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DECORATION

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FEBRUARY 7, 1891.



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WHERE is more unhappiness about the Chicago Exhibition. It seems that the politicians have taken the matter up, and a plan has been proposed by which the State Legislatures, in which a majority is opposed to the Elections Bill, now pending in the United States Senate, are to give notice that, if the obnoxious law is passed, they will refuse to appropriate any money for having their States represented at Chicago in 1892. Why the States should revenge themselves on Chicago for the doings of the United States Senate is not very clear, but some of the newspapers profess to have discovered that the Columbian Exhibition is a "Republican scheme," and claim, in consequence, that a measure which destroys the prospects of success of this "Republican scheme" is an excellent device for disciplining the Republican majority in the Senate. Anything more childish or unfortunate than this notion it would be difficult to conceive. Whether the great exhibition was a Republican idea or not, it was a good one, and has already enlisted the interest and sympathy of the whole country. The people of Chicago, without thinking of distinction of party, took up the matter after those of New York had struggled with it for some years, without any prospect of success, and, with their usual promptness and energy, set the necessary measures at once on foot; and to strike a foul blow at the enterprise at this critical time, simply out of revenge for some perfectly irrelevant proceedings of a body, over which the citizens of Chicago have no more control than they have over the British Parliament, is the act of churls, who misunderstand completely the duties of American citizenship. It is hardly necessary to point out that the policy of threatening to spoil the business of our neighbors, unless they help our own schemes, can be carried a good way in this country, and that nothing will more rapidly break up the Union of the States than a few applications of it; and the people who earnestly desire to live in concord with their fellow-citizens, and who form an enormous majority of the inhabitants of this Republic, will do best to help each other along as well as they can in all lawful enterprises, and particularly in those intended for the common good, instead of flying into a passion, and lashing out indiscriminately among innocent persons, simply because some other persons have been trying to write in the statute-book a law which will assuredly never be executed unless the majority of the people think it necessary and just.

THE training which an architect has to undergo to fit himself for the practice of his many-sided profession, at the same time gives him a starting-point from which, in case of need, he can develop along some of the connecting lines, and finally become a full-fledged and successful worker in some other career than that for which he began to prepare. Many an architect, finding that fame, and the more important daily bread, were slow in crowding upon him, has been compelled to abandon architecture and take up some semi-associated calling. Such a lot fell to William Mooney, of New York, whose fifty-two years of life were suddenly brought to a close by hemorrhage following a coughing fit while at Peoria, Ill., whither he had gone to inspect some gas-works just completed under his direction. His architectural career began as office-boy in the employ of Mr. J. B. Snook, and for years he shared the usual ups-and-downs of the floating draughtsman. Finally he entered the office of Mr. Carl Pfeiffer, and during the busiest part of that architect's career was at the head of the office. Leaving Mr. Pfeiffer's office he entered that of Herring & Floyd, founders, and from this time abandoned architecture for engineering, devoting himself especially to gas-works, in which he effected many improvements and of which he installed many plants in various parts of the country. The only architectural work he undertook, after taking up the calling of gas-engineer, was the designing of the stations for one of the New York elevated railroads.

IT is always a satisfaction to get hold of a good piece of foreign criticism of American architecture; not that the native criticism, from its better understanding of the circumstances, is not more intelligent, but because the foreigner looks at the subject from an unfamiliar point of view. For this reason, a few pages of comment which *La Construction Moderne* devotes to the designs for the Grant Monument, and to American architecture in general, will be found particularly interesting. As our readers know the designs, from the reproductions in these pages, they will readily appreciate some of the observations which we venture to quote. In regard to Mr. Duncan's design, after referring to Mr. Duncan's own description of the effort which he had made to avoid a "habitable" effect for his monument, the critic calls upon the "rationalists" to "veil their faces," while he relates how Mr. Duncan has "avoided a habitable effect" by making the upper portion of his design into a stepped pyramid, without the faintest indication of the interior form, which is that of a dome. Apart from this fault, which the modern French consider, with reason, to be a serious one in a design, he finds Mr. Duncan's composition to be too Classic, and yet not Classic enough. It is, he says, and the students of "Croquis" will agree with him, a Beaux-Arts *projet* for a "Panthéon"; but it is the sort of *projet* which would have been produced in Paris toward the end of the eighteenth century, rather than one of the present day. In rigid Classicism, it would suit admirably the taste of the declining monarchy, but to the present generation of Frenchmen it seems a stiff, labored patchwork of Greek and Roman forms, mixed, where precedents for these gave out, with fantastic devices of the author's own invention.

THIS is tolerably severe, but Mr. Duncan should be comforted by the reflection that the critic treats some of the other competitors worse. Mr. Ord's design is characterized as a "pile," composed of the porch of Saint Sulpice, loaded on top of that of Saint Vincent de Paul, and crowned with a dome in the form of a bomb-shell, terminated by a little peripteral temple—"a confectioner's centrepiece, on a huge scale." Mr. Clinton, whom the critic calls "more modest, but much more of an artist than his competitors," is described as having put an "adaptation" of the monument of Lysicrates on top of a pretty imitation of the Temple of Vesta, with a very nice Corinthian peristyle, completing the composition with a row of flower-pots in the Louis XIII style; while Mr. Schweinfurth's plan is dismissed as a "fantastic, Piranesi-like temple, in which the Panthéon at Paris would appear like a simple altar-canopy." Like so many others of our best foreign critics, the writer goes on to say that it is not in these compositions that the development of

American art is to be sought, but in those undisciplined, unprecedented fragments, which perhaps shock us by their incoherent mixture of styles, but, at the same time, arrest our attention by the decision and unity of the conception by which the discordant elements are brought together. "The Americans," our critic says, "know well what they want." "The will-power in their composition is well defined; and, although, for the present they seize on all the styles of the ancient and modern world to give them what they wish, no one can say that they will not draw from the jargon, which they use now so energetically and firmly, the architectural language of the future."

IN speaking of the death of M. Gaspard André, one of the best-known architects in France, and distinguished for his interest in the education of students, M. Rivoalen recalls the celebrated revolt at the École des Beaux-Arts, twenty-five years ago, against the appointment of Viollet-le-Duc, in which he took part, and gives a good account of it. Viollet-le-Duc, as every one knows, was born in the Tuileries, his father having long held some position about the palace; and his cleverness as an artist, together with his love of the national art, and his enthusiasm for mediæval military history, in which the Emperor took great interest, made him a favorite with the Imperial family. He was constantly to be seen at the Imperial receptions, and was consulted on all occasions about the decorations and furnishing of the palace; and the Princess Clotilde, who was then the patroness of artistic affairs, as well as the Emperor, took pleasure in advancing him. In 1865, the chair of *Æsthetics* in the School of Fine Arts was vacant, and Viollet-le-Duc, who had raised up as many enemies in the School as he had friends in the palace, by his glorification of native art, and his ridicule of the Renaissance models followed in the School, was appointed to fill it. His opening lecture was followed by a riot, in the court of the Louvre, between the followers of the new light, and the partisans of the old régime. The police were called in, Baudry—the architect, not the painter—who was a Breton of colossal strength, seized two policemen at once and hurled them to the ground; Théophile Gautier, the critic, a friend to the new order, was confounded with the rebels, and, with our own Richardson, who was present as a spectator, and a dozen others, was dragged off to jail and locked up; and the tumult was finally subdued. Late that night, the Count de Nieuwerkerke, the Superintendent of Fine Arts, came to the prison, and ordered the release of all the culprits, sending them home with a good-humored admonition, and the expulsion of a single student was the only tragedy which followed the rebellion. Immediately afterwards, however, three free *ateliers* were established, the first in the school, under Paccard, Laisné and Constant-Dufeux, who represented respectively the Classic, the Gothic, and the Romantic Schools. These free *ateliers* were derisively called "the slaughter-houses" by the students who kept to the old traditions, but, the instruction being gratuitous, and official favor certain, they attracted many pupils. Laisné, however, soon resigned, and Paccard and Constant-Dufeux died; and their successors gradually fell back into the current of intelligent Classicism which, notwithstanding Viollet-le-Duc's brilliant onslaught, has constantly held the favor of nearly all Europe. Now, curiously enough, the free *ateliers*, which were founded expressly to carry out the ideas of the great advocate of mediæval principles, are the object of the most persistent attacks by his disciples and successors, M. de Baudot, and, in general, the writers for the *Moniteur des Architectes*, who see in them now only an official effort to crush freedom of thought, and impose a set of classical formulas of designs on French architecture.

A NEW sort of lock, to be applied to ordinary doors, and capable of resisting the attack of burglars, has recently been exhibited in Paris. As every one knows, complication of locks on the doors of ordinary houses and rooms is of very little avail against the professional burglar, who wasting no time on trying to raise the tumblers and move the bolt, simply inserts the end of his short iron lever, or "jimmy," between the door and its rebate, and forces the whole affair inward, tearing out the lock and bolts on the way. No multiplication of tumblers can prevent this; and the only real protection against such violence, as applied to a wooden door and frame, is either a heavy piece of furniture, moved up against

the door, or a strong shore, which answers the same purpose, and will hold the door in place, lock or no lock, until it is battered in pieces. Both these devices are familiar to most timid people, but there is a difficulty in applying them at the time when burglars usually prefer to visit the apartments of their victims, namely, when the proprietor is absent. Obviously, it is impracticable to go out of a room, and shut the door, and, from the outside, roll a heavy piece of furniture against the inside of the door, and, particularly, to adjust the heavy object in such a way that the owner can remove it when he comes back, while burglars cannot do so meanwhile: the application of a shore in a similar manner is, however, not quite so troublesome, and M. Boyer, whose name should be remembered, accomplishes the feat by an ingenious contrivance. A strong iron bar fits at the lower end into a mortise in an iron plate let into the floor, and strongly secured, and rests at the upper end in a socket, which is connected with the striking-plate portion of a lock, in such a way that when the bolt of the lock is thrown out, the socket, which holds the top of the bar, is moved in the reverse direction, until it is brought directly under a strong projecting iron plate, which in the case of a door lock, is screwed to the door, the striking-plate portion, being, of course, fastened to the frame. The iron bar which forms the shore is, when in place, inclined at an angle of forty-five degrees or so, and will resist an enormous strain. To apply it, nothing is necessary but, on leaving the room, to lock the door in the ordinary way. The turn of the key throws out the bolt, locking the door as usual, and also moves the socket, carrying the upper end of the iron shore, under the projection on the stile of the door, holding it firm against anything short of a sledge-hammer. On the return of the proprietor, the unlocking of the door in the ordinary way shifts the upper end of the shore from the door to the frame, where it presents no obstacle to the opening of the door. The mechanism of the lock itself need not be very elaborate, although the picking of the lock would move both the bolt and the shore, for, if there are tumblers enough to prevent picking with a bit of wire, few burglars are likely to have the time or tools for more deliberate operations, and if the "jimmy" will not force an entrance, they will probably give up the undertaking. As the iron bar is not fastened into the socket at either end, it may be lifted out in a moment, if not wanted, and put out of the way.

A PETITION has been presented to the City Government of Vienna, with the support of the most important bodies of persons interested in building, and in the mechanical trades, praying that small dwelling-houses, built for working-people in certain districts of public land in and near Vienna, may be free of tax for twenty-four years. Whether the petition will be granted seems to be doubtful, but it would be interesting to learn what the effort of such a policy would be. It would undoubtedly result in a gain, rather than a loss, to the municipality, as the rapid development of new quarters of the city would increase the value of surrounding property to an extent which would much more than offset the loss of twenty-four years' taxes; but the proprietors of real estate not exempt from tax would probably raise an outcry at the injustice of compelling them to compete for tenants with the owners of untaxed houses. Probably a better way would be to exempt from taxation, for a certain length of time, establishments of a semi-charitable character, such as public baths, gymnasiums, laundries, etc. The taxation on these would amount to a considerable portion of the income, and it would be well worth while to encourage their establishment by private individuals or corporations, without expense to the public treasury, by so simple an inducement as the promise of exemption from tax for a term of years.

THE *Revue Industrielle* gives a process for preserving sheet-iron smoke-pipes and chimneys from rust, which may be found useful. According to this, nothing is necessary but to paint the pipe thoroughly, either with coal or wood-tar, then fill it with shavings, and set them on fire. The heat roasts the tar, and, at the same time, opens the pores of the iron, which appear to become filled with carbon, and to be thus preserved from rusting for an indefinite period. A smoke-flue is mentioned, which was thus treated twenty-six years ago, and is still in good condition.

AUSTRIAN ARCHITECTURE.¹—XVIII.

THE NINETEENTH CENTURY.—V.

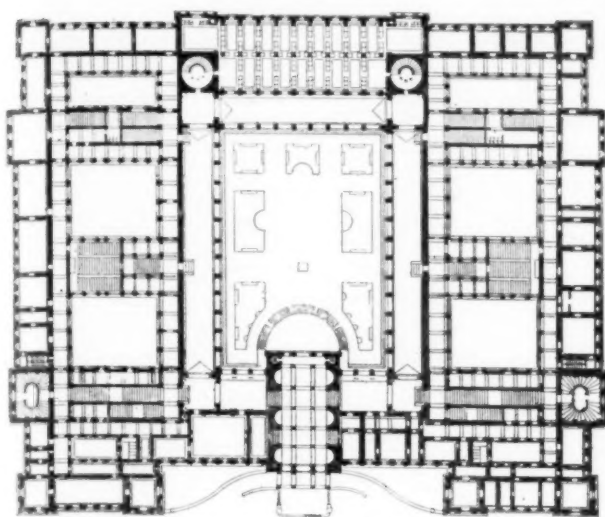


Fig. 29. Plan of the University.

THE University, attended every semester by more than five thousand students from all parts of the world, is a much larger and much more sumptuous edifice than the Academy of Art. It is a masterpiece of Renaissance architecture, by Ferstel. In his early Renaissance constructions, Ferstel displayed a certain timidity and a tendency toward an exaggerated delicacy of all the members; but in the University he succeeded in creating broader and more energetic forms, while basing his work mainly on the style of Bramante, at Rome.

The University (Figure 29) was begun in 1873 and completed only a few years ago. It is situated on the old Parade Ground, and forms a quadrangle 465 feet by 530, with the longest side toward the Ringstrasse. In the plan we find French elements combined with elements taken from the Italian palaces. The spacious, arcaded central court, 287 feet long and 212 feet broad, is wholly in the style of Bramante. It is surrounded by four massive buildings; these are broken on the outer façades by projections which suggest French dispositions, as do also the cupolas and dormer-windows of the pavilions and the projecting central structure.

The exterior is enriched with rows of pilasters and columns, in the usual order of Doric, Ionic and Corinthian. The front portions are only one-story high, except the central pavilion; in this the grand fête-hall is carried up through two stories and opens toward the street through a beautiful gable-crowned loggia above the portico. From the portico we enter a vestibule with twelve Doric columns which leads into the court and to the side stairways; these last are also accessible from the vestibule of the lateral pavilions. There are other stairways in the centre and at the rear, on both sides of the court.

The ground-floor toward the front and in the two wings contains, beside the apartments required for the personnel of the service, institutes and seminaries, and laboratories for the practical training of students under the direction of the professors; these rooms are in part grouped around lighting courts. The second floor, in the same sections, is occupied by the various offices of administration and direction, the historical seminaries, and lecture-rooms.

