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THE SMALL CITY HOUSE IN NEW YORK.



FENIMORE COOPER had a great interest in architecture, which he exhibits here and there in his novels, and especially in the "Notions of the Americans" which he wrote in 1825, in the character of a European traveler, to enlighten the Old World about the New. In the course of his account of New York in this work he says: "There is a species of second-rate, genteel houses, that abound in New York into which I have looked when passing with the utmost pleasure. They have, as usual, a story that is half sunk in the earth, receiving light from the area, and two floors above. The tenants of these are chiefly merchants, or professional men, in moderate circumstances, who pay rents of from \$300 to \$500 a year. You know that no American who is at all comfortable in life will share his dwelling with another. Each has his own roof and his own little yard. These buildings are finished, and exceedingly well finished, too, to the attics, containing on an average six rooms, besides offices and servants' apartments. The furniture of these houses is often elegant, and always neat. Mahogany abounds here, and is commonly used for all the principal articles, and very frequently for doors, railings of stairs, etc., etc. Indeed, the whole world seems to contribute to their luxury."

The passage seems worth quoting, for the vivid contrast it brings out between the New York of to-day and the New York of three-quarters of a century ago. The "second-rate genteel house" described by Cooper was not the first type, of course, of the small city house on Manhattan Island. There were in Cooper's time, as he explains, still some examples left of the earlier type. In his words: "A few old Dutch dwellings yet remain, and can easily be distinguished by their little bricks, their gables to the street, and those steps in their battlement walls which are said to have been invented in order to ascend to regulate the iron weathercocks at every variation of the fickle winds." The description shows that Cooper was unaware that the real purpose of the crow-step gable was to enable the wall to be

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easily and securely coped, though not all the Dutch gables were so treated, the brick wall having been in some examples made to provide its own coping by an ingenious arrangement of the brick work. This was the case with the latest survivor of the Dutch houses of Albany, which was demolished only three or four years ago.

But although the small house of Cooper's time was not the first, it was undoubtedly the most eligible type that had up to its advent appeared, or that has appeared yet, upon Manhattan Island. If it be no longer eligible, that is because the price of land over all the surface of Manhattan Island, if not throughout the



NOS. 45 TO 53 CHARLTON STREET.

whole city of New York, has so appreciated that to make a comfortable house within the limits of a basement, two stories and an attic would be a piece of extravagance.

Of these houses we have to say, as Cooper of their Dutch predecessors, that "a few yet remain," and these in the lower part of the town, though the type was so completely established half a century ago that it even extended itself into the suburbs in the form of detached houses, for which it is by no means so well fitted as to be built in rows, and a sporadic specimen may be seen in what was known when it was erected as the village of Yorkville, and is now East Eighty-sixth street. A quarter of a century ago these houses were to be seen by whole blocks. Now the march of improvement has pretty

well obliterated them. They are gone like the North American bison, of which, however, one "herd" is said still to precariously exist on the border of Canada. The nearest approach that remains to a "herd" of the second-class genteel houses of 1825 may be found upon the Trinity property above Canal street and near the North River, and survives as precariously as the bison, seeing that the houses are built upon a ground rent, and are waiting for their doom until the leases fall in and the corporation covers their sites with towering warehouses. Meanwhile it seems to be a pious as well as an interesting task to commemorate what is left of them, and the best examples for our purpose are two rows, one in Vandam street and one in Charlton, between Macdougall and Varick, in blocks which not so very long ago were lined with like houses from end to end and gave an impression of decorum and refinement for which one would search any more modern quarter entirely in vain. We are not speaking now of the mansions that surround Washington Square, or the scattered reminders of the old glories of St. John's Park and Second avenue, or of what little is left to recall what Bond street used to be, or of the mild protest of faded gentility that is still entered by an occasional house front in East Broadway against the screeching vulgarity by which it is surrounded. For these relics are of more ambitious abodes. They have three full stories besides the basement and the attic, and their frontage, never less than twenty-five feet, extends on occasion to thirty and thirty-five. They are mansions, not "second-rate genteel houses." We have nothing to do with them, except to remark that the type is the same, and that the mansion was for half a century and more merely a more expensive expansion and elaboration of the small house.

At every turn, when one is looking backwards through the architectural history of New York, he finds fresh occasion to execrate the authors of the street system of 1807. The deep lot was one of the dire inventions of those unconscious vandals. In that part of the town that was built as it was wanted, and built in time to escape their ravages, there can scarcely be said to be an average depth of block, but 150 feet is not an unusual depth. With this decrease of depth, the small owner can command more frontage, and the large owner can "buy through" and establish his stable at the rear of his house without great extravagance. With this depth also one can still build forty feet deep and occupy only a little more than half his lot, retaining as much space for light and air in the rear as the street affords him in front. Forty feet, too, is about the extreme depth at which a house, with a moderate height of ceiling, can be thoroughly lighted from the ends. Forty feet is accordingly the standard depth, which was scarcely ever exceeded, though often come short of, in the houses in question.

The plan of these houses was simplicity itself. One enters the door at one side. Before him is a vestibule, beyond at one side the parlor door. This gives access to two rooms equal in size, except when the second is extended across the whole width of the lot. Between them is a pair of double doors, often of the mahogany of which Cooper speaks, and the passage is narrowed to the width of the doorway, gaining an ample china-closet on each side, on one side surrounding the ample chimney-breast. The two rooms together give a decent, almost a liberal space for social gatherings, even in a house twenty by forty. What is still better, the whole space is perfectly lighted by day. One advantage which the house had over its brownstone front successor was that in general the stairs also were well lighted. Instead of rising from the front door straight into vacancy and darkness, they start considerably further back, and rise to a landing at the rear, lighted with its own special window between the stories, from which another flight goes backward to the second floor. In the brownstone pattern the space at the rear is occupied by the bath-room. That Persian apparatus, the fixed bath-tub, did not come in until after the period of which we are speaking, and the pioneers before the days of the Croton aqueduct had their compensation in the light and cheerful landing, which could be made gay with flowering plants if the exposure were suitable. The second floor contained sometimes two chambers, the one taking up the whole width of the house, and sometimes three, the hall bedroom taking the width of the staircase. The attic contained three or four chambers in addition to the store-room. Cooper's "six rooms" probably excluded these and included only the two parlors, the three chambers of the second floor, and the front basement, which was almost always the dining-room. The service-door was of course under the main entrance, in the "high-stoop" arrangement, which is the one architectural bequest of the Dutch that has survived. But where the house was of more than twenty feet an alley was arranged at the side for service, and the space accruing over it became on the parlor floor a practicable "den." Sometimes the service alley was enlarged into a driveway, and the stable relegated to the rear of the lot.

The house thus compendiously described was an eminently decent and livable human habitation. The frontage, if it only exceptionally rose above twenty feet, almost never fell below it, and in that space the accommodations for a small house can be arranged with liberality, even with dignity; that is, five small houses can be built on four full city lots. But when the value of land narrows the frontage of the small house successively to four houses to three lots, the "18.9" front, three houses to two lots, the 16.8 front, five houses to three lots, liberality and dignity are put out of the question. The

plan of the old houses could not be bettered, and the more recent "saloon parlor" and square dining-room are a distinct retrogression from it. If there were a courageous speculative builder who should repeat, on ground suburban enough to be available for the purpose, the "second-rate, genteel house" of the twenties, it would be interesting to note the result of his experiment.

The old streets were more like the Bloomsbury quarter of London than like any of the recent residential quarters of New York, so far as the habitableness of the houses were concerned. But in point of



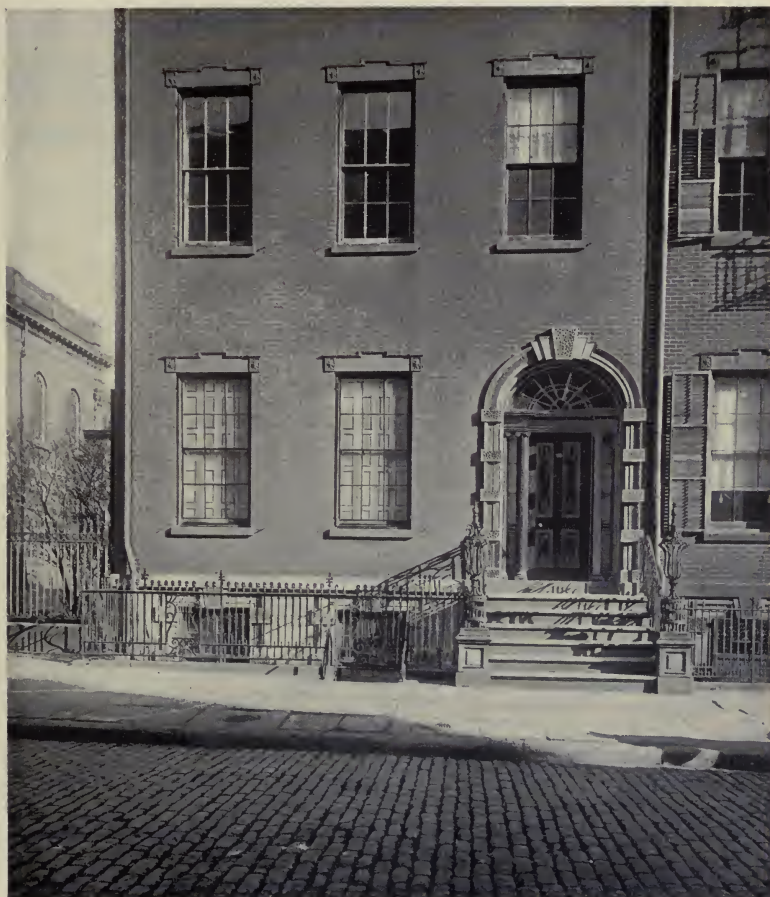
NOS. 16 TO 20 VANDAM STREET.

