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JANUARY 17, 1891.



SUMMARY:—

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A GOOD deal of discussion is going on just now in the newspapers about the proposed building-laws for the cities of Boston and New York. In the former place a commission, of three members, was appointed a year or so ago, which has drawn up a report, recommending the adoption of a set of rules differing radically from the statute now in force, but including many excellent suggestions. In New York, a committee of architects, builders and insurance men has for several years had a sort of general charge of the building-law, suggesting amendments, as they seemed to be needed, which have been submitted to the Legislature, and adopted, or rejected, or modified, as the case might be. The scheme proposed by the Boston Commissioners is an interesting one, but it has seemed best to us not to discuss it, for two reasons. One of these reasons is, that the matter is now not properly before the public, the report not having been presented to the State Government, which is certainly entitled to the first discussion of its own measures without having the opinions of outsiders thrust upon it. The second reason is that, as it is very unlikely that the recommendations of the Commission will be embodied in a statute without modification, it is a waste of time to criticise suggestions which will probably not be incorporated into the law, while the minds of practitioners, already sufficiently bewildered by the frequent changes in the existing statutes, ought not to be confused with an additional load of hypothetical or possible enactments. Few people, outside the profession, realize how serious a matter it is, to the whole building community, to make any change in the statutes relating to the subjects in which they are interested. Every architect, and every responsible builder, is obliged to know the building-laws of the city in which he lives, practically by heart, in order to avoid mistakes for the results of which he is held to a strict responsibility; and many builders, and still more architects, have to acquire this thorough familiarity with the statutes enforced in several cities, in which they have occasion to practice. If a change is made in any part of the building-laws, all these people have, not only to learn the new ordinance, but, what is far more difficult, to forget the old one; and the result of enacting a new law every three or four years, as has been done in Boston of late, is to throw architects, owners, builders and inspectors into endless perplexities. The

last statute enacted for Boston, which changed radically all the most important provisions of the previous ones, dates back only to 1889. If, within two years, another, totally different in form and substance, is to be established in its stead, the building community will have trouble enough in accustoming its mind to the change, without adding to the confusion by discussing possible, as well as real, provisions.

THERE is unhappiness in Chicago over the distribution of the commissions for the designing of the buildings for the Exhibition of 1892. It appears that Messrs. Burnham & Root, the consulting architects, were requested to designate a number of architects of the highest reputation, from different parts of the country, who should be employed to design and execute the most important buildings. Every one will agree that this was an excellent suggestion. Unquestionably, an architect can do better justice to one building than to half a dozen of the colossal size which will be demanded for those at Chicago, and the natural rivalry between men of the highest rank will induce each to do his best, so that the group of buildings, when completed, will be worth a long journey to see, simply for their architectural interest. Unfortunately, some of the Chicago architects, while admitting the excellence of the principle, have seen fit to object to the method of its application, and have protested vigorously against the choice made by the consulting architects. One ground on which objection is said to have been made is that the selection did not include a sufficient proportion of Chicago architects, but, as one-half the total number was assigned to Chicago, while the rest of the country had to be satisfied with the remaining half, this complaint, at least, will hardly seem to outsiders to be justified. Concerning the choice made, in general, there will, of course, always be different opinions, but it seems to us that it would have been difficult for any one, whose opinion was of value, if called upon to present a list of architects, half from Chicago, and half from other parts of the country, which should within the same compass include the names best known to the public, to avoid including just those whom Messrs. Burnham & Root have named.

IN the December issue of the *Building Budget* of Chicago, Mr. Henry Lord Gay, the editor and, we believe, the sole proprietor, announces not only that he retires from the field of editorial effort to resume the active practice of his profession, but that the journal itself ceases to exist as an independent publication, as its future is to be henceforth merged in that of the *Northwestern Architect and Improvement Record* of Minneapolis. What the profession will lose or gain by this change we cannot determine, for this depends on the conduct of the reinforced Minneapolis journal. As for the *Building Budget*, which for six years has maintained itself in a hotly contested field, we have always considered it, apart from the taint of "personal journalism," which to a considerable degree affected it, as a distinguished proof of the assumption that a well-trained architect is likely to succeed better in acceptably conducting an architectural journal than an individual unskilled in the art who takes up editorial work for the money there is in it. The *Building Budget* was established, we believe, mainly as a support for and adjunct to the permanent exhibition of building materials which Mr. Gay established in Chicago some ten years ago, but it was enlarged, improved and developed—at a loss, we understand—because Mr. Gay was determined that architectural journalism in Chicago should have at least one representative which should uphold the best interests of the profession in a worthy and dignified manner, and apart from the bitter personalities which too often found a place in its pages, this endeavor has for six years never been lost to sight.

THOSE who know the French best will be the most surprised to learn that the Council of the School of Fine Arts in Paris is at this moment seriously considering the question of admitting women to the official *ateliers*, among others, to those in the Department of Architecture. When the subject was first mentioned, a year or so ago, it was received by some of the technical papers with a brutality of comment which would amaze even persons tolerably familiar with the way in which Frenchmen speak of women; but the movement has been

quietly urged, and it seems likely that the change will soon be made. So influential a journal as *La Semaine des Constructeurs* speaks frankly in favor of it. While acknowledging the prejudices in which the French have been brought up, it expresses the belief that the decision of the Council will be "worthy of administrators and artists, who will place the love of art and of justice above these prejudices," and recalls the intelligence and perseverance with which women have, in nearly every department of art and science, extorted the admiration and recognition of those to whom routine had given exclusive control of such matters. "Once," it says, "a solemn council decided that it was impossible for a woman to have a soul; since then, this opinion, perhaps too hastily formed, has lost something of its authority." "We have even," it goes on to say, "got so far as to accord some intelligence and sentiment to the sex which has given us Madame de Staël, George Sand, Sophie Germain, Rosa Bonheur and many others,— why should we stop here?" That the French women are quite as well prepared as those of any other country to make the most of instruction in architecture, if they are allowed to have it, their success in painting and other arts indicates, and it is not found here, where the comparison is oftener made than elsewhere, that either boys or girls are injured by the discovery that the latter are in every intellectual way quite the equals of their brothers.

THE New York *Times* has curiously misread what we said about the lack of interest that architectural students have in the established travelling-scholarships, and on this misreading bases an argument that results in the assertion that if the *American Architect* scholarship should be awarded biennially, thereby doubling the amount of the income, the result would be different. The *Times* did not perceive that this doubling of income would only make it equal to the yearly income of the Rotch Scholarship which, as we pointed out, in one year actually, and in several years constructively, resulted in "walk-overs" for the winners. We prefer our present method, for it is not our object to aid in "pauperizing" architects, but to assist them judiciously, and we feel we can do twice the amount of good with the same amount of money by annual awards that could be accomplished by the method suggested by the *Times*.

THE city of Vienna, following the example of Frankfort, has begun the erection of a large number of public bath-houses, it being intended to have at least one in every police district. The houses are all of the same plan and pattern, each containing on the entrance-floor thirty shower-baths for men, and fifteen for women, with dressing-rooms, and lockers for clothes, a ticket-office, linen-closet, and room for a bath-servant for the men, and one for the women. The second story contains the tanks for hot and cold water, and rooms for the manager; and there is a vaulted cellar under the whole building, containing a laundry, besides coal and heating apparatus. How much is to be charged for a bath we do not know, but the price will undoubtedly be kept as low as possible. There are one hundred and two lockers in the men's dressing-room, and sixty-six in the women's room, so that the city authorities apparently expect the baths to be well patronized. Although the first floor is laid with tiles, on brick vaults, the partitions between the bath-closets are of corrugated iron, and the whole construction is very solid, the cost of each establishment complete, including, besides the building, the boilers, furniture and outfit of towels, is less than twelve thousand dollars. How great will be the good they will do among the poorer citizens, the physicians can best tell us, and it is quite time that some of our own cities should bestir themselves to emulate the example set us by the German municipalities. We hardly realize how far behind the rest of the world we are in the practice of public hygiene. A few of our seaport towns maintain, rather grudgingly, during the summer a certain number of floating baths, where people can bathe in salt water without fear of being drowned, and can have their clothes taken care of, and may get a clean towel if they want it. Simple as these establishments are, they are used during the hot weather by many thousands of people, and do incalculable good in cleansing and refreshing people who have no bath-rooms in their houses, to say nothing of their usefulness in giving city boys an opportunity to learn to swim. There is, however, something more to be desired, in the shape of baths not only more private than an open tank, but available at all

seasons, and this is what an establishment of the Frankfort or Vienna type provides. Such baths as these, kept clean, and with good attendants, are found to attract hundreds of people at all seasons, who willingly pay an admission-fee large enough to cover the cost of supervision, fuel and laundry work, and there can be little doubt that they might even be profitably maintained by private enterprise in this country.

ACCORDING to the *Wiener Bauindustrie-zeitung*, the old Turkish city of Sofia, now the capital of Bulgaria, is in process of "Haussmanization" on a most radical scale. Until about two years ago, Sofia was a mean, though populous mountain village, composed of one-story huts, interspersed with mosques, of which thirty existed under the Turkish régime. Now, the narrow, crooked Turkish streets are being replaced by wide, straight boulevards, one of them two hundred feet or more in width, and the wretched houses are demolished without mercy to make way for the new thoroughfares. Already, twelve hundred old houses have been cleared away, and about a thousand new ones built in accordance with the improved plan; and a new town-hall, a market, and a great public bath, together with an electric-light system and new water-works, are in process of construction. The method by which the interests of property-owners are adapted to the new arrangement is very simple. All the land in the city is expropriated at once, to be used as required. Then the owner of a house and lot which stands in the way of a new boulevard is notified to abandon it forthwith, and a lot somewhere else is designated, which he can have in place of it. Naturally, some of the people do not like their new place of residence as well as the old one, but no attention is paid to their grumbling. The population, which is now about thirty-five thousand, is rapidly increasing, and will, apparently, soon be a hundred thousand, and Prince Ferdinand is determined that the comforts of modern civilized life shall be provided for his people, whether they like them or not.

THE *Revue Industrielle* publishes the text of a portion of the proposed tariff act, which is now under consideration in the French Government. Whether it will ever be carried out into law is probably doubtful, but there is a strong protectionist party in France, and some sort of high tariff may be adopted there before long. As given in the *Revue Industrielle*, the proposed Act, at least so far as relates to iron in various forms, is stringent enough to satisfy the most ardent protectionist. Iron ore is admitted free, and rough pig-iron is charged with a duty of only \$4 a ton; but tin-plate pays \$30 a ton, and wire from \$16 to \$80, according to the size and quality. Steel and iron rails are charged \$14 a ton; tools, of steel, \$50; locks, bolts and other building hardware, \$30; horseshoe nails, \$40; other nails, \$28; steel-wire ropes, \$60; angle-irons and other rolled structural iron, from \$12 to \$24 a ton.

IT will be remembered that Messrs. Flockton & Gibbs, a somewhat well-known firm of architects, who took part in the recent competition for the Sheffield Town-hall, applied for a patent on their arrangement of the rooms, the only novelty in which, apparently, consisted in providing separate corridors for the public and the officials, so that the latter could move privately about among themselves, without coming in contact with the outsiders who had business in the offices. This was undoubtedly an excellent idea, and it was, perhaps, a suspicion that one of the other competitors might surreptitiously borrow it, which led its inventors to think of protecting it by a patent. The application, however, met with great disfavor among the profession, and the Council of the Royal Institute of British Architects took up the matter, and opened a correspondence with Messrs. Flockton & Gibbs, expressing the opinion that the course proposed would be "inimical to the interests of the profession," and saying that the Council would have opposed the granting of the patent, if it could legally do so. The attention of Messrs. Flockton & Gibbs was called to the "honorable tradition" of the English medical profession, not to take out a patent on subjects relating to that profession, and the Council further mentioned its belief that the patent, even if granted, could not be sustained. Messrs. Flockton & Gibbs seem to have taken this advice in very good part, and, at last accounts, the *Builder* thought they were disposed to follow it; which would be an excellent solution of the matter, for them as well as for the profession.

AUSTRIAN ARCHITECTURE.¹—XV.

THE NINETEENTH CENTURY.—II.

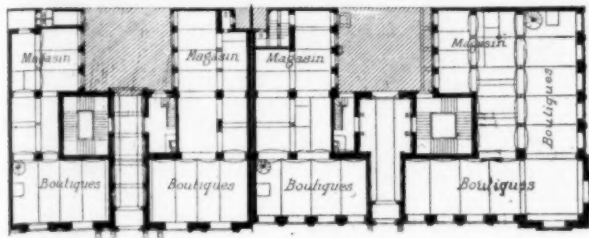


Fig. 4. Block of Buildings on the Schottenring, Vienna.

THE celebrated architect, Theophilus Hansen, at the start unhesitatingly took several contracts for great tenement-buildings, as well as for private mansions; in the former, with marvellous flexibility and skill, he responded to all utilitarian and economic demands, and at the same time was able to give an artistic character not only to the exteriors and to the interior decorations, but also to the distribution of the apartments. While in general according the preference to Greek forms, he nevertheless appropriated from the Renaissance principles of division and certain forms which are almost indispensable to modern domestic architecture. He sought especially to obtain cheerful and harmonious effects by the use of polychromy, as far as was feasible, both in the interior and on the façades; this did not, however, win the entire approval of a public which was lacking in taste and artistic feeling, and which was accustomed to the sombre monochromy of the preceding period. Another characteristic merit of Hansen's work is revealed in the perfect harmony of style, traceable even in the minutest details of the interior enrichments; this he obtained by furnishing the designs himself to professional artists, thus following the example of Schinkel, for whom he had a profound admiration.

In the Heinrichshof, an immense tenement-palace (covering a space 315 feet by 155) which Hansen built between 1861 and 1863 for Herr Drasche, a brick manufacturer, he created a type wholly new in Vienna, as regards disposition; it has been much copied and has assured to the recently occupied quarters at least the effect of massiveness and harmony in their architecture. The building consists, in reality of six distinct houses, but these form on the outside a single imposing pile, symmetrically distributed in a projecting, central main body and two wings flanked by two projecting towers. Each wing and the central main section comprise two dwellings which have one vestibule and a common court. The ground-floor, with stores in arcades, and the entresol are united in the rustic-work basement. The two stories above are likewise connected; in these the wall-faces show the bare bricks, but the richly decorated window-frames and the quoins are of stone. The two upper stories, which are rather low, have their lack of height compensated for by sumptuous decorations in gold and colors, from the bold brush of Rahl. Hansen built several other houses of the same general type. Particular mention should be made of a group of dwellings on the Schottenring (Figure 4), which are as remarkable for the elegance of their Classic forms—Hansen was especially fond of flanking the principal bays with caryatides, supporting pediments—as for the originality of their disposition. One of these palatial structures includes eight separate houses, four of which are symmetrically arranged around one square court, and have also the vestibules in common, with Ionic columns, on two opposite sides of this quadrangle; the *portes cochères* and the passage-ways leading to the two courts are separated by two stores occupying the centres of the ground-floors.

If it is true, on the one hand, that the example set by Hansen made mean, isolated and plain constructions thenceforth impossible on the Ringstrasse, on the other hand, it cannot be denied that his system of adopting a more imposing external appearance for tenement-houses than the economic distribution of interior spaces could bear out, created and encouraged in his imitators a sort of pompousness, thanks to which they often contented themselves with less pure expressions than Hansen's, provided that they could succeed in impressing the eye and hiding the monotony and contracted-

ness of the apartments. To this end they covered the façades with strongly relieved members, plastic decorations (often in cement), caryatides and Atlases supporting balconies and cornices, pilasters and columns connecting several stories, pavilions, ressaults and so forth.