The side wings, as well as the rear edifice, are one story higher. The three stories in the rear are entirely taken up by storage-rooms and offices, and the large library reading-room; this last hall extends through two stories and is divided by twenty Ionic granite columns into three sections, the central one of which is higher than the others and vaulted. The upper stories of the wings are occupied by lecture-rooms and institutes.

The various rooms communicate with each other by means of corridors, and they are made easily accessible by the unusual number of stairways. The structure is, on the whole, a noble creation; it is imposing in appearance and at the same time practically arranged. If there be any defect in the architecture it lies in the façade, where there is a certain lack of

that entire subordination of the parts to the whole, which alone makes a monumental edifice absolutely impressive.

This want of concentration of effect is still more marked in the Palace of Justice, which was built by A. von Wielemans, a pupil of Schmidt. Wielemans abandoned the Gothic of his masters for the Renaissance, but he was never able to form a characteristic, individual style. In the Palace of Justice, the stories are distributed after the Italian fashion, the ressaults and dome-capped pavilions with dormer-windows are French in style, the gables are German; and all these elements are put together out of caprice, and not from any necessity.

In the centre there is a spacious, glass-covered, arcaded court, at the rear of which a turret staircase, in three flights of steps, leads to the loggia of the second story; this is the most original feature of the edifice. The interior spaces are conveniently distributed. The ornamentation is remarkably rich; some of it is executed with great care and is very beautiful; but its delicacy is not in full harmony with the heavy, squat proportions of the principal members.

It remains for us now to examine the Viennese monumental constructions of G. Semper and Baron von Hasenauer.

The most important of the public buildings designed for the Ringstrasse were those which were to be erected by the Court itself. The execution of the imperial project was delayed in order to get the benefit of experience on the other great edifices, and also to make sure that the work should be entrusted to such architects only as had showed themselves capable of coping with the problems to be solved. At length, in 1865, Hansen, Eerstel, Löhr and Hasenauer were asked to present plans for the two imperial museums, the Museum of Art and the Museum of Natural History. The result of their efforts revealed the inadequacy of the prescribed scheme, and they were invited to a second competition on a broader and more complete programme; Herren Löhr and Hasenauer alone consented to take part in the second trial.

Early in 1869, the second plans were submitted to G. Semper, then at Zurich, as the person most competent to judge of their merits. After a scrupulously careful examination, Semper declined to give his sanction to the plans of either architect, and stated the reasons for his decisions in a detailed report, which is still in the possession of his family. In this document Semper showed that the architect could not hope to create a suitable form for the museums except by making the imperial Hofburg the dominating centre of the entire disposition, affirming that he would merely grope in darkness so long as he endeavored to determine the physiognomy of the museums without having first fixed upon the plan of the new Residence.

It is not worth our while to go into details of Semper's criticisms, especially since they refer to plans that were never executed. It suffices for our present purpose to notice that they embrace a series of grave strictures bearing on the artistic character of the plans in question, and also on the fitness and distribution of the interior spaces. An examination of Herr von Hasenauer's plans, which were exhibited recently at the Industrial Art Exposition in Vienna, would convince anyone of their total dissimilarity to the plans as finally executed, especially in everything relating to the artistic features.

Semper's report impressed the Emperor so favorably that he intrusted him with the task of forming a new plan, enlarged in accordance with the views set forth in his monograph. He was also empowered to select one of the former competitors to assist him in his work. Semper decided in favor of Hasenauer, mainly, we believe, because of his thorough acquaintance with the topography of Vienna.

Semper, while at Zurich, and at Dresden (where he was to build at the same time the new Royal Theater, constructed under the direction of his son Manfred), drew up a general plan (Figure 30), indicating on it not only the trace and situation of the museums, but of the new imperial Residence and the Court Theater. He likewise sketched a perspective view of the *ensemble*, the elevation of the central body of one of the museums, with the cupola and one of the lateral ressaults. With these designs Semper fixed definitely the main lines of the four edifices indicated. The theatre was, however, erected on a different site and, consequently, underwent certain modifications; these will be pointed out later.

In the plan of the museums, Semper had retained almost the exact measurements for the two principal axes, as well as the central structure and the central cupolas, of Hasenauer's plans, but he radically altered the distribution and outline of

¹ From the French of H. Semper, in Planat's "Encyclopédie de l'Architecture et de la Construction." Continued from page 69, No. 788.

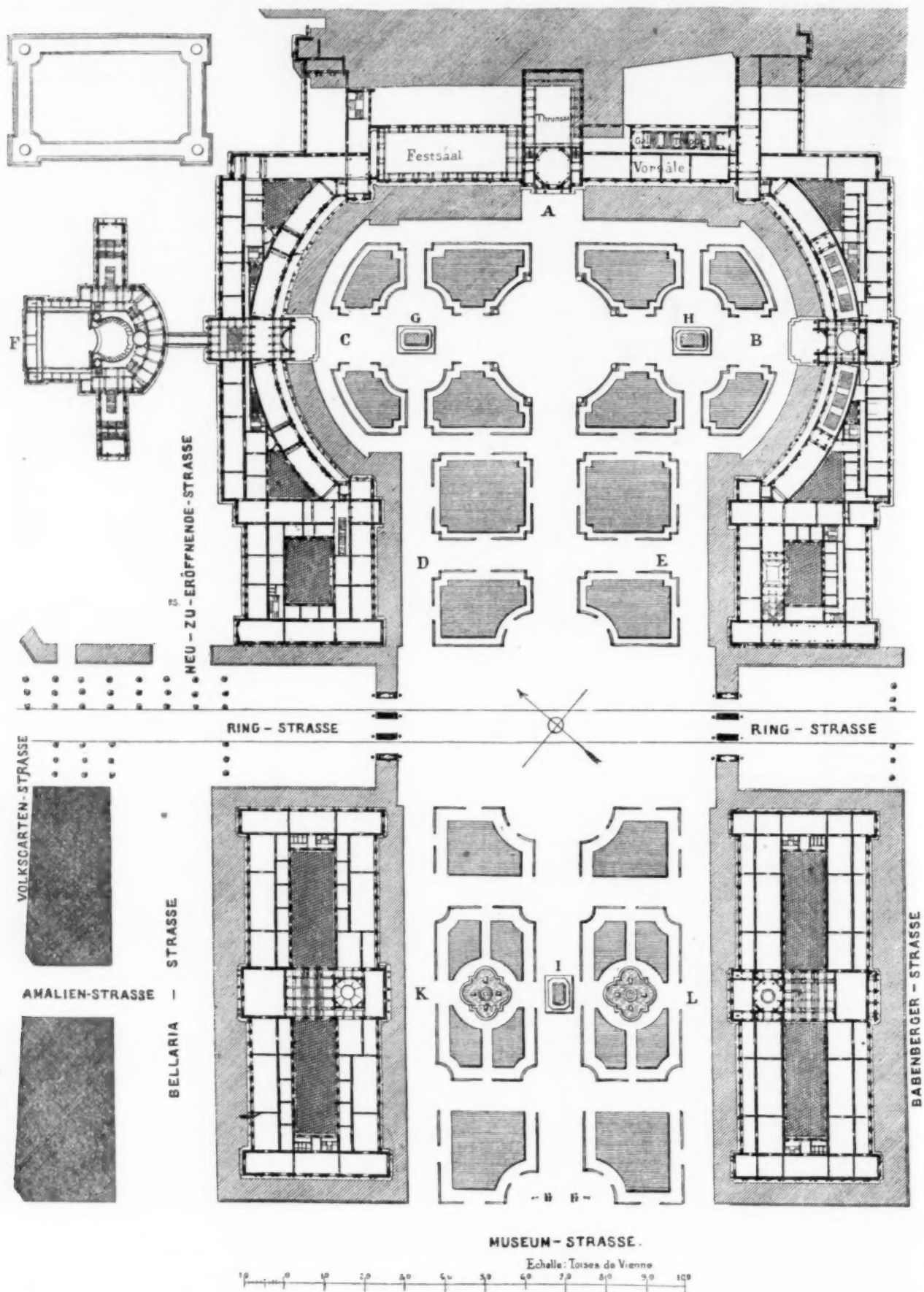


Fig. 30. Sempor's General Plan for the New Residence and other Court Buildings.

A. Fête-hall.
B. Emperor's Apartments.
C. Apartments of the Empress.
D. Grand Master of the Court.
E. Royal Guests.

F. Hofburg Theater.
G. Statue of Archduke Charles.
H. Statue of Prince Eugene.
I. Monument to Maria Theresa.

K. Museum of Natural History.
Ground-floor: Director and Attendants.
Entresol: Mineralogical and Geological Collection.
Floor above: Zoological Collection.

L. Museum of Art.
Ground-floor: Director and Attendants.
Entresol: Sculpture Gallery.
First-floor above: Picture Gallery.
Second-floor above: Collection of Engravings.

the parts, and for perspective and other reasons brought the cupolas nearer the façades. The proportions of the halls lighted from above, which Semper had found inadequate in the original designs, were, on account of his objections, revised by Hasenauer. This was done at Vienna, the experiments being made with a small, rough model. The results of these tests were embodied by Semper, in the system which he had determined upon for the façades, — a system closely resembling that followed in the western façade of the Dresden museum: it, in short, bears the evident impress of Semper's style.

"Many small things do not make a great thing," Semper had remarked in his criticism of Hasenauer's plans; and it must be admitted that he did not himself sin in the direction of his criticism. The massive rustic ashler stones in the basements, the broad-arched bays, the magnificent orders of detached columns, the rich cornice borne on consoles and crowned by balustrades, which conceal the glass roofs — all these impart to the façades a character so powerfully marked so monumental and at the same time nobly simple, as to render them not unworthy the purest architectural epochs.

Going to Vienna in 1871, Semper designed the vestibules and stairways for the Museum of Natural History, and the ornamentation of the halls on the ground-floor of the Museum of Art; he also directed the execution of the detailed plans of the profiles of the façades. Hasenauer was chiefly engaged at the time on the Exposition buildings, but this did not prevent him from taking a very active part afterward in the decoration, especially that of the interior.

[To be continued.]

A RUN THROUGH SPAIN.¹—V.

AN OLD AQUEDUCT.—II.



THE AQUEDUCT, SEGOVIA
FROM OUTSIDE THE WALLS

BETWEEN Escorial and Segovia lies the Guadarrama mountains. We must needs therefore, either seize the bull by the horns and cross the mountains, or else make a long detour of two days' travel. So we conceived the idea of a coaching-trip across the mountains, knowing well that the government had helped any such scheme by a magnificent mountain-road, and further, that it had guarded it against the curse of brigandage by stations of soldiery who held all the passes and ensured safety. Imagine us, then, four in number, bundled into the great coach, bags on top, sketching-stools and camera within, and a good supply of cigarettes with which to purchase the good-will of our driver, who turned out to be as jolly a "coachy" as we could well find. The grim walls of the Escorial disappear and the mountains open up on all sides.

"How long will it take to Segovia?" I ask?

"*Qu'en sabe, Señor!*" replies our friend.

"Will it take all day or only a few hours?"

"*Qu'en sabe, Señor!*" still he replies, shrugging his shoulders, an answer which we had heard so often and applied to so many questions that we commenced to think that the Spaniard knows nothing whatever, or at least would never dare to venture a guess or an assertion in regard to any subject. If you ask him any distance he will always reply, "Who knows?" If you ask him if he does not think the Spanish government is very slow in its deliberations, he will reply "Who can tell?" Ask him what there is of interest in a projected journey or city, he still replies "Who can tell?" Ask him what he thinks of the weather for the morrow, and unlike our own weather-prophets, who hazard any answer rather than appear ignorant, he still has no opinion and answers, "Who can tell?" But ask him if he will have a cigarette or a peseta, and there is no hesitation about his answer, he not only knows, but can tell you that he is ready for a dozen, and instead of a shrug of the shoulders he smiles voluminously, and says "*Si Señor, se gusta,*" as if he had been trained from childhood to say nothing but "Yes sir, if you please."

¹ Continued from No. 787, page 62.

As we ascend the mountain gradually huge valleys appear in the distance, dotted with straggling villages consisting generally of only a few huts, often of clay and straw, and the very sides of the mountains, in places, form the abodes of the hardy peasants. Now and then soldiers are met, always in couples, and standing on opposite sides of the road; they have a word or two with the driver, and are soon left in the distance, but one feels very much safer for their presence. This repeated occurrence brings out the fact that these mountain-passes have been the home of the bandit, who robbed and pillaged travellers at their own sweet will, and often held them for a ransom.

This magnificent road is much like that over the Rhone-glacier mountains of the Alps, and the scenery is fully as grand in many places, although of a different character. It was over one of these mountains that Napoleon led his army in 1808, and although he suffered terribly from snow and ice, his indomitable will carried him through at the head of his troops, whom he encouraged by the oft-repeated exhortation, "Shall a Spanish mole-hill check the conquerors of St. Bernard?"

At last the top of the mountain is reached, and the tired mules stop at a little posada on its very summit. Looking back, the valley runs away into the misty distance, and we are glad to get down and stretch ourselves after six hours of riding. What must be the lives of these people, we wonder? Miles away from any town, away up amid the clouds, a few goats, a bit of land to cultivate, and now and then a soldier with whom to talk. Stern, sinewy fellows they are, and though uneducated, are true children of the Goth. "The rank is but the guinea's stamp, the man's the gowd for a' that."

We pass on down the steep hillsides of the other side, through forests of magnificent trees, a totally different character of country opening as we descend. The mules gallop down the inclines at a frightful pace, and it seems as if we must be thrown clear over the embankments, but still the driver lashes away and smiles as he encourages them with a constant shouting, "*marchi-o! uch-o! ya-o! marchi-o!*"

Towards evening we approach that grand old Castilian town Segovia, spanned by its Roman aqueduct and full of quaint interest.

Away in the distance we see the dim outline of arch upon arch stretching across the valley, which tells us that Rome again holds sway, and reared in these mountains one of her grandest works. These dim arches and piers grow in intensity, and as the sun sinks behind the hillside, they stand out sharp and gray against the sky. Still we approach the grand and stupendous piece of engineering looms up before us, and we soon roll under the huge arches which have stood the test of ages upon ages. The driver again becomes joyous in his shouts, the small boy on the leader donkey begins to grow interesting, and punches his donkey with his stick and joins in the "*marchi-o! marchi-o!*" and even we ourselves awake to the situation, and join with a "*Houp-la! Houp-la! Marchi-o!*" as we dash up the little street, and draw up in an old square in front of a building that seems to be a stable, baggage-office, store, hotel and everything combined.

If one desires a fine hotel, a fine dinner, a fine chamber, a fine bed, or a fine bath, he had best leave out Segovia from his list, and return to Paris. My diary says, "cold, dismal, dirty, buggy, but the best place in Spain, a typical Spanish place, crowded roofs and towers, red-tiled houses, and churches piled one above the other, and surrounded by the massive mediæval walls."

We drew up at this old place which pretended to be a hotel, and looked around.

"*Si, Señor,*" 't is the best hotel in Segovia!"

"But I don't see any hotel at all, Caballero," I replied.

"Go in under the archway, and up the stairs!"

So poking in, I found at last a wide rickety flight of stairs leading into a small hall, from which emerged a little Spaniard with open arms.

"*Si, Señor,* we have nice rooms for you!" leading the way up a tiled corridor redolent with garlic.

Here they were, then, rooms about eight by ten feet, with uneven broken tiled floors, one chair, a table, and beds in a little alcove with glass doors across them, as if to economize air by making full use of it.

Dirty? Well yes, slightly!

