magnetic-oxide, then dipped in borosilicates of lead, colored by metallic-oxides, in which is added a little pipe-clay in order to give rather more body. The article thus covered cold, by dipping or with brushes, is put into the furnace; the enamel adheres and vitrifies at the usual furnace temperatures used by enamellers. By putting a coating of colored enamel with a brush on a first coat simply plain, it is possible to make any decorations desired, which

may be burnt in at one operation for out-door vases, etc. These results, due to the first oxidation with magnetic-oxide, are remarkable, as much for the color as for the tenacity of the enamel and its resistance to rough usage. — *Journal of the Society of Arts.*



THE ARCHITECTURAL LEAGUE OF NEW YORK: COMPETITION FOR THE PRESIDENT'S MEDAL.

THE bronze medal, given yearly by the President of the Architectural League, will be awarded at the next annual meeting, March, 1894, to the best design for a Cover for the Catalogue of the coming annual exhibition, to be held in the month of December of this year. This prize is to be restricted to the members of the League.

Requirements. — A drawing full-size for a cover 6" x 9½", the sheet not to show more than four inches of margin. The design to be rendered in monotone, and the color of the paper indicated. If the drawing trespasses literally upon anything extant, the source of the design is to be referred to. The best three designs will be selected by the committee, for the League at large to vote upon, and of these three, the one receiving the largest vote will be awarded the prize. Send drawings, express prepaid, to the rooms of the Architectural League, 215 West Fifty-seventh Street, on or before March 2.

EDWARD H. KENDALL.

JOHN DUFAIS.

FRANCIS C. JONES.

E. K. ROSSITER.

GEORGE L. HEINS, *Chairman.*

WORCESTER ART STUDENTS' CLUB.

At the annual meeting of the Art Students' Club, held January 27, the following officers were elected for the ensuing year:

Eben Harrington, *President*; Eugene A. O'Connor, *Treasurer*; Edward Topanelian, *Secretary*; Frances A. Knowlton, *Librarian*; Eben Harrington, Eugene A. O'Connor, Jennie Lea Southwick, Frank J. Darrah, Anna Ballard, Geo. E. Gladrim and Edith L. Getchell, *Trustees*. The reports showed the club to be in a prosperous condition. Sketch classes are maintained throughout the winter, monthly exhibitions are held, and several papers have been read during the past year and discussed at its meetings. A paper on "English Cathedrals," illustrated with stereopticon views, is to be delivered at an early date by Stephen C. Earle, Architect.



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

HOUSES ON COMMONWEALTH AVE., BOSTON, MASS. MESSRS. PEABODY & STEARNS, BOSTON, MASS. AND MESSRS. MCKIM, MEAD & WHITE, NEW YORK, N. Y., ARCHITECTS.

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

CALVARY PRESBYTERIAN CHURCH, WEST NEW BRIGHTON, STATEN ISLAND. MESSRS. STEPHENSON & GREENE, ARCHITECTS, NEW YORK, N. Y.

THE new building, which is nearing completion, is on the corner of Castleton and Bement Avenues. The plot on which it stands slopes away very rapidly from the front and thus allows of a high basement, which at the rear is entirely above ground. The walls up to the window-sills, and the tower up to the belfry, are built of overburned or "bench" brick laid up in brown mortar, and trimmed with Newark brownstone. The upper part of the building is of wood covered with plaster slabs and cemented with Portland cement. The half-timber work is of Georgia hard-pine stained a warm brown. The roof is covered with shingles stained a tile-red. The principal floor has two entrances from Castleton Avenue, one through the tower and the other through a framed timber porch and a double vestibule. Both lead to the auditorium which is 67 feet long and 72 feet wide across the transepts and will accommodate 450 persons, 340 in the pews and 110 in chairs in the east transept which is intended for children from an orphan home. This transept has sideways-rolling partitions so that it can be shut off from the auditorium and used for small meetings during the week. It has a large fireplace built of Pompeian brick. The roof of the auditorium is cruciform, and is carried by heavy Georgia pine trusses worked with curved braces and octagonal tie-beams, and placed where dotted lines are shown on plan. The roof is exposed on the interior all the way up to the ridge, and is ceiled-up on the slope with narrow boarding of North Carolina pine. The pulpit-platform