appearance, the advantage was immensely in favor of the New York Bloomsbury. The "House in the dark, unlovely street," celebrated in "In Memoriam," was a Bloomsbury house, situated, as a matter of fact, in Gower street, and nobody who has ever visited that thoroughfare will question the accuracy of the description. But the old New York streets were neither dark nor unlovely. They were gay and positively attractive, by reason of the architectural tradition that had grown up among the mechanics. The houses were more than decent; they were "elegant." That adjective cannot be applied to the contemporary small houses of Philadelphia or of Boston. They

were decent, in the one case with a Quakerish simplicity, in the other with a Puritanic bleakness, but they were decidedly not elegant. The New York small house owed its elegance to the ornament which was applied to it, very modestly and very sparingly, but none the less effectively. In the first place, the area was protected by a well designed railing of wrought iron, continued or varied as the hand rail of the stoop, and the posts, if hollow cages can be called so, in which these handrails terminated, were elaborated in various degrees of ornateness. These were true examples of artistic handicraft, which do great credit to their artificers. Elsewhere the ornament was conventional and discreet. Here there were no manuals or precedents. Originality was compelled and fantasy was permitted. The moderation and discretion which were enforced upon the joiner by his book of patterns the iron workers had to impose upon themselves. It was what would now be called the result of "artistic training," and so it was then, but the training was that of the workshop only. Of the many patterns of railing none is repulsive and many are attractive. And the same thing is equally true of the efflorescences in which the ironwork was permitted to pullulate in the hollow posts. The domestic ironwork of three-quarters of a century ago was, in its modest way, a triumph of "industrial art."

Elsewhere the ornament is that of the joiner. There were very few skilled stone-cutters in New York in those days. One suspects that the carvers of the City Hall, fifteen or twenty years earlier, must have been specially imported, for there does not seem to have been enough work found for them elsewhere to keep them busy. The doorway was the one feature of the house front upon which ornament was lavished. Of the half dozen or so patterns which it followed only two or three were executed in stone. There was the plainly moulded or unmoulded arch with a projecting keystone, sometimes single, sometimes triple, sometimes plain, sometimes rather richly wrought. There was the more ambitious arch in which the courses were alternately plain projecting blocks and sheaves of mouldings, a form that has been imitated in a modern house in Madison avenue. There is the Doric order in stone, with half columns and a complete entablature sometimes with a wreath at each end of the frieze and guttae under it. The ornamental stonework was always confined to the opening of the doorway, and this was filled with the joiner's work in wood and glass. And most commonly, in the second-rate genteel house, the opening of the doorway, like that of the windows, was a pair of plain brick jambs covered with a lintel, sometimes a plain slab, sometimes with a moulding around its edge, and a panel at the center rising above the line. The basement wall, plain but for its sharply bevelled joints, the doorway and the lintels comprised the stonework. This was commonly in brown stone, but often in

marble, and the more costly material has now paid for itself in its better preservation, and in its appearance. For the New York householder, even when he has taken the best care of his habitation, has never been possessed by that fury of cleanliness which has prevailed



NO. 34 VARICK STREET.

in Philadelphia and induced the Philadelphians to keep their marble as glaringly white and their brickwork as glaringly red as scrubbing and paint would do it. The New Yorker has let his marble take on a dingy and mellow tone.

The joiner's work in the doorway is the most elaborately ornamental part of the old New York house, and the most attractive. It is almost always an order, oftenest Ionic, sometimes Doric, never, I think, Corinthian, unless of that embryonic Corinthian in which the leaves are incised upon the bell of the capital and not projected. A Corinthian capital is indeed so refractory to the woodworker that

there is hardly an example of it in our Old Colonial, and the earliest example of it in stonework in New York, the portico of St. John's Chapel, was probably the first attempt to exhibit the order, and, if the columns had been fluted, it would still remain as about the most impressive. The Ionic order, as it was treated in the doorways of the old houses, was unfailingly effective, even when the columns were plain, in which case they showed a slight and not a dropsical entasis, or fluted, in which case they were apt to be straight-sided. The detached columns were counterparted by half columns against the jambs, and between these was the sash frame of small panes, for it was before the period of plate glass, with a wooden leading, so to speak, of almost unfailingly graceful shape and arrangement. A like sash frame filled the door head above the entablature of the order. When moulded uprights took the places of the columns this disposition was maintained. But the most elaborate treatment of the sash-frame occurred, as might be expected, when the doorway was arched and the upper sash became a fan-light, and this was often as pretty as it was elaborate. The doorway is worth describing in this detail, because it was the feature which most definitely put the stamp of elegance on a building which otherwise would have been merely decent, like the houses of Bloomsbury, or old Philadelphia, or old Boston. But it was by no means the joiner's only opportunity. The others were the detailing of the cornice and of the dormers. The former was simply a casing of the gutter, with a board underneath against the wall. It was, of course, not monumental, though it seems in many instances as well preserved as the more durable material. But it was never offensive. It cannot fairly be said to be an imitation of a stone cornice except in the simple mouldings of the projecting member. The board, the frieze of the cornice, is generally quite plain, sometimes with a simple bead near the bottom, sometimes with an egg-and-dart and a row of dentils, at least, in one remaining instance with two rows of leafage very well designed and well cut, and giving as much evidence of enjoyed handicraft as the order of the front door, or the iron posts of the stoop. Sometimes the projection is at a right angle and in this case the soffit may have projecting panels studded with guttae.

The dormers, two in number, are aligned over the piers of the wall, and in the treatment of them the joiner took rather more liberties than he indulged himself in elsewhere. They were gabled into pediments, triangular or round, and the opening itself, usually square-headed, was sometimes round-arched and sometimes segment-headed. In the latter case the center of the arch is apt to be marked by a harmless, unnecessary keywood—harmless because the workman was so habituated to discreet moderation in form and scale that even his meaningless additions lost their offensiveness. Behind the

dormers rose the roof against which they were relieved at a moderate slope which, however, with the moderate height of the house, left it visible to the gaze from the opposite sidewalk. How much the visibility of the roof added to the distinction that the old houses derived from their careful detail would scarcely be believed if it were



NO. 24 ST. MARK'S PLACE.

not so completely in evidence. In every remaining row of the old houses, or adjoining it, there is apt to be one of which the owner has converted the attic into a flat roof. Even when the detail, including that of the cornice, has been accurately reproduced from the original, the front loses all distinction and is discredited in comparison with its modester neighbors.

While the old house, small and large, was the most respectable and artistic pattern of habitation New York has ever known, it must be remembered that it was a pattern arrived at by general consent, and that its builders did not do so well when they were put upon their own resources. They never arrived, for example at a satisfac-

tory treatment of the end, or flank, of a row of houses abutting upon the street. While the pattern of the "inside" house was the most eligible that perhaps could have been devised, neither in place nor in design was it the most eligible for a corner house. Where three sides are free a more commodious and impressive interior and a more expressive exterior may be attained by a different arrangement, by putting the entrance, for example, at the center of the longer front. But this the old builders never took thought to do but repeated the pattern, leaving the flanking wall quite blank, at



NO. 113 EAST BROADWAY.

least below the gable. For this they had some variety of pattern. Sometimes the roof is crowned with a simple gable, sometimes it is a gambrel, which, with a depth even of forty feet, is more effective, as well as more economical. In either case there was commonly one window, sometimes flanked by quadrants. But the favorite arrangement, where there were two chimneys in the wall, was to mask the roofs altogether by building a parapet between them at the height of the ridge. None of these modes, however, is quite satisfactory. In this particular the builders comparatively failed who had oth-

erwise arrived at so attractive and successful a solution of the problem, as it was presented, in the New York of their day, of the small city house.