One of Hansen's best imitators in this kind of work was Tietz, who followed his system of grouping and also employed Greek details similar to his. Tietz never attained either to the delicacy of form or the imposing and picturesque ensemble of Hansen's private edifices, but he was very successful in the distribution of interior spaces. He has covered long strips of land on the Ringstrasse with blocks of buildings. We give the plan of the ground-floor of one of them (Figure 5).

In their structures of this kind the architects Van der Nüll & Siccardsburg likewise strove for artistic effects both for the interiors and exteriors. The great warehouse of Filipp Haas, which they erected in the Graben has a magnificent stone façade in a style suited to the purposes of the edifice, and a well arranged interior. A fine specimen of their tenement-houses is the one owned by Herr Wasserburger.

This tremendous building activity was especially favorable to the studio of Romano & Schwendenwein. Romano early in his career was the private architect of Prince Metternich, and in this capacity erected a large number of castles for the nobility, chiefly in the Tudor style. Romano has no manner peculiar to himself, but being familiar with all the styles he employed them all to some extent, according to his whim. Schwendenwein seldom worked independently of Romano, but

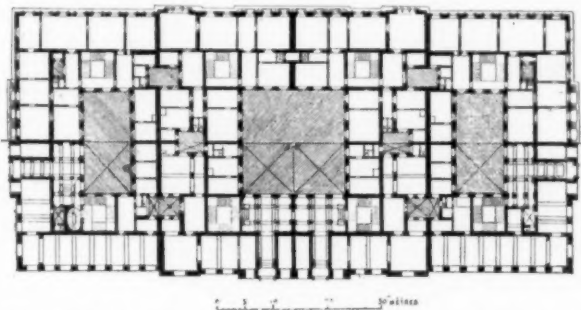


Fig. 5. Block of Buildings on the Schottenring, Vienna: the Lower Part of the Plan shows the Ground-floor, the Upper Part the Stories above.

when he did do so he clung to soberer and severer types. More than five hundred edifices of all sorts were designed in the office of these two architects; of these we call attention only to the cluster of tenements in the Colowratring and the Bellariastrasse.

It was in Romano & Schwendenwein's office that Herr Schachner, the architect of tenement-palaces in Beethovenstrasse and on the Künstlerplatz, was trained; he built the walls of these houses of brick and by way of contrast used plastic cement decorations, which are too heavy. Others of his houses show a fine feeling for proportion and exhibit more delicate details, after Italian Renaissance types. Herr Tischler, the head architect of the building society of Vienna was also trained in the same office; he designed a great many of the constructions put up by speculators.

E. von Förster was the architect of a series of tenement-palaces near the Exchange; these are treated in a Renaissance style made up of Italian and French elements; Herr Bäumler, formerly a student in the Ecole des Beaux-Arts at Paris, has also built several structures of the kind at Vienna: in his earlier productions he copied French Renaissance forms, but later he adopted a sort of Italo-Greek Renaissance. He is remarkable for his power of expressing clearly the destination of an edifice in its external aspect.

Charles Kaiser, the friend of the painter Makart, a decorator rather than an architect, is possessed of rich fancy but lacks purity of style; he is especially distinguished for his interior decorations, specimens of which are to be seen even in London and New York.

The vast groups of tenement-structures designed by the municipal architect Fraenkel are quite original in disposition, but they are overburdened with tasteless decorations, as for example, the group at the left-hand corner of the Börsenplatz.

The architects Fellner and Hellmer are the chief representatives of the Baroque style in Vienna.

In the main, the architects who furnished the plans for

¹From the French of H. Semper, in Planat's "Encyclopédie de l'Architecture et de la Construction." Continued from page 20, No. 785.

building-speculators had no settled style and followed no well-defined principles; they usually experimented, copied and combined too freely, and, as they allowed imposing and picturesque external effects to take precedence over all else, they naturally fell into exaggeration and frequently exhibited an absolute want of harmony and taste.

We should add that the great tenement-structures surrounding the square on which the *Votiv-Kirche* stands were constructed after a rough draft by the architect of the church itself: in order to make his Gothic church accord, so far as possible, with the Renaissance edifices of the vicinity, Ferstel while having recourse to certain French elements planned the houses in a kind of German Renaissance style, that is, considering this as a compromise between the Gothic and the Italian Renaissance. In the same way, the city magistrate has ordered all architects designing structures to be built in the neighborhood of the new *Rathhaus* to employ arcades on the ground-floor, so as to establish a certain harmony with the arcades of that edifice.

Passing from tenement-palaces to grand private mansions, we observe that the architect found in the latter far more congenial themes for his artistic inspiration, and some of these may be classed among the finest constructions of modern Vienna. The designer was not called upon here to divide the ground-floor into so many arcades for shops, and he was free to adopt such proportions as would make the structure genuinely impressive; in other words, the spaciousness of the interior disposition made it possible for him to employ external proportions which were at the same time imposing and *truthful*.

One of the finest of these palaces, the *Eppstein* (Figure 6), is by Hansen. We will merely note that the rich interior decorations, executed after designs by the architect himself, are in entire consonance with the noble character of the façade.

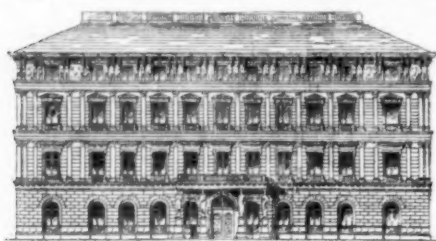


Fig. 6. View of Eppstein Palace, Vienna.

The Palace *Larisch* is a charming conception by Van der Nüll & Siccardsburg. The *Leon Palace*, on the *Börsenring*, with two orders of tabernacle-like windows, is a fine work by Ferstel; less happy is the palace of the archduke *Ludwig Victor*, on the *Schwarzenbergplatz*, by the same architect. The *Lutzow Palace*, by Hasenauer, is remarkable for the unusual height of the stories and for the massive rustic-work basement. One of the best works by Tietz is the *Klein Palace*, which also has lofty stories and is noteworthy on account of the spacious bays, the beautiful white marble basement and superb stone cornice. The simplicity and nobility of the classic Greek details are in harmony with the graceful proportions and rich materials.

Two palaces by Romano & Schwendenwein, the *Schey* and *Ofenheim*, are especially deserving of praise; the proportions are fine, the motives simple yet imposing, but the details are



Fig. 7. View of the Musikvereinsgebäude, Vienna.

lacking in purity. The *Henckel-Donnersmark Palace*, by Romano and Weber, is richly embellished in a style approaching that of *Philibert Delorme*. The *Zettl Palace*, by the same architects, has one of the most beautiful cornices of modern Vienna.

The elder *Förster* deserves a place here as the architect of

Hoyer Palace, which has a splendid stone façade and a beautiful stairway.

As for buildings erected for the use of societies, the conditions prescribed to architects and the requirements are much more complicated than for private palaces; often, too, the economic demands are greater. Hansen built an edifice of the kind, the *Musikvereinsgebäude*, for the *Philharmonic Society*, between 1867 and 1870; he succeeded perfectly in the distribution of the various rooms called for by the contract, and in giving a noble and impressive character to the façade. The structure has, however, lost much from the use of poor building material (Figure 7).

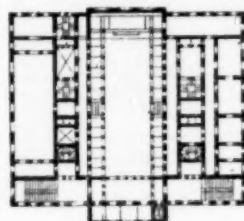


Fig. 7a. Plan of the Musikvereinsgebäude.

[To be continued.]

THE SIXTH LEAGUE EXHIBITION.¹—II.



Dining-room in a House on the Rue St. Didier, Paris. From *La Construction Moderne*.

WE now come to the general exhibition, and find our attention arrested first by a pretty design, in good English Gothic, for the *Episcopal Cathedral of S. Matthew* at Dallas, Texas, by Mr. Bertram G. Goodhue, which, as the label informs us, has been accepted for execution. Near this, Mr. Wilson Eyre, of Philadelphia, has a "composition," in the Kirby manner, though less studied and successful than Mr. Kirby's groups. It is curious that several architects seem to have found themselves, this year, inspired with the idea of expatiating in a composition of mere picturesque forms, and, moreover, these seem greatly to interest the beholder. What sort of unsatisfied longing or æsthetic tendency is justified by such works it would be interesting to consider. One can hardly imagine anything of the kind in an architectural exhibition in England, and still less in France, where the idea of placing a Kirby group on the walls of the *Salon* would, we fear, be received with horror; yet conceptions which, abroad, flourish only in the minds of etchers and water-colorists are here received as proper efforts of architecture. It is possible that to foreigners, who live among ruined stone walls and old tiled roofs, the architectural picturesque, grown familiar, appeals less strongly than it does to us; but it is equally possible that the Americans of the present generation are distinguished by a special love of picturesqueness, which may develop, later, into a great artistic quality. However that may be, those of our architects who feel drawn to the picturesque in architecture should follow their instinct freely. Just at present the fashion of wooden "Colonialism" is rather against them; but they may be quite sure that the taste for the free and artistic design, which, a few years ago, was fast making for the American architects a world-wide reputation, will not long remain buried under masses of white and yellow clapboards and mill-stuck mouldings. There are already

¹ Continued from No. 785, page 29.

signs that the wooden-Classic fever is abating; and, now that the speculating builder has adopted the style, and is pushing it in horrid earnest, the end cannot be far off.

Near by, Professor Osborne has a beautiful colored perspective of his simple but artistic building, Morse Hall, at Cornell University, and Mr. Gibson shows a pretty English Gothic church at Stamford, Conn. Messrs. Brunner & Tryon have a very clever office-building, for Mr. Havemeyer, and Messrs. Little & O'Connor show, in a perspective a little out of drawing, a simple and good group of buildings for S. Benedict's Home at Rye, N. Y. Messrs. Berg & Clark and Mr. Wm. B. Bigelow have sketches for picturesque country hotel-buildings, and Messrs. Little & Brown, of Boston, show the modern Colonial style at its best in a symmetrical and thoroughly dignified house at Ipswich, Mass., complete with the terraces and balustrades which the style so much requires to "marry" its square masses with the ground.

In Number 140 we find a beautiful pen-and-ink drawing of Messrs. McKim, Mead & White's Harvard Gates, at Cambridge. Semi-Classical and nearly symmetrical as they are, there is not, perhaps, a more picturesque composition in the exhibition, and there is certainly not one more deeply studied. The people who think that all Classical design must be exactly balanced, and who find, with reason, that if not symmetrical, it is generally revolting, will do well to study the intense feeling with which the stiffness of the almost perfectly symmetrical group is avoided, without detracting in the least from its dignity and delicacy, by putting a quatrefoil window, or rather, unglazed opening, on one side, to correspond with an arched niche on the other; while the additional picturesqueness which the style would not admit in the outline is obtained in the combination of the brick and stone materials. Near this interesting drawing we have Messrs. Lamb & Rich's original front for the Berkeley School, two tall office-buildings, nicely treated, by Mr. Parfitt and Messrs. Lamb & Rich, a good bank-building at Orange by Mr. Wilbur S. Knowles, and a very pretty "Lake Shore House" by Messrs. Marling & Burdett, of Buffalo.

Here the list, not of all the architectural works, but of those which seem to need special mention, ends, and, on reviewing, it seems a singularly short one. Even with the proper allowance for the competition drawings, which occupy a good deal of space, there are comparatively few drawings or designs for executed buildings, and we find the explanation of this phenomenon only by referring to the catalogue, which shows us that, apart from the three principal sets of competition drawings—those for the Grant Monument, the Fine Arts Society building and the League Medal contest—more than half the frames shown in the rooms devoted strictly to architecture are filled, not with designs or drawings relating to buildings of the present day, but with "Sketches in Italy," "Notes of Travel," "Foreign Sketches" or pictures of ancient and romantic structures, drawn occasionally from the imagination, rather than from existing examples. Of course, this would be very interesting if the sketches were invariably good; but they are mostly students' work, and of all degrees of merit from indifferent up, while they not infrequently bear the marks of having been executed, not under a sketching-umbrella, amid the moving throng of a Continental market-place, but in the comfortable hall-bedroom of a New York boarding-house, with a photograph for a model. We can understand why the hanging-committee should be tempted to brighten its walls with a good many bits of color, and the "foreign sketches" undoubtedly attract the ordinary visitor; but we are inclined to think that the professional architects who come into the exhibitions are getting a little tired of hasty and commonplace renderings of such stock subjects as Hôtel Cluny, Mont Saint-Michael and so on, and would rather see the room that they take up occupied, as it used to be, with drawings of the most important new structures in the Western cities, of which we have in the present exhibition but a single small example. Of good sketches of interesting and unfamiliar subjects, or of first-rate sketches of familiar ones, we are never likely to have too many; but if all that answer to this description this year be retained, and the others removed, a large wall-surface would be left free for more valuable exhibits.

Of those which would be best worth retaining, we should place first Mr. Rotch's beautiful water-color sketch of the interior of St. Gereon, at Cologne. Next to this, but for a different reason, we should class Mr. Blackall's careful drawings, both in color and black-and-white. Mr. Blackall, among all the student sketchers, seems to have borne in mind most clearly the value, for future use, of exactness in drawing and coloring; and while his hasty sketches, when he makes a hasty sketch, are surpassed in effectiveness by very few, most of his work has a value for reference and instruction that no hasty sketch possesses. After these, we come to a host of drawings, some of them, as, for instance, Mr. Pennell's, very good, but very familiar; while others are not only familiar, but thin and raw. Mr. Schweinfurth has a novelty, in the shape of a rather rough sketch in Algiers, and perhaps the Algerian towns, with the less familiar ones of Tunis and Morocco, might furnish fresh and interesting material for the next consignment of sketching architects; but it may comfort the summer sketchers, who do not care to tempt Africa, to remember that the Continent is by no means yet exhausted, and, if any of our tourist readers would like a hint, will suggest to them, if they have the opportunity, to try Langres, an old walled-city with considerable Roman as well as Romanesque remains in Eastern France, built on top of a rocky hill a mile or two from the

line of the railway from Paris to Monaco—not the modern gambling-house suburb of Monte Carlo, but the ancient, fortified town which projects into the Mediterranean. Either of these will furnish plenty of subjects picturesque enough to satisfy the wildest longings of Mr. Eyre or Mr. Schweinfurth, and we do not know that we ever saw an architectural sketch from either of them exhibited.

We come last to the annex devoted to decorative art, which is, this year, particularly attractive. Perhaps the most conspicuous object in the room is a great sanctuary-lamp, by Mr. Stanford White, which hangs from the ceiling. This curiously interesting object consists of what would appear to be an oil-holder, nearly spherical, but slightly pointed at the bottom, surrounded by four angels, with their backs to it, who hold each other by the hands. The wings of the angels are spread, and nearly meet, and the upper part of the wings, with the heads, projects above the outline of the sphere, as seen from the ground, nearly concealing the bunch of acanthus leaves which springs from the top, and seems to be connected in some way with the light. The feet of the figures reach nearly, but not quite, to the bottom of the sphere, so that they are by no means violently bent around it; and the turn of the heads, the modelling of the arms and hands, which are detached from the sphere, and the outline of the group, are most beautiful. The sphere itself is covered with delicate surface-ornament, divided by horizontal lines, and is hung by eight chains. The whole is in white bronze. To the left of this, hanging on the wall, is one of Mrs. Wheeler's gorgeous pieces of work, which is shown by the Associated Artists under the modest name of a "textile fabric," which, if we were disposed to be critical, we should say was just what the object was not. The groundwork is, indeed, a "textile fabric," of what appears to be heavy silk of an olive-gray color, with single gold threads woven-in horizontally about one-tenth of an inch apart. On this background is spread a splendid group—two winged dragons, flashing with copper-color and green and blue, fighting in mid-air. We must confess to a profound ignorance of the mysteries of "cat-stitch," "Kensington-stitch" and "laid-work," but we should say, in our unscientific way, that the figures were mainly of appliqué work, in small pieces of silk and plush, sewed on with floss. Very few of the pieces are more than one-quarter of a square inch in area, and nearly all of them are about the size of one's little finger-nail; but the effect, as might be expected with such materials used in this way by so skilful an artist, is intensely rich and splendid. The whole is surrounded by a border of green plush, varying from three or four inches to a foot in width. On the other side of the room is another curtain, also by Mrs. Wheeler, painted in dull colors on a ground of silk, heavily interspersed with gold. The subject, which covers the entire ground, is one of those agonies of eels and horn-pout which are so beloved of the Grosvenor-Gallery schools, although, judging from the remarks of the spectators, they do not strike a particularly sympathetic chord in New York. Near this last curtain is something that we are very glad to see, a group of pictures by Mr. La Farge. They are all in water-color, which is not the best medium for any artist to express himself in, least of all so great a colorist as Mr. La Farge; but they are beautiful and tender in the same old way, and one in particular, a sketch of the southern extremity of the Island of Oahu, is full of the old landscape inspiration. All that is shown of the island is a mere promontory, at some distance, and the picture is mainly of the sky and clouds, the deep-blue waves and the specks of white foam, but, as we look at it, we seem to inhale the free, moist breezes of the open sea.