is in a recess under a high and wide arch of richly-moulded plaster resting on clustered wooden columns with carved capitals. The platform has a high panelled wainscoting, and above the wainscoting at the back are three windows glazed with dark, rich-colored glass. The organ is at one side, and the arch to the auditorium and the platform are to be filled with gilded pipes. At the pulpit end of the church are two staircases, leading to halls and entrances in the basement. There is also another staircase to the basement at the other end of the building. The front end of the basement, near the tower, is divided up into two toilet-rooms and the kitchen, and the boiler and coal rooms. The remainder of the basement is taken up by the Sunday-school rooms. Two class-rooms and the infant class-room, under the large transept, can be shut off by rolling partitions. The Sunday-school library is near one of the entrances. There are two large entrances, one with a framed timber porch, as shown in the sketch of exterior. The building is heated with steam, partly by the "indirect" method, and is ventilated by drawing the air off under the floor and passing it off through a large ventilating-shaft.

COMPETITIVE DESIGN FOR STATE-HOUSE AT OLYMPIA, WASHINGTON. MESSRS. WM. COWE & G. F. HARVEY, ARCHITECTS, DENVER, COL.

HOUSE FOR JUDGE SCOTT, PATERSON, N. J. MR. CHARLES EDWARDS, ARCHITECT, PATERSON, N. J.

DESIGN FOR A HOUSE AT HARTFORD, CONN. MESSRS. HAPGOOD & HAPGOOD, ARCHITECTS, HARTFORD, CONN.

CHAPEL FOR ST. JOHN'S MILITARY ACADEMY, DELAFIELD, WIS. MR. JOHN A. MOLLER, ARCHITECT, MILWAUKEE, WIS.

PUBLIC SCHOOL BUILDING, CHARLOTTESVILLE, VA. MESSRS. CARPENTER & PEEBLES, ARCHITECTS, NORFOLK, VA.

[Additional Illustrations in the International Edition.]

THE NEW YORK STATE BUILDING, WORLD'S COLUMBIAN EXHIBITION, CHICAGO, ILL. MESSRS. MCKIM, MEAD & WHITE, ARCHITECTS, NEW YORK, N. Y.

[Gelatin Print.]

PORTE COCHÈRE OF THE HÔTEL OF THE DUC DE BETHUNE SULLY, RUE DE VARENNES, PARIS, FRANCE.

[Gelatin Print.]

"CRAGSIDE," NORTHUMBERLAND, ENG.: THE DRAWING-ROOM. MR. R. NORMAN SHAW, ARCHITECT.

"CRAGSIDE," NORTHUMBERLAND, ENG.: DETAIL ANGLE OF HOUSE. MR. R. NORMAN SHAW, ARCHITECT.