The house which succeeded this was much like it in plan, but showed a distinct falling off in architecture. The carefully and prettily wrought bits of decoration were omitted from the front. This was the period of the Greek revival, of which, in house-building, the north side of Washington square offers the most conspicuous example. In the second-rate house a pair of pilasters and a lintel in brown stone framed the doorway in place of the Doric order in white mar-



NOS. 27 AND 29 EAST 4TH STREET.

ble of the mansions. The lintels were left plain, worst of all, the roof was dropped into invisibility, and the dormers which gave so much of their charm to the old houses replaced by a half story of square or oblong openings. The house was as habitable as its predecessor, or nearly so. It had simply ceased to be an object of architecture. It was decent, but it was bald and dull and absolutely without interest. Nobody in passing could have looked into it "with the utmost pleasure," or with any pleasure at all. These houses at one time filled a great part of the residential quarter, and many more of them than of their predecessors remain. They, too, are going, but not to anybody's regret.

But these were honest structures of brick and stone, and if they were not attractive they were not offensive. Would that we could

say as much or as little of their successor, which was the brown-stone front. Who was the malefactor who first discovered the practicability of that scandalous edifice? Brown stone and brick had been used together before, and though most of the brown stone used in New York was not a very durable or eligible building material, by reason of its tendency to scale off, it was a very available material, by reason of its abundance and of the ease with which it could be wrought. It had been employed in the small houses from the first, though perhaps no building had been completely built of it. Everybody knows that the City Hall, faced and flanked with marble, was backed with brown stone, upon the ground that the northern aspect of it was unimportant, since it was at the upper end of the town, and that paint now brings the rear into conformity with the rest. Cooper, in the same chapter from which we have quoted, demands to know why no churches have been built of brownstone, and points out its special appropriateness to the Gothic style, but his aspiration was not fulfilled for twenty years after he wrote, and then in the building of Trinity Church, where the stone, by the way, was very carefully and successfully selected. It had been used in sills and lintels and doorways in the earlier houses, and it might have been used more extensively by way of bondstones, and more elaborately by a greater profusion of carving, without doing architectural harm. The architectural harm was done by the malefactor who discovered that a house of brick and brown stone could be constructed, by using the stone not legitimately to bind the brickwork and span its openings, but to conceal the brickwork altogether by plastering a veneer of brown stone four inches deep upon a brick wall, leaving the actual material to expose itself at the rear. Of course it is not practically a good construction. So far from adding to the strength and carrying capacity of the wall, the facing was a burden to it, and to maintain the assumption that the facing was the wall required the omission of the bondstones that would have incorporated it with the wall. Architecturally the whole thing was a false pretence that the material was more costly and the house more valuable than in fact it was. It was not nor it could not come to good. It was this nefarious structure which speedily became epidemic over nearly the whole residential quarter of Manhattan Island, which was built up between 1850 and 1870. For nearly half the width of the island from Fourteenth street to Fifty-ninth it raged and prevailed. It became a much less habitable house than its predecessor. Its disadvantages we all know, for we have all lived in it. Most of them proceeded from the fact that with the increasing price of land, the frontage was gradually reduced below the twenty feet which is the absolute minimum where a passage and stairway are to be deducted from the width. I have already noted the compensation which the pre-Crotonean had for the want of the bathroom that darkens the stairs and the hallways. There was

another compensation in the fact that when the stairs extended to a landing at the back of the house, even if but forty feet deep, they could be set back so as to gain a spacious and dignified vestibule, whereas in a brown-stone front the visitor finds himself confronted with the stairs as soon as he has passed the double doors. In order to make up for the reduced width of the house, its depth was increased, and indeed the depth of a dwelling of much pretension occupying a full inside lot became three rooms instead of two, thus render-



NO. 109 EAST BROADWAY.

ing the middle third of the house a gloomy cavern. The "high stoop" was retained in these brown-stone fronts, without any reason. When the house became three rooms deep, and often when it was but two, the rear room on the parlor floor became the dining room. The "front basement," which had almost invariably been the dining-room of the earlier house, thus lost its function. Cooper complains of having to climb the outside steps of the high stoop in a New York house much more pretentious than that of which we have quoted his description. When the basement dining-room was abolished this trouble ceased to have any compensation. But the speculative builder who did practically all the brown-stone fronts continued the old arrangement under the new conditions without taking any more thought than the lilies of the field. It was not until after planning was taken

out of his hands and put into those of architects that it was discovered that with the narrowing and deepening of the house the dark middle was the most available place for the stairs, or that it was discovered that the high stoop lost its meaning and use when the front basement was no longer the dining-room. One may see the fruit of these discoveries in almost every block of the brown-stone district in a house which has been converted within the last few years from a high stoop to a basement, in which the whole width of the first



NO. 29 ST. MARK'S PLACE.

floor is regained for the parlor, and in which the front basement, which had become a mere "survival," has been converted into an ample and dignified entrance hall.

It was not to be expected that the builder who was quite thoughtless when the question was of practical convenience would be any more thoughtful when the question was of architectural expression. The whole scheme, as we have seen, was a false pretence, and the architecture consisted in additions which had no relation to the fact.

The decoration of the old house had consisted in the adornment of necessary members. The decoration of the new consisted in the addition of unnecessary members. The entrance was, as before, the ornate feature. The actual entrance speedily came to consist of two pairs of doors enclosing a nearly square vestibule. The outer arch was not generally itself modeled, but had mouldings applied to the jambs, while it was furnished with a keystone and crowned with a pediment either triangular or curved, sometimes carried upon a pair of columns, sometimes upon a pair of consoles. In the more pretentious houses, the Corinthian order came to be employed, but wrought out in brown stone the fragility of the leafage and its provision of perches for birds became objectionable, and it became customary to surround and protect the capitals with a wire cage. This absurd device of course spoiled whatever effect the order otherwise might have had on so reduced a scale, but it continued to be employed until the end of the brown-stone front period, instead of being taken to indicate, as it did indicate, the unsuitableness of the Corinthian capital for the purpose. The windows were often pedimented, and always in houses of any pretensions the lintels and sills were moulded and projected and the jambs of the windows also covered with projecting mouldings which of course were absolutely meaningless. Between the openings the walls were faced with as large slabs as could be procured, and the joints narrowed till they were as nearly as possible imperceptible, the assumption of the builder apparently being that the whole brown-stone veneer should seem to be a single sheet. In the later works of the brown-stone period, this assumption comes so near being made good that in the first floor there are no joints visible, great slabs of veneer stretching from opening to opening and one or two joints that could not be obviated being concealed by mouldings tacked on, so to speak, as in unconstructural woodwork. There is really no intimation of a masonic structure allowed to escape. Evidently this is the negation of architecture as an expression of construction. On the one hand the facts of the case are carefully concealed. On the other the supposed ornaments have nothing to do with the facts.

But this is not all, nor perhaps the worst. With the disappearance of the roof and the backward slope of the flat roof to a gutter at the rear, the gutter at the front disappeared and with it the necessity for a cornice either to constitute or to enclose and support the gutter. It became merely a coping. But the necessity for a cornice as "finish" remained, at least in the mind of the speculative builder. A real stone cornice costs money, and was out of the question, except in the costliest houses. An imitation in wood was troublesome and perishable. It was at this juncture that it occurred to the diabolical ingenuity of somebody that sheet iron could be pounded into the

similitude of a moulded stone cornice, supported upon brackets and consoles, and could be tacked across a front all in one piece. Whoever this miscreant may have been, he produced his nefarious invention early in the brown-stone period, and he is almost as deserving of execration as the original malefactor who produced the brown-stone front itself. The projection of a stone cornice is limited by mechanical as well as by pecuniary considerations. The projection of a sheet-metal cornice painted and sanded to imitate stone is not so limited. Accordingly the sheet-metal cornice took on extravagant dimensions soon after its introduction. It did not, it is true, go to those outrageous and umbrageous lengths to which it has since been car-



NO. 238 EAST 51ST STREET.

ried in the erections over tenement houses and cheap apartment houses. It constitutes the greatest architectural scandal of New York, in so much as nothing could so tend to bring the aspect of the town back to decency as the appointment of a judicious iconoclast with power to tear off all the tin cornices. But it was excessive from the first, and its extravagance reacted upon the stone work and was probably the origin of the excess in scale which gives the detail of the brownstone fronts that bloated look which is their chief offensiveness.