However, we bundled into them, remembering the old adage, slightly changed as to place, "when you are in Spain do as the Spaniards do." We turned in and by a constant nightly warfare managed to hold possession against all and many bedfellows who disputed our slumbers. Sunshine follows gloom, however, and likewise day follows night, and the beauties of the grand old town caused us to forget the ills of the night.

Glorious old Segovia, a veritable Castilian town, is on a ridge high above the surrounding country and hemmed in by two streams which meet at an apex and then flow away through a beautifully wooded gorge totally different from its bleak surroundings.

We cross the square in front of the hotel, through groups of peasants selling stuffs of all kinds, and after threading numerous intricate little streets find ourselves on the Alameda looking over the walls upon the vega beyond. Down a long flight of steps, sketching

shoes, his wide-brimmed hat looks dirty and soiled, and his face has a week's growth of whiskers which gives him a rather trampy appearance. Just think of confessing your sins to such a guy! After him come six men with a wooden box hung on ropes between them and in the box the grim face of a corpse can be seen exposed; two mourners follow along and complete the little group. Poor fellows! They had walked from far outside the town and were worn, dusty and sad at heart. Next a farmer with a whole string of donkeys laden with huge saddle-bags of grain, and almost hiding the donkeys as they bobbed along; and later, a magnificently-formed fellow with his *manta* slung over his shoulders, his huge hat on one side and the saucy-looking cigarette in his mouth. We also follow along and probably are as interesting to them as they are to us.

Winding up into the town and around towards the Alameda, we come to the grand platform built out in front of the Cathedral and overlooking the town. How strangely suggestive are all these grand



THE LONG AQUEDUCT - SEGOVIA

here and there a town or street scene or bit of wall, we at last are outside the walls, and following around towards the grand old aqueduct. A hard fight for life has the old remnant had, and so far it has conquered every foe. History says it was erected by Trajan, and brought its pure water from ten miles away to supply the town.

Having heard of an old legend connected with its building, we made bold to inquire its origin of an old specimen who looked as if he might have been present at its birth, and who knew enough French to make himself understood.

"Señor," we say, "who built the aqueduct?"

"The devil, Señor!"

"The devil? Impossible!" we exclaim with interest. "You don't believe that really?"

"Sí, Señor. Listen!"

"There was once a beautiful girl in Segovia who was obliged to descend yon hill and carry water up to her home every day, and at last, being tired with such drudgery, invoked the aid of the spirits to help her out of the difficulty."

"And the devil built the bridge for her," we ask?

"Sí, Señor, so he did. He promised her, however, the bridge in exchange for her love, and upon her acceptance of the proposition, he built it in one night."

"And so the poor girl became wedded to the devil?" we ask.

"Ah, no Señor, that is where the joke comes, for in the morning she used the prerogative of every woman, and found fault because one stone was lacking in the structure; the devil complained to the Church, and the Church upheld the girl, and thus cheated the poor devil out of her love."

"And you believe it?"

"Sí, Señor" replied the old man solemnly. "Why not, pray?"

Sure enough, why not? There it stands at any rate, with its 2,500 feet in length, and 320 arches in double heights, and 102 feet high,

all so carefully laid in the Cyclopean method without mortar or cement, that although threatened by the Moors in 1871 it yet stands as a monument to Roman workmanship. Whether it was built by the devil or otherwise, is another question, but the simple-minded peasant is supposed to believe it to have been thus built, since to destroy this romantic part of the history would be to rob it of much of its interest to him; the



point with him is that one of his number was smart enough to get the thing built, and then to escape the terrible consequences of a rash promise.

While we have been talking and sketching, along come a variety of groups. First two women astraddle a little patient-looking donkey, which they drive by pulling his ears to guide him aright; one is dressed in a yellow skirt, the other in a bright red one, and both are bolstered up by wicker baskets hanging over the donkey's back. Then comes a meditative priest with long black gown and buckled

masses which tower up above their fellows like a very barrier against the combined efforts of the world, the flesh, and the devil. This church is interesting in particular because it was the last of the four famous Gothic cathedrals in Spain begun in 1525. It has a beautiful old cloister, which, however, is so little used that it has become the dust-heap of the church. Orange and lemon trees were in profusion and had forced their branches into the traceried openings. In the centre was an old well-curb, and to cap the whole picture out came a little choir boy with a sacristan and dumped his little heap of dirt under the trees. Nothing daunted, however, I set up the camera and brought away the impression of this beautiful old retreat. As we pass back through the church the organ is still pealing forth and the sun shines down obliquely through the arches which spring away up to the vaulted roof.

Bermudez in his account of this cathedral says that there was a competition among the architects not at all unlike the competitions of to-day, in which the award of merit was given to Rodrigo Gil di Hontanón. Thus it will be seen that the architects of old were obliged to work for all they received, and it would be extremely interesting to see the sets of drawings presented upon such an occasion. The same architect built, also, the cathedral at Salamanca, and thus the plan as well as the detail is not dissimilar. Where the latter has a square east end, however, Segovia has a glorious circular *cheret*, springing from grand moulded columns and lofty arches, and a traceried balustrade along the clerestory.

On the exterior the point that strikes one most forcibly is the concealment of the roof by parapets and pinnacles, which is certainly



THE WALLS - SEGOVIA

picturesque in the extreme. Like all the noblest examples of cathedrals, the church has a domed lantern over the crossing. I could not but remark this fact and wondered why, when all our modes of worship seem to demand the centralization of a congregation, we did not more often use the central dome, instead of the long naves and aisles which are tiresome and more difficult of treatment.

Had we gone out of the transept instead of the nave we should have descended a magnificent flight of stone steps, between

what turned out to be the cloister walls and the sacristy. As it was, these steps burst upon our view leading off from a little back street. While passing them, down came a little girl with her father.

"A Dios, Señor," I said. "Stop a moment and I will take your picture."

He looked a little frightened, as it is probable that he had never seen a camera before, nevertheless, he stopped a moment, and before

he could comprehend what was going on, his picture was taken. All he could say was "Magico, Señor?"

"Si, caballero," I replied, "magico."

They then looked through the camera at an old woman; lo, and behold, the old lady appeared to them to be walking in the most undignified position, on her head, with her heels in the air. This was too much for them, and they laughed and gesticulated, called in all the passers, and at last shouted to the old woman that she was wrong side up. This aroused her wrath,



and nothing would do but to show her that all the men, women and children were afflicted with the same complaint.

What delightful ignorance, at any rate!

We at last tore ourselves away and rambled along down the walls until the old Alcázar, the prison of Gil Blas, came in view, perched upon the extreme point of a crag where two streams meet far below. This old castle was once the refuge of Isabella, from which she proclaimed herself the Queen of Castile. It has been partly destroyed, and is now being rebuilt as a military college and of no particular interest except from its peculiar position and its high, turreted walls. There are, however, several stories connected with the old castle. Yonder is a window from which the maid-of-honor in the court of Henry III let fall the Infanta, and for which experiment she was obliged to atone by the loss of her fair head. Again, observe the ornament in one of the large rooms composed of a rope. The connection between the rope and the legend is not very evident, but the soldiers explained that one Alonzo el Sabio was somewhat of a student of the heavenly bodies. He could not satisfactorily work out the problems, and at last affirmed in disgust that he did not believe the sun moved around the earth. This so enraged the god of lightning that he sent a thunder-bolt that knocked all his instruments into a metaphysical pi, and caused the rope to be moulded in its place on the wall. The soldiers could not explain the point at all, but remarked as a sort of side issue, that the king ever after wore a rope around his waist as a penance.

Near here, however, is the location of one of those popular Spanish traditions in which the Spaniards love to revel. You see at the base of the cliffs a convent building on which the Spaniards look with superstitious awe. It is called the convent of Santa Maria, and is so named after a saint of that name, who was pushed over the cliff by her co-religionists, and yet successfully landed without as much damage as did Darius Green with his flying-machine. Afterwards it was the spot from whence criminals were hurled, and it is given as a remarkable fact that unlike the sainted Santa Maria, they all perished and were picked to pieces by the crows; hence it is called La Pena Grajera. If you descend to the river at the present time, you will find no bones remaining, but on the other hand will possibly come across the charming "lavienderas!" By the way, this was the first Spanish word we had learned, and long before entering Spain we had learned to ask for our washwoman with as much swagger as you please. Here there are plenty of them, some fat, some lean, some with bewitching black eyes, and some as haggish as one could desire to see, but all in a row kneeling among the stones and looking very funny.

Pound, pound, pound, they go with the rocks all soapy, but just as hard as granite all the same.

"Lord save the clothes!" exclaims our companion.

"So say I." Crack! "There goes a button!"

Rip! "There goes a seam."

Splash goes the whole garment, the cloth hourly growing thinner than contributions to charity.

Lucky we don't wash in Spain, isn't it?

We won't wash till we get to Madrid!

What unclean people we are, to be sure!

A laughable incident occurred in the evening of this second day, which shows that the people of the interior are not entirely free from

suspicion towards strangers. Very few come thus far I imagine because it is away from the railroads, or at least has been until lately, and few strangers visit Spain at all.

As we sat cross-legged on our chairs reading by candle-light, we heard a rap at the door and upon shouting to enter, in walks a little dapper officer from the authorities, together with the hotel-keeper, and with many a bow and flourish, begs pardon profusely yet suspiciously.

"Who are you, Señor?" he asks.

"From whence do you come?"

"Why do you come to Segovia?"

"Have you a passport?"

"What were you doing in the streets to-day?"

Then followed a whispered discussion with the proprietor in which the word "magico" became most prominent. Seeing the drift of the old fellow's remarks I interrupted.

"Oh, no, Señor, I am not a magician of any kind, but am simply getting little photographs of bits here and there; see, here are our sketches and here is the camera."

But when I pointed the silver focus of the lens at him he stepped one side, evidently expecting that I might open some kind of a battery on him, and fire him out of the room. But finding that his body was not perforated to any extent, and after showing the inside of it to him, he profusely begged pardon for his suspicions and withdrew.

Fancy it! Not to know what a photograph machine was! What would such people think of the telegraph or phonograph, or telephone!

Only once before in my experience had this happened, and that was away north among the mountains in the centre of France, at Vezelay, and there we were taken for spies and barely escaped being arrested.

A walk around Segovia discloses what must have been the magnificence of the walls. Going down a long flight of steps to the outside, we made a sketch of a part of them with curious overhanging parts, balconies and turrets and tumble-down little bits. Then we passed around the town and entering another gateway found ourselves in an open square with a fountain in the middle. Some little urchins amused themselves with standing on their heads while we sketched, and insisted on being shown in the drawings. Here is an intensely interesting cloister, with beautiful double columns and dog-tooth circular arches. But the tower was the imposing feature, rising into the air six stories besides its curious roof, and each story having heavily moulded and ornamented recessed openings. Here, too, were the three round-headed and three pointed arches, but, all in all, this grand old tower is a fine piece of work, worthy of study.

San Milan, the Church of the Templars, San Martin and San Nicholas are all worthy of study, and the noticeable features about many of these churches is the exterior cloister, a picturesque feature most certainly, and, undoubtedly designed to arrest the fierce rays of the sun.

Many domestic bits of curious houses are met, of course, on all sides. Possibly the Casa de los Picos is the most interesting of this class, being a plain façade much after the Florentine style, but made up of square stones with projecting diamond faces. Another house is remarkable for having a curious court-yard with a group of stone pigs, hence called Casa de Doros; they are said to have been idols, but this to my mind is very questionable, for they resemble more the lions of the Alhambra.

The planning of the houses is peculiar, and in many ways charming, at least it is admirably adapted to the country and hot climate.



Land is of no account: thus, as you enter and pass through a small hall you look directly into the patio or court-yard, large or small as it may be, often with an arched colonnade all around, and always full of plants and foliage, with the central fountain. Off from this court are the rooms in a variety of arrangement, and leading through another hall is the large rear garden, luxurious in growth, and a tempting place indeed. It may be

seen that the patio is susceptible of numerous treatments, and often in a most artistic manner. At any rate, the effect in passing through the streets and gazing through the wrought-iron gates into the patios is beautiful in the extreme.

There are two noticeable things which we are beginning to meet

constantly in our travel, and they are, the beauties of the Spanish rough brickwork, and the beauties also of much of their plaster-work, as used upon the exterior. Their forms are well-known to all students of Spanish art. Absolute simplicity marks their design, and marvellous effects are obtained, which must be traced to the skill of the architects rather than to any inherent artistic quality in the brick and plaster. I am not speaking of Moorish work, for here the contrary fact is apparent, for the beautiful intricacy of the design is what charms the eye and is far from simple.

We were sorry to leave Segovia: though dirty, it is interesting in every section, and weeks could be pleasantly spent there.

A ludicrous thing happened as we were leaving. We piled into the omnibus to go to the station, and were considerably surprised by an effort on the part of a queer-looking specimen to sell us some little chromo-cards, with the face of some actress on them and about three inches square. Not being in the country of "Sweet Caps" I mistrusted a little game of some kind, and not caring to invest a

Sure enough, Señora Angel, with the thoughtlessness due to Spanish customs, had given the ladies a room opening into another one with a glass door, and gained only through the ladies' chamber. The man finding himself thus blockaded by this feminine array, commenced to reconnoiter at once, and made his presence known by telling the ladies not to fear, and his sepulchral tones coming into the room through the doorway they naturally bolted at once.

Next morning was Sunday, but after breaking a bad egg and looking in upon the household of an embryotic chicken, and after chewing on a piece of black bread, the camel's back was broken by a straw in the shape of a huge bottle of rum brought up in lieu of milk. This was too much for us, and we packed up vowing to hold church on board of a moving train, but not, on any account, to longer stay under the roof of the fair Señora Angel, or eat such a decoction as bad egg, black bread and rum.

C. A. RICH.

[To be continued.]

VENETIAN WELLS.¹—II.



Well of the Venetian Gothic Period [Thirteenth Century].

pesata apiece for such diminutive chromos, refused to take them, of course, but the fellow was persistent.

"No, no, I don't want any!"

"But, Señor, you must buy them!"

"But I won't; I don't want the blamed things!"

"But they are your 'billets de voyage,' Señor!"

"Bosh," I said at last, seeing the point, "Are those chromos your stage-tickets?"

"Yes, Señor, yes, you must buy them, but you can keep them."

"Ah, thank you, Cabellero," I said, "they shall grace my family Bible in America, and go in with the births, marriages and deaths; they are full as amusing, at any rate."

Medina del Campo was our first stop.

Here we are, and the guide-book says that Medina has the best-kept hotel in Spain. Here we are, and not a blessed house in sight, not a stage anywhere to be seen, and raining like cats and dogs.

"Where is the Parador del Norte? Cabellero?" I asked of a boy on the platform.

"There it is, Señor," pointing out into the blank darkness, across a huge puddle.

Come ahead, tramp, splash, splash, and after due imprecations on Medina, Spain, and everything in general, we arrived at a villianous-looking fondo, and were welcomed by a rotund, pleasant-faced woman calling herself Señora Angel, who ushered us through the low hallways across brick floors to the "best rooms in Spain."

Well it might be worse; the linen is scrupulously clean if the floors are cold.

Our friends took room directly opposite, and I had not got into bed when I heard a loud shriek from the ladies, and they bolted into our room pell-mell, causing me to rush into my little alcove and survey the scene from between the folds of the curtains, a proceeding suggested by my innate modesty.

"There's a man in our room," they exclaim!

"Heavens," I said, "is that all?"