APARTMENT-HOUSES.¹—IV.

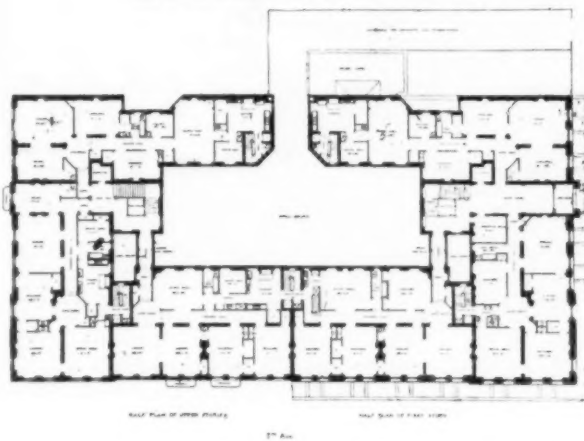


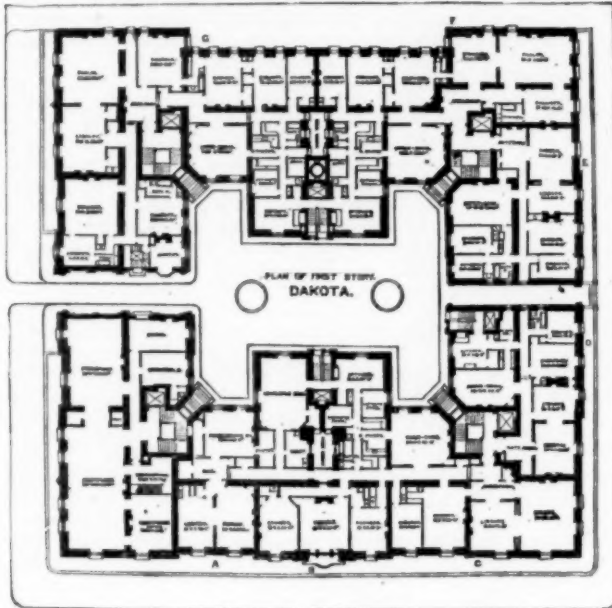
Fig. 27. Plan of the "Vancorleair" Apartment-house, New York, N. Y. Mr. H. J. Hardenbergh, Architect.

THE next important innovation in the art of arranging apartment-houses was made in New York, where "French flats" were introduced much later than in Boston. About 1879, Mr. Henry J. Hardenbergh was commissioned to build the Vancorleair

¹ Continued from No. 785, page 23.

apartment-house, a structure which may be said to have made an epoch in the history of the architectural development of New York. The plan of the building (Figure 27), shows a careful study of French models, together with an American ingenuity in contriving devices for increasing the comfort of the occupants.

Although a court-yard is provided, large enough to drive into, it is not the court of a Parisian apartment-house, but a mere back-yard,



built the famous "Dakota" apartment-house, also in New York, near the Central Park (Figures 28 and 29), in which French precedent is still more boldly and successfully followed. In this beautiful house the entrances to the suites are all in the court-yard, just as they would be in a Paris house, and the court-yard is symmetrically and handsomely shaped. The only criticism to be made upon it, but a serious one, is that the service-entrances to the suites are situated upon the same court-yard, so that grocers' wagons and ice-carts are almost always to be seen standing about in the space which should be reserved exclusively for more fashionable equipages, and for the promenades of the tenants of the house. It is evident from the plan



Figs. 28 and 29. "Dakota" Apartment-house, New York, N. Y., Mr. H. J. Hardenbergh, Architect. From the *Sanitary Engineer*.

for the accommodation of the butchers and bakers, and the servants; and the tenants of the house enter it through doors on the street fronts. Inside, the arrangement is good. Every room and bath-room has light and air, the service stairs are well managed, and the idea of increasing the accommodation in the first story by placing all the

that to separate the service entirely from the main court-yard would involve a total remodelling of the arrangement, but it cannot be denied that the want of such separation necessarily results in allowing the court-yard to assume a sort of back-yard character, which is far from suggesting the aristocratic elegance of a Parisian *cour d'honneur*. Otherwise, the plan is an admirable one, and should be attentively studied, not the least of its merits being the ingenuity with which suites varying in size from seven to fourteen rooms are provided for in a nearly symmetrical plan. The American reader will note the careful provision for ventilating the bath-rooms and water-closets by means of large brick shafts. These ventilating-shafts, as well as the numerous elevators, for freight and passengers, would be wanting in a French, and still more in a German, plan.

We need hardly say that there are no dark rooms, and that parlor, dining-room and reception-room are grouped together in the suites,



Fig. 30. Plan of Upper Stories in the "Berkshire" Apartment-house, New York, N. Y., Mr. Carl Pfeiffer, Architect.

kitchens for the first-story suites in the basement is an excellent one, which would hardly have occurred to a French architect. The court-yard, also, is preserved from stagnation by being opened, through the passage-way, to the street. The building is of fireproof construction throughout, and was, we think, the first apartment-house of that description in the country. Soon afterwards, the same architect

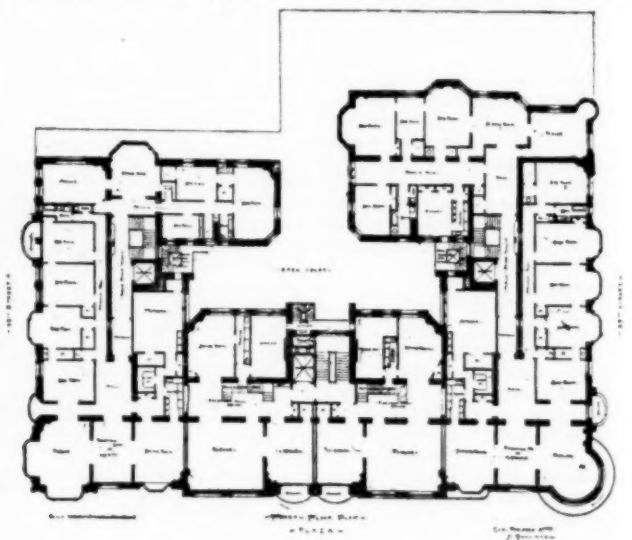


Fig. 31. "Plaza" Apartment-house, New York, N. Y., Fourth Story. Mr. Carl Pfeiffer, Architect.

not at opposite ends of a long row of bedrooms and servants' quarters.

A somewhat less successful plan is that of the "Berkshire," (Figure 30), by Mr. Carl Pfeiffer. Here, although the kitchens, as in the "Dakota," are cleverly managed to use the back-stairs and freight-elevator in common, the relation between the back and front stairs is

too close, and the lighting of the latter, by a borrowed light from the back-stairs, is quite unsatisfactory. The "Plaza" apartment-house (Figures 31 and 32), by the same architect, is much better.

These great houses, like all the recent apartment-houses of any pretension in New York, are of fireproof construction throughout, and this involves some peculiarities, as well as difficulties of planning, which should be kept in mind, particularly by those who think it is easy to plan such buildings. The exigencies of fireproof construction demand that the building shall be divided up in plan into slices, separated by heavy brick walls, which carry the iron floor-beams. As the practicable span of the beams for such purposes does not exceed twenty-five feet, the brick division walls must not be more than that distance apart. The carcass of the building is usually constructed first, with these brick walls and the floors only, and the other partitions are built subsequently on the floors. These light partitions may be varied, and often are, to suit tenants, but the main supporting-walls cannot be interrupted or changed, and the problem of making them suit an arrangement so complex as that of a first-class apartment-house is a very difficult one.

So far, nearly all our American examples have had the suites of which they consisted complete on one floor. About 1879, Messrs. Hubert, Pirsson & Co. of New York, introduced an arrangement exactly like that adopted in Mr. Norman Shaw's house, in London, shown in Figure 17. Messrs. Hubert, Pirsson & Co. called this

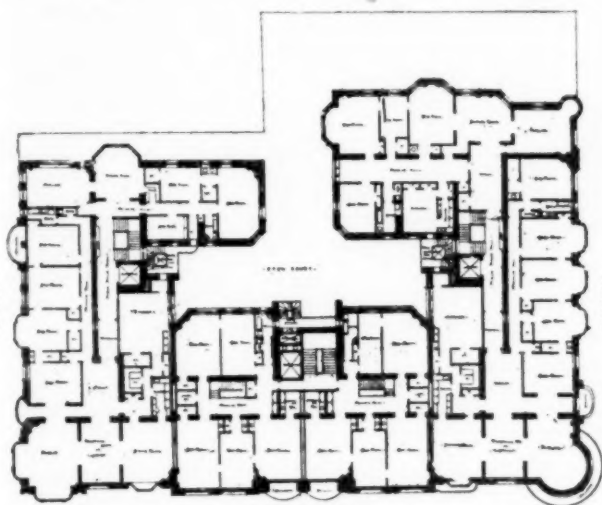


Fig. 32. "Plaza" Apartment-house, Fifth Story.

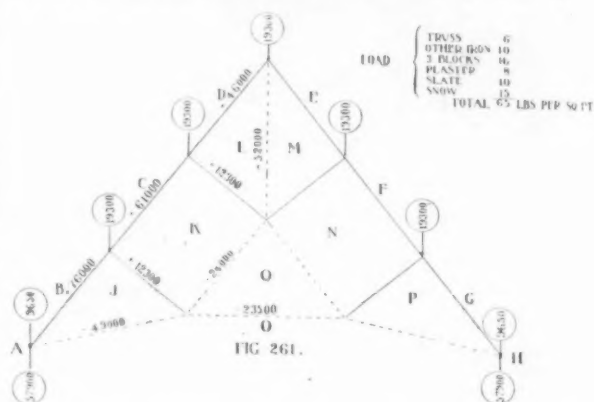
arrangement the "Duplex System," and built many houses in conformity with it, which have proved popular, the "duplex" arrangement being only one among their many merits. Still later, mainly through the ingenuity of Mr. Ernest Flagg, then an amateur of remarkable talent, a modification of the duplex system was devised, and used in several large houses, by which the bedrooms of the apartments, instead of being placed behind the principal rooms, and at different levels, were placed over them, each flat having a stairway of its own, extending only from its parlors to the bedrooms belonging to it. By making the stories allotted to bedrooms lower than those devoted to parlors, an economy in the total height of the building was gained, superior to that afforded by the duplex system, while a great saving of floor-space was secured, through the substitution of a compact stairway for the long, narrow corridors through which it is necessary, in apartments of all other kinds, to reach the bedrooms. There are few people who object to climbing one flight of stairs to their bedrooms, and, particularly for narrow corner lots, this arrangement is often very advantageous.

An account of modern apartment-houses would hardly be complete without some mention of the "bachelor apartments" which have recently become popular. There are many men, bachelors or widowers, without families, who, for one reason or another, instead of boarding or keeping up a large house, prefer to make themselves at home in a suite of two or three rooms, with a bath, which they can call their own so long as their rent is paid, and where they can find a place for all their furniture and treasures, which will be safe in case their owner should be called away on business or pleasure. Most of the existing houses of the kind are remodelled dwelling-houses, or apartment-houses of the cheaper sort, with the suites divided, and a few bath-rooms added: but there are a few structures built for this special purpose, containing nothing but two or three room suites, well arranged, lighted and ventilated. The occupants of these houses, in many cases, are expected to take their meals outside, or, in some, the janitor will furnish breakfasts in the rooms; but the more recent buildings provide a complete restaurant in the house, where tenants can take their meals if they wish, as they naturally do in most cases. Singular as it seems, of late years a demand has sprung up for houses of the same kind for what may be

called lady bachelors. In fact, the bachelor apartment-houses of the better class have been so besieged by ladies wishing for accommodation of this sort that several of them have abandoned their original purpose, and admit either gentlemen or ladies, and two or three successful houses have been devoted exclusively to ladies.

SAFE BUILDING.¹—XLIX.

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



WE will now similarly analyze an iron truss. This, the same as the above wooden truss, is not intended so much as a guide in designing, as it is as a guide in analyzing the details of each joint. Every truss should be designed with reference to its special duty and position, and joints should be designed in each case to be made up as simply as possible.

The designer should not hesitate for fear of criticism as to novelty, to make his truss or its joints of any shape that may be most convenient, bearing always in mind, that the simpler the parts and the nearer to standard sizes, the cheaper will be the execution of the work.

Almost any design can be made by the use of wrought-iron or steel, or of cast-iron.

In the two former, care should be taken to analyze carefully the work required of each rivet. Wrought-iron is gradually taking the place of cast-iron, even for shoes and such parts of trusses, as the expense of riveting them up out of different parts, is apt to be cheaper than the cost of the patterns required for castings.

In Figure 261, we have the design of the axial lines of an iron roof truss recently erected in New York City.

The vertical load on this truss was assumed at 65 pounds per square foot and made up as follows:

Weight of truss	= 6 pounds.
Weight of other iron	= 10 pounds.
Weight of 3 inch blocks	= 16 pounds.
Weight of plaster	= 8 pounds.
Weight of slate	= 10 pounds.
Weight of snow	= 15 pounds.

Total (per square foot) = 65 pounds.

Figure 262 gives the strain diagram for this load; the rafter panels were each 17 feet long, and the trusses placed 17 feet 6 inches from centres, so that the load on each panel was $17.17 \times 65 = 19337$ or say 19300 pounds.

The wind-pressure was calculated separately. In Figure 263 it is supposed to blow from the left. The pressure normal to the roof surface per square foot for a roof of this inclination (51°) will be, say, 38.4 pounds, (see Table XLIV.)

We should have then on each panel:

$17.17 \times 38.4 = 11424$ or say 11400 pounds.

The total wind-pressure therefore was = 34200 pounds. By prolonging the central axis of the wind pressure CR till it intersects the horizontal AH at R we obtain the reactions due to wind pressure. As AR measures 40 feet and RH 23 feet, we know that the reaction at H will be

$\frac{40}{63} \times 34200 = 21700$ pounds,

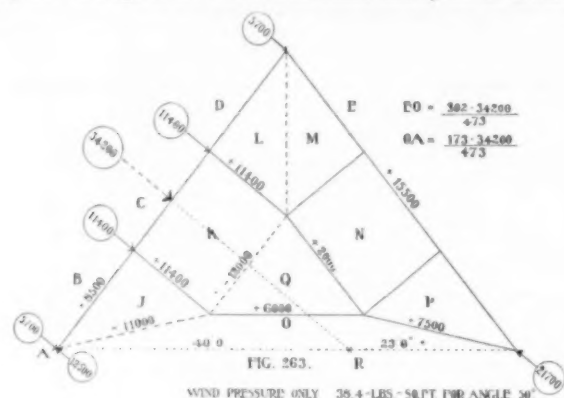
and at A

$\frac{23}{63} \times 34200 = 12500$ pounds.