What happened at the top happened at the bottom. The ironwork

of the earlier houses, as we have seen, was one of the chief causes of their attractiveness. It was really artistic and enjoyed handicraft. In the early mansions of the brown-stone period, there were substituted for the open posts and the carefully-wrought iron railing, heavy posts and balustrades of cut stone. In the "second-rate" houses, no longer "genteel," the speculative builder substituted huge cylinders or polygons of cast iron and hand rails and balusters of the same material, all painted and sanded to resemble stone—

As if his whole vocation
Were endless imitation.

The ordinary brown-stone front was thus a series of pretentious shams, and with these shams miles of the streets of New York were and are composed. To live in and among them, to become inured to them, was to suffer a deprivation of taste the more pitiable for being unconscious. The brown-stone front was enough to vulgarize a whole population, and in our case it came near succeeding.

One merit, or, if one cannot ascribe merit to the result of a refusal to think, one advantage the brown-stone front had, and that was its conformity, its virtual uniformity. True, it was this repetition which made and makes a mile of it so dismal. But to a single block it gives a unity and keeping which its predecessor attained by more rational and artistic means, but which its successors have not attained at all. When the fashion, which is not yet twenty years old, came in of employing architects to design private houses, each for its owner, the architect was commonly content to make his own work effective by contrast with, and at the expense of, its neighbors. His work had to be very good indeed to reconcile the spectator to the interruption it gave to a row of houses which would otherwise have been at least a series and had the magnifying and satisfying aspect which a long enough series of similar buildings always wears, until one comes to look at them in detail. The thing for an artistic architect to do who had to fill a gap in a row of brown-stone fronts would have been, one would say, to see what could be done with the brown-stone front, to insert a front which did not contradict its surroundings nor assert itself at their expense, but deferred to them and conformed to them as far as it could do without stultifying itself. I know of but one architect in New York who has had so much grace given to him, and who has exercised the supervision of an aedile over himself and set an example of civism and good neighborhood. That is the architect, whoever he may be, of No. 25 East 74th street, to whom I accordingly beg to present my respectful compliments. He has inserted a studied and refined brown-stone front in a row of unstudied and coarse brown-stone fronts, but without putting any unnecessary indignities upon them. In material and in the main lines of the cornice line and the stoop line he carefully conforms to them. He substitutes



NO. 25 EAST 74TH STREET.

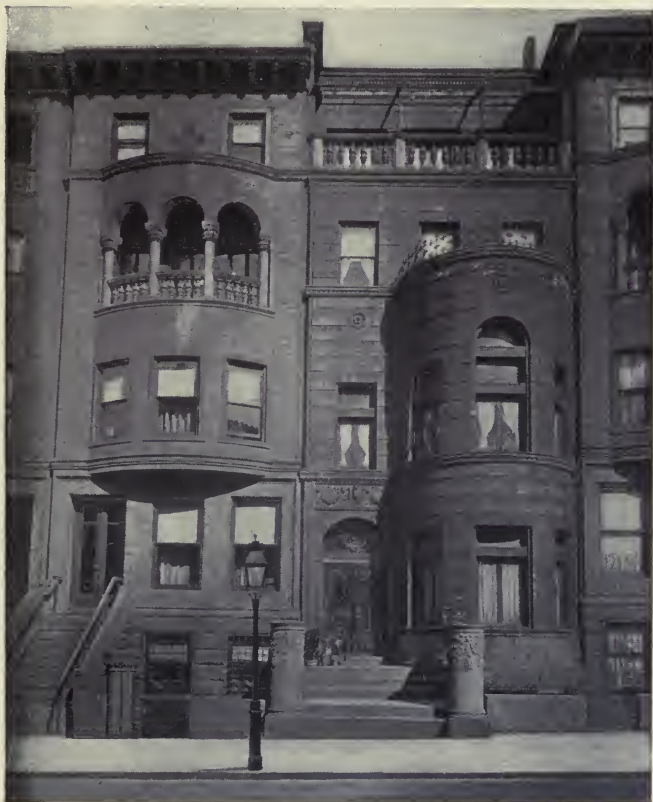
a substantial and convenient flight of stone steps for the straight flight garnished with imitations in cast iron of an ugly construction in stone. He reduces his cornice to the dimensions proper to the stone of which it is composed and he scales down the detail elsewhere from the coarse excess to which it had been carried to live up to a swollen tin cornice. He adds in the bay a feature which gives interest to his front. But all this he does while still conforming to the "block," and showing that something can be done with the brown-stone front. It is a very exemplary performance, a public service, and our gratitude

for it makes us willing to overlook the unreasonableness and weakness of the Italian arched canopy over the entrance standing free on its pair of columns and without any abutment, an unstructural construction of which he is so enamored that he has repeated it in the story above with even less excuse. Nobody can look at this front, one would say, without acknowledging how very much better it is in its place and for its purpose than as good a front, or even a better one, in which the architect had ignored his surroundings. It is a very good object-lesson in the advantages of conformity.

These advantages by no means impressed themselves upon the pioneers in the building of the belated West Side. Here for the first time in nearly half a century there seemed to be offered an opportunity for a quarter of small houses. So much land was at once thrown open to settlement by the completion of the elevated railroad that its price was low enough to encourage speculative builders to provide for the wants of people of moderate means, people who could not pay more than twice the "\$300 or \$500" rent which their predecessors paid in Cooper's time, nor more than \$15,000, let us put it, for the fee simple of a house. For these people no provision at all had been made during the brown-stone period. It then became true, as a recent British visitor has said, that "if you are going to live in New York, it is well first to take the precaution of being a millionaire." People who could not pay a minimum of a thousand a year were driven to New Jersey, to the uttermost parts of Brooklyn, and toward the close of the brownstone period began to take refuge in flats. The social philosopher and the Philadelphian agree that it is good for a citizen to live in his own house, and the West Side seemed to offer the small New Yorker his chance. Speculative builders presently offered him some miles of houses suited to his means, and it seemed that he could afford at last to inhabit an undivided house on Manhattan Island. If he had only been an "artisan," probably more pains would have been taken in the planning of his house. Being left to supply and demand, he fell among the speculative builder, who, not being trained to take thought, but only to do what he was used to doing, and not choosing to go to the expense of a trained architect, undertook to supply the demand by imposing his own "ideas" on his own cheap draughtsmen. The front was narrowed from twenty feet to seventeen, or even less, and the depth somewhat increased, the house still consisting of four floors. It could not have been made so convenient as the old "second-rate, genteel house," but it could have been made much more convenient than in the first essays it was, as has since been shown when architects came to be employed to design the small houses. In architecture these first essays were frightful. They were particularly frightful because the speculative builder took it into his head that whereas what he was accustomed to do

was monotony, what the public now demanded was variety. His own incapacity for design remaining the same, his effort after variety produced the wildest of wild work. Thence came those rows of variegated and individualized sixteen-foot fronts of which an eminent architect declared that "they made him sea-sick." They had all the shams and vices of the brown-stone rows, the bloated tin cornice and the rest, and their "variety" gave them a clamoring restlessness all their own. Our street architecture nowhere presents a worse aspect than in these productions of an incompetent designer working under the purpose of a real or imagined demand for novelty and variety. Perhaps in no other is it so bad. Such a block-front as the south side of West Seventy-fifth street, from West End avenue to the Boulevard, is an atrocity compared to which a row of merely dull and dismal brown-stone fronts takes on repose and dignity. Not that the features of this bad architecture are necessarily bad in themselves. Some of them, such as the archway spanning the whole front, and the loggia, were crude suggestions of good things. But in the hands of the speculative builder's draughtsman, they remained hopelessly crude and unstudied. It was only when the speculative builder found himself forced to employ real architects that they were studied and became really decorative appendages, or rather organic parts of the house. But unfortunately when that time arrived, ground, even upon the West Side, had become too valuable to be devoted to small houses. The small four-story houses with which the improvement of the West Side began were about the equivalents in accommodation of the old small house of a sunk basement, two stories, and an attic in the roof, though the accommodations could not be so conveniently arranged when the house became narrower and deeper. To make a liberal and dignified entrance required the sacrifice of one of the best rooms. The houses that now characterize the West Side are without doubt the most interesting examples of domestic architecture that New York has to show. A few of them are worth illustration here for the sake of their architectural merit, though they do not really belong to our subject, being evidently the abodes of people more than fairly well to do, even when they stop short of the palatial point. The expression of "a comfortable bourgeoisie" which nearly all of them have is often heightened into the expression of something more artistic. The designers have aimed to make a house that at once satisfies and expresses the needs and habits of their occupants. They have done this without much thought for purity of style, and indeed the best of the houses are apt to be the hardest to classify. The group of three houses at Seventy-seventh street and Riverside Drive, the single house with the rectangular projecting bay in West Seventy-third street near the drive, and the detached house in West Seventy-sixth street near the one with the steeply hooded loggia, are

equally unaffected and straightforward expressions of the conditions of New York life, whether or not they wear the badges of some historical style. They mark as distinct an advance from the brownstone front as that marked a distinct retrogression from the still "Colonial" house of the second decade. The features which are repulsive as they were crudely sketched by the speculative builder's assistant have been studied and overruled into decorum and sometimes into beauty. And the designers have had a very gratifying measure