It would be beyond our present purpose to attempt to trace the history of this period, or to show how Greek influence moulded and grafted itself upon the indigenous style which it found ready to its hand; or even to point out how gradually this Greek feeling exhausted itself or was rejected, and Venice commenced to form and develop the individual style which is especially associated with her own name and her later history. In the earliest examples of well-heads belonging to this new Venetian style — perhaps dating from about the commencement of the twelfth century, or a little later — we seem to notice at once a complete severance from all traditional influence; less attention was paid to mere surface decoration, and more to general form. The cube still remains as the elementary form, but gradually undergoes a modification, no doubt suggested to a considerable extent by mere convenience; and the lower angles are chamfered off till an octagon, or even a perfect circle, is obtained. The upper corners of the cube still remain, and little by little were made the subjects of decorative treatment; all this development being carried out in very much the same way as a capital must have been gradually evolved from the square projecting blocks of stone first placed upon the early columns to receive the superimposed arches. This process of development of course lent itself to numerous small varieties of treatment, and many instances of these transitional forms are still to be found, while the mental process which produced them can be easily traced. Then the amount of decoration applied to the *vera* was gradually increased, but without destroying the general form, until some of the examples dating from the fourteenth and fifteenth centuries display a lavish richness of ornamentation which marks them as among the most conspicuous art-products of their age. In some of the finest examples the whole *vera* was covered with sculptured ornament, foliage and figures, the coats-of-arms of Venetian patricians, sacred symbols and monograms, or ecclesiastics in rich vestments.

¹ An article by Mr. William Scott in the *Universal Review*. Continued from No. 788, page 71.

The resemblance to the form of a capital has already been pointed out, and in many of the most important examples there seems to have been an intention on the part of the designer to keep very close to the shape of a Gothic capital, if not directly to imitate it; and so far was this carried that in some instances¹ of well-heads undoubtedly carved on purpose for their object, and not adapted from previously existing work, we find even the necking of a capital imitated in the *vera*. This is certainly an indication of lateness in the style; and when we come down a little farther still, and note the gradually increasing influence of the Renaissance, we find this imitation necking increased in size and importance, and changed in character, so as to form a base. In this way it is quite easy to trace the transition from the pure Venetian Gothic to the perfect Renaissance.

It may perhaps be due to the comparative immunity from destruction which the wells of earlier periods enjoyed, that the famous *cinque-cento*, which gave us such an abundance of exquisite work in other departments should have left, comparatively speaking, a somewhat slighter impress upon the Venetian *vere*, both as regards quality and quantity, than we might have expected. There are, however, some superb specimens of this date here and there, especially in the Cortile of the Ducal Palace; but these are of a more elaborate kind than usual, and not of quite the character generally associated with the name. They were cast in bronze, the one by Nicolo de' Conti in 1556, the other by Alfonso Alberghetti in 1559, and are examples of the style of work introduced by Alessandro Vittoria, a pupil of the famous Giacompo Sansovino. The simpler examples of this period which are to be met with are quite characteristic, and nearly always elegant and effective, but still they seem to lead us on all too quickly towards the poverty of invention, the save-trouble character of design, and the mechanical simplicity of construction which are the indisputable marks of decadence. The fire of artistic genius had burned itself out, and the latest examples of *vere* are but mere masons' work in cheap mouldings and plain geometrical forms.

We do not find a large variety of materials used for making the *vere*, for the vast majority of them seem to have been of Istrian stone, and a certain number—such as the magnificent one in the Cortile of the Ca d'Oro—were of red Broccatello marble from Verona; but almost all the variations to this rule are found in the very earliest examples.

The number of wells has apparently varied very much at different periods, but for a long time past has been steadily diminishing. The extensive works of alteration undertaken in modern times have swept away a considerable number, especially of those belonging to private individuals, and their places have not usually been supplied by others; but the most serious reduction has been caused by the sale of them to foreigners, and large numbers of them are to be found in England and Germany. In 1814, above 5,000 wells were registered in Venice; but Sagredo, in his work published in 1856, only mentions 2,000. As far back as 1847 the traffic in old *vere* was considerable, and the drain is still going on. Professor Cattaneo notes with justifiable regret that of specimens belonging to the earliest or Italo-Byzantine period only seventeen are still left in Venice; while seven of these are even now in the hands of antiquity dealers, and therefore in continual danger of leaving their native city; six

are in the Civic Museum; three are in private houses; and one is in a public court.

Of later date, also, many splendid specimens have been torn from their places, and are now stored among other unfortunate fragments awaiting the advent of some rich *forestiero*; and when it will be all too late, Venetians will perhaps learn to recognize with a sense of shame that they have sold an unequalled birthright of inimitable art-treasures for the passing gleam of a foreigner's gold. At least in their new northern home the exiled *vere* will have a care and appreciation long wanting to them in the land that gave them birth; and they will serve to inspire lofty ideals of beauty among the art-workers of other climes.

At a very early period the preservation of the wells of the city became the subject of legislative enactments by the rulers of the Republic, and many valuable lessons might be learned from an examination of the principles upon which some of these regulations

were framed. One of the earliest laws of which we find a record bears the date of November 3, 1303, and provides that the procurators of S. Mark should keep in *conzo*, that is, in good repair, the wells and Cortile of the Ducal Palace; making use, for that purpose, of money resulting from the rents of certain houses belonging to the State. In 1324 a whole set of regulations regarding the public wells (*puteorum communium*) was drawn up and issued; and in the following year the Maggior Consiglio gave a special order that no rubbish or sweepings should be placed near the wells lest the water be fouled. In 1372 the Carraresi sent emissaries to Venice to poison the water in the wells, but they were foiled in their vile attempt, and, being taken prisoners, were summarily quartered—a prompt judgment which might with advantage be imitated to a proper degree in the case of those individuals who poison, or in polite language adulterate, the food and drink of the people in our own day. In 1425 the Senate was compelled to order the construction of at least thirty wells in various parts of the city, on account of the great drought which prevailed. It would seem that the laws relating to wells were sometimes allowed to fall into abeyance, to the injury of the public health and convenience, for we find that a decree of the year 1495 recalls into operation the

ancient regulations. How great a change has come over the habits and customs of the Venetian people since the early years of their history may be gathered from the interesting fact that even in the narrow *calli* and by-ways of the city it was once customary for at all events the wealthier classes to go about on horseback; and we know from authentic records that there was formerly in the Campo S. Salvatore, at the farther end of the Merceria, a very deep well with water-troughs round it, and near this a wide-spreading fig-tree, which served to indicate the limits within which horses had to be tied during the hours in which it was forbidden to enter the Merceria, the principal street leading thence to the Piazza, on horseback. This well and the neighboring fig-tree are both mentioned in the history of the conspiracy of Bajamonte Tiepolo, which took place in 1310.

The poor were especially cared for under the rule of the Venetian Republic; and the public wells were not merely made for indiscriminate general use, but, so far as possible, were reserved for those who could not afford to provide a supply of water for themselves; and no one was permitted to use the water of these public wells for any purpose which brought a pecuniary profit (*luero*). A severe law of 1536 mentions certain classes of individuals as especially forbidden



Well in the Cortile of the Ca d'Oro.

¹ One is to be seen in the Civic Museum.

to make use of the public wells (dyers, barbers, bakers, washer-women, etc.), and the penalty for disobedience was fixed at six months' imprisonment and a fine of fifty *lire*. The provisions of this law were afterwards extended to all shopkeepers, but with the allowance of a certain amount of water for their own private use. So far was this wise and necessary regulation carried, that any persons who gained money by carrying water from these wells into the houses of private individuals were condemned to provide a *burchio* of water for the well from which they had thus illegally obtained a gain; and the informer received a reward of ten *lire*. We are also told that when any contractor for the service of water-carrying boats endeavored to deceive or defraud the Republic, he was considered to have robbed the poor, and was condemned to a fine of a certain number of *burchi* of water for the public benefit. A similar spirit of generosity towards the poor is seen in the decree (dated 1492), ordering the construction of a well in the Monastery of S. Maria dei Servi, where instructions are given to the monks that they must allow the people full power to make use of the water.

At various intervals in later times regulations for the proper maintenance of the wells were framed, and in 1768 it was ordered that all vines planted near them should be removed; but only at the end of the last century was the exemplary order given that at each of the four angles of the base of the *vera* a small trough (*vaschetta*) should be cut to contain water for the use of dogs; and the duty of keeping these troughs clean and full of water was imposed upon the porters of the various districts, with fines for the neglect of the obligation.

It was only at certain hours that the public wells were available; a provision tending of course to equalize the chances of each individual getting his fair share, and also to prevent undue waste. The opening took place at "Terce" in the morning, and at "Vespers" in the evening, and the signal was given by the ringing of the parish church bell which indicated those hours. The same practice still prevails, except that the canonical hours no longer form the guide for opening or closing the wells, but the Municipality fixes the times according to the season of the year.

Until the recent introduction of the *acquedotto* before referred to, the Venetian water-carriers formed a very picturesque feature in the streets and squares. The law forbidding them to gain money by taking water into private houses was either rescinded long ago, or had been allowed to become a dead letter; and numbers of women, young and old, came down from the mountains and gained a livelihood by supplying the wants of the citizens with so many *secchi* per day in return for a few copper coins. They were termed *digolanti*, from the *bigollo* or curved stick with a hook at each end, with which they carried two buckets slung across their shoulders. They were

ness of these women's movements contrasted strongly with the lazy *fiacca* of the people of the city. By their industrious and frugal habits they often succeeded in putting together a very useful sum of money in a few years, and then returned to their mountain homes to



Shield of the Testa Family.

settle down. They were sturdy and strong, and, as a rule, very quiet and respectable women, of a type quite different from, and easily recognized among, the natives of Venice itself. A few still remain, but probably not for long, as the advantages of a constant water-supply within the houses are becoming more widely extended.

The surroundings of these old Venetian wells are often extremely picturesque. In the courts of private houses and palaces they have not unfrequently as backgrounds, curious stairways, rich Gothic doorways, deep, dark archways, or the flickering light on vine-leaves and oleanders. The broad leaves of the *zucca* and its grey-green or golden-yellow fruit mingle with ivy or Virginia-creeper; occasionally trees of considerable size throw their shadows across the variegated pavement. There is everywhere the evidence of a greatness gone to decay, but keeping still in its old age some traces of an imperishable beauty. The shields of the nobles are carved here and there upon the walls, and over the doors and windows; the stairways are of rose-red marble, polished by the passing of many hundred years; the stillness is profound and unbroken, save when the copper *secchi* clatter on the pavement, and then fall with a dull thud into the depths of the well. In the public squares, or *campi*, there are life and animation as the women crowd round the wells eager for precedence; merry jests and loud laughter sometimes alternate with angry altercation; the costumes of the *popolane* are seen in workday picturesqueness and negligence; the lithe, graceful figures swing backward and forward as they haul up the heavy buckets; in the distance is the façade of an old palace with fair maidens leaning from its balconies, the sunlight catching on their wavy golden hair, or lighting up the scarlet of a fan; perhaps on the other side are the quiet waters of a canal, a pergola of vines, and a boat full of gorgeous fruits and flowers.

EVEN FRACTURE BY AN EARTHQUAKE. — The Postal Inspector's offices are on the fourth story of the Appraiser's Building, and are lighted by folding windows that reach almost to the floor. In each sash is a single pane of extra-heavy American plate glass, 36 inches in length by 18 inches wide. During the severe earthquake shock on the 2d inst. one pane was broken by the oscillation of the building, and in such a peculiar manner that it became an object of general interest. There were four fractures extending entirely across the pane, starting from each corner and forming an angle at each edge, leaving a perfect square in the middle surrounded by six half squares. The fractures are as straight as though cut with a diamond and straight edge and the proportions of each section as true as though laid off with mathematical instruments. The jar of the earthquake seems to have thrown a heavy pressure upon the corner of the sash, and the glass, unable to bear the strain, gave away; but by what law of mechanics it broke in such regular lines and mathematical proportions is a puzzle to all who have seen it. It is proposed to remove the whole sash and place it in the State Museum as one of the most remarkable earthquake freaks on record. — *San Francisco Examiner*.



Shield of the Pisani Family.

the usual white wide-sleeved *camicia* of the *contadine*, with a short sleeveless jacket or bodice, generally of black or very dark stuff; a light-colored handkerchief hung round the neck, and another was tied on the head; or sometimes — especially in the summer — they wore a very wide-brimmed, low-crowned, straw hat. Shoes and stockings were usually discarded except in winter, and the lithe swift-

SAFE BUILDING.¹—L.

CHAPTER XII.—WOODEN AND IRON TRUSSES (Continued).

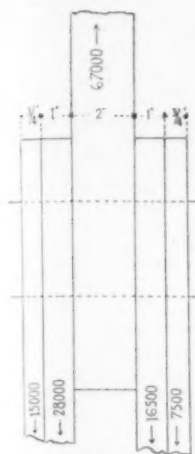


FIG. 263.

WE now lay out, Figure 269, the pin, and find that we have a double lever arrangement; the fulcrum being the 2 inch wide 67000 pounds strain. To the left of this we have a lever $1\frac{1}{2}$ inch wide loaded with two loads, one 28000 pounds one inch wide and one beyond 15000 pounds $\frac{3}{4}$ inch wide. To the right we have lighter loads, the heaviest bending-moment will therefore be on the left side, or:

$$m = \frac{1}{2} \cdot 28000 + 1\frac{1}{2} \cdot 15000 = 34625 \text{ pounds-inch.}$$

The safe-bending-moment on a $2\frac{1}{8}$ inch pin is:

$$m = \frac{1}{2} \cdot (1\frac{1}{2})^2 \cdot 15000 = 37500 \text{ pounds-inch.}$$

The pin is therefore safe. The same result could have been read off directly from Table XXXIX.

We next design the main rafter; as this is to be in one length, we design it only for lower panel (91500 pounds-compression) and the other panels will be, of

course, too strong. Besides the compression we will have a transverse strain or bending-moment on rafter, per square foot, as follows:

Wind	= 38.4
3 inch blocks,	= 16
Slate	= 10
Iron tees (say)	= 5

Total = 69.4 pounds,

or allowing for weight of rafter, say, 70 pounds per foot. The rafter lengths being 17 feet and $17\frac{1}{2}$ feet apart, we have total uniform load $u = 17.17\frac{1}{2} \cdot 70 = 20825$ or say 21000 pounds. We now draw anywhere along rafter a vertical line $ab = 21000$ pounds; then draw ac normal to rafter; it scales 13000 pounds, therefore the actual transverse load on rafter is 13000 pounds.

The required moment of resistance to resist this load will be Formula (18)

$$r = \frac{13000 \cdot (17.12)}{8.12000} = 27.7$$

By reference to Table XXI, we find we require one $12\frac{1}{4}$ inch 80 pounds channels to take care of the transverse strain. We also note that the area of channel is 8 square inches, which is about what we need additional for resisting the compression. We will decide then to use two $12\frac{1}{4}$ inches 80 pounds channels.

The square of the radius of gyration is $g^2 = 21.10$

The area of the two will be 16 square inches, but as just one-half of their total moment of resistance r is needed to resist transverse strain, we will have only 8 square inches left of the total area to resist compression. The column is 17 feet or say 204 inches long. One end will be a pin end, the other a milled or planed end with fair bearing. We have then for safe compressive load Formula (3):

$$w = \frac{8.12000}{204^2 \cdot 0.000033} = 90300 \text{ pounds,}$$

$$1 + \frac{21.1}{21.1} = 2$$

or near enough to pass as safe. If the transverse strain had required say a moment of resistance of $r = 35$ we should have had left to resist compression of the total area 16 square inches only,

$$= 16 - \left(\frac{35}{2.27.7} \right) \cdot 16$$

= (about) 6 square inches instead of 8, which (in such a case), would not be enough and would require a heavier channel.