The strain diagram Figure 264, can now be easily constructed. We notice that there are no strains in MN nor in NP due to wind;

¹Continued from No. 780, page 154.

also that the latter reverses the strains in $Q N$, $Q O$ and $P O$, they all having to resist compression. In Figure 265 are tabulated the strains due to both vertical load and wind pressure, the last column giving the actual result, that is, their sum or difference, as the case may be. In Figures 266 and 267 we reach exactly the same results,



by combining both vertical load and wind pressure in one diagram.

In designing the truss, we must remember that were the wind blowing from the right, the corresponding members of each half of the truss would exchange their respective strains.

Detailing the truss. we must therefore design each such pair of (right and left) members to resist the larger strain.

Figure 268 gives the drawing of truss and detail of joints.

In designing the truss we find that the heaviest strains exist when the wind blows with the exception of the horizontal central tie $Q O$ which has its

Take heaviest strains.

largest tension, when there is no wind; we select accordingly, the heaviest strains for each member and proceed to design the parts.

TABLE OF STRAINS OF ROOF.

Name of piece.	Standing load.	Wind load.	Result.
B. J.	+ 76000	+ 8000	+ 84500
G. K.	+ 61000	+ 8500	+ 69500
D. L.	+ 46000	+ 8500	+ 54500
E. M.	+ 46000	+ 15500	+ 61500
F. N.	+ 61000	+ 15500	+ 76500
G. P.	+ 76000	+ 15500	+ 91500
J. K.	+ 12300	+ 11400	+ 23700
K. L.	+ 12300	+ 11400	+ 23700
L. M.	- 52000	- 15000	- 67000
M. N.	+ 12300		+ 12300
N. P.	- 12300		+ 12300
R. Q.	- 24000	- 12000	- 36000
G. N.	- 23500	+ 2000	- 21500
J. O.	- 49000	- 11000	- 60000
Q. O.	- 23500	+ 6000	- 17500
P. O.	- 49000	+ 7500	- 41500

Fig. 265.

For the tie-rods we require areas, as follows:

Size of rods. Vertical rod $L M = \frac{67000}{12000} = 5.58$ square inches or a diameter of say $2\frac{1}{2}$ inches.

Inclined rod $K Q = \frac{36000}{12000} = 3$ square inches or a diameter of say 2 inches.

Lower inclined rod $J O = \frac{60000}{12000} = 5$ square inches or a diameter of say $2\frac{1}{2}$ inches.

Horizontal rod $Q O = \frac{23500}{12000} = 2$ square inches or a diameter of say $1\frac{1}{2}$ inches.

By placing sleeve nuts (or turn buckles), as shown, we can tighten up the truss at any time.

We next design the struts to stand 23700 pounds compression each. They are 13 feet 4 inches long or 160 inches long. After several trials we decide to use two 3 inches x 3 inches x $\frac{1}{2}$ inch tees, placed one inch apart, back to back. The weakest way in compression will

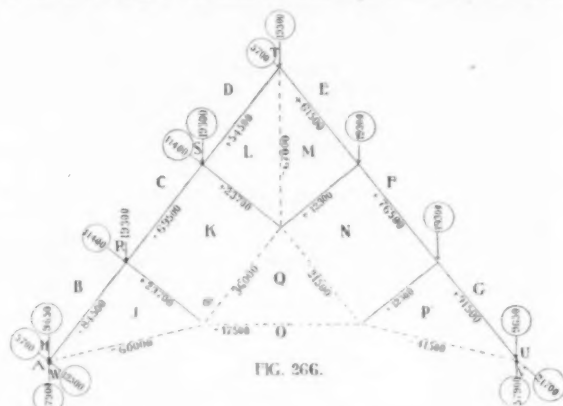
evidently be with the neutral axis parallel to the web. From

Table XXIV, we find their square of radius of gyration for this axis to be $\rho^2 = 0.42$ and their area of cross-section = 2.75 square inches each or $5\frac{1}{2}$ square inches for the two.¹

We have then for the safe compressive stress in these tees to resist the 23700 pounds compression, (see Formula 3):

$$w = \frac{12000 \cdot 5\frac{1}{2}}{1 + \frac{0.00005 \cdot 160^2}{0.42}} = 23322 \text{ pounds.}$$

which is near enough. It should be noted that we consider the strut

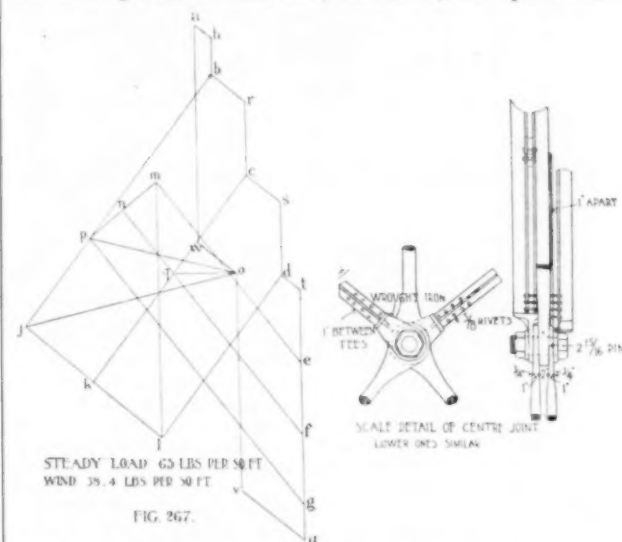


as a column with pin ends. The ends have got separately forged pieces, bearing on the pins and riveted between the ends of struts with eight $\frac{5}{8}$ inch rivets.

The rivets were determined, as follows:

Bearing area of each rivet $\frac{5}{8}$ inch x 1 inch = $\frac{5}{8}$ square inch or = $\frac{5}{8} \cdot 12000 = 7500$ pounds, value per rivet.

Shearing area of each rivet = 0.3068 square inches, there being two shearing areas to each rivet, we have 0.6136 square inches

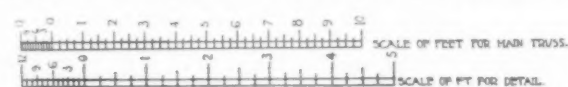


resisting shearing, or shearing value of each rivet = $0.6136 \cdot 8000 = 4908$ pounds.

For safe bending-moment on each rivet, we have from Table I, section No. 7 and from Formula (18) transposed:

$$m = \frac{1}{16} \cdot \left(\frac{5}{8}\right)^3 \cdot 15000 = \frac{1}{32} \cdot 15000 = 360 \text{ pounds-inch.}$$

Remembering to use the larger value $\left(\frac{k}{f}\right) = 15000$ pounds for bending-moment on pins or rivets, we could have read the same



results for bearing, shearing and bending moment directly from Tables XXXV and XXXVIII.

The actual bending-moment on all the rivets would be Formula (21):

¹ It should be noted that no matter how many tees were placed along the same axis in the same direction we should have the same ρ^2 ; for while each additional one would increase the area, and the moment of inertia i , and the moment of resistance r , the square of the radius of gyration ρ^2 , being simply the quotient of the inertia divided by the area, would remain constant, no matter how many tees were used.

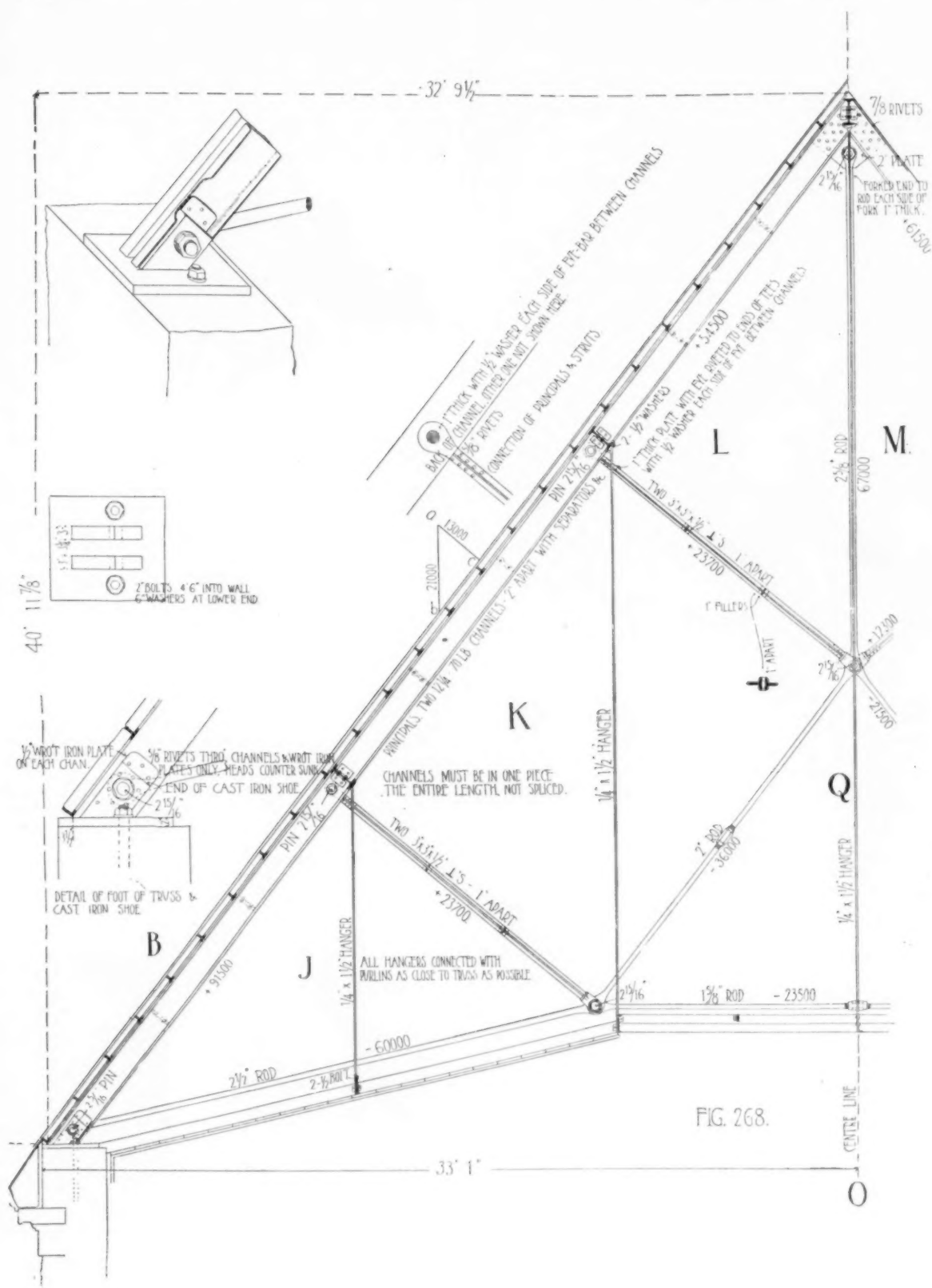
$$m = \frac{23700.1}{8} = 2962 \text{ pounds-inch.}$$

We require therefore, to resist bending

$$\frac{2962}{360} = 8,2 \text{ or say eight rivets.}$$

taxed, and as it is usual to use the same size pin throughout a truss we will calculate for this joint. It is, also, evident that we need calculate only for the strains in the vertical line, as these will be the heaviest.

In order to reduce the bending-moment on the pin, we reduce the



This being more than required for either bearing or shearing determines the number of rivets to be used.

Calculating the pins. We next decide on size of pin used. It is evident that the joints will be similar as regards arrangement.

The largest rod will be central on pin, each side of it will be another rod and outside of this the strut. We can also readily see that the joint at foot of vertical rod LM will be the most severely

head or eye-part of vertical rod to 2 inches thick, this will make a compression of $\frac{67000}{2} = 33500$ pounds per inch thickness and require

a diameter of pin = $\frac{33500}{12000} = 2,8$ or say $2\frac{1}{8}$ inches diameter, (which was the nearest regular size of pin made by the mill who had the contract).

The same result could have been read directly from Table XXXVI. For the rod KQ we require a width of bearing

$$= \frac{36000}{2\frac{1}{2} \cdot 12000} = 1 \text{ inch.}$$

For each strut we require a width of bearing

$$= \frac{23700}{2\frac{1}{2} \cdot 12000} = 0.67 \text{ or say } \frac{2}{3} \text{ inch.}$$

The single shearing area of pin being about $6\frac{3}{4}$ square inches or $= 6\frac{3}{4} \cdot 8000 = 54000$ pounds, there can evidently be no danger from that quarter.

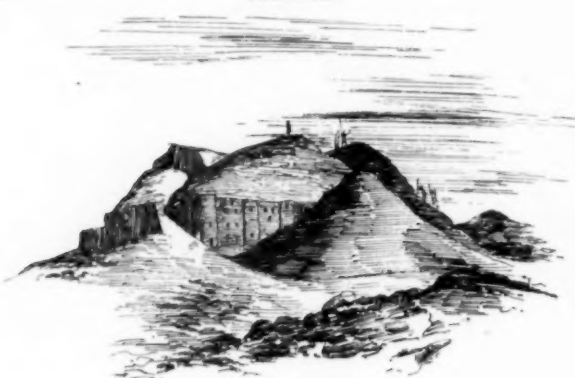
We now calculate the bending-moment, we first obtain the vertical resultants of all the strains, by laying off each strain along its respective line of action at a certain scale, and then measuring the length of its projection along the vertical line. The vertical projection of the 36000 pounds-tension is 28000 pounds pulling downwards; the projection of the 21500 pounds-tension is 16500 pounds pulling downwards; the projection of the 23700 pounds-compression is 15000 pounds pushing downwards; the projection of the 12300 pounds-compression is 7500 pounds-compression pushing downwards; the sum of all of these is $28000 + 16500 + 15000 + 7500 = 67000$ pounds downward. Resisting this we have the 67000 pounds of upward pull.

LOUIS DECOPPET BERG.

(To be continued.)

ANCIENT ARCHITECTURE FOR STUDENTS.¹—VII.

CHALDEA.



Mugheyr Temple.

A GREAT deal of confusion has been occasioned by classical writers in mixing up somewhat indiscriminately Chaldeans Assyrians and Babylonians, and it is a very important matter at the outset of the histories of these nations, that a clear understanding about their individuality should be attained.

The Chaldeans proper were a very ancient nation, who settled in Lower Mesopotamia about the 24th or 25th century B. C. They existed as an independent nation for 1100 years, until about 1300 B. C., when the Assyrians subdued them under Tiglath Nin and dominated the country for six and a half centuries. At the end of that time (650 B. C.) the Chaldeans with the assistance of the Medes, regained their independence and established the kingdom known as Babylonia, hence for distinction's sake they are called Babylonians and not Chaldeans. This new kingdom existed for eighty-seven years only, when the whole country was overrun by the Persians, but as we proceed we shall enter more particularly into these details of their history.

The country in which the Chaldeans settled was an inviting one at that period, one in which, having once entered it, they were likely to stay and give up the nomadic or wandering habits of their forefathers. The soil was of particularly good nature and by the great canals they constructed, the Chaldeans added to its fertility, but since then, the sand of the desert has filled up the canals, covered pastures and arable lands, and all has become an arid waste. The surroundings were favorable for commercial intercourse with other countries: the sea to the south gave them a highway to India and intermediate countries and it is probably to this circumstance that Chaldean prosperity is to be attributed.