THE DRIVEN-WELL LITIGATION. — In an interesting article entitled "A Tragedy of Litigation," the Boston *Transcript* tells the story in its entirety of Col. Nelson W. Green and his driven-well, the recent dismissal in the United States Court at Boston of two or three old suits affecting the patent (which was finally declared invalid in 1887) making the recital timely. Col. Green (a native of Amherst, Mass.), while in command of a camp of the Seventh (New York) Regiment at Cortland in the summer of 1861, sank a hollow tube in the earth in order to obtain a supply of clear water for his men. The idea was a novelty, and it was so quickly taken up and used that driven-wells soon became common enough. Col. Green was preparing to apply for a patent on his invention when, during an altercation, he shot and severely wounded an officer of his command, Capt. McNett. The colonel was dismissed from the service, indicted in the Criminal Court, and finally tried in 1866, the jury disagreeing. Everything seemed to go against him during this period of his life. Although known to be a brave officer, his efforts to secure a reversal of the order, dismissing him from the service, were futile; he was expelled from his church, and, to add to his difficulties, he was harassed by civil suits growing out of orders for supplies furnished to his regiment. So that it was not until 1865 that he took out a patent on his invention. Then began a protracted and vexatious series of contests in the courts. Driven-wells were in use everywhere, and none of the beneficiaries of the invention valued it more highly than the Western railroad companies, which, if the suits went against them, must pay Col. Green fabulous sums in damages. Their main contention was that the driven-well was merely a hole in the ground, but Green finally triumphed, the United States Supreme Court deciding that his device was original and patentable. At the very moment, however, when he was about to become a veritable Cæsar, all his hopes were dashed. The litigation came up once more in a new form, it being urged in a suit of apparent insignificance that the patent was invalid, because the invention which it covered had been in public use for more than two years before the patent was applied for. So the court decided. All that Green gained was the barren satisfaction of having it proclaimed to the world that he was indisputably the inventor of the driven-well. — *N. Y. Evening Post.*

HAS NOT ONE MAN AS MUCH RIGHT TO HIS NAME AS ANOTHER?—According to the European edition of the *Herald* a trial of great interest to painters and other artists is shortly to come before the Paris police-courts. It appears that M. Alfred Stevens, the well-known artist, received a few weeks ago the catalogue of an art sale which was to come off at the Hôtel Drouot. M. Stevens received the catalogue of a well-known expert, who was himself to conduct the sale. In this catalogue M. Alfred Stevens found a picture entitled "Le Collier" attributed to him. As he had never painted a picture with this title, he went to the Hôtel Drouot and asked to see the picture. A daub, signed "A. Stevens," was shown him. At the back of the picture was written: "I certify that this picture was painted by me. (Signed) A. Stevens." An inquiry was made, and it was found that the painter of the picture was a man named Agapit Stevens, who signed his pictures without putting his name in full. The mistake in the catalogue was rectified, and the picture was sold at a much lower price than it otherwise would have been. Now the real Alfred Stevens intends to prosecute his namesake before the law courts. It will be interesting to see how justice will settle this delicate point. Agapit Stevens certainly has a right to his own name, but in view of the fact that the signature of Alfred Stevens, abbreviated, has become a valuable trademark, it would seem that unless Agapit Stevens signs his productions in full he must lie under suspicion of practising an imposition. I once knew in Paris a fellow who made his living by signing pictures for dealers of a certain class. He called himself a "signaturist," and was a master of his trade. He was a painter of no merit, but he had a knack of imitating signatures, and he had also a very good eye for the styles of different artists, dead and alive. There was something quite comic in the way in which he executed his rascalities. He made pretense of discovering signatures. For instance, some junk-man in art got hold of a lot of canvases. If they were unsigned, well and good. If they were signed with names of no selling value, these could be taken off or painted over. Then the signaturist's turn came. The dealer would send for him. "I have just bought some pictures," the dealer would say, "and I do not know by whom they were painted. Be so good as to examine them." The signaturist would commence: "Eh, eh! A Rembrandt, eh? or possibly a Bol. We must see. An excellent Corot, a little weak, but of the good style. What a fine Delacroix! My friend, you have good fortune," and so on. The pictures would end by going to his room, so that he might seek for the signatures more effectively than he could in the shop, and he never failed to find a signature. He had books full of fac-similes of signatures of all sorts which he had copied or traced from pictures and prints, or cut from various publications, and he could always find one to fit. He charged a fee, always small, but proportioned to the importance of the names he used, and he made so little secret of his knavish trade that I have heard him remark of a picture in a window: "Eh, eh! one of my Diaz's. What a family I stand godfather to."—*The Collector*.