The thickness of our channel web we see from Table XXI, is 0.39 inches, or two webs = 0.78. The safe bearing on pin will therefore be $= 0.78 \cdot 21\frac{1}{8} \cdot 12000 = 28200$ pounds. The web of channel will therefore need thickening at the shoe pin, but not at the two others. At the apex the pin does not bear on channels, but is connected indirectly by a 2-inch thick plate.

At the shoe the channels have planed ends and rest directly on the shoe, the strain therefore against their webs, will be 60000 pounds, due to the rod trying to tear the pin out. The webs take care of 28200 pounds of bearing, leaving $60000 - 28200 = 31800$ pounds, to be transferred by rivets to thickening or reinforce plates. Of this each side takes care of

$$\frac{31800}{2} = 15900 \text{ pounds.}$$

The thickness required for each plate, is therefore

$$\frac{15900}{21\frac{1}{8} \cdot 12000} = 0.42 \text{ or say } \frac{1}{2} \text{ inch each.}$$

¹ Continued from No. 786, page 42.

The number of rivets required must next be settled. We use $\frac{3}{4}$ inch rivets:

The channel being thinner than the plate determines the bearing value for each, or

$$\text{Rivets in reinforcement plates. or } = 0.39 \cdot \frac{1}{2} \cdot 12000 = 3000 \text{ pounds,}$$

$$\frac{15900}{3000} = 5.3 \text{ or say six rivets required for bearing.}$$

The rivets are in single shear, their area = 0.3068 and their value $= 0.3068 \cdot 8000 = 2454$ pounds, and we require $\frac{15900}{2454} = 6.5$ or say seven rivets.

For bending-moment each rivet is a single lever held by the half-inch plate, projecting 0.39 inches and uniformly loaded on free end with its share of the 14100 pounds carried by each channel web, the total bending-moment will therefore be from Formula (25).

$$m = \frac{14100 \cdot 0.39}{2} = 2750 \text{ pounds-inch.}$$

The safe bending-moment on a $\frac{3}{4}$ inch rivet we previously found to be 360 pounds-inch, and require therefore

$$\frac{2750}{360} = 7.7 \text{ or say eight rivets.}$$

The disposition of rivets around the pin, however, requires nine rivets.

We now go to the apex point. We use here a 2-inch plate, its bearing on pin must be all right, as we made the other end of vertical rod 2 inches thick. The upper end of rod we make forked, each side 1 inch thick, and 2 inches between to admit plate.

The plate is so large that there is evidently no danger of the pin shearing out.

For the rivets we can see it will require a large number and therefore decide to use larger or say $\frac{3}{4}$ inch rivets.

The bearing value on two webs of each rivet will

$$\text{Number of rivets. be } = \frac{1}{2} \cdot 2 \cdot 0.39 \cdot 12000 = 8190 \text{ pounds.}$$

$$\text{The (double) shearing value of each rivet will be}$$

$$= 2 \cdot 0.6013 \cdot 8000 = 9620 \text{ pounds.}$$

$$\text{The safe bending-moment on each rivet will be}$$

$$= \frac{1}{2} \cdot \left(\frac{1}{2} \right)^2 \cdot 15000 = 987 \text{ pounds-inch.}$$

If now we consider that the two rafters have planed ends and butt fairly against each other, taking up the thrust from each, the rivets need only take care of the vertical down pull 67000 pounds, all of the rivets taking a share. In that case we should need for bearing $\frac{67000}{9360} = 7.2$ rivets, for shearing less, and for total bending-moment, remembering that the channel backs are 2 inches apart and that the rivets are beams supported at both ends and uniformly loaded, from Formula (21)

$$m = \frac{67000 \cdot 2}{8} = 16750 \text{ pounds-inch.}$$

Therefore number of rivets required to resist bending-moment $= \frac{16750}{987} = 16.9$ or say nine each side of joint.

The plate, however, requires ten each side for even distribution.

If the channels do not butt fairly the plate will have to transfer the thrust from one to the other. This thrust will be equal to the horizontal resultant of compression on rafter at apex which is 54500 pounds. Its horizontal projection measures 34000 pounds. The rivets each side of joint must take care of this strain and the plate be large enough not to crush under it. We need not calculate any in this case, however, as this strain is just about one-half of the strain for which the total number of rivets were proportioned.

We next design the shoe. It is a flat cast-iron plate 2 inches thick, and 28 inches by 24 inches with two flanges each 3 inches thick to receive the pin. As the channels bear directly on the plate, the only strain on the flanges will be due to the pin trying to shear its way out, the strain being 60000 pounds. Resisting this there are two areas to each of the two flanges, each area 3 inches x 3 inches, or a total area $= 4.3.3 = 36$ square inches, the actual stress is therefore

$$\frac{60000}{36} = 1667 \text{ pounds per square inch, which is safe.}$$

The wall must carry the whole load of truss, each reaction is 57900 pounds due to vertical load. To this must be

Bearing area. added the vertical resultant (or projection) of the largest wind reaction 21700 pounds. Its vertical projection measures about 14000 pounds making the total

Include wind reaction. vertical reaction 71900 pounds. The area of plate is $28 \times 24 = 672$ square inches, therefore compression per square inch on brick-work

$$= \frac{71900}{672} = 108 \text{ pounds, which is safe.}$$

Had this truss been of larger span, we should have had to place one shoe either on a rocking saddle, or else on rollers. If the latter there should be sufficient rollers, and they should be of large enough diameter not to indent the plate, and to roll back and forth freely. It is usual to put upward flanges all around the bottom plate and downward flanges all around the upper plate to hold the rollers in place between them.

The flanges should be less than radius of rollers, so as not to meet. The foot of girder must be secured against yielding sideways.

The size of rollers is determined by the following formula:

$$\text{Formula for rollers. } w = l.750.\sqrt{d} \quad (132)$$

Where w = the safe load, in pounds, on each roller.

Where l = the length, in inches, of each roller.

Where d = the diameter in inches, of each roller, if of steel or wrought-iron and rolling between cast-iron plates. If between wrought-iron plates add 25 per cent to w .

Rollers should be used, (under one shoe only,) where trusses indoors are over eighty feet span, or out-doors if span is over sixty-five feet.

Example.

A truss of one hundred feet span has a reaction at each end of 95000 pounds. The shoe-plate is 20 inches wide the long way of rollers, and rollers are 1 inch in diameter. How many rollers are required?

Each roller will safely carry from Formula (132)

$$w = 20.750.\sqrt{1} = 15000 \text{ pounds,}$$

we shall require therefore

$$\frac{95000}{15000} = 6.3 \text{ or say 7 rollers.}$$

Of course, where rollers are used some arrangement must be made in the cornice to allow for the movement due to expansion and contraction of the truss; or if the roof is continuous a slip-joint must be provided in the roof itself, the detail of which will depend upon the local circumstances.

LOUIS DECOFFET BERG.

[To be continued.]

HOME INDUSTRIES IN GERMANY.

THE

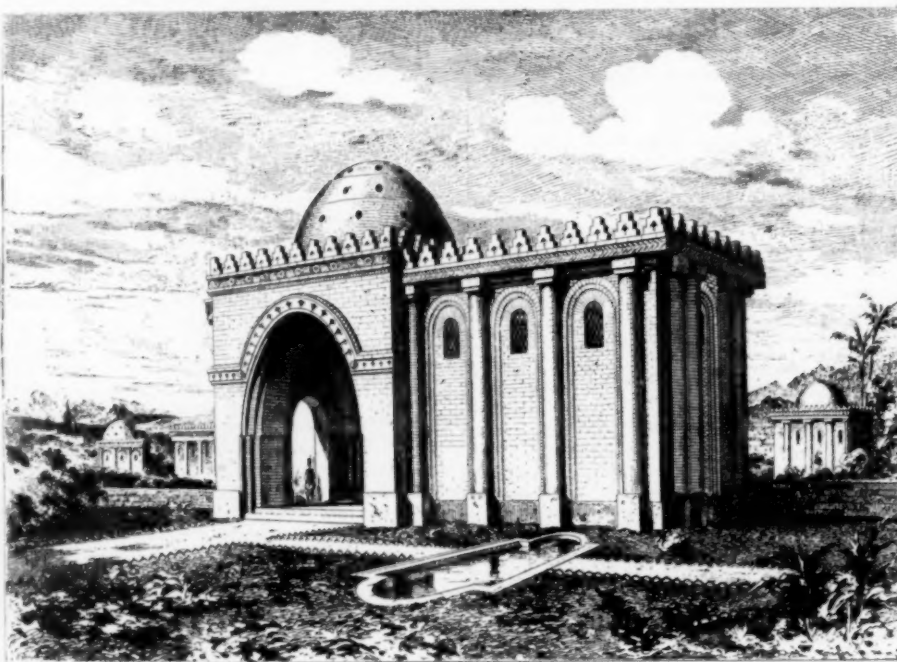
United States Commercial Agent at Mayence says in his last report that one of the marked features of industrial life in Germany is the making of articles in what is known as home industry, in which description of work many thousands of people—men, women and children—are engaged.

This home industry is the making of different articles at home, frequently in out-of-the-way places and villages, often in mountainous regions, where the people are poor and get a precarious livelihood from the soil. The work is generally done by hand, but the use of simple machinery does not take it out of the category of home industry, so long as it does not assume the form of regular factory work.

The work may be done alone or with the aid of the family, and even hired labor may be used, provided the employer works in the double capacity of worker for another and an employer of workmen. The workers in home industry provide their own raw materials, or these raw materials are supplied by the tradesmen and manufacturers for whom the work is performed—both are customary. The articles made may be executed on orders, or made up with a view to the sale of them to the first dealer who comes. As regards the distribution of the home industry, it is carried

on chiefly in that part of the empire which extends from the basin of the Glatzer Mountains along the Bohemian frontier to the Fichtel-Gebirge, and thence northwards to the Eichsfeld, taking in Liegnitz, Breslau, Bautzen, Dresden, Leipsic, Zwickau, Upper Franconia, and the Thuringian States, as well as the Prussian district of Erfurt. In addition, a few large home industrial districts are met with on the western frontier, such as those of Düsseldorf, Aix-la-Chapelle, Lower Alsace and Lorraine, as well as in the Black Forest. In the cities of Berlin and Bremen, home industries are largely engaged in. In the districts of Bautzen, Liegnitz, and Breslau, it is chiefly the making of linen and cotton goods that occupies the people; in the districts of Zwickau and Leipsic, and in the two Reusses and

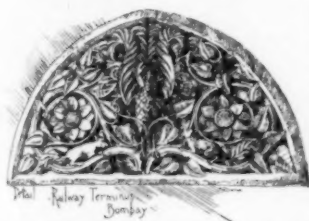
in Saxe-Weimar it is the making of hosiery, and of cotton and woollen goods; in the district of Erfurt and in Schaumburg-Lippe, it is the linen industry that mostly prevails; in a part of Thuringia, it is the making of toys. The home industry on the Lower Rhine, as at Düsseldorf and Aix-la-Chapelle, is chiefly devoted to the making of silk goods and small iron-ware, such as tools, scythes, and cutlery. In Lorraine and Lower Alsace, the people are mostly engaged upon wicker-work, crocheting and embroidery; to some extent, also, in weaving cotton cloth. In the Black Forest it is especially shoe-making that is met with; in Berlin, the making of wearing apparel, and in Bremen the making of cigars. In all Germany there are said to be 10.5 persons engaged in home industry to every 1,000 inhabitants, the largest proportion being in Saxony. A large number of women are employed in home industry. In every hundred persons engaged 43.9 are females; while of every hundred persons engaged in all industries, only twenty are females. In home industrial work requiring strength, 90 per cent of the workers are men; while in the lighter employments, 90 per cent are females. In general industry, 59 per cent of the workers are unmarried, 38.6 per cent married, and 2.4 per cent those who have lost their partners; while, in home industry, 40 per cent of the workers are unmarried, 47 per cent married, and 13 per cent those who have lost their married partner. In home industry there is relatively a less number of children under fifteen years of age employed than in general industry. In the former, among a total of 339,644 workers, only 4,449 are under fifteen years of age—that is, 1.3 per cent; while of 4,096,243 persons in general industry, 138,396 are less than fifteen, or 3.4 per cent. The hours of labor in home industry are, in many instances, excessively long. The Thuringian wood-carvers sit at their work all day and late into the night. The slate-makers work eighteen hours a day. The basket-makers in Upper Franconia and Coburg rise in summer at half-past four and work late into the night. Workers in meerschaum at Rhula work generally fifteen or sixteen hours a day in summer, and thirteen in winter. The wages paid in home industry are very low, and enable the recipients only to drag out a miserable existence. In Thuringia the weekly earnings of the toy-makers in the Sonneberg district are as follows: An embosser, aided by wife and children, twelve to fourteen shillings; a turner, from seven to nine shillings; a female worker on dolls' hair, three shillings and sixpence to four shillings; a slate-maker, six shillings; and a paper-box-maker, three shillings. At Rhula, the best makers of meerschaum-pipes earn, when they have full employment, from eighteen to twenty-one shillings a week; ordinary workmen, twelve shillings, and inferior workmen only about eight shillings. The earnings of a family of wood-carvers in the Eisenach district, consisting of five members, is said to be from fourteen to sixteen shillings a week, when they have full employment, and are of the better class of workers. The inferior class of carvers hardly make enough to pay for bread. Cork-cutters in the same district are still worse paid, a whole family of them receiving only from five to eight shillings a week.



Garnier's Habitations of Man — The Persian House. From *Moniteur des Architectes*.

WATER WASTED THROUGH BURST PIPES.—Burst pipes, owing to the frost, cost the water-companies a good deal. The Lambeth Company has issued a "warning circular" to householders, which gives some interesting facts: On

January 11, they supplied just over 29,000,000 gallons. Next day came the thaw; water spurted out in all directions, and the total that day was over 35,000,000. The next day, the thaw still continuing, the quantity pumped was over 40,000,000. The frost returning, however, the quantity has gradually gone down till it reached 30,500,000 on the 18th inst. This is mainly attributable to the general practice of allowing taps to run all day and all night. This, says the Lambeth Company's circular, is done in the "mistaken belief that this course will prevent pipes from being frozen." Owners and occupiers are warned against this "selfish and useless practice." "If persisted in," continues the circular, "it must lower the pressure, and so rob other consumers in the district where it prevails, and will compel the Company to resort either to prosecuting the offenders for waste, or to restricting the supply." — *Invention*.

PETERBOROUGH CATHEDRAL.¹

which, as is well-known, was the last of our Saxon kingdoms to receive the doctrines of Christianity. The fen lands in which this monastery was founded have always been opponents of change and champions of liberty, as is sufficiently witnessed by their having been the scene of the last struggle of the Saxons against the Normans under the famous "Wake."

The building first served as the church of a Benedictine monastery dedicated to St. Peter, and has (contrary to the usual order) given its name to the adjoining town, which was once called Medehampstede. A large portion, chiefly the east end, is of Norman type and date (the earliest Saxon building having been destroyed by fire). The nave is of a later Norman style, while the west front, of over 150 feet in width, which is acknowledged to be the finest and boldest portico in Europe, is of the purest type of Early English (thirteenth-century) architecture. Its design stands quite apart from and above that of any structure of the kind in England, where, as Scott says, portico-work is for the most part mean, and not at all conspicuous.