We learn from the Scriptures that they were a warlike people, given to the acquisition of territory: rapid and clever horsemen, cruel and very like in character to the more modern brigands of Italy and Servia. Their character is symbolized by a lion having eagle's wings.²

The first inhabitants, as we learn from their sculptures and low reliefs formed themselves huts, in much the same manner as do some tribes of the country at this date, of stems and stalks of growing plants between which were hung mats of the same material.³ Clay abounded and, naturally, brick structures succeeded, but these works were capable of little embellishment and their temples have no ornamentation at all.

Bricks they made in two qualities, sun-dried—a very poor

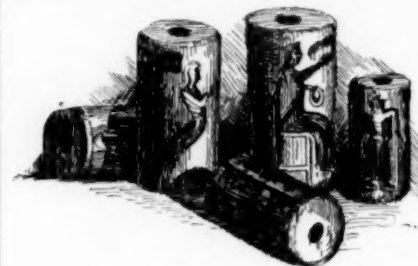
material, and kiln-baked which, being the harder, they applied to exposed surfaces.

There was no doubt a certain dignity about the appearance of their temples owing to the lofty platforms, from 100 feet to 150 feet high; above the plain but beyond this, there is nothing to admire.

Nimroud, the son of Cush, "the mighty hunter before the Lord," is the first name to interest us in the history of Chaldea. He was the founder of the kingdom about the year 2286 B. C., the chieftain, or head of the tribe rather than a king, such as we understand the word. He was a hunter and not a builder, and he was apparently content with the reed dwelling for his habitation, for we know of no remains of architectural structures of this period.

The earliest temple dates from about 2093 B. C., erected by Uruk, who was unquestionably "the builder." His temple is known as the Bowaryeh, at a place called by various authors as Wurka, Warka, Erech or Erech. About Uruk's name there is also some confusion,

some calling him Urkham. But, however this may be, this particular building is meant, but it is so hopelessly ruined that but little of its original form can be discovered. Erech is mentioned in Genesis as one of the chief cities of Nimroud, so that, no doubt, Uruk built his city and



Clay Cylinders.

temple on the site of Nimroud's smaller and less pretentious chief village.⁴

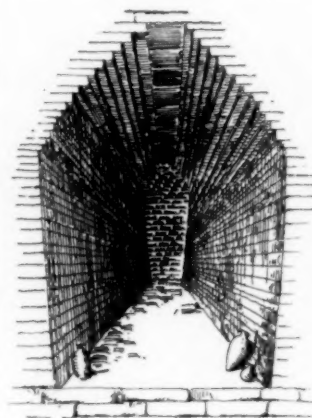
It is probable that the temple consisted of two stories, or, rather that the lower story was the platform on which stood the temple, of which only one story has been discovered. This lower story measures 200 feet square, and stands 100 feet above the plain. It is constructed of crude sun-dried bricks, eased with kiln-baked bricks.

Enough has been unearthed to show that considerable skill in building-construction was possessed by the builders. The employment of buttresses and the slope or batter given to the walls indicate this, and the drains constructed to carry off the rainwater, show a foresight and care, hardly to be met with elsewhere at this very early date. If it had not been for these drains, very little of the crude brick would have survived nearly 4,000 years.

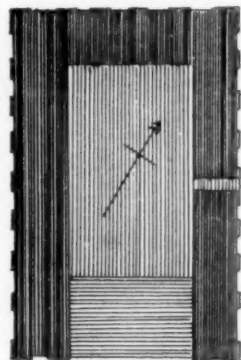
The city Mugheyr, also known as Ur, was the capital of the Chaldean Empire, when at the height of its power and prosperity, about 1800 B. C., when Ismi Dagon reigned. But although in better preservation than Bowaryeh, it has been added to and modernized by successive kings, even down to Nabonidus (550 B. C.), the last king of the Babylonian, or second Chaldean, empire of whose works descriptions have been found on the cylinders.

These cylinders were short prisms, of metal or clay, stamped with figures and inscriptions. They were either circular or polygonal in form, and were strung together by a string or thong passing through a hole bored in the centre, running in the direction of their length.

The form of the temple of Mugheyr was similar to that of Wurka, and its third story, though probably existing originally, is now only



Brick Vault.



Plan of the Temple.

a matter of conjecture. The platform on which it stood was 198 feet by 133 feet built with a batter and outwardly strengthened by buttresses.⁵ The second story measures 119 feet by 75 feet and, as was the common arrangement, it was placed nearer one end of the lower story or platform than the other. It is supposed by some that the reason for this was that a staircase, now destroyed, would occupy

¹ Continued from No. 784, page 8.

² Hab. I. 6-10; Job. I. 17; Dan. VII. 3 et sub.

³ Loftus; Layard; Rawlinson.

⁴ Loftus; G. Smith.

⁵ Loftus.

a part of the wider space.¹ Such an arrangement is shown by Fergusson in his restored temples. Each story except the topmost, or third, or chamber story seems to have been solid except for some brick vaults seven feet long, three feet broad and five feet wide, which were found here, the sides of which sloped out as they rose, the space being roofed with tiles in the form of a rough arch with horizontal beds.

The chamber, as it is generally called, is really the funerary chapel and upon this their talents for decoration were expended. Their method was that of attaching metal plates, gold especially, by means of gold nails to the flat surfaces of the walls; or effects were obtained



by cones, the butt end of which was dipped in color. These cones were then built up in the surface of the wall and patterns formed. The cones measured three inches to three and one-half inches long.

A few coffins, of what may be called the dish cover shape, have been found. They are like great jars, placed mouth to mouth and cemented together.

The site of the celebrated Tower of Babel has never yet been located with certainty: several opinions have been put forth but as there are no remains that at all, answer to its description, all these are merely conjectural. Tradition asserts that it was utterly destroyed² and that Babylon was built upon the site. Others assert that the ruins of Nimroud are the veritable ruins of Babel, but it is known beyond a doubt that Nimroud was erected at a later date and was outside the city, while Babel was said to be within. Some have even gone the length of supposing that the story of the erection of the tower is fabulous, allegorical in fact, but there is no foundation for such a theory.

We know nothing more about Chaldean architecture, no doubt further excavations will reveal much more, but up to the present our information is very meagre.

Chaldea was overrun and conquered by the Egyptians under Thothmes and Rameses I (about 1600 B. C.). But Upper Mesopotamia revolted, and after a period of petty governments became united to Assyria, with Nineveh for its capital. So the history of this part of the country must be continued under the name of Assyria.

R. W. GAMBIER-BOUSFIELD.

[To be continued.]

NAPLES.



ways; it is being levelled to enable it to rise again as fair as modern builders subject to their own contract-prices can afford to make it. Scores of the dark, stinking and slimy alleys, up and down which one has stumbled in terror for one's pocket amid débris of rotten vegetables,

offal, egg-shells, fish-bones, and the other indescribable foulness of the various *vicoli* and *gradelli* are being systematically expunged.

"Eminently picturesque were these ancient slums in their gloom and parti-colored dirt, and as eminently pestilential. It was here that in 1884 King Cholera reaped a fine harvest among the hapless but light-hearted Neapolitans, who had spent all their days thus in semi-darkness and the shadow of death. When King Humbert, in the course of his brave walks through the plague-stricken city, saw the vile straits to which his people were reduced and the manner of their lives, he passed sentence upon the city. The words have become a local proverb, 'it must be disembowelled.' But the work thus designated in a moment was not undertaken off-hand.

"It was no trivial business. The years that have since passed have been devoted to the preparation of a large, radical scheme for the welfare of the city, a scheme in which financiers, the municipality, architects, builders, and the people to be dispossessed of their hereditary dens have all a profound interest. But not until last year was the seal set formally to this great undertaking for the good of humanity by the same King Humbert, who, five years before, had passed among the cholera-victims, full of pity for them and abhorrence of their surroundings. On July 15, 1889, Naples held universal holiday, and amid acclamations, inaugurated the beginning of a new order of things.

"Doubtless, for many years yet to come, there will be acres of slums in Naples. Those low, cave-like rooms in the back streets one knows so well, with a Madonna on the wall dimly seen in the back-ground, a big bed set on the grimy boards underneath the Madonna, with women-folk and children here and there about the room, working or chattering, while the master of the habitation—a half-asphyxiated cobbler, or a sallow, thin-cheeked brassworker—sitting in the doorway, makes shoes or pots and pans for a livelihood; these familiar scenes will long continue to exist in Naples. But year after year they will have to be sought with a little more effort. At present they abound. As soon as the stranger wanders from those principal thoroughfares—the Via Roma or the Strada del Duomo—he is likely to find himself involved in a network of threadlike lanes, with lesser capillaries on either side, leading by pocket squares and spaces, penned in with tall, black houses to the filthiest of *culs-de-sac*. Here he will have a surfeit of such pictures. Our London rookeries are bad enough in all conscience, but it would be hard, even in the vicinity of Ratcliffe highway, to find inhabited warrens so mean and depressing as these in the heart of the city which all the world agrees to regard as one of the fairest of the fair. The scene-painters for the Surrey Theatre, nourished on melodrama, should journey to Naples while yet it may profit them. They will find no such ideal residences elsewhere for the conventional stage-villains of low life.

"We of the North are not prone to take very seriously plans for national and civic amelioration, of which echoes reach our ears from the South. Italy has been so long a hotbed of abuses, a very type of monstrous decadence, the stock equivalent for poverty. But, of course, we argue here upon preconceived notions and prejudices. Realities give the lie to fancies in a most emphatic way. For all our brags of superiority in the arts, inventive and mechanical, we in England can show few buildings to compare with those of modern improvement in Milan and Turin, let alone those of Rome and those designed for Naples. This rage for thoroughness may, for a time, prove gravely embarrassing to the capitalists of the Peninsula, and affect the credit of the nation itself. But the nation has little doubt that the end will justify the means it has used (perhaps a thought extravagantly) for its aggrandizement. The Neapolitans are not a little proud that the model houses (*case economiche*) built, and building, in the city will benefit Naples more than the model houses that have resulted from the movements of Lord Shaftesbury and Lord Cross have benefited London. The latter are supposed to accommodate 146,809 persons, whereas new Naples will offer accommodation to 60,000 poor, over and above the multitude of existing residents who will be dispossessed for the moment, only to be transferred to the more commodious and wholesome new buildings.

"It is the more ancient part of Naples that is being 'disembowelled.' The *risanamento* scheme proposes to do for the west of the city what the Viceroy under Spain did for the east of it. The nucleus of the city, built over the Parthenope of the times of Greece and Rome, will be left for the present but little touched. This is really the very worst part of Naples, but it must be approached gradually. The fringe of hovels and unstable and insalubrious houses which the Angevine and Arragonese epochs of Neapolitan history have tacked on to this nucleus is first of all to be mercilessly pruned away. This, too, can only be done by degrees, for the scheme is gigantic. A broad highway is being driven through the midst of this unsavory neighborhood. This will be of the most modern kind. Tall houses with balconies, stucco and stone work, lofty rooms, and careful sanitary arrangements will make the incongruity between its composition and its surroundings insufferable for long. And from this highway new by-ways like it will, year by year, radiate farther and farther into the diseased centre. The lean and harassed horses and bullocks, who are lashed and goaded to transport their burdens of rubbish from this now desolate and collapsing quarter, will not have suffered in vain if Neapolitan energy and finance hold out to the end.

"Overcrowding is in Naples, as elsewhere, the source of a vast deal of disease and immorality. There is no other such packed city in the western world. Many causes hurried immigrants hither centuries ago—the break-up of the feudal life, whereby the barons of the Apennines and Calabria left their castles for town houses, the

¹ Fergusson.

² Josephus, et al.

privileges accorded by the Arragonese sovereigns to the Neapolitans at the expense of the other residents in the realm, the oppression of feudal lords and their stewards, the greater insecurity of life and property elsewhere, especially on the coast, then subject to constant raids from Algerian and Turkish rovers; the attraction of a rich court, and the ordinary temptations of trade to vagabondizing artisans and merchants from Florence, Genoa, and the Low Countries. Thus was that unique people, the Neapolitan, compounded. Here is a Venetian's description of them in 1634: 'I go through the city, and in addition to the countless number of artisans at their work, and the people engaged in their houses, I see in every street, every by-way and alley, such a crowd of people who push me and tread on my toes, that I can hardly make my way though the midst of them. I go into the churches where they are preaching (and they are numerous) and find them chock-full of people. I go to the courts of justice, and it is a marvel to see the assembly, even as the streets, (not one, nor ten only, but all) are full of people, on foot, on horseback, or in carriages, with a murmur everywhere like the buzzing of bees, so that nothing is more difficult for me than to get about Naples, go where I will, and at whatever hour of the day.' Those who know Naples may be excused for feeling surprise at the fidelity of this portraiture 250 years ago. So far as its tone and manner of life are concerned, there is not a hair's breadth of dissimilarity between the Naples of 1634 and the Naples of 1890. The streets are more crowded than they were in Carpaccio's time, and one has to look out for one's toes more sharply than he. This is the chief difference.

"A few figures will show the extent of the actual scheme of amelioration. It affects an area of 980,686 square metres. At present this includes streetway of 218,702 square metres, but under the new scheme streets will occupy not less than 604,990 square metres of the whole area. Breathing and moving space will thus be increased from a percentage of 22.31 to 61.69—a very considerable change, indeed. The density of the population will of necessity be diminished in proportion. Instead of, as at present, being 1,610 per 10,000 square metres, it will be but 700. To show, further, how sweeping a measure the scheme is, it may be said that it affects 271 streets, of which 144 will be wholly abolished and 127 broadened. Of 56 warehouses and 527 detached houses which stand in its way, it altogether expunges 397, and interferes with the other 136. It destroys 17,000 dwelling-houses and 62 churches. It dispossesses no fewer than 7,100 landlords, 5,400 altogether, and 1,700 partially, and turns 87,447 people out of their homes, 69,198 altogether, and 18,249 temporarily. Of these last, those definitely dis-housed include 4,693 persons of easy circumstances, 25,151 moderately well off, and 39,354 poor.

"For a time the city will be in a somewhat chaotic condition, and there can hardly fail to be a good deal of friction as well as of dust and discomfort. The man who has grown up in the midst of dirt and filth and gloom may be pardoned for at first doubting the pleasantness of the change in store for him. Though it was ever so nasty, the particular *vicolo* of his nativity has endeared itself to him as his home. The model houses, four or five stories high, with windows looking down upon wide streets with young trees set by the footpath, dazzlingly luminous, and so airy that he may fancy himself in peril of death from cold, will not catch his fancy all at once. But patience will work wonders even with the lazzarone benefited against his desire. And when a few weeks or months have passed, even the

most prejudiced and debased of Neapolitans will be forced to acknowledge that he has little to grumble at if he gets a clean and lofty room for a sum equivalent to 6s. a month, with use of the pure water of Serino into the bargain, as a substitute for his old quarters. The workingman with a family may live here in ease with a suite of five rooms and a kitchen for about 25s. a month.

"As for the cost of this great work for the good of Naples, in all, including compensatory payments, it is reckoned at a little less than £20,000,000. There is something heroic about its magnitude and the spirit in which the Neapolitans face the undertaking. It is to be devoutly hoped that the architects and builders engaged in this regeneration of the city may not be arrested midway by paralysis due to want of funds."