NOS. 327 AND 329 WEST 76TH STREET.

of success with the difficult problem of individualizing the houses in a row without too much sacrifice of the uniformity of the row. In this respect Nos. 323-331 West Seventy-sixth are particularly interesting. Too strong a differentiation is made by using red brick entirely for the central house, while the flanking houses are of brown stone with some admixture of brickwork. But the differentiation is mainly managed by the difference in the position and treatment of the loggia. Perhaps the loggia is more theoretically than practically a desirable adjunct of a city house. For while it would be as useful

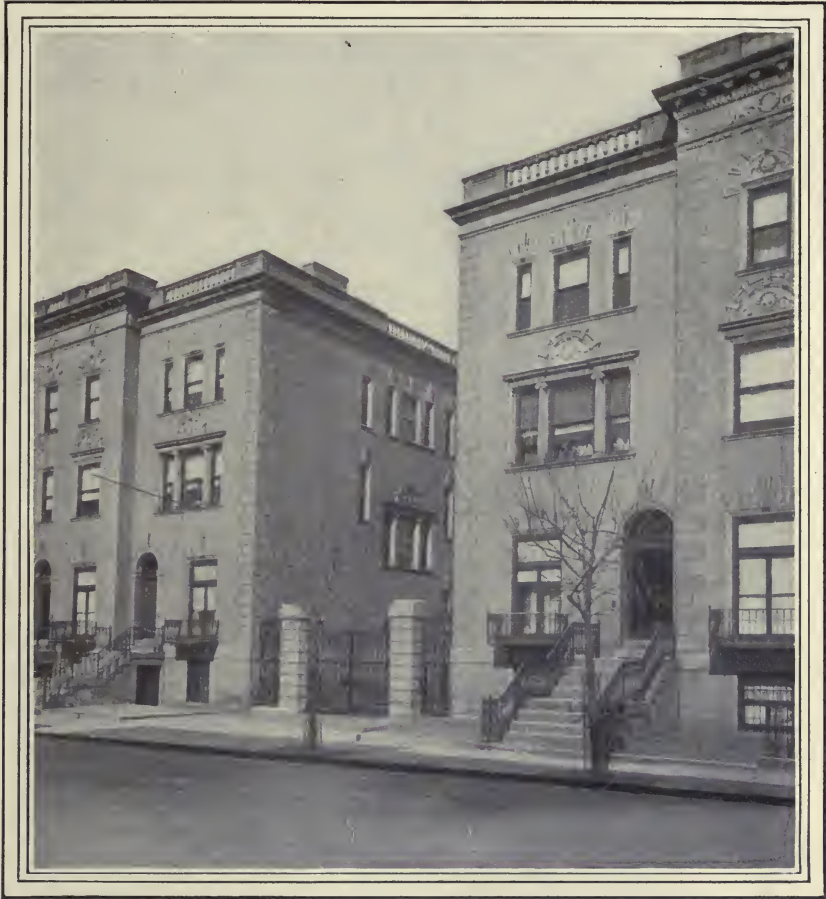
as it is agreeable in a house that was lived in all the year, it is evident that the inhabitants of houses of this class abandon them at the season when the loggia would be a pleasant resort. But of the utility of it as an architectural device, as it is used here, there can be no manner of question.

But by no means all the careful design in the newer quarters is lavished upon houses too costly to come within our scope, nor are artistic small houses confined to the West Side. In East Eighty-seventh street beyond Second avenue there is a row of unpretending small



NOS. 323 TO 331 WEST 76TH STREET.

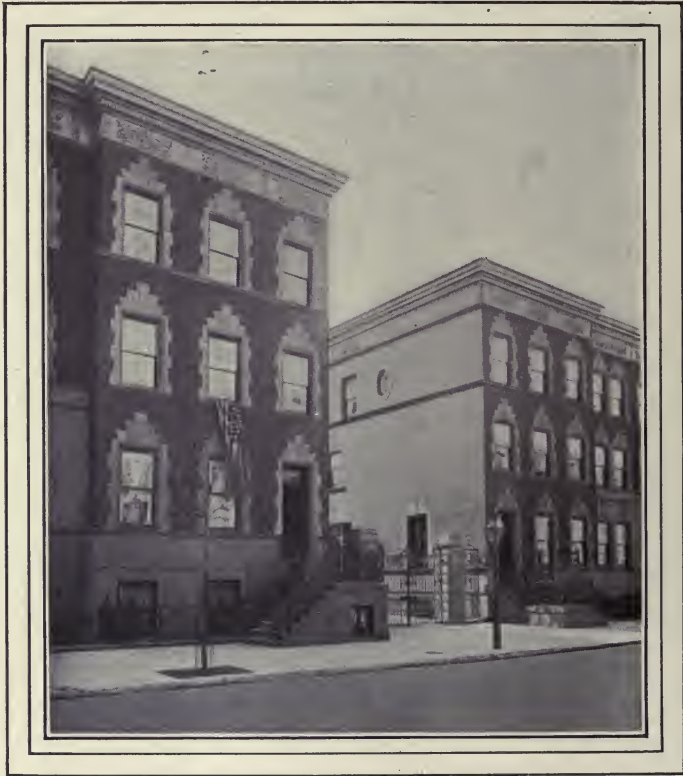
houses, nay, there are two rows confronting each other across the street which are in no danger of vitiating the taste of those who live in them by inducing tolerance of what ought to be intolerable. There are other rows in the upper sixties, extending from Third avenue to Second. One of the most interesting essays in the individualizing of small houses while maintaining a certain unity for the collection has been made in a group of eleven houses at the corner of Lexington avenue and Eighty-ninth street, upon a plot 140x100 or thereabouts. And luckily, upon the West Side itself, builders were compelled to invoke the aid of competent architects before they had



NOS. 219 AND 221 WEST 138TH STREET.

all determined that the land was too valuable for small houses. The most extensive building operation that has been carried out upon the West Side is the construction of the "King houses," that occupy 138th and 139th streets from Seventh to Eighth avenues, and these come strictly within our scope. The undertaking was on a scale which of course was the more economical by reason of its hugeness, and evidently a builder who can finance a project of this magnitude can afford easier terms to buyers and tenants than a builder whose resources are limited to half a dozen dwellings at a time. One of the exhibitions of intelligence in the construction of these houses was the employment of three architects of the first rank to compete with each other, not on paper, but in actual brick and mortar. The experiment is so successful that one would like to have it again and again repeated, not merely for the sake of having something entertaining to

look at, which it must be owned one finds on the West Side in as full a measure as in any other American city, perhaps in a measure even fuller, but as a friend of humanity. Indeed it is so successful that one wishes for a benevolent aedile who should ordain that all the houses of a block front must make up one design and come from one designer. In this way the one partly redeeming feature of the brown-stone period, the uniformity of a single block front, would be retained and the additional advantage gained of detail that was interesting as well as of an ensemble that was impressive, while the different views



NOS. 214 AND 216 WEST 138TH STREET.

that different architects took of their problems would ensure them against monotony.

The works of the three architects employed in this case show quite sufficient variety. The south side of 138th street is lined with houses in pressed red brick and brown stone, treated with a studied plainness with little more decoration than the flat arches of the openings. The north side of 139th street is lined with houses in brown stone and mottled brown brick, with cornices of metal imitating modillioned cornices in stone. The intervening block is built in buff brick and

SMALL CITY HOUSE IN NEW YORK.



NOS. 217 AND 219 WEST 139TH STREET.

white terra cotta. The houses are all, one hears, eminently livable, and whatever the differences of architectural treatment, they all look so. These differences are considerable. It may be said in general that the authors of the southernmost and northernmost rows have apparently built for tenants who, Quaker like, were .

Content to dwell in decencies forever.

Decorum they have in fact and without question attained. These are "second-rate, genteel houses," in which nobody will be ashamed to be caught dwelling. Mere decorum is a considerable achievement, as our street architecture goes. And indeed, if one misses the prim, grave ornament sparingly bestowed upon the old houses, he finds compensation in the composition of a row of houses into an archi-

tectural unity at which the old builders never aimed, and which is here attempted with success. It has attained especial success in the row on 139th street, in spite of the fact that the dark brown stone and the dark mottled brick and the black cornices have a somewhat lugubrious aspect. But the features, the plain round pediments, the open vestibules that punctuate the row at judicious intervals, and the arrangement of the windows, all these things have been so managed and treated as to make of the block front an architectural unity, while the individual houses are yet quite clearly enough distinguishable.