Thus a great part of the building is of different phases of architecture, from the Norman to the Early English. A central tower was first added by the Abbot De Waterville in the middle of the twelfth century, but, as it proved to be too heavy for the foundations and piers to support, it was afterwards pulled down, and the tower which has existed up to the present restoration was built in its place in 1340. The Benedictine minster of St. Peter's assumed its present dignity of the Cathedral of Peterborough in the middle of the sixteenth century, when Henry VIII carried out that sweeping measure of reform, the dissolution of the monasteries, and confiscated enough funds not only to supply his own necessities, but to endow several bishoprics, of which Peterborough was made one, owing this honor, as it is said, to the fact of its covering the bones of the unfortunate Catharine of Aragon, Henry's first queen. Her monument within the cathedral is but a brass in the pavement of the aisle with the simple inscription of her name, for Henry is reported to have refused to erect any more imposing memorial, saying that "Peterborough Cathedral should be her monument."

For some time before Sir Gilbert Scott was called in there had existed certain evidences of weakness in the masonry of the central tower, which had caused much anxiety to the Dean and Chapter, and yet Sir Gilbert's recommendations were constantly put off until it was found absolutely necessary, for the safety of the structure, that the work should be carried on, and then a considerable expenditure was made in underpinning the north side of the nave. The condition of the central tower continued to grow worse and worse, and large rents existed, which become more serious when one of the piers which supported it gave way, and thus the cathedral was brought into a most dangerous state, and it was eventually declared to be quite unsafe to conduct services in the choir.

In this latest restoration, which has now been going on for some

eight years, Mr. Pearson has been compelled to pull down the central tower, which had existed since about 1340, though it had been altered as late as the beginning of the present century by Dean Kipling, who, for the sake of "increasing its height and dignity," had built onto it the four corner turrets, which were afterwards known as "the Dean's chimneys." These, of course, have also been removed, but, unlike the tower, they have not reappeared in Mr. Pearson's restoration. The demolition of the old tower and the erection of another on the same lines, and the rebuilding of the piers which carry it, have been the principal items in the present restoration. But they have called for considerable structural alterations, which have necessarily been carried out. Much, however, is still required, more especially in the interior of the cathedral (which presents one of the finest Norman interiors in England), to reinstate it in its original dignity and make the cathedral one of the grandest, as it is one of the most ancient, of our National Church monuments.

During the excavations rendered necessary in the course of the work which has now been completed, an interesting discovery was made. Near the western wall of the transept the workmen stumbled upon a richly-ornamented Saxon slab covering a grave, and evidently not having been disturbed from the position in which it had been

originally laid. It is not perfect, having lost some inches from the top, doubtless during the building of the present Norman church. Its surface is completely covered with rich interlacing ornament of Saxon pattern, the design being that of a four-fold cross.

The Dean believes this to be the most beautiful specimen of Saxon work which has come to light; many portions of others of similar workmanship, but less elaborate, have, however, also been discovered. The outline of the Saxon church has also been traced, and measurements made during this work show that it occupied a space of about one-half the area of the present church.



ANDORRA AND SAN MARINO.

UNTIL France adopted her present form of government, modern European republics were nearly all tiny bits of territory that seemed hardly worth a monarch's conquest. In all cases, too, they have been mountainous lands. Indeed, in several instances, they have been

little more than a mountain or a range of mountains. Switzerland's centuries of republican freedom are known to all the world, and this little country is the largest of the mountain republics in which Liberty has long made her home. Two others there are of which the world knows little, and perhaps cares less. How many men, ten years out of school, can give the geographical position of Andorra or of San Marino? A word as to these tiny Republics.

It was a German princeling that is said to have declined a gift of a long-range rifle cannon, upon the ground that there was not room in his principality to give the weapon a fair trial. Thackeray was never tired of poking fun at the Prince of Pumpnickel, and the diminutive army of one German potentate has long been the theme of scornful jest. Small territories and scant revenues have made even some of the more conspicuous German princely houses famous for simplicity and economy. But it must be a small principality, indeed, that is smaller in area or population than the Republic of Andorra.

This tiny State lies on the south side of the Pyrenees, between the Spanish Province of Lerida and the French Department of Ariège. Its area is 160 square miles, not very much more than that of Philadelphia. Its population is 7,000. The people are mostly busied in smuggling, mining and the manufacture of tobacco. Those not thus employed are shepherds. The country has free parish schools. The people speak a Spanish dialect. The republic is a survival of many such ones flourishing in the valleys of the Pyrenees. It has maintained its independence since the year 1275. The country is divided into six parishes, and each parish has two consuls, who, by

¹ By H. P. Burke-Downing, A. R. I. B. A., in the *Architect*.

the aid of local councils, decide all questions concerning roads, police, public lighting, taxation, and the division of pasture lands. Finally, there is a general council of twenty-four members, four from each parish. Since 1866 these officers have been elected by all heads of families. Before that the elective franchise was confined to an aristocracy maintained by primogeniture.

The army of Andorra consists of 600 men under militia organization. These men hold themselves ready to be called out at the wish of the State. The command of the militia is entrusted chiefly to two officers, one nominated by France and the other by the Bishop of Urgel, a Spanish See. The army is exempt from foreign service, and the chief business of the two officers, or *vigniers*, as they are called, is to administer criminal justice. Civil cases are tried before two aldermen, deputies of the *vigniers*. A civil judge of appeal, however, may set aside the judgments of the aldermen. The judge is nominated alternately by France and by the Bishop of Urgel. The final appeal is to the Court of Cassation at Paris, or to the Episcopal College at Urgel.

The little republic pays an annual tribute of 960 francs to France, and, in consideration of this payment, free trade prevails between the two countries. A like sum is paid as tribute to the Bishop of Urgel. This tribute and the expenses of government are paid by a species of tax levied as rent for the use of pasture-land. The people live the simplest sort of lives, and are scarcely conscious of any government beyond the neighborly understanding necessary to the existence of a civilized community. Andorra, the capital, is an odd little town of 1,000 inhabitants.

Far smaller than Andorra is that other mountain republic, San Marino. It lies upon the Adriatic, surrounded by Italian provinces. The area of the country is only 33 square miles, and, in fact, the republic is merely one mountain peak, 2,200 feet high. On the sides of this mountain stand the town of San Marino and four or five villages besides. The town is built about the ancient hermitage of San Marino, founded in the year 441. The place is accessible by only one road, and is not only walled, but has three forts. It contains the Governor's palace, six churches, a theatre and two great cisterns for the supply of water. Nothing could be more curious than the republic's system of government. The Legislature consists of a Senate of sixty members, elected for life, equally from nobles, citizens and peasants. The little republic is amply provided with presidents. There are two chosen every six months. There are, likewise, two judges and two secretaries of State. The army consists of 950 men, or about one-eighth of the entire population. The town has a population of 1,000. The court of last resort is a council of twelve, elected by the Senate.

The town, or capital, is curious in more ways than one. Not only does it lie impregnable on the hillside, but it proudly proclaims its independence by means of a statue of Liberty in the piazza. The houses are of dressed-stone, and the streets, bobbing up and down as they do, are charmingly picturesque. San Marino has no customs-tariff against Italy, and obtains foreign tobacco duty free, through Italian territory, by reason of a promise to abstain from raising tobacco. To avoid any difficulty over the troublesome question of international copyright, San Marino forbids the use of the printing-press within her borders.

According to tradition, San Marino was founded in the third century by a mason named Marinus. It first figures in European history in the year 885. Since then it has had varying fortunes in peace and war. Time and again the tiny bit of territory has been the subject of great dispute, and for brief periods it has lost its autonomy. In 1631, however, San Marino's powerful neighbors acknowledged her independence, and this boon was secured to the little republic when the present Italian Kingdom was formed.—*Exchange.*



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

DETAIL FROM THE HOUSE OF W. K. VANDERBILT, ESQ., NEW YORK, N. Y. MR. E. M. HUNT, ARCHITECT, NEW YORK, N. Y.

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

HOUSES ON SPRUCE ST., PHILADELPHIA, PA. MESSRS. BROWN & DAY, ARCHITECTS, PHILADELPHIA, PA.

THESE eight houses on Spruce St., Philadelphia, were finished in July last, for Mr. Alan H. Reed, owner. They are built of different colors Pompeian brick, in pairs, except the corner house and that next to it, and are trimmed with English redstone and Indiana limestone.

COMPETITIVE DESIGN FOR THE HIBERNIAN BANK, SAN FRANCISCO, CAL. MR. A. PAGE BROWN, ARCHITECT, NEW YORK, N. Y.

This design was not accepted for execution.

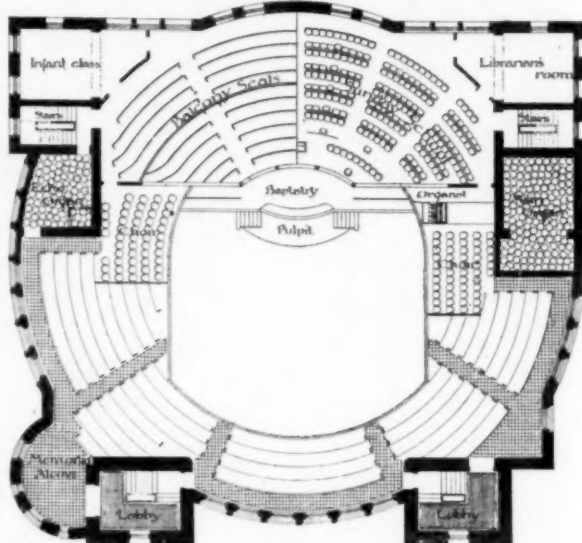
HOUSE FOR MRS. ANNA HOXIE COOK, BUFFALO, N. Y. MR. C. D. SWAN, ARCHITECT, BUFFALO, N. Y.

HOUSE FOR CAPTAIN FREDERICK PABST, MILWAUKEE, WIS. MESSRS. FERRY & CLAES, ARCHITECTS, MILWAUKEE, WIS.

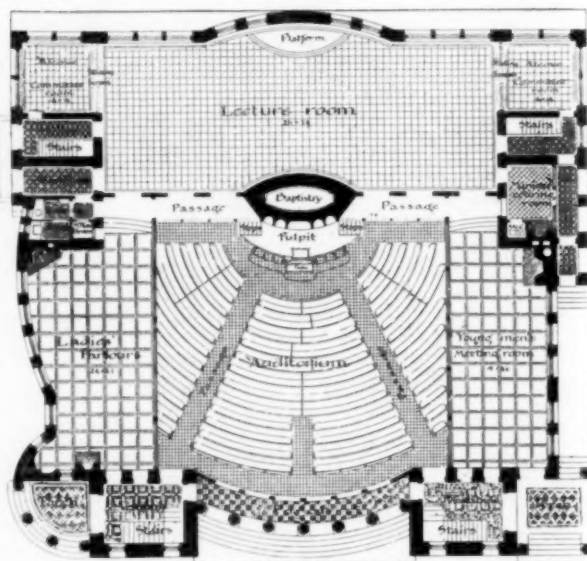
CHURCH OF THE DISCIPLES, TORONTO, CANADA. MESSRS. KNOX & ELLIOT, ARCHITECTS, TORONTO, CANADA.

HOUSE FOR BISSELL EVERSON, ESQ., PITTSBURGH, PA. MR. C. M. BARTBERGER, ARCHITECT, PITTSBURGH, PA.

THE PEDDIE MEMORIAL BAPTIST CHURCH, NEWARK, N. J. MR. W. HALSEY WOOD, ARCHITECT, NEWARK, N. J.



THE omission of these plans from our last issue in which the description, general view and interior of this building were published, makes it desirable to publish them, this week, together with the front elevation, which, better than the perspective view, shows the different proportions of the two towers.



[Additional Illustrations in the International Edition.]

NORTH FACADE OF THE HOTEL DE VILLE, GHENT, BELGIUM. DOMINICUS VAN WAGHEMAKERE AND ROMBOUDT KELDERMANS, ARCHITECTS.

[Gelatin Print.]

THIS façade, one of the richest pieces of Flamboyant Gothic to be found anywhere, was built 1481-1553 and restored in 1829. An indication of its great attractiveness is offered by the fact that, at the time this view was taken, we were obliged to put up with a rather undesirable point of view because another photographer had taken possession of a better site.

THE MATTONI-HOF, VIENNA, AUSTRIA. HERR G. KOROMPAY, ARCHITECT, VIENNA, AUSTRIA.

[Gelatin Print.]

STAIRCASE IN THE NATIONAL POSTAL SAVINGS-BANK BUILDING,
PARIS, FRANCE. M. J. BOUSSARD, ARCHITECT.

[Copper-plate Etching.]

COMPETITIVE DESIGN FOR THE DETROIT CLUB BUILDING, DETROIT,
MICH. MESSRS. MASON & RICE, ARCHITECTS, DETROIT, MICH.

An important feature in this plan is the enlargement of the light-shaft in the centre of the building, which allows abundance of light to penetrate to the corridor and staircase of each floor. As the fire ordinance requires brick walls around elevator shafts, there has been arranged in this shaft space, not only for the car and its weights, but for the necessary pipes from the boiler and pump to the upper tanks. These pipes will be separately enclosed behind an iron partition, and the space thus enclosed can be used for ventilating flues for the basement. As experience in other buildings has proved that a saving of at least \$1,000 a year can be made by owners running their own engines and dynamos for lighting instead of using the current from public lighting-stations, provision has been made for these features, and also for pumps and tanks for the ladies' and servants' elevators and for the main passenger elevator. These are all connected interchangeably so as to form one system, thus making it possible for the service to be carried on in case of repairs being needed in the machinery operating one or another of the elevators. The entire interior construction is carried upon iron framework, iron columns carrying wrought-iron floor girders protected on the under side with porous tile ready for plastering. The walls are lathed with iron lath, and all columns and girders are protected with porous terra-cotta like the floor beams, thus making the framework practically fireproof. The ventilating of the building is designed to be effected by fans run by steam from the boilers or by electric motor, which will force the vitiated air from the principal rooms to a general receiving-chamber at the top of the building, provided with suitable exit. The cost of the building is estimated as follows:

General construction and finish.....	\$91,000
Two passenger elevators.....	6,300
One freight and servants' elevator.....	2,100
Fireproofing.....	7,200
Iron lathing.....	2,500
Extra finish in main corridors and principal rooms....	15,000

COMPETITIVE DESIGN FOR THE DETROIT CLUB BUILDING. MR.
J. PH. RINN, ARCHITECT, BOSTON, MASS.

STAIRWAY IN THE COURT-YARD OF THE UNIVERSITY, GLASGOW,
SCOTLAND.¹

FRIEZE FROM FIREPLACE. MESSRS. H. WILSON AND F. W.
POMEROY.

DECORATIONS OF A CEILING. MR. S. WEBB.

CATHOLIC APOSTOLIC CHURCH, CLIFTON, BRISTOL, ENG. MR.
H. WHITEMAN RISING, ARCHITECT, LONDON, ENG.