THE ZONE TARIFF IN HUNGARY.—The Board of the Hungarian State Railways has compiled some interesting comparative statistics about the passenger traffic of Hungary and some of the large foreign railways during the years 1888 and 1891, or from the year the zone traffic was introduced in Hungary. The following table shows the increase in the passenger traffic during those four years on the following railways:

	Passenger Traffic. Per cent.	Receipts. Per cent.
State Railways of Saxony.....	14.4	7.5
" " " Baden.....	13.5	7.4
" " " Prussia.....	34.4	11.6
" " " Wurtemberg.....	20.9	8.8
" " " Bavaria.....	17.1	6.9
" " " Austria.....	34.6	11.8
" " " Hungary.....	168.1	24.0

During 1892 the increase, as far as Hungary is concerned, rose to respectively 191.8 and 28.9 per cent, and would no doubt have risen still higher had not the cholera considerably interfered with the traffic, which also suffered extensively through snow in the winter. The Hungarian State Railways do not, however, mean to rest on their laurels, but are preparing another new measure, thanks to the initiative of M. Lukacs, Minister of the Interior. This new departure consists in the introduction of railway stamps, whereby the trouble of taking tickets will be avoided. Every passenger fills out a printed form, stating from what station he comes and to which he intends to go, and a sufficient number of marks are affixed to the form on the space reserved for the stamps. The forms will be sold at every tobacco-shop for a nominal charge, as will the stamps, representing values from 25 to 75 kreutzer and 1 to 5 gulden. Before commencing a journey the passenger refers to a small book, which is also found in the shop, in order to ascertain in which zone the place of his destination lies, and as the whole of Hungary is divided in fourteen zones, it is not a difficult task. The control with these new "tickets" will also be very simple; the stamps are perforated across the middle, the one end is affixed to the form, and the other the ticket-collector tears off when the passenger enters the train, the form, with the remaining half or halves, being given up on leaving the train. This arrangement came into force on January 1.—*Engineering*.

SEWAGE DISPOSAL AT WORCESTER.—The municipal authorities of Worcester, Mass., were compelled by law, a few years ago, to adopt measures for purifying the sewage discharged from the city into the Blackstone River, owing to the complaints of towns a little further down stream, and the largest works for this purpose in the United States have now been constructed there. Recent enlargements of the plant draw attention to it. Sixteen immense tanks, or vats, have been built by filling in a marsh with sand and gravel, erecting division walls, and coating the bottoms and sides with cement. The sewage is conducted into the first two or three of the tanks, where slaked lime and certain iron salts are added, and then flows out through other tanks, where

the heavier portions are precipitated. The more liquid part flows off through a big pipe into the river, in an innocuous condition, and in its descent the effluent water drives a turbine, which in turn compresses air for the operation of a pump. This last mechanism then takes the sediment, or "sludge," which has drained into channels along the inclined bottoms of the precipitating-tanks, and forces it out into "sludge fields," where it dries, and is sought by farmers for fertilizing the soil. The salts of iron are supplied in the sewage itself by certain manufacturing establishments in the city, and make their appearance at certain regular intervals. Separate tanks are reserved for the liquid so affected, which is subsequently mingled with the contents of the other tanks. Hence it is necessary for the city to supply only lime to promote precipitation. The superintendent of these works takes hourly samples of the crude sewage received, and of the effluent water, and also of the river water, for chemical analysis. Curiously enough, the river was apparently more filthy just below the city during the latter part of 1893 than when only one-fifth (instead of the whole) of the sewage was chemically treated. It is explained however, that there has been an immense deposit of slime along the river bottom in the past, and now this is being washed up by the flowing water, which before could not hold it in suspension. After a time, however, the precipitated matter will all be swept away, and the character of the water will be perceptibly improved.—*N. Y. Tribune*.