The third designer, who had, in the treatment of a whole block, an



NO. 233 WEST 139TH STREET.

amplifier opportunity even than that of a block front, has availed himself of it very judiciously in respect of planning, has cut the Gordian knot of house service by reverting to an alley through the block, with transverse alleys, and has contrived an agreeable feature at the intersection of the alleys. But he has not been as content as his colleagues that his tenants should dwell in mere decencies, and has striven to mingle some "dulce" with "decorum." The most conspicuous of the features with which he has endeavored to dulcify his exteriors is the Renaissance triple window, in which an arch is turned over the central opening. This is always an effective feature, when it is well done, and here it is very well done in detail, with Doric col-

umns and much enrichment of the entablature. The arch, however, is here left a blind tympanum filled with ornament, and is neither so intelligible nor so effective as when it is opened and glazed. Nevertheless the feature is effective and decorative when it occurs in the center of the side wall. When the central opening is set alone in a wall, with its tympanum crowning it by way of an evidently constructed ornament, the effect is by no means so good. Though the detail is all good in itself, and adds a grace to the points to which it is applied, it leaves the question open whether this ornate treatment is more eligible than that of the block front to the north, in which ornament is almost entirely renounced. But all these essays are successful in producing decorous and attractive houses. Numerous as they are, however, they have supplied but a small fraction of the demand that exists for such dwellings. The projector was a public benefactor, and if he had seen his way to covering the whole flat from Morning-side to the Harlem River with like houses, he would have been a public benefactor of the very first order.

At about the same time when these houses were erected there were also erected the row of small houses at the corner of West End avenue and Eighty-third street, which are really models of the "second-rate, genteel houses" of the end of the century, as those that are so rapidly undergoing extinction on the domain of Trinity are of its first quarter. These revert to a tradition even earlier than that of the old New York house, being no less than the Dutch house of New Amsterdam, of which the gable was furnished with the crow-steps that Cooper so widely misunderstood. It is, in fact, only in the crow-stepped gables that these houses recall the first permanent abodes of white men on Manhattan Island, but the gables and the crow-steps give a very familiar and attractive touch to the architecture. One wishes that the author of them might have had a whole block front to himself, since he has contrived to gain so much of effect with a row of only five houses of twenty feet frontage, or less, and of four stories including the roof. The general composition and the detail of these houses are almost equally successful. It was a happy thought that alternated the gables of the longer front with the houses that exhibit the roof to the ridge line, converting the upper story into an open loggia of which the roof is carried upon two unmistakably wooden posts, even though the corbels that seem to relieve the bearing of the beams upon these posts are devices that, as they are here introduced, belong distinctly to stonework and are irrelevant to the timber of which they are in fact composed. It was a still happier thought to terminate the longitudinal ridge against a crow-stepped gable which is not at the end, but emerges from the roof of the end house at some distance short of the end wall. The manner in which this gable is made to emerge from the open loggia at the end, and in which that

loggia, crowned at the angle with its own steep and separate hood, is yet incorporated in the design is an admirable and exemplary piece of carefully studied composition. Nor is the detail upon the whole less admirable. The main story with its arches, extravagantly deep, it is true, is very effective throughout, but especially at the end, where the terminal windows effectively balance each other, and where the two central openings of which one is a doorway and the other a window, are so happily united by the one column of polished marble which would anywhere else be a "purple patch," an extravagance incongruous with the general treatment, but which is here prettily and



SOUTHWEST CORNER OF WEST END AVENUE AND 33D STREET.

even exquisitely in place and keeping. It is true that the flat arches of the story above are shallowed to the point of weakness. You really cannot bridge a three-foot opening with a flat arch one-half a brick deep, and one notes, not without satisfaction, that the laws of mechanics have already imposed the penalty for this infraction of them, that the whirligig of a single decade or so has brought in its revenges, and that the arches have visibly failed under the impossible task imposed upon them. The extreme shallowness of the flat arches looks all the weaker by reason of the extravagant depth allowed to the Florentine arches of the floor below, which would evidently be

excessive if the flat arches of the second story were sufficient, as they evidently are not. This is a fault in architecture as well as in construction, but it would be unjust to make much of it in a design generally so successful, and carried into detail with such affectionate care. One of the best points of these excellent houses is the introduction of two tints and surfaces of brickwork, the contrast of the smooth red pressed brick of the jambs and quoins and the alternate bunches



NOS. 314 TO 322 WEST 76TH STREET.

of brick in the windows with the dark and rough surface of the wall. The contrast just suffices to give animation to the buildings without interfering with their repose. This row is one of the recent erections that can sustain a comparison, in point of simplicity and straightforwardness, with the old small houses, which are virtually of the same dimensions. If it lacks their elegance in detail, it has the compensation that what ornament it does show is much more accurately "founded on fact," and it shows a power of composition, and of uniting the members of a "row" into an architectural unity which was so far beyond the mechanics of 1820 that they never even made any attempts in that direction.

There is another row of five small houses on the south side of West Seventy-sixth street (Nos. 314-322) which seems to me especially

exemplary. These are really small houses, of only seventeen feet frontage each, and consisting of a basement, a parlor floor, and two subordinate stories above. The row shows the same effort to obtain variety in unity which we were remarking in the row nearly opposite (Nos. 323-31) of taller and more pretentious houses, where it was attained by making the loggias to differ among themselves in position and treatment. In the present case, the attainment of unity was especially difficult by reason of the rather sharp slope of the street. This makes an awkward break in the cornice which one wishes might have been avoided. A visible roof would have made the row in this respect much more attractive. And the attainment of unity is obstructed by the real or fancied necessity, when the houses were built, of giving the purchaser a choice of "basement" or "high stoop." But this difference has enabled the designer to vary his fronts effectively without giving the fatal suspicion of a disposition enforced for the mere sake of variety. The feature of each front is a triple opening marked by columns. In the central house this is a three-sided oriel. In each end house it is a rounded oriel, while in the intermediate houses there is no projection but the columns are ranged against the wall. The difference in the levels of the floors, according to the arrangement of basement, brings the little colonnades also on different levels. The basements themselves are of brown stone, left much too rude for the real elegance of the wall above, and indeed showing so little design in detail that one suspects that the designer of the terra cotta was the real artist concerned in the transaction. However that may be, the work in baked clay is highly artistic, well designed in form and projection, well adjusted in scale, and it has a singular charm of color almost unequaled elsewhere. The brickwork is in different tones of rich yellow, while the terra cotta varies from tawny red to golden. The result is a delightful expanse of studied form and playing color, as superior to our old friends of 1825 as they are superior to the tame work of the builders of the brown-stone fronts or to the wild work of the speculative builder's draughtsman. Above, the feature of the front is in each case a series of flat arches in terra cotta shouldered on corbels of the same material, all equally successful in design and equally lucky in color. So much cannot be said of the copper cornice above, any more than of the stonework below. Copper cornices are very frequent on the West Side. Unlike the sheet-metal cornices of the brown-stone fronts, the material is not disguised, but is left to attain its patina of a green old age. Unfortunately, however, its form is still that of stonework, a modillioned cornice, as in the present case, or a machicolation, as in some other cases. Neither of these designs could have been evolved from the material, and neither is expressive of it or suitable to it. Indeed, I know of but one metal cornice in New York

which is idiomatically designed for its material, and that surmounts the front of a fire engine house in Third street.

So the fault is not in our stars, but in ourselves, that we are underlings. It is not that our architects cannot make as attractive small houses as were made by the mechanics of two generations ago. In fact, they can make more attractive small houses. The examples we have just been citing prove that conclusively enough to anybody who will disinterestedly compare the two. But the old small house was the common typical New York house of its kind. The new house, in so far as it is artistic and attractive, is exceptional. Although the old houses are so rapidly going, there are probably as many of them still standing, perhaps more, than there are of modern small houses which are better or as good in point of sound construction, thoughtful planning and artistic design. If the common small householder had demanded an artistic house, he would have got it. In so far as he demanded it one may say that he did get it. The speculative builder used cheap and untutored draughtsmen only so long as his client would stand their output. When his client declined to stand it any longer the speculative builder resorted to designers who thought about what they were doing and who had to be supported while they were thinking about it. And observe that the public, the promiscuous public, never demands better than that with which it is supplied, because its taste is formed only on what it sees. The first builder who employed an artistic architect to do him small houses on the West Side put a pressure upon all other builders to go and do likewise. The block front upon Seventy-fifth street which we have exhibited as the nadir of the small house in New York is not worse than some other block fronts. But it was made impossible as soon as a block front of a distinctly higher order was built. In these things it is the supply which creates the demand. That is why the wayfaring investor has got a perception of domestic architecture, from what has been done on the West Side, which makes very crude and very reckless work an offense to him, and that the West Side has come to be a quarter full of entertainment to noticing people.