This church, of which we give an interior perspective view, has just been completed, and is situated in the University College Road, on the Tyndall's Park estate. The first contract, which consisted of the church with north and south aisles, organ-chamber, vestries and west porch, was executed by Messrs. James Wilkins & Son, builders, of Bristol. The second contract, consisting of nave seating, pulpit and chancel stalls, was executed in oak by Messrs. Stephen Bastow & Co., of Bristol and London. The walls are built with Stapleton quarry stone in rubblework, faced externally with the local red stone laid in random range and rock-faced, the dressings to windows, etc., being Box ground Bath stone. The roofs are covered with Ashton & Green's permanent green slates. The nave arcade and all other interior stone-dressings are of Corsham Down Bath stone, the filling-in of spandrels, etc., being finished off with rough sand-faced stucco. The floors of nave, aisles, organ chamber and lower choir are executed in deal blocks, laid diagonally upon concrete. The upper choir and sanctuary floors are laid with tiles, executed by Messrs. Carter, Johnson & Co., of Worcester, from special designs. The church and vestries are heated by warm-air, and the work was executed by Messrs. Haden & Son, of Trowbridge. All the inlet and outlet ventilators are under control, the latter being Honeyman's patent extract ventilators. The church is lighted by gas throughout; the wrought-iron pendants and brackets were made by Messrs. Strode & Co., of London. All the nave benches and chancel stalls are in oak. The pulpit is also in oak, with Bath stone base. The altar, which is of marble and alabaster, was executed by Messrs. Farmer & Brindley, of Westminster, London.

DESIGN FOR BOARD SCHOOL, YARDLEY, ENG. MESSRS. ESSEX &
NICOL, ARCHITECTS.

This design obtained second premium in the recent competition.

¹ It should always be kept in mind that these illustrations from the "Burton and Ecclesiastical Antiquities of Scotland," (1845) by R. W. Billings, are republished very largely for the sake of giving instruction in one manner of the rendering of architectural drawings.



PHILADELPHIA T-SQUARE CLUB.

The first regular meeting of the Philadelphia T-Square Club for the year was held on Wednesday evening, January 21, at the office of Mr. Frank Miles Day, 927 Chestnut Street. The subject of the evening's competition was "A Seal for the Club." Drawings were submitted by Messrs. Lea, Hays, Parmeter, Coates, Jamieson, Titus and Boggs, and mentions awarded as follows: 1st mention, Mr. Frank Hays; 2d mention, Mr. J. Jamieson; 3d mention, Mr. Crawford Coates, Jr.

The following officers were elected for the ensuing year: *President*, Mr. Frank Hays; *Vice-President*, Mr. Wilson Eyre; *Secretary*, Mr. Barton Keen; *Treasurer*, Mr. Wm. Bailey; *Ex-Committee*, Mr. Frank Mead, Mr. Crawford Coates and Mr. John Stewardson.

The subject of the next competition is "A Forty-Foot Front for a City Club."

Required: a design in the Italian Renaissance style. A one-eighth scale elevation and section in pencil. Pure line drawings only with the openings in the elevation finished in plain washes of India-ink.

LOUIS C. HICKMAN, *President*,
GEORGE C. PARMETER, *Secretary*.



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

A SUGGESTION TO ADVERTISERS.

CHICAGO, ILL., January 27, 1891.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—We are in receipt from you of the numerous replies to the notice in the *American Architect* of January 17, that we would send our copies of 1890 to some deserving young man. We have selected Mr. —, with — of Grand Rapids, Mich., as we are acquainted with him, and know him to be worthy of the gift. We have a file of *Inland Architects* and some other works of the same character, which we will send to some of the other applicants. It seems to us, that when there are so many deserving young men, that other advertisers could do the same, and make better use of the *American Architects* than storing them away in some obscure place.

Very truly yours, AN ADVERTISER.

[We are as pleased to publish this note as its predecessor, as one of our prime objects is to help the younger men. The inference that all advertisers either throw away their "free copies" or store them in obscure places is qualified by knowledge to a contrary effect that we acquire through regularly receiving for binding at the end of the year the free copies they have received. — EDS. AMERICAN ARCHITECT.]

"MILL CONSTRUCTION."

TROY, N. Y., January 27, 1891.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—Do you publish any work on "Mill or Factory Construction"? If so, please favor me with a list and oblige.

Yours respectfully, C. EDWARD LOTH.

[APPLY to the Boston Manufacturers Mutual Insurance Company, who will doubtless send their circulars on mill-construction. — EDS. AMERICAN ARCHITECT.]



NO PROFITS IN FIRE INSURANCE.—We have it on the authority of a Hartford expert that there is to-day not a single fire-insurance company in the country earning any money out of its business. This is rather an astonishing assertion, but the assertion is made that it is based on facts. If it were not for the surplus, consisting of invested funds, there is not a company in America that could probably pay its stockholders a dollar to-day. Ten years ago it was considered perfectly legitimate to make a profit of from 25 to 30 per cent on the whole business. To-day the most successful companies are doing business on 10 to 12 per cent, and taking into account the contingencies, none are making money. Since 1878, 200 insurance companies have failed, gone out of business, or reinsured their risks in other companies. This is an appalling record for only 12 years. To be sure, some of these were honorable retirements from a business in which they saw no money, and the several companies paid back handsomely; but many were bad failures. Nor were they petty corporations either. The fact of the matter is, the day for large profits in the insurance business has gone by. Competition is so great that existing companies must content

themselves with a very small margin of profit. The present state of affairs is that the profits being made are not large enough considering the contingencies of the business to add to the surplus. Last year every company doing business on the Pacific coast lost money through the five unprecedented conflagrations that occurred there. Hartford has a vital interest in the outlook. Manifestly, these great losses cannot be prevented, and apparently the contingency can be met only by cutting down expenses. It is a fact worth noting that the difference in the expense account of some of our big Hartford companies and certain of their New York rivals amounts to a very handsome sum yearly. Of course, all this competition inures to the pecuniary advantage within certain limits, of the insured, giving him much more favorable terms than were conceded when insurance was young; but in the present article the matter is viewed from the standpoint of the insurance men and not of the insured. What has been said of insurance, is also true of nearly every other legitimate undertaking. Old-established mercantile houses that did a business of \$1,000,000 a year ten years ago, now find they have to do double that to make a like amount of money. The same is true of every kind of occupation outside the realm of speculation. 4 or 5 per cent must satisfy investors who, a decade ago, thought nothing short of 7 per cent worth having. Even Western farm-mortgages, except in the far West, have felt this levelling influence, and the 10 per cent loans of yesterday are being rapidly replaced to-day by those of 6 per cent. Much as investors may regret it, rates in this country are coming down to the English basis with its paltry 4 and 5 per cent, and there seems to be no help for it. — *Hartford, Conn., Post.*

WATER POWER OF LAKE SUPERIOR.—Colonel Hope, of London, has, says the *Canadian Manufacturer*, organized a company for utilizing the enormous water-power of Lake Superior and constructing very extensive works in the vicinity of Sault Ste. Marie. The waters of Lake Superior fall at the Sault about 30 feet to the level of Lake Huron, and the velocity has been recorded by General Powell, of the United States service, as a little more than 90,000 cubic feet a second. Colonel Hope, who has just returned from spending several weeks on the spot, made careful and accurate measurements and calculations and finds the actual velocity and volume of water to be 122,000 feet per second, equivalent to 236,000 horse-power. His company intend to build a tail-race five miles long on the Canadian side, and a canal five miles long on the American side. These canals will be each 1,000 feet wide, the widest in the world. They will construct large dry-docks on both sides, to be filled and emptied by gravitation. They will be the only dry-docks in the world, so far as Colonel Hope knows, filled and emptied by this method. On the Canadian side all the principal works will be above the rapids, and on the American side below the rapids. The reason of this is that the land for factories and mills is furnished on the Canadian side above and on the American side below the rapids. There will be blast-furnaces and ship-yards, and it is expected that there will be paper-mills, pulp-mills, flour-mills and other industries, whose motive power will be supplied by this company, or by one of the several subsidiary companies which it is the intention of Colonel Hope's company to form.

MONKS MOUND TO BE LEVELLED.—Monks Mound, the oldest and most imposing landmark in the Great American Bottom, and which is so graphically described by Charles Dickens in his "*American Notes*" as the greatest of all Indian mounds, is, so it is reported, to be levelled to the natural surface and hauled away to fill a portion of East St. Louis to grade. Monks Mound covers an area of thirty acres and its peak rises to the height of nearly 100 feet above the common level. On the apex there was a dwelling at one time, and a few years ago an extensive peach orchard flourished on the southern slope. Nearer the base on the opposite side field products and garden truck were cultivated, the soil yielding bountiful crops. Distinguished archaeologists from all over the country have at different times dug into the mound, and even to the present time curious implements of warfare, Indian money, decorative curios of flint and stone are found there as the farmer's plough loosens the made earth and rains wash it down into the valley. Extensive explorations of the mound have been made, and the supposition is that the most valuable relics have been dug out, but it is likely that many interesting mementos of the Mound Builders will see the light of day once more when the contractors put their graders to work. The mound is about four miles north of East St. Louis. Railroads run within a short distance of it, and a connecting-switch will carry trainloads of the Monks Mound into the low places of East St. Louis. It is said that grading contractors have bought the mound for that special purpose from the owner, Charles T. Ramey. — *New York Times.*

A NOVEL SEA-BARRIER.—On the northern shore of the Duddon estuary, in the County of Cumberland, there has been steadily worked during the last 20 years or more an important mine, producing a large quantity of rich red-hematite iron. The ore having been excavated, or "won" as close to the sea margin as it has been possible to work without letting down the surface of the land and admitting the influx of the sea, thereby drowning the mine, the company have recently obtained a fresh lease, undertaking to construct a barrier to keep back the sea along that portion of the estuary in front of the mine in order that they might "win" the ore from underneath some 26 acres of the sea-bed. To effect this object a massive and substantial sea-barrier has now been constructed. This may justly be regarded as unique in character, inasmuch as it is at one and the same time a breakwater and a water-tight dam. By means of this work the sea was about three months since finally and successfully excluded from the area above mentioned. This great sea-barrier presents an imposing appearance. It is just two-thirds of a mile in length, and for about one-half this length is fully 50 feet in height from the bottom of the foundations to the top of the parapet. At high water of high spring tides there is a depth of rather more than 20 feet against the seaward face of the work; but, being exposed during

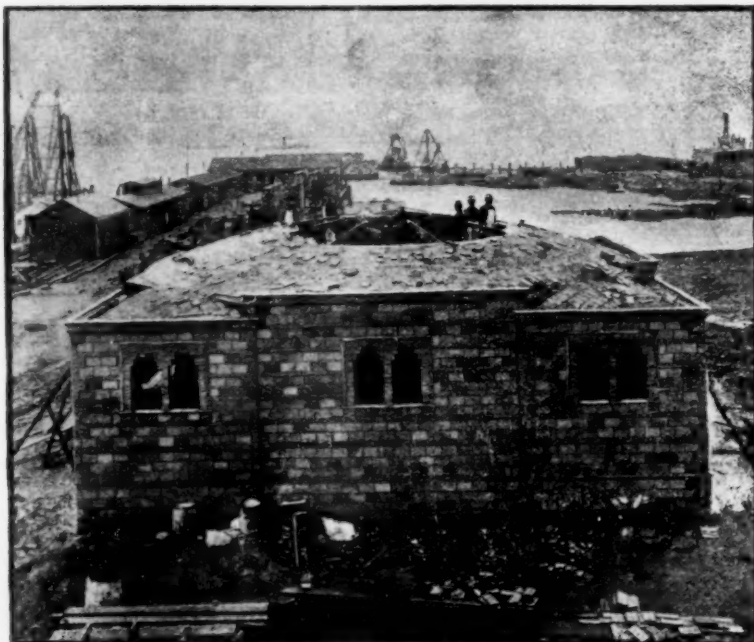
southwesterly gales to the full force of the waves sweeping up the Irish Channel, backed by the Atlantic rollers, the sea at such times breaks with great violence against the new barrier, as was, of course, expected, and has been provided for in the structure just completed. The engineer of the work is Sir John Coope, and the contractors are the well-known firm of Messrs. Lucas & Aird. There is every reason to believe that the anticipation of the directors and shareholders of being able to continue the working of the iron ore over a further period of 25 years may be realized. — *British Trade Journal.*

TRADE SURVEYS

At no time in our history has manufacturing, commercial and financial interest been managed with more care. The disastrous results of over-production have been experienced so often in our history that producers and exchangers in all departments are living in a sort of dread lest those evils may be strongly precipitated again. There is at present not the least indication of such a result; on all sides there is a great deal of anxiety as to the future of trade, but nowhere are there symptoms of danger. Production is under good control; market requirements only are being filled; reports from all quarters show that mills, factories and shops are working on orders. Stocks of merchandise and material of all kinds are of modest dimensions; consumers are purchasing for immediate requirements, and refuse offers made at concessions to anticipate. The business of the country for the month of January was larger than for January last year or for any other year; indications point to a correspondingly favorable condition this and next month. Predictions are enormous of restricted trading, restricted traffic and a possible financial stringency. It is well, perhaps, that such apprehensions exist, as they serve to prevent undue speed or unwise activity. As has been frequently mentioned, trade and manufacturing interests are too well organized for serious mishaps to come without warning. The spirit of organization is rife in all directions. The injury which was threatened to the community in general by these conditions is not threatened to-day. At the outset, it was thought that vast combinations were necessarily hurtful, if not ruinous, to general manufacturing and trade interests, but these combinations have shown that they are not only not dangerous, but an absolute necessity, and that they are a guaranty against worse evils. A multitude of new enterprises are standing in line waiting for their turn; capital is ready and anxious for investment, but it is clearly evident that there will be more care taken this year in investments than last. Foreign investors are even more anxious to place money in American investments than last year, and especially in manufacturing. The only uncertainty which checks a good deal of enterprise of that character is the possibility of the adoption of an entirely different economic policy in a year or two. British and European capitalists and money-lenders are giving more attention to American affairs than they ever have before. The proprietors of quite a number of large establishments are seriously considering the advisability of moving plants and machinery to this side; this is especially true in textile interests. It is, however, in other directions that there is occasion for congratulation; opportunities for the profitable investment of money are less numerous abroad than on this side. American railway securities have for several years past been looked upon with suspicion, but, if prominent authorities in such matters in London are to be taken, it would appear that confidence is being restored, and that any new and well-considered railway enterprise will receive the careful consideration of foreign capitalists. So far as railroad affairs are concerned, there is well-grounded apprehension of a falling-off in tonnage on roads traversing the wheat-belt. In the cotton-belt, railway men say, there will be the full average traffic; in the manufacturing States there will be no falling-off. The possibility of a cutting of rates in the Northwest again arises. The banking interests who are endeavoring to keep railway management in control find their task a most difficult one. The industries of the New England and Middle States are running almost to full capacity; iron and steel makers are complaining of restricted demand, but a full demand is likely to set in at any time. The production of coal, both hard and soft, has already passed last year's limit at this date. Lumber manufacturers have stated within a few days that there will be an enormous output of logs this winter, but that stocks will be no more than sufficient to meet the increasing requirements of the coming season. One fact which is favorable to extended building operations this year is that material is a little lower in price, taking all kinds into account. Last year, preparations were made for the supplying of raw material on a much larger scale by the establishment of saw-mills, planing-mills, brick-yards, engine-works, machine-shops, agricultural and tool works, etc. Builders in New York, Philadelphia and Chicago have stated within a few days that it is probable the building operations of 1891 will exceed those of 1890; among the evidences substantiating this statement is the purchase of urban and suburban lots for building purposes. The report has recently been made by builders' exchanges that the investments last year have been quite as profitable as in any former year. The steady employment of labor, the fair wages paid, the increased earning-capacity of the people, are all favorable to a renewal of building operations, and, as there are no signs of labor disturbances, builders feel that, with cheaper raw material, they are safe in pushing ahead. The hosiery and knit-goods manufacturers are doing a larger business now than they have for six months; importers are doing less. Carpet manufacturers report a heavier demand and better prices than twelve months ago. Nearly all the hardware manufacturing establishments are now at work; the managers of cotton-mills throughout the South have secured a full season's business, and prices are practically higher than last fall. The distributing houses throughout the interior of the country are not loaded-up with stocks of any kind, and this is the basis of the prediction heard in so many quarters, that the distribution of goods during the winter will not fall below the distribution last winter. While there is a general complaint of the scarcity of money in the Western States, the scarcity is doing very little apparent injury. While it is true that much more money would be borrowed, if available, for the extension of farming, it does not appear that the country is suffering through the inability of the agricultural people to obtain all the financial assistance they want. There is still a very strong tendency among large manufacturers in this city to locate at more favorable points, where land taxes and labor are cheaper, and freights to market less; this decentralizing tendency has been heretofore spoken of, and it is actively at work. It is impossible to obtain the ratio of manufacturing capital existing between small towns and country-places and cities, but there is a remarkable growth of manufacturing capital in isolated places.