THE DIFFICULTY OF MOVING A LIBRARY.—As the new Public Library Building in Copley Square, Boston, nears completion, the question of how the 700,000 volumes composing the library shall be moved from the old structure to the new one becomes a most perplexing one. When the removal is made the library will have to be closed, perhaps for two months. Moving a library is not an every-day affair, and there are hardly any precedents, not even one really practicable precedent to go by. The nearest in respect of size was the moving of the great royal library at Berlin a good many years ago. That library contained 800,000 volumes, and was moved in twenty-four hours by a regiment of soldiers, who carried the books, shelf by shelf, to the new building, marching in files, keeping step to music by the regimental band, all with military precision. In the Boston case the books will be dusted, put into boxes the size of the shelves, eight to ten feet long on the average, and all properly labeled, so as to avoid confusion. Then they are to be transported to the new building, unloaded and put on the shelves in exactly the same corresponding positions, otherwise the library would have to be re-catalogued. This would be practically an impossible task, and would be too costly besides. The Harvard Library, containing about half as many volumes as the Boston Public Library, began to re-catalogue its books in 1891, and the work was finished only about five years ago. That is to say, re-cataloguing the Boston Public Library would take about fifty years.—*The Collector*.

DEATHS FROM GAS.—It is high time that the theory that people who are found dead in their bedrooms, suffocated by escaping illuminating-gas, have blown out the gas should be looked into by coroners' juries before it is accepted as sufficient evidence of an intentional death. In most cases these deaths occur in hotels. There is a strong probability that, being amid strange surroundings, the victims leave the gas burning low, a very dangerous thing to do, and that the varying pressure from the gas-mains first puts out the feeble flame and then fills the room with gas. Frequently, too, the stop-cocks get so loose that the strong pressure in the mains after midnight, when most of the consumption ceases, is sufficient to force the cock and permit the gas to fill the room. A person accustomed to electric-lights will sometimes, in a fit of absent-mindedness, turn on the gas without lighting it, a misapplication of habit, which is soon discovered. Occasionally a person accustomed to blowing-out oil-lamps may, by force of habit, blow out the gas with more fatal consequences, although the odor of escaping gas is so disagreeable that it would seem as if the mistake in nearly all cases should be discovered promptly. But that the country is so full of people who blow out the gas that some of them kill themselves every day is entirely impossible.—*Philadelphia Inquirer*.

SIEMENS AND AN ARAB ON THE GREAT PYRAMID.—An amusing account is given in the recently published papers of Werner von Siemens of a scientific investigation carried out on the top of the Great Pyramid by the professor and a party of friends. Experiments were made to test the electrification of the atmosphere during the blowing of the "chamsins," and after watching the proceedings for some time, "the Arabs," says the narrative, "came to the conclusion that we were engaged in sorcery, and requested us to leave the pyramid." As their remarks when interpreted produced no effect, they attempted to effect an ejection by violence. "I withdrew to the highest point," the narration proceeds, "and fully charged my strengthened flask, when the Arab leader caught hold of my hand and tried to drag me away from the position I had attained. At this critical moment I approached the top of my flask to within striking distance of the top of his nose, which might be about ten mm. The action of the discharge exceeded my utmost expectation. The son of the desert, whose nerves had never before received such a shock, fell on the ground as though struck by lightning, rushed away with a loud howl, and vanished with a great spring from our vicinity, followed by the whole of his comrades.—*Invention*.

WHY ENGLAND IS BEAUTIFUL.—As I strolled across the moor this afternoon toward Waverley, I saw Jones was planting-out that bare hillside of his with Douglas pines and Scotch fir, and new strains of silver birches. They will improve the landscape. And I thought as I scanned them, "How curious that most people entirely overlook this constant betterment and beautifying of England! You hear them talk much of the way bricks and mortar are invading the country; you never hear anything of this slow and silent process of planting and developing which has made England into the prettiest and one of the most beautiful countries in Europe."—*Grant Allen in The Westminster Budget*.