Unfortunately this quarter, which, when it was first opened to settlement, seemed to offer to our friend the small householder the opportunity he long had sought, seems now to be closed against him, like all the other quarters. It is a real grievance. An American of decent education and of average "earning capacity" deems it part of his birthright to look forward to owning as good a house as he deserves. Mr. Kipling says, in one of his American letters: "Every good American wants a home, a pretty house and a little piece of land of his very own; and every other good American seems to get it." He can get it, that is to say, in any other American city than New York. But it seems that on Manhattan Island he can no more

get it than he could get it thirty years ago. If he cannot afford to pay a minimum of \$1,000 for rent, there is nothing for him but a flat. When scanty and partial provision is made for his needs, he takes such eager advantage of it as shows the strength and urgency of the demand. When artistic houses are supplied to him he promptly shows his appreciation of them. Surely there is land enough within the present municipal limits upon which builders can afford to meet this constant and unfailing demand. The enlightened builder who undertakes it may derive from this review suggestions which will help him to be a benefactor of the species, and in that hope it is to him that it is respectfully dedicated.

Montgomery Schuyler.

ARCHITECTURE AT SOUTH KENSINGTON MUSEUM.*



POSSIBLY at no other museum in the world is there so large a collection of architectural examples, originals and casts, as at the South Kensington, and at the same time there are probably few which are more unscientifically arranged; where it is more difficult for the student to seize upon the salient points of any special exhibit, to grasp its effect in its original position and its true place in the sequence of styles. In the arrangement everything is sacrificed to the making of an artistic show; to elevate the public, as it is pretended; to please and amuse in fact. Two large courts, known as the Architectural Courts, and another, known as the Italian Court, are full of beautiful architectural examples, while others are scattered here and there over the whole of the rambling ground floor of the building. Where there are many examples they are utterly overcrowded, and the others are difficult to find, while such arrangement as there is, besides that which produces pleasing combinations of form and color, is that of division into the countries in which the objects have been found. There is no attempt at chronological sequence, either as a main idea or as a subdivision within that of the countries. To add to the confusion there is no proper guide-book published, so that it has become a necessity, both for the use of the architectural student and for the casual visitor besides, that a short account of the architectural exhibits should be written, treating them in their proper chronological sequence, and drawing from them some of those lessons which they are able to teach; and if such an account is to appear first in an American journal it has to be written not only to assist those who will eventually visit the museum, but also to inform those others who are prevented from so doing by the long distance which they are away, of what, of an architectural nature, our great English Art Museum consists.

Of examples of Egyptian and Grecian art there are none accessible to the general public save a series of casts and a model of the Parthenon at Athens, completed according to the supposition of the great English archaeologist, Fergusson. It is to the British Museum that one must go for these—to that most wonderful and well-displayed collection where the student revels and the casual visitor yawns. For the use of the students of the South Kensington Art School, however, there is an almost complete series of casts from

* It is, perhaps, necessary in fairness to Mr. Middleton to say that this article was written for the *Architectural Record* some time ago, but publication was unavoidably delayed. In the meantime some changes may have been made in the Museum.—Editor *Architectural Record*.

originals in the British Museum, tantalizingly placed in a high gallery, within the sight of, but inaccessible to, those who have not the full privileges of students. As casts, these are good, but it is wonderful to one who knows the originals well how greatly their value has decreased in the process of reproduction. Everything is there, certainly, but the extreme subtlety upon which the beauty of Grecian work so largely depends has been lost. What is left is the form, of great refinement still, but yet with the full soul of the artist lacking.



Roman Column with Renaissance Pilasters Behind It.

It would scarcely be necessary to mention this, these casts of Grecian architectural fragments thus rather forming a private than a public collection, were it not that in considering the many other plaster casts in the public Museum itself it might otherwise be forgotten that something of the spirit of the original designer is necessarily absent—less or more according as the work has depended upon

force or upon subtlety for its charm—the general massing of heavily contrasting light and shade being affected to a much smaller extent than delicate curves and highly finished outlines.

Of actual Roman work there is one example—it is a notable thing that there is so much. It is a marble column, kept in a glass case, and prominently placed facing the passageway through the Italian Court. It stands about 6 feet high, and has been placed upon a pedestal. Rising from a base of acanthus leaves, it spreads outwards as it rises, thus tapering the reverse way to that which is usual, and so giving no impression of having been used constructionally for weight carrying. The shaft is sculptured, first with a deep band of ivy leaves, treated in a natural manner, then with a narrow band of what is called by architects the “honeysuckle” ornament (in reality a development of the palm tree of Assyria), this being treated alternately with its leaves upwards and downwards, then with a broad band representing closely-folded cloth or linen, and then with ivy leaves again, this time conventionally treated, and with berries introduced.

From this description it will be understood that it is much more elaborate than would be anything of the same character in Grecian or even in the earlier and more austere Roman times, and, although its date is unknown, it may safely be ascribed to the later, degraded days of the Empire, when all the desire of the wealthy classes—it might almost be said of all classes—of the people was for richness and magnificence, their sense of the beauty of simplicity being dulled if not obliterated. This supposition is still further borne out by consideration of the form of the ornamentation. In the place of the crisp outline and clean cutting of Grecian ornament, often as precise in the hardest marble as if it had been executed in soap or cheese, there is a general roundness; the outlines are curved and the surfaces are wavy.

The same characteristics are to be seen in some casts in the Architectural Court, of a candelabrum, of which the original is in the Louvre, and of a curious jumble of odd fragments pieced together by a French architect, and also in the Louvre. In the Great Roman cast, however, they are less noticeable, for Trajan's Column consists almost entirely of a corkscrew continuous band of sculpture from base to summit, representing scenes in Trajan's life. The full-sized cast of this huge column, being too high to be put up in one piece within the building, has been erected in two halves, side by side; and then it is only just got in. The sculptures have many times been compared, and favorably, with those upon the frieze of the Parthenon at Athens, and certainly the best of these are excellent and equal to some of those at Athens which are of inferior workmanship. More than this, however, cannot properly be said, for the best work of the Pan-Athenian frieze is simply beyond competition with anything of the kind elsewhere.

In the other Architectural Court, hung in a small glass case against the wall, and in a position where it is rarely noticed, is one of the very few records which remain to us of that Etruscan architecture which preceded the Roman, dating back to the third or second century B. C. to a time when the true spirit of Grecian art was



Cast of Roman Candelabrum (from the Louvre). The Three Graces, Renaissance, in the Foreground.

yet alive in that neighboring country. It is only an antefix—an ornament erected on the eaves of a building for the roof tiles to butt up against, and this is a casting only from a matrix found near Orvieto: but it may be considered as being an original for all art purposes, the matrix having been made for the purpose of having the antefix cast from it, as this has

been after a lapse of two thousand years or more. It consists of a life-size and beautiful female head, in which the classic and the Northern types of features are combined, set in a high and almost a full relief in a deep circular recess, with an aureole of simple thistle leaves, which, suggested rather than modelled in full detail, set off the beautiful outline and perfect finish of the head to absolute perfection.



Etruscan Antefix. Cast in Unbroken Clay from a Terra-Cotta Mould found near Orvieto, Italy. Date, 2d or 3d Century B. C.

If, however, the Museum contains but few examples of the purely classic work of Greece and Rome, it is still worse off with respect to the Romanesque—that style which arose out of the Roman after the seat of the Empire was changed from Rome to Constantinople. There is, in fact, nothing Byzantine at all in the Museum, in the true sense of the word—nothing, that is, from the extreme southeast of Europe or from Asia Minor, dating to the early centuries of the

Christian era, nor even from the earliest and purest examples of the style in Italy, the Church of St. Vitale, at Ravenna. Of St. Mark's, at Venice, there is a tiny fragment, a portion of a twisted column, less than a foot in length and a few inches in diameter, inlaid with gold and glass mosaic in small triangular blocks; while close to this, in one corner of the Italian Court, are several small samples of similar mosaic work, inlaid in stone pavements and steps, all of about the thirteenth century, and all geometric in design—of that class of work which is known as *Opus Alexandrinum*.

More truly Byzantine in character are four wooden columns hidden away in an exceedingly dark annex to the Italian Court. They originally stood upon the backs of coarsely carved lions as bases, two of which still remain, but the caps are strictly Byzantine in having four plane inclined faces, on which the ornamentation is incised, this ornament being composed partly of debased acanthus foliage and honeysuckle ornament—relics of the classic art from which they were devised—and partly of archaic figures and natural leaves and foliage. They are described as being South Italian, probably of the thirteenth century, and originally formed the supports of an organ.