Guastavino Fireproof Construction Co.

MAIN OFFICE, 57TH STREET, NEAR 11TH AVENUE, NEW YORK.

BOSTON, MASS.,
PIERCE BUILDING, BACK BAY,
TELEPHONE CALL.PROVIDENCE, R. I.,
SWARTS BUILDING, ROOM 42.CHICAGO, ILL.,
PHENIX BUILDING.MILWAUKEE, WIS.,
NEW INSURANCE BUILDING.

Buildings completed or in process of construction, in which the Guastavino Fireproof Construction Company or R. Guastavino has obtained contracts, and put in Fireproofing.

NEW YORK.

Sun Fire Company Building	New York.
Corbin Building	"
Lyons Building, Bleecker Street	"
Mt. Sinai Hospital	"
Music Hall	"
Arion Club	"
Sidenberg Building	"
Plaza Hotel	"
Young Woman's Christian Ass'n Building	"
" " Lodging House	"
Manhattan Brass Foundry	"
" " Extension	"
Lyons Building, Mercer Street	"
" " Waverly Place	"
Lion Brewery	"

Matthiessen Vaults	Woodlawn.
Hammerstein Harlem Opera House	New York.
Fish Building	"
Montauk Club	Brooklyn.
Bloomingdale Building	New York.
LaConcha Baths	Syracuse.
Norton Building	New York.
Atlantic Brewery	Staten Island.

MASSACHUSETTS.

Boston New Public Library	Boston.
Exeter Chambers	"
Graffam Building	"
Boston Gas Light Company Building	"
Bay State Gas Company Building	"
Harcourt Building	"
Cox Stable	Brookline.
Savage Building	Boston.

COLORADO.

Massachusetts State House Extension	"
Colorado Telephone Co's Building	Denver.
Denver Athletic Club	"

NEW HAMPSHIRE.

Dover City Hall	Dover.
Hitchcock Memorial Hospital	Hanover.

PENNSYLVANIA.

Philadelphia Market	Philadelphia.
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RHODE ISLAND.

Morgan Stables	Newport.
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NEW JERSEY.

W. Fellows' Residence	Montclair.
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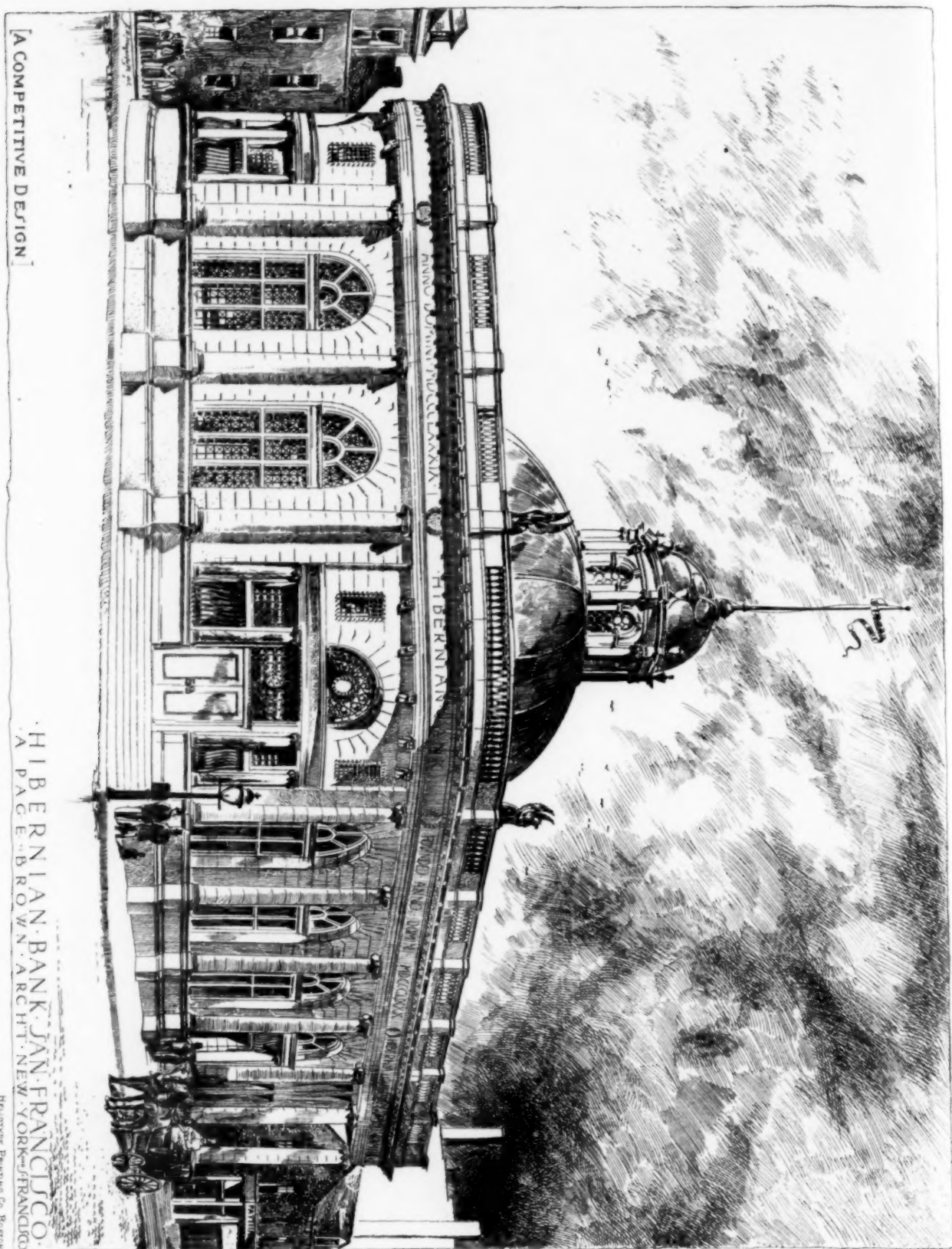
This Company gives Estimates and takes Contracts for Fireproof Buildings, Floors, Ceilings, Partitions and Staircases, under the system called, GUASTAVINO TILE ARCH SYSTEM.

The above list will show the increase of their business and general facilities.

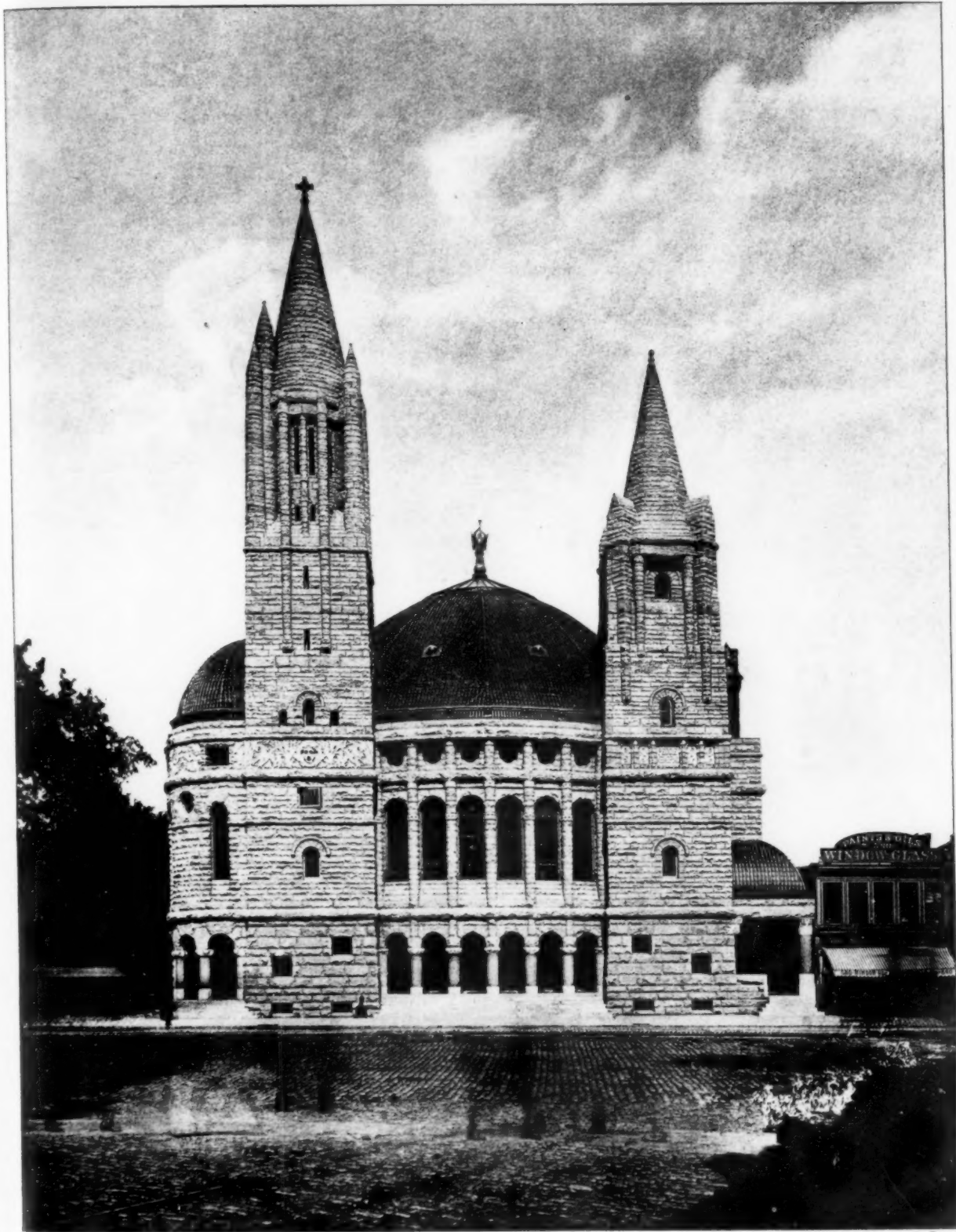
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HELIOTYPE PRINTING CO. BOSTON.

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CHURCH OF THE DISCIPLES, TORONTO.
KNOX & ELLIOT, ARCHITECTS.



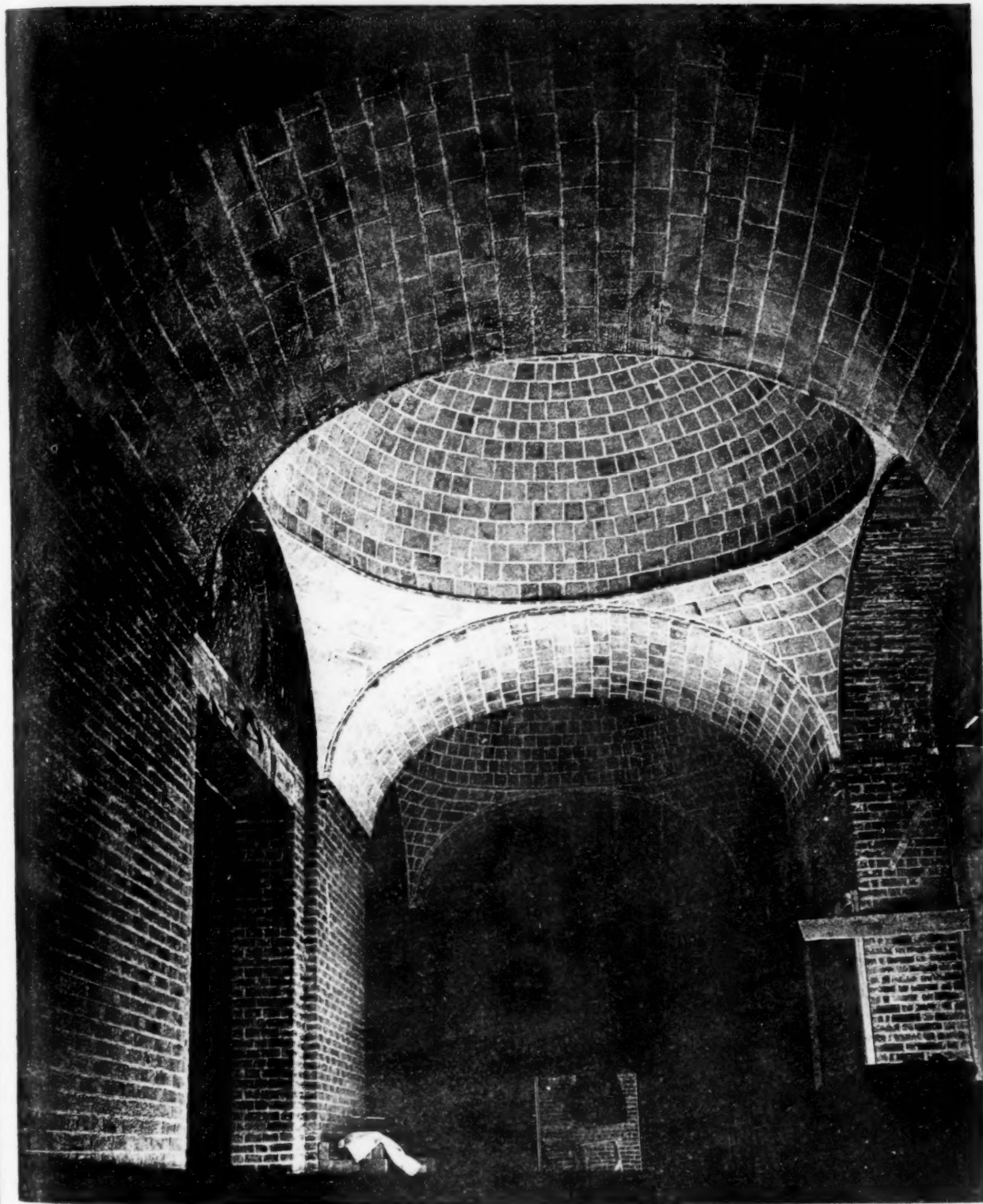
Vol. II.
1800.



• HOUSE AT BUFFALO FOR MRS ANNA HOYLE COOK.
• C D SWAN ARCHT BUFFALO N Y.



AN EXAMPLE OF TILE VAULTING BUILT FOR THE
E. D. MORGAN ESTATE AT NEWPORT, R. I. 1888
— McKim, Mead & White Architects —



HELIOTYPE PRINTING CO. BOSTON.

THE GUASTAVINO
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MAIN OFFICE: 57TH ST. & NORTH RIVER: NEW YORK: N. Y.