ELECTRIC WIRING.



safe-guards bids fair to introduce a hazard greater perhaps, because less understood, than any of the dangers following the introduction of steam, gas and kerosene for similar purposes. Electricity in the experience of most people is a power easily controlled and even if not fully controlled still a power of such slight magnitude as to be entirely harmless to life or property. Yet in the streets of nearly every city and large town in this country, every day, or rather

every night, are wires loaded with currents sufficient in potential to kill any living creature, and often of sufficient quantity to melt an iron crowbar or to burn up a paving stone, and so long as the apparatus for the conveyance and use of this mighty power is in proper order, its presence is not perceptible by any of our senses. So common has its use become that hardly any one fails to think of the possibility of its use either for light or power in the construction or modification of large buildings, and the day is evidently not far distant when preparation for its introduction will be as much a part of the necessary calculation in the construction of buildings as now for gas, water and drainage. The subtle nature of this wonderful force and a general lack of knowledge as to its dangers, its capacities and its results have led to the mistake of supposing that because wires for carrying the comparatively feeble currents, used for telegraph, telephone, electric-calls and the like, had been put in all manner of places and forced to adapt themselves to most untoward conditions, all wires for carrying electric currents, except possibly those whose presence rendered them dangerous to life, could be crowded away in places where the space was not otherwise required, with perfect



Interior of King's Langley Church,
Hertfordshire.

safety, and that the currents carried on wires so placed would produce just as efficient results as when every care had been taken in their arrangement. The results of this error are just beginning to make themselves felt and there can be no question that the time is coming when they will be much more evident. No engineer who had any respect for himself or his profession would think of laying-out a system of water-works without calculating his levels; no architect

would think of planning a fine block and expect the drainage to be put in after the building was ready for occupancy or if put in during the construction of the structure would be allow the pipes to be so arranged that all traps would be entirely inaccessible except from a step-ladder. Yet block after block is erected in all our large cities where no provision is made even for telephone wires, though a little thought would make it evident that the telephone is quite as necessary a part of the equipment of most buildings as drainage.

Let us consider for a moment the points most essential in preparing for the introduction of wires for carrying electricity into a large building designed to be used for offices and banking-rooms. We may divide the uses to which these wires will be put into three classes, viz., wires carrying currents of low potential for light and power, wires for messenger-calls, bells and similar methods of communication, and lastly telephone wires. It may seem as if the last two classes might be consolidated into one, yet with the increasing introduction of telephones as a medium of communication over long distances, the factor of induction, that curious and little explained effect of currents upon parallel conductors, must not be lost sight of; for instance, a wire carrying the current for a stock-indicator might seriously injure the value of a telephone line placed in the same duct or groove with it, while the current for a printing-telegraph instrument would probably have a still more injurious effect. We have then our three classes of wires to be provided for in planning the detail of the building, and the problem is to dispose of them in such ways as to make them as inconspicuous as possible, to have the danger from fire reduced to a minimum and to arrange for connections, switches, safety cut-outs and the like, at convenient points. The wires for lighting will of course be the most numerous and most bulky, as they must reach by far the greatest number of points and carry much the largest amount of current.

In many cities the supply of current will be from underground conductors, and if the current is generated in the building it is more than likely that the dynamos will be in the basement. For the main conductors in a five-story building there should be a duct for each five thousand feet of floor-surface running the entire height of the building and having an area on the cross-section of not less than forty square inches. This duct should be arranged to have the cover screwed on and should have a point on each floor where the cut-outs for the branch circuits can be conveniently placed. These branch circuits will, in buildings of ordinary construction, be run through or between the floor timbers, and where brick or tile arches are used for floors the wires can be run in tubes of paper prepared by special process, which have been lately introduced for this purpose. These tubes can be run on the surface of the brick or tile and entirely imbedded in the plaster and can also be used to advantage in passing through walls, ceilings or partitions. If wires for lighting currents are arranged in this way there can be no difficulty in correcting any trouble which may arise from defective insulation, imperfect joints and the like, and if additional capacity is needed it can easily be added without defacing the finished surfaces of walls or ceilings. It is impossible to lay too great a stress on the great advantages of having easy access to all the wires, especially those carrying large amounts of current.

Telephone wires are likely to come next in number, but owing to the small amount of current required, the bulk is small. If the building is large enough to lead to the use of ten or more telephones within its walls, it is desirable to allow space for the entrance of a cable and to provide a point on each floor where the wires for that section can separate and be carried in different directions as required. The neatest and most convenient way of carrying telephone wires about a building and concealing them without making them inaccessible is to arrange a gutter-like hollow, open at the top, in the plaster moulding used as a finish to the walls, connected by holes from room to room and concealed by the front of the curve. This has been done in a most successful manner in the new building of the American Bell Telephone Company in Boston, and I feel sure that many modifications of the plan can be made to adapt it to any set of conditions. As to other wires than those above mentioned, the circumstances of each case must show the proper method, but it is safe to say that much will be gained by keeping them away from electric-light or telephone wires, and that if this end is kept in view it can easily be accomplished. If arc-lights on high-pressure circuits are to be brought into the building they should never be covered up and should be looked upon as requiring special care. In conclusion, every wire except those for high-pressure circuits should be provided close to its point of entrance with a fuse or other automatic cut-out capable of breaking the circuit in case of excessive load, and arranged so the flash which results from the breaking of the current will find nothing to set fire to and no possibility of diverting the current to other conductors. On circuits of high pressure it is, unfortunately, impossible to provide an arrangement of this sort which will work automatically, but cut-outs worked by hand should be provided in an accessible place on the circuit before it enters the buildings. Electricity is the coming method of producing light and conveying power, and all means should be taken to render its use as safe and convenient as possible. Let us not forget that though it is perceptible neither by taste, smell nor sight, it contains energy as much as heat, light or motion, and that if diverted from its proper channels it is just as likely to run riot as they.



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

WEST FRONT OF THE UNITED STATES CAPITOL, WASHINGTON, D. C.
[Gelatine Print issued with the International and Imperial Editions only.]

THIS view exhibits the new marble terrace which extends around three sides of the Capitol and does so much to add to its air of stability and give it effectiveness. It may be remembered that Mr. F. L. Olmsted, under whose direction this addition to the Capitol was made, was subjected to some pretty caustic criticism on the floor of the House because he had not provided means of lighting from the outer face the ninety rooms which are built under the terrace walk. Those who are interested in the matter will find it discussed in the issues of the *American Architect* for August, 1886.

THE REAR OF HAMILTON HOUSE, PHILADELPHIA, PA. SKETCHED BY MR. FRANK A. HAYS.

NOTRE DAME DE L'EPINE, NEAR CHALONS SUR MARNE, FRANCE.

STORE, NO. 1606 CHESTNUT ST., PHILADELPHIA, PA. MR. A. W. DILKS, ARCHITECT, PHILADELPHIA, PA.

This building is built of English pale red sandstone. It is 150 feet in depth from Chestnut to Exeter Streets. Cost about \$30,000. There are two elevators extending from basement to top floor. The whole building is used for one business and each floor is practically the same as the first. There is a skylight from roof to first story. It was very economically built by Messrs. J. E. & A. L. Pennock.

PASSENGER STATIONS ON THE SANTA FE ROUTE. MESSRS. PERKINS & ADAMS, ARCHITECTS, TOPEKA, KANSAS.

Union Depot, Atchison, Kansas.—Walls pressed brick, Pike's Peak red stone trimmings, slate roof, copper cornices, crestings, etc., maple floors, poplar finish; rough-cast plaster walls, calcimined; cost, \$60,000.

Passenger Station, Galesburgh, Illinois.—Walls, broken ashlar masonry of red stone quarried at Dunreath, Iowa, slate roof, copper cornices, terra-cotta crestings, maple floors, antique-oak interior finish, plate-glass, rough-cast plaster walls, calcimined, steam heat; cost, \$30,000.

Passenger Station, Wichita, Kans.—Walls, range-work of Cambridge gray limestone; trimmings, purple sandstone from Las Vegas, New Mexico; slate roof, copper cornices and crestings, inside finish of cypress; heated with hot water; cost, \$16,000.

Passenger Station, Kenisley, Kansas.—Pressed brick walls, white stone trimmings, slate roof, terra-cotta crestings; inside finish, yellow pine; half-timber roof over waiting-rooms; cost, \$13,000.

Passenger Station, Leavenworth, Kansas.—Walls, broken ashlar masonry of purple stone from Las Vegas, New Mexico; copper cornices, terra-cotta crestings, slate roof, oak interior finish, steam heat, maple floors; cost, \$25,000.

HOUSE ON THE RIVERSIDE DRIVE, NEW YORK, N. Y. MR. FRANK FREEMAN, ARCHITECT, NEW YORK, N. Y.

[Additional Illustrations in the International Edition.]

REAR FACADE OF THE HOUSE OF M. GARNIER, ARCHITECT, NIMES, FRANCE.
[Photogravure.]

The principal front of this house was published in our issue for October 11, 1890.

GROUND PLAN OF THE SAME.

(Copper-plate Engraving.)

THE absence of lettering from this plan makes a description of the arrangement somewhat obscure. The house is situated between the front court-yard—with the lodge of the concierge on the left and the stable and servants' quarters on the right—and the garden which is laid out after the formal fashion employed for this recreation-ground. Upon the right of the vestibule is the staircase leading to the upper stories and upon the left an octagonal waiting-room which, as this part of the building is but one story high, receives light from overhead and from a window in the wall above the gallery which connects this room with the lodge of the concierge. Behind the waiting-room is the architect's studio and, indirectly connecting with it, his private office. Balancing this upon the other side of the large room, which is partly a *salon* and partly the rear vestibule, is a small parlor which connects with the large dining-room and its dependent service-room in the right wing. The pantries, etc., receive light and ventilation from a *courrette* and connect with the kitchen in the basement.

THE HOFKIRCHE, DRESDEN, SAXONY.

[Gelatine Print.]

It may be remembered that an excellent drawing of the tower of this church was published in the *American Architect* for December 22, 1888.

The church, which is the royal chapel — devoted moreover to the rites of Catholic worship, for the royal family of Saxony are believers in the tenets of the Romish belief although they rule over a people who, in the main, are Lutherans — is placed near the river and partly closes one side of the irregularly-shaped square, upon which front the Zwinger and the Hoftheater. Near the middle of this open space was erected, a year or two ago, the bronze equestrian figure of King John, by the sculptor Johannes Schilling.

UNIVERSITY LIBRARY, CAMBRIDGE NEW BUILDINGS: EAST AND WEST VIEWS OF GATEWAY. MR. J. L. PEARSON, R. A., ARCHITECT.

MERCATOR, BY M. VAN DER HAEGHEN.

FISHERMAN'S INSTITUTE, PORTHLEVEN, CORNWALL, ENG. MR. JAMES HICKS, ARCHITECT.

LUSTRE, IN METAL.



ILLINOIS CHAPTER OF THE AMERICAN INSTITUTE OF ARCHITECTS.

At the regular monthly meeting of the Illinois Chapter A. I. A., held at the rooms of the Institute of Building Arts, 63 and 65 Washington Street, December 15, 1890, Mr. Adler addressed the meeting as follows:

Mr. Chairman and Gentlemen:—My unwarranted assumption of authority in issuing to you the peremptory summons to appear here this evening will need no apology, if you are all as well pleased at seeing and meeting me another as I am to see and meet you all this evening.

My purpose in making this unusual effort to secure a full attendance at this meeting, was that I wished to interest as large a number of our membership as possible in the initiation of the movement that I am about to propose to you.

You are well aware of the fact that there will be here in the summer of 1893 the World's Fair, and as citizens of the United States, we owe it to the world, and as citizens of Chicago, we owe it to the United States, and as architects, we owe it to our fellow-citizens and our fellow-architects, here and throughout the world, to do all in our power to make this Fair an unqualified success. Should this Fair in any sense fail to come up to the expectations of the world, and to the promises of its projectors and managers, the disgrace will be not merely that of the projectors and immediate managers, it will be the disgrace of the entire country, the disgrace of our city; and we, as architects, will be called upon to take our full share of the responsibilities for the failure. The loss of prestige which will be suffered by our country and by our city will reflect upon us, not merely in a sentimental way, but also tangibly as an injury to our professional and business interests. And the greater the success of the Fair, the greater the triumph of our country, the greater the prominence of our city. Our material interests are so closely interwoven with those of the community of which we form a part, that with the augmentation of the fame of the city will come a rise of our own standing as a most essential factor in the growth and development of that city. If the million of visitors, who will come to the Fair during the summer of 1893, see that the Fair itself is a success, they will be pleased, not only with the Fair, but with all they see of Chicago, its buildings and its people. The professional standing of every architect in Chicago will be raised, and his opportunities for becoming a factor in the architectural development, not merely of this city, but of the entire country, perhaps of the entire civilized world, will become greater as the success of the Fair becomes more and more emphatic.

If, now, we can cause to be incorporated among the various departments of the Fair one that shall be under the fostering care of the architects of Chicago and of especial interest to the students and practitioners, to the amateur and to every one interested in the progress of architecture, of building and of kindred arts and sciences; if we can cause the organization and management of such department to be one of the more prominent and one of the most successful features of the Fair, then the architects of Chicago will enjoy the direct advantages accruing from the success of their own initial and individual action in addition to the reflex benefits that will accrue to them in a general way from the general success of the entire undertaking.

What I would propose, therefore, is that there be instituted a department in the Columbian Exposition which will illustrate the progress of architecture in the different countries from barbarism to the present day. It will probably be found inexpedient to form this on lines identical with those pursued by Mr. Garnier in his "Parallel Habitations of Man," and so, perhaps, have this part of our exhibit take a wider scope, and embrace everything in the nature of buildings devoted to the uses of man, but more particularly the more ambitious and monumental structures in the world, of which models made to uniform scale, similar to those now forming the Willard collection at the Metropolitan Museum of Arts at New York, might form a nucleus, and which collection of models should embrace, for the

purpose of comparison, every noteworthy building of the world, and of the past and present. Of still greater importance, to my mind, would be an exhibition containing handicraft work of all peoples and all ages from the earliest dawn of civilization to the present day; these, arranged in chronological order, and on such lines that the progress from time to time, and the status in the different times of the handicraftsmen of different peoples, could be readily compared. This would naturally lead to a very extensive exhibit of the artistic handicraft work of the present day, whether in stone or in wood carving, in blacksmith-work or *repoussé*-work, and, in short, art decorative work of every kind and in every material, as produced in every country of the world at the present day. Such an exhibition would, therefore, have a two-fold value: first, in illustrating the progress of man from barbarism to the present day; secondly, in giving us standards for comparison for the still further improvements in the work of the present day.

A further field for that exhibition would lie in the direction of exhibits of machine-made products used in building, and possible illustrations of the machines producing them, and certainly working-models of the manner of using the many materials and processes at the service of the American and European architect of to-day. I would illustrate American methods and processes of construction from the log-hut and balloon-frame to the steel-skeleton fireproof building of the day, and would illustrate every method of efficient cheap construction, the various methods of slow-burning construction, and the most approved methods of fireproof construction that we know of in this country and recently known in Europe.

Again, in connection with the exhibit of building materials and appliances, might be included an exhibition of testing-machines. Of these, the best known to the world are made in America, and with these could be conducted, upon stated and widely-announced occasions, public tests of the many materials of construction.

In short, I would have this department of the great exhibition cover everything which concerns the student of architecture as an art or as a science, or the practising architect or builder, or the actual or prospective owner and erector of buildings, every amateur, every lover of art and its progress, and every one who has occasion to live in, work in or do business in a structure erected by architects, and this would embrace every civilized being.

There will be, during the year 1893, a Convention of the American Institute of Architects, which would probably be held at Chicago if at the same time there could be arranged a congress of the architects of the world; and, if this special exhibit could be made particularly interesting to the participants in this congress, the result would be of incalculable benefit to our country, to our city and to our profession.

I do not think that we need fear the burden of excessive expense, for I cannot but believe that the directors of the Fair will see how great are the advantages that will accrue from the carrying out of plans similar to what I have outlined, and that they will lend us all assistance in their power. I am, further, of the opinion that, if it once becomes known how complete and perfect and how interesting we may make the architectural department of the Fair, exhibitors will crowd in upon us, perhaps in greater numbers than we can care for, and that they, themselves, will to a great extent bear the brunt of the expense. But even if we shall ourselves be called upon to contribute our share towards defraying expenses that cannot be met from other sources, we should not hesitate for a moment to contribute liberally and to our full capacity. We will receive recompense, in many ways a hundred-fold, for any outlay that we may incur.

It is necessary that we act soon. A general plan of classification has already been adopted by the National Commission and Local Directors. It may be that what I have proposed is not altogether in consonance with this plan of classification, but it is yet so early in the history of the enterprise that all plans are still elastic, still susceptible of modification. It is our duty to act quickly and promptly, before projects adverse to our own shall have become crystallized into definite form, and, therefore, difficult of modification.

In view of the fact that individual countries will have their own exhibits, and in view of the still more deplorable fact that the local board will induce individual States and smaller communities of our own country to make their own exhibits, many objects that would be of greatest interest as part of our own collection will be scattered great distances apart in the wilderness of miscellaneous exhibits. It must be our duty to see to it that, if we cannot actually separate every object which it would be desirable to make part of our own exhibit from the country, State, or smaller community, we must at least secure a duplicate of the same for our own department.

That all this may be accomplished, we must be on the field soon, and I think the proper time has now come for us to assume the initiative. I am not prepared to make a definite motion with relation to this matter. I should prefer to have a free discussion of the same and let any action of this meeting be the outgrowth of such discussion. There are among us this evening several who have seen great exhibitions, who can tell us the result of their observations.

Mr. Root, Consulting Architect of the World's Fair Directory, is also here and can undoubtedly give us valuable information.

Messrs. Root, Treat, Baumann, Silsbee, Patton and Beaumont took part in the discussion.

Mr. Baumann offered the following:

Resolved.—That a committee of five (5) be appointed by the president, of which Mr. Adler shall be the chairman, to further consider the feasibility of an architectural exhibit in connection with the World's Columbian Exposition of 1893; and to elaborate a plan of procedure, and if necessary, to place itself in communication with the authorities of the World's Columbian Exposition, with a view of furthering the interests of such an exhibit.

Which was seconded by Mr. Hill, and unanimously carried.

By Mr. Adler:

That the President of the Chapter shall be a member of this committee.

Appointed as such committee: Messrs. D. Adler, S. A. Treat, F. Baumann, H. L. Gay; and by vote as above, S. V. Shipman.

Upon motion, the meeting adjourned.

GEORGE BEAUMONT, Secretary I. C. A. I. A.



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

THE ILLICIT-COMMISSION EVIL.

NEW YORK, N. Y., January 7, 1891.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—Please count upon my sympathy and cooperation in your efforts to oppose the illicit-commission evil. From time to time letters offering commissions come to me. They are annoying, not only in a personal sense, but to a greater degree in the suspicion they engender that their existence is based upon some actual facts.

The blame does not rest entirely with the dealers. They are often only following their usual business methods, honestly enough. It is not always in their knowledge that architects are morally forbidden to trade on commission. It is for the architects to announce this fact, and live up to it, as indeed a majority do. Yet I must confess to a sorrowful suspicion that there is truth in the repeated claim by dealers that some architects in good repute do receive commissions. They are the aggressors we must reach out for.

It is necessary for the honest members of the profession to do all that can be done to prove or disprove these prevalent suspicions, and put an end to the evil.

The gradual raising of the status of the profession, for which many members work so devotedly, is increasing public confidence in architects.

That this increased confidence should be sold by unprincipled persons is not only regrettable, it is exasperating. The sin is both a general one against the community, and a special one against the profession.

Why is it allowed to continue? Why this shirking of the subject? I trust that the *American Architect* will press it now until something is ascertained.

Allow busy men considerable time, and two or three reminders. A man's silence does not necessarily mean his dissent. Keep the subject alive.

If the profession at large demand it the Institute should take it up and put itself in communication with the dealers' exchanges.

As to dealers, my method is simple, and I respectfully submit it as worthy of general use.

I will have nothing to do with any firm which, to my knowledge, offers commissions to architects, not only as a matter of principle, but because I fear that my reputation would suffer from the connection, even though I do not myself receive illicit commission.

To any concern offering me a commission, I reply to that effect. To the — Manufacturing Company, whose persistence is surprising, I gave the usual answer.

The — Manufacturing Company is now so associated by their offers of commissions with the evil under discussion, that any architect specifying their goods will lay himself open to suspicion. Do not they understand this?

I am always anxious for enlightenment as to who gives commissions and who does not. I am much obliged to the company referred to for the information, and shall be equally so to any others. If all such business is duly announced, and the *American Architect* will give names (instead of blanks and dashes) something will soon be done.

A clear division into two camps on this question would settle the matter.

Please place my name on the side supporting your declaration, except that I do not request dealers using circulars offering commissions to discontinue sending them to me. On the contrary, so long as they are sent to any architects I shall find them useful.

Yours very truly, R. W. GIBSON.

[We will try to keep this matter "alive" and will give busy architects every reasonable chance to make known their position for or against this matter. We will point out, however, that at present the suspicion that there are a large number of architects who do take illicit-commissions or who are willing to be believed to take them is acquiring in our minds

disagreeable proportions. We use the disguising dash in which he objects to in Mr. Gibson's own communication for the sake of protecting him as well as ourselves from the disagreeable consequences which, as experience has taught us, sometimes follows the unauthorized use of a name.—EDS. AMERICAN ARCHITECT.]

DAVENPORT, IOWA, January 5, 1891.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—You will confer a favor if you will kindly add my name to the "Illicit-Commission Declaration," as mentioned in the issue of December 13. About a year ago I was so much annoyed by the great interest various material-men seemed to take in my financial welfare, that I wrote to Mr. John W. Root, Secretary of the American Institute of Architects, to suggest that a circular similar to the one you propose, be issued under authority of the Institute, to be issued to members of the Institute, to use in replying to material-commission-men. Such a circular, it seemed, would carry more weight, than if individuals tried to explain the proper status of an architect to the material-men. Some time after making this suggestion, I had a letter from Mr. Root, stating that the executive committee had directed a form of circular printed for this purpose. I have heard nothing more of the subject, and think your plan perhaps the best way to deal with the evil.

Yours truly, EDWARD S. HAMMATT.

[We are pleased to learn that the American Institute of Architects has gone even so far as to "direct" that a circular bearing on this matter should be printed, and we will live in the hope that sooner or later this direction will be given tangible effect.—EDS. AMERICAN ARCHITECT.]

MINNEAPOLIS, MINN., January 8, 1891.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—I have just had my attention called to your article, "The Illicit-Commission Evil," page 166, December 13, 1890. It meets with my hearty approval, and I wish to subscribe my name to the declaration. I presume it is not necessary to write it in full here. If, in some way, the information you propose giving could be placed before clients, a great cause of annoyance might be removed. It is not pleasant to have a friend whose interests we are trying to protect say, after the usual inquiries regarding compensations, "this is satisfactory provided no commissions are to be accepted by you from material-men on the work." Few architects can afford to kick the client out of the office as the honest man—who is therefore poor—would feel inclined to do; and to elaborately explain one's honesty is often taken for cant and makes the matter worse. About all that can be done under such circumstances is to wish to sink through the floor, and come up with some new profession which is not tainted with the foulness of its own members.

Yours truly, JAMES C. PLANT.

TORONTO, January 8, 1891.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—You are hereby authorized to append my name to the notification that—

"The undersigned architects desire to state that they are absolutely and only the agents of their clients," etc., etc. See No. 784, page 12, *American Architect*.

Architects in Canada are, I believe, no more free from offers of commissions from "material-men" than architects in other countries, but I think the objection raised by Mr. Osborne may be overruled by the fact that architects of most associations have to make the declaration that they will not receive commissions from contractors or material-men, and the By-laws arrange for the punishment of offenders in this respect.

Yours truly, R. W. GAMBIER-BOUSFIELD.

A CHANCE FOR A DRAUGHTSMAN.

CHICAGO, ILL., December 31, 1890.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—We have on hand almost a complete set of the *American Architect* for the last year, and if you know of any needy draughtsman, who would appreciate them, and make better use of them than we can, we will gladly do them up and send to his address.

Very truly yours, AN ADVERTISER.

THE CATHEDRAL OF ST. JOHN THE DIVINE.

NEW YORK, N. Y., January 8, 1891.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—I have quite recently received a clipping from a Boston journal containing the statement that I had won the first place in the competition for the proposed new Cathedral of St. John the Divine, in this city. As the announcement is without any foundation in fact and is quite unjust to those of my fellows who have labored earnestly in this matter, I beg you will contradict it. I have never taken any part whatever in the competition, nor had any connection with it.

Very truly yours, H. J. HARDENBERGH.

[The newspaper evidently confused the recent competition for the Fine Arts Building with the Cathedral competition.—EDS. AMERICAN ARCHITECT.]

"SAFE BUILDING."

RICHMOND, IND., January 6, 1891.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—When will Volume II of "Safe Building" be published in book form, and what price? Answer me in *American Architect*. Yours truly, O. E. McMEANS, Draughtsman.

[DURING the current year. Price will be fixed on publication.—EDS. AMERICAN ARCHITECT.]

CURVILINEAR PERSPECTIVE.

PHILADELPHIA, PA., January 9, 1891.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—Will you kindly inform me as to the best book you know of that treats of curvilinear perspective, and oblige, Yours truly, ADIN B. LACEY.

[Ware's "Modern Perspective," Published by Ticknor & Co. Price, \$5.—EDS. AMERICAN ARCHITECT.]



MONUMENTS IN CHURCHES.—Neither mural nor other monuments of the dead ever were seen in the temples of Greece or Rome. If the Christian religion was tolerant of this profanation, it was from motives neither slight nor unholy; it was to protect her defenders from outrage in their last home, and to excite at once the piety and the courage of their fellow-worshippers. It was continued for profit and perquisite. The Crusaders, and others who bore arms at home, lie recumbent under the images of their intercessors, and express in their placid countenances, no sentiment but devotion. Everything about them bears one character. I was the first, I believe, to express my opinion publicly that there should be neither burials nor monuments in churches. At the same time I proposed that the images of great men should adorn the public walks of our cities. Such is our climate, that we cannot walk among them frequently in the open air. But why not build ample and well-lighted arcades for their reception? Naval worthies might rest upon rostra just higher than our heads, and not upon columns where only the jackdaws can see them. Generals of armies should have equestrian statues; poets, philosophers and historians (whenever we have any) may rest on single plinths, and theirs be only busts. No inscription for any. It is singular that Southey, when we were walking for the last time together, should have conversed with me on the subject of his monument. He was then in perfect health. We walked in College Green, Bristol, and I said to him, "twenty years hence, perhaps, workmen may be busy on this very spot in putting up your statue." He replied, "if ever I have one I would wish it to be here."—W. S. Lander.

SIXTY RUINED CITIES IN YUCATAN.—There are a few more than sixty ruined cities in Yucatan, so far as they have been discovered. Within a radius of one hundred miles from Merida are such magnificent examples as Mayapan, Ake, Chichen-Itza, Kabah, and Labna, but none is more interesting and grand than Uxmal, about seventy-six miles by road-travel from Merida. By far the finest building in the city, both from its commanding position on a lofty eminence, and the completeness of its preservation, is the Royal Palace, otherwise known as the Casa de Gobernador, in Spanish. It stands on the topmost of three terraces of earth—once, perhaps, faced with stone, but now crumbled, broken, and in a stage of heterogeneous decay. The lowermost and largest is 575 feet long, the second 545 feet long, 250 wide, and 25 feet high, while the third and last is 300 feet in length, 30 in breadth, and 19 in height, and supports the building, which has a front of 322 feet, with a depth of only 39, and a height of but 25 feet. It is entirely of stone, without ornament to a height of about ten feet, where there is a wide cornice, above which the wall is a bewildering maze of sculpture. The roof was flat and once covered with cement, in the opinion of some travellers, but is now covered with tropical plants, trees, and verdure. There are three large doorways through the eastern wall, about eight feet square, giving entrance into a series of apartments, the largest of which is 60 feet long and 27 deep, divided into two rooms by a thick wall. The ceiling of each room is a triangular arch, capped by flat blocks, at a height of 23 feet above the floor. The latter, like the walls and jambs of the doorways, is of smooth-faced stones, that may once have been covered with cement.—*Philadelphia Telegraph*.

SAVING BRAMANTE'S WORK.—Jerry-builders are destroying Rome, but in the case of one matchless edifice the Pope is taking steps to show how reverently an old building should be treated. This is the famous Palazzo della Cancelleria, designed by Bramante, and one of the purest pieces of Renaissance architecture in the city. Though much of the structure is built of blocks of travertine, removed from the Colosseum, and though the columns of the famous court date centuries before the building itself, yet the skill of the architect has given congruity to the whole arrangement. The palace has other interests than those that merely appeal to the architect. In it—alone of the countless palaces within the city confines—the ecclesiastical authorities are allowed to settle and to meet. It was here that Pio Nono in 1848 convoked a Parliament to deliberate on the reform which should be introduced in the States of the Church, and it was on the first landing of the staircase that Count Rossi, the Minister, was assassinated that same year. In the course of many years this palace has been modified and added to. Stories have been reared upon parts of it and wings built up against it.

The simplicity and the dignity of the Florentine master's design have been quite obscured or neutralized. The Pope intends to remove all these excrescences, as the Government a little time ago removed the turrets with which Bernini defaced the Pantheon. We shall see the palace as Bramante planned it.—*The Pall Mall Gazette*.

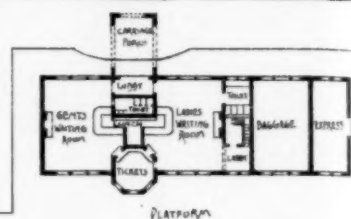
THE JAPANESE FIREPROOF STORE-HOUSE.—Despite the general use of stone and iron, absolutely fireproof houses are few and far between. Builders might, perhaps, get a hint from the Japanese whose ordinary dwellings are probably the most combustible in existence. To meet this state of affairs the richer natives are in the habit of erecting near their houses "kura," or fireproof edifices, consisting of a light framework of wood, between the timbers of which there extends open bamboo or wicker work. The whole wall-surface is then plastered inside and out with stiff mud taken from the bottoms of rivers, and over this is laid a coat of stucco. It is said that walls thus constructed will withstand flames which cause granite to crumble. On an alarm of fire being given in the neighborhood the owner hurries all his most valuable effects into the Kura (which is sometimes of two, or even three, stories), and, if time permits, the door and window joints are sealed with fresh mud. Some of these Kuras look like gigantic safes, but others are of fairly good design architecturally. Their use has materially mitigated the losses which would otherwise have been increased in the devastating fires for which Japanese cities are famous.—*Invention*.



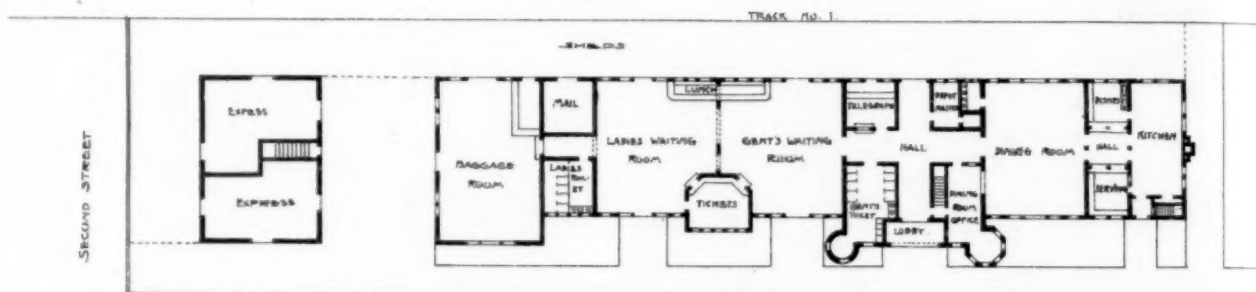
UNUSUALLY good financial generalship has been displayed by Boston and New York financiers during the past two months or more in face of the serious difficulties which have beset them, almost without warning. It looks now as though nothing serious would come. The New York banks, at present writing, have in the neighborhood of something like fourteen million dollars above the legal limit, as against some seven million dollars a year ago; but this accumulation, or a considerable portion of it, is due to a refusal to extend needed accommodations. The restriction, while causing much inconvenience, is also doing some good in checking, directing, influencing and curtailing. Manufacturers, for instance, have very generally taken the hint. Merchants are measuring the market requirements with more care than usual. Jobbers are sounding the ground with extreme caution. Risks of all kinds are being reduced to a minimum. It is not likely that there will be one thousand million dollars' worth of new securities listed in New York this year, as last; while it is quite probable that as much as six hundred million dollars' worth will be cast out as unfit for speculative buying and selling. There are many indications that the liquidation that set in last autumn has done good work. Nothing can check it, nor, in fact, is it desirable that it should be restrained by silver or any other legislation, though the fact should be kept in mind that a reform in our financial system is needed. All the discussions on reforms and remedies have not led to any conclusion. In fact, it seems impossible to reach any common ground, and hence shrewd observers see and say that the matter will become a political issue, and, it is believed by them, to the disadvantage of the best interests of the country at large. But even the most sincere and best-informed may be mistaken as to the effect of measures of a financial nature which have never been tried. The masses do not fear high prices, in fact, prefer them, provided they are accompanied with increased industrial activity. The strong underlying tendency in the world's business is, on one side, the tendency to a centralization of effort and agencies in the performance of work; and, on the other hand, the outflow of capital and energy to hitherto unoccupied fields. Both tendencies will continue, and new trade and industrial centres will spring up. The business world will settle this money question and all other public questions from a new standpoint very soon; viz, that of combined interests as against individual interests. There is a well-defined tendency in that direction, not only in railroads and banking interests, but in every other interest that is of sufficient value to those engaged in it to organize. Business opens sluggishly. There are very few anxious buyers or sellers. A favorable sign is the increased activity in stocks, but, after all, stock operations will play a very small part in the business of the coming year. A year ago prices were at their highest point, and declined gradually to the close of the year. This declining tendency has probably been exhausted. Much depends upon this fact. The other fact that will determine largely the character of this year's business is the extent to which business will be hampered by the lack of money, or confidence or credit, by whatever terms the thing may be designated. Enterprise and capital are waiting for the word of command. A score or more of blast-furnaces have suspended operations because of dear coke and high freights. A good deal of rolling-mill capacity is idle because orders come in slowly. An extraordinary demand continues for coal. Several companies are pushing after new sources of natural-gas supply. Textile manufacturers are prepared to increase production, and expect a demand to warrant it. Hardware manufacturers and jobbers report a very heavy distribution of products during the past sixty days. Constructing-engineers compute an increase of fifty per cent in the probable demand for material and equipments for engineering enterprises this year over last. Promoters of new industrial enterprises say that no serious setback has been given to deserving projects. Bond values are advancing in many Western and Southern States along and near the lines of railroads. A decline in land in these States, especially mineral and timber lands, could not assume much proportion, because of the large number of persons seeking opportunities to buy. The industries are in good shape, and there is no greater disemployment this winter than last. The actual conditions are healthy. Distributions of merchandise are not visibly impeded. Storekeepers and country merchants are reported as doing a full average trade. Manufacturers of building material report increased orders for material. Brick-makers, planing-mill people, shingle and lath manufacturers, concrete workers and a host of lesser interests are all geared up ready for hard work. It is too soon to risk statements concerning the character of the business of the coming season, but there are certainly no black clouds on the horizon. Collections are backward, but few new contracts are being made. People are holding back, buyers are hammering down prices when they do buy, banks are afraid to let their funds out, as though fearing worse conditions; but yet, with all these facts and conditions facing us, there is nothing to fear.



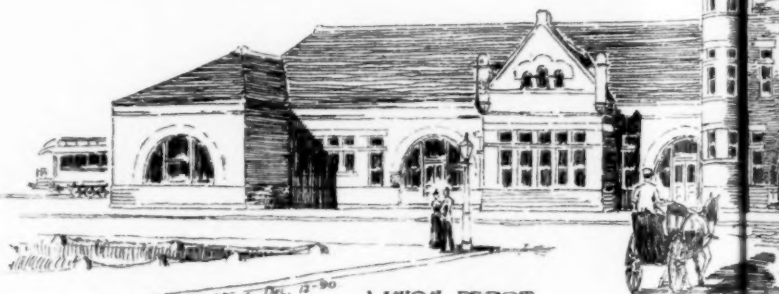
GALESBURGH ILLINOIS



FLOOR PLAN
GALESBURGH

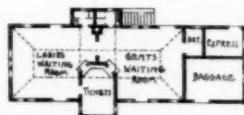


FLOOR PLAN - ATCHISON



J. Willard Adams Des. 12-90

UNION DEPOT
ATCHISON KANSAS

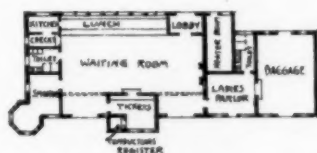


FLOOR PLAN - KINSLEY

- KINSLEY - KANSAS -



WICHITA KANSAS



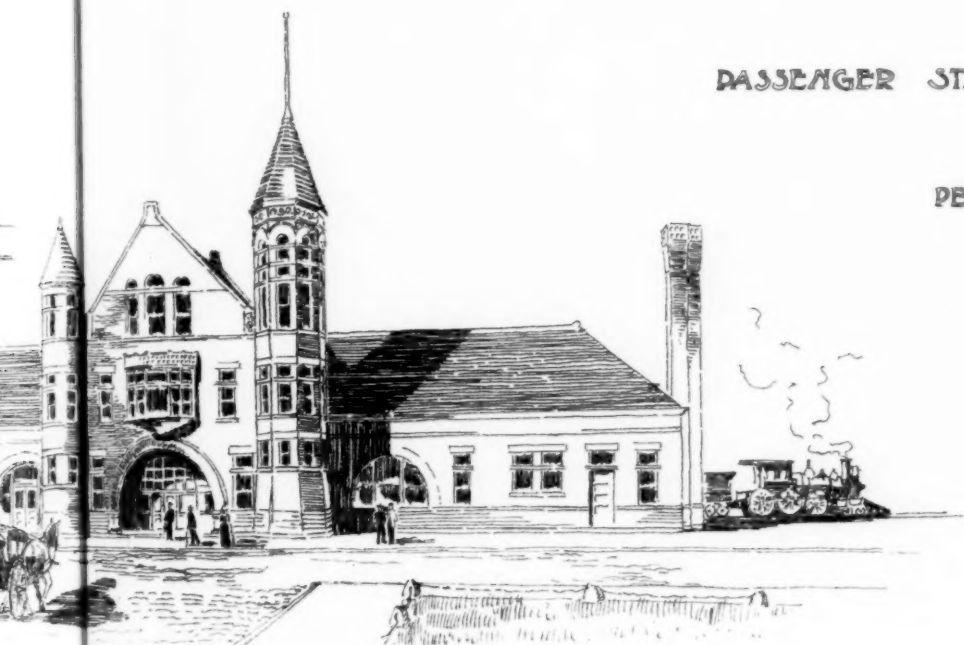
FLOOR PLAN - WICHITA

PASSENGER STATIONS ON THE
SANTA FE ROUTE

PERKINS & ADAMS ARCHITECTS

TOPEKA KANSAS

SCALE OF PLANS 1" = 20'



FLOOR PLAN - TOPEKA



LEAVENWORTH KANSAS

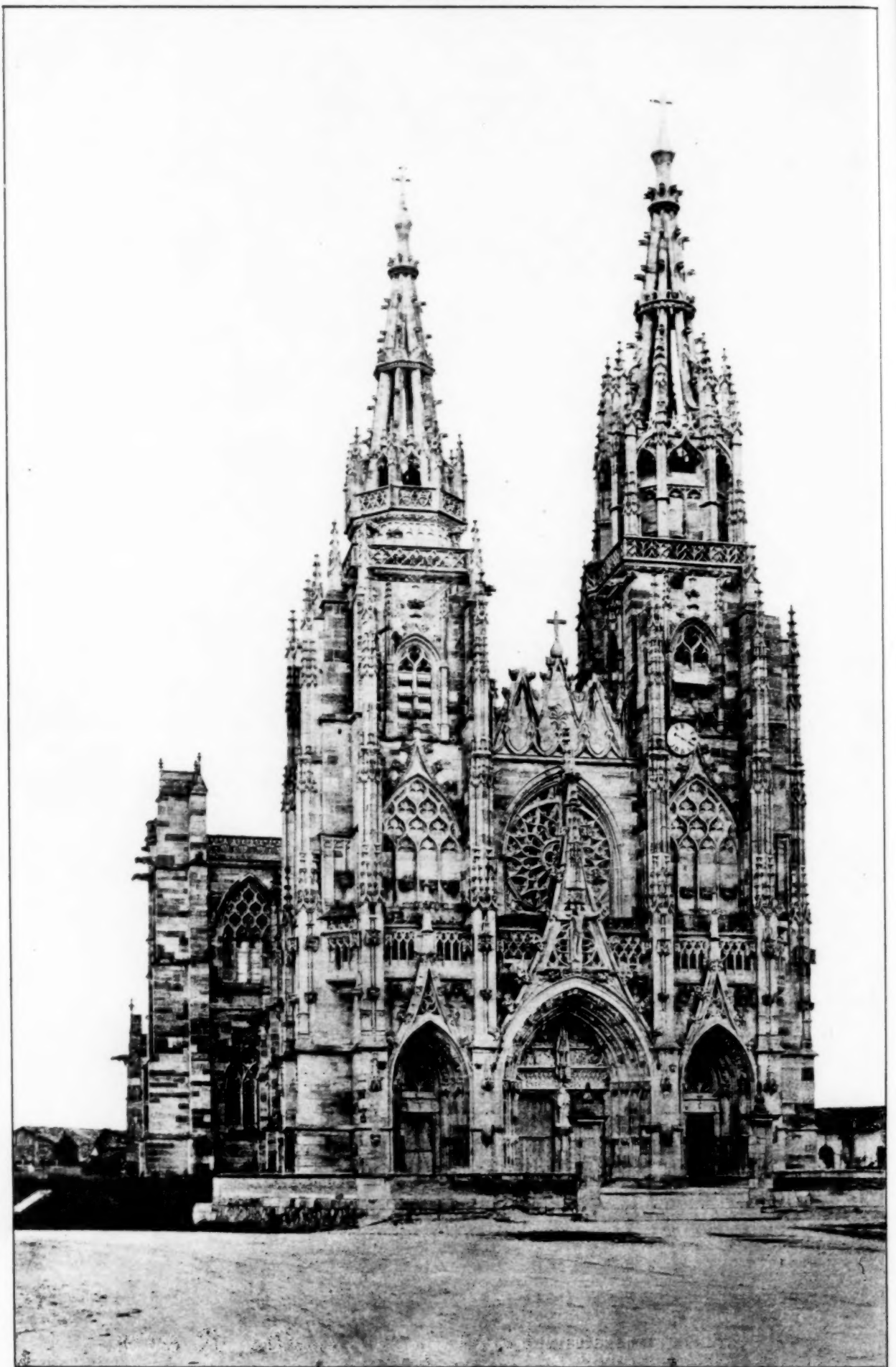
ALBERT W. DILKS, Architect.
1001 CHESTNUT STREET, PHILADELPHIA.
(New York Mutual Life Building.)

STORE, 1606 CHESTNUT STREET,
PHILADELPHIA, PA.



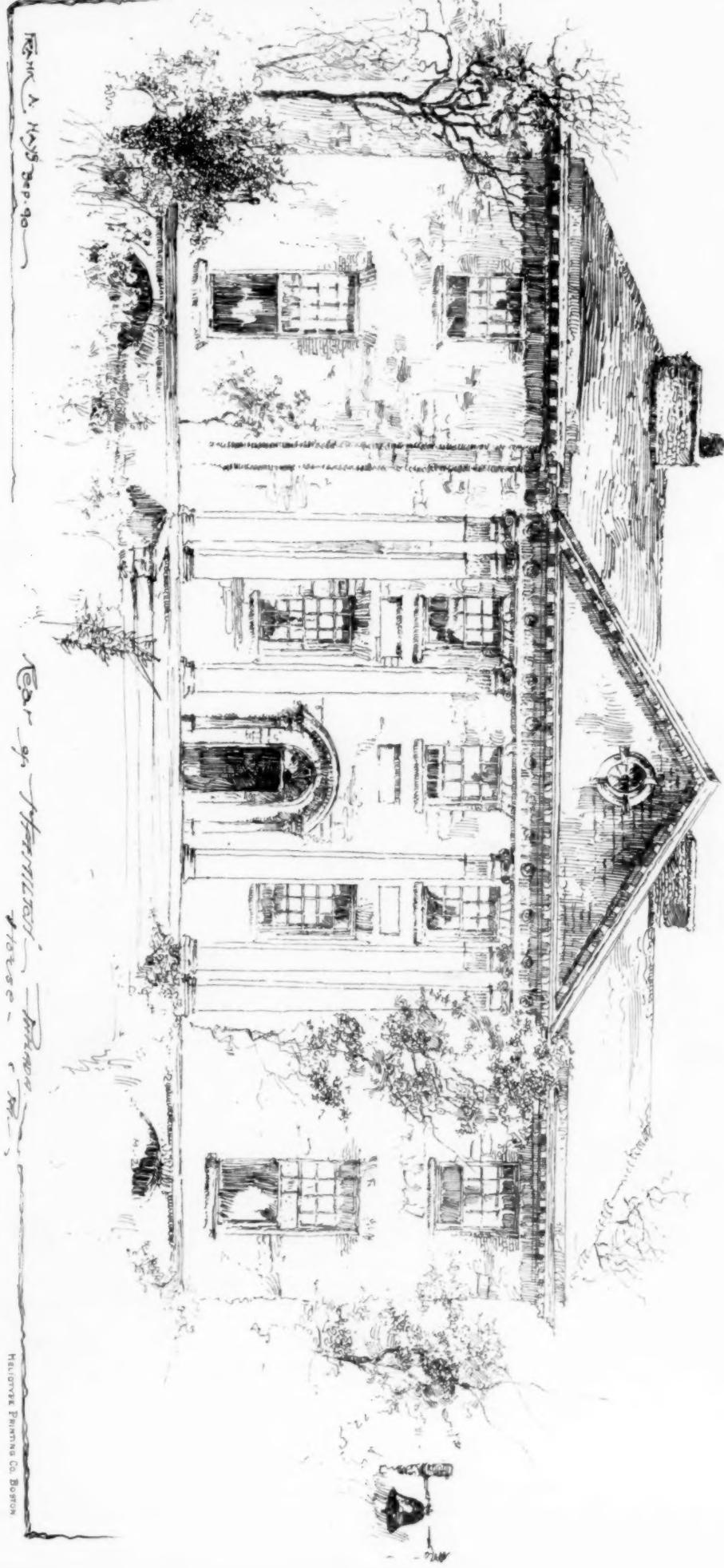
1850

ET



CHURCH OF NOTRE DAME DE L'ÉPINE
· NEAR CHALONS-SUR-MARNE, FRANCE ·

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RESIDENCE 105th and RIVERSIDE DRIVE N.Y.

Frank Furman
Architect
Vanderbilt Bldg. N.Y.