A small timber altar front, of the same district and date, shows octagonal columns, having simple leaf capitals and bases which certainly suggest the fifteenth rather than the thirteenth century; while a pair of lion bases, in marble, flank the entrance to the Italian Court—coarsely modelled, ugly things—which are dated back as far as the eleventh century.

The consideration of these lions, used as bases, leads one naturally to the Moorish work of Spain, which, with all its eccentricities, can still trace its origin to Byzantium, and, through Byzantium, to Rome and Greece. Constructionally weak, artistically perfect in color and in form, and in suitability to the climate of the country where it flourished, there are many examples of it at South Kensington, one of which clearly tells of its classic origin. It is a complete arch with wall over, from the nave arcade of the Jewish Synagogue at Toledo, known as *Sta. Maria de la Blanca*, which was erected in the fourteenth century, and consecrated as a Christian Church a hundred years later. The columns are octagonal, but the capitals, while ornamented with incised carving of Byzantine character, have projecting voluted (or curled) leaves, reminding one much of the acanthus leaves and white scrolls of the Corinthian order of Ancient Rome. The arches are horseshoe—that form which, especially in an interior where bright light is sparsely admitted, is so exceedingly voluptuous in its expression—and above them is a deep wall-surface, ornamented with a geometric pattern of straight lines in various directions, slightly raised, in the true Moorish fashion; while above, again, is a blind arcade with horseshoe and much-cusped arches, as

if the designers had seen the cusp in use in neighboring lands where the Gothic influence was then in the ascendant, and had adopted it, and exaggerated it, to suit their own requirements.

This stands against the wall in the Architectural Court, and close to it is a cupboard in age-colored wood from a house at Toledo, called the *Botica de los Templarios*, also of the fourteenth century, and showing all the elaboration of Moorish detail when translated into wood, all just incised below the general surface of the timber, yet with a bold scroll-work design set off by a tiny pattern acting as filling in behind, to form a background.

Along the adjoining wall, too, are hung a large number of casts of ornament from the Alhambra at Grenada, but these, elaborate and beautiful as they are, lack the rich coloring of the original to bring out the difference between the plane surface and the incised parts, and to give them the full educational value which they should possess.

In quite a different part of the Museum is found another collection of the work of Mohammedan artificers—in the collection of Assyrian and Persian art near the secondary entrance. Here, of a much later date (seventeenth and eighteenth centuries, and even of the present time), you find all the same characteristics as in the work of the Moors of Spain, executed several hundred years before. Here, at first sight, appears to be the same incised wood-carving, and here certainly is the same stalactitic vaulting, corbelling and cusped arching; but on closer inspection it is found that what appears to be wood-carving is mere fretwork, the pierced layer of wood being glued upon the face of another which is unpierced, while in the Cairene work the texture of the surface is rendered still more rich by the employment of windows filled with numberless small turnings of wood pieced together, instead of glass, known as "*Mushrabiye*h," or turned lattice-work. This is replaced at Damascus by large trellis work, still of turned wood, but now so large that the interior of the room can be seen through it, which is by no means the case with the closely worked *Mushrabiye*h.

Here, in this little visited corner, a few years ago were two rooms, completely furnished and decorated, as they have been brought from Damascus, making up with the rich collection of Moslem wood-work near, a most fascinating spot where many people love to linger; but "improvements" have been effected recently, and these rooms are no longer to be found.

Of the great Romanesque style which spread through Western Europe during the ninth, tenth and eleventh centuries, the Museum is again most unaccountably wanting in examples. From the Great Rhine churches—from those at Aix-la-Chapelle, Cologne, Andernach, Mayence, Worms, Spires and Trèves—there is absolutely

nothing; and it is the same both with the French and English so-called Norman architecture; that architecture which, founded upon Roman round-arched construction, led the way to the rise of the great Gothic style. Most nearly approaching to this is the large cast of the west doorway of the Cathedral of Santiago de Compostela; but this takes us back to Spain again, where consequently the Moorish, and through it the Byzantine, influence is felt, though it is to a part of Spain which the Moors never reached themselves. This huge cast occupies one entire end of the Architectural Court, and is exceedingly difficult to describe, being formed of three semi-circular arches, each enriched with numerous figures in bold relief and of less clumsy workmanship than would be expected at the end of the twelfth century. The supports are grouped columns, with tortuously carved capitals representing, some of them trees and human figures, and some of them the acanthus leaves again; while there is a solid base, moulded in simple and effective outline, which itself rests upon the heads of animals whose zoological name has yet to be discovered, but who all look to be suffering considerably from having to carry so heavy a weight as that brought upon them.

To the Englishman it is natural, but to the foreigner it must be astonishing, that at South Kensington there should be so very little relating to English architecture. We have preserved, well-cared for, and forming integral parts of many noble buildings, specimens which are beyond rival of all the various styles of the Middle Ages, as adopted and used by our own forefathers. It is our pride that in our cathedrals, our churches and our castles are exemplified a truly insular and national phase of that great Gothic architecture in which all mediæval works of Western Europe were executed; and there is no necessity to place occasional fragments of these great erections in our museums, when the actual monuments themselves, in all their grandeur, are available to those who care to visit them. Thus it happens that permanent English architecture is only represented by a few casts in an obscure corner, and these, too, not very good. An exception is, to a certain extent, made with the English timber-work, it having been possible to collect a little piece here, and a little piece there, which would otherwise have been destroyed. A most English and characteristic specimen of this class of work is a richly traceried carved oak corner-post, from an old house of the fifteenth century, now pulled down, but which once stood at Bury St. Edmunds in Suffolk. It is carved out of one huge piece of oak, with the richly cusped sunk panels of its time; a grand piece, illustrating a grand period, when the middle class was rising, during the wars of the Roses, upon the ruins of the old feudal nobility.

For other examples, it is necessary to wander into the same dark passage as that in which the specimens of Mushrabiye are stored.

Here is a screen and door from a former Palace of the Bishops of Exeter, in that type of fifteenth century woodwork which is peculiar to the Western countries—open tracery, the arch equilateral or nearly so (not four-centred, as is usual in other parts of England at that time), and with bold and simple mouldings. Here, also, are a few minor details of wood tracery and panelling, all of about the same date, and several magnificent chimney-pieces of the Elizabethan period, when the Gothic and the Renaissance were fighting for supremacy, and when all the national characteristics and all the artistic spirit of every European country seem to have been most pronounced. The four most marked specimens are all boldly conceived and executed stone chimney-pieces, with oaken overmantels, from a house in Lime street, London, presented by the Fishmongers' Company, and dated about 1620.

Two distinct curiosities, close by, a little while since were an oak desk and an organ-bellows lever. The former was only temporarily lent to the Museum, and is just an ordinary small desk of the sixteenth century, with sloping top, hinged to form a box lid in a very usual way, but so covered with iron bands as to have been useless for writing at; while the latter is a most elaborately carved arrangement from the destroyed church of St. Mary Somerset, Thames street, London, built by Wren, and forms no mean specimen of the class of work which was executed under that great master.

Returning to the Architectural room, one finds there, of late Elizabethan or Jacobean character, one of the finest architectural relics in the Museum, in the entire oak front of Sir Paul Pinder's house, erected by him in the year 1600, which was presented to the nation by the chairman and directors of the Great Eastern Railway Company, when its site was required for modern utilitarian purposes. It is of most picturesque and broken outline, story projecting above story, with panels and pilasters richly carved in the grotesque manner then in vogue, and with almost the whole front of each story given up to window space, the glass, of many quiet colors, being arranged in little panes within lead framing. Here we have a phase of English architecture, of which, owing to fire, and the "improvement" of our streets, there are but few remains extant amongst us, and it is, therefore, fitting that this, the most perfect and the most beautiful, should find a resting place in a great museum.

Continental Gothic work, unlike the English, is very fairly represented, and though almost entirely so by casts, these are sufficient to give a student who really looks about him and compares intelligently, a very fair idea of the different characteristics which mark the buildings of France, of Germany, of Belgium and of Italy. Of the early French of the thirteenth century, for instance, the whole portion of the

Portal of the North Transept of Bordeaux Cathedral, and the centre pillar of the Porch of Amiens Cathedral, are well-known and magnificent examples, bold and rich, yet with the richness subordinated to the general lines. The former depends for its effect upon its graceful vertical and curved lines, obtained by carefully devised and well-moulded members, broken by comparatively small statuary niches, while the latter is stronger in character, with the horizontal line more



Upper Portion of Sir Paul Pindar's House, Bishopsgate Without,
London. Built 1600 A. D.

marked, and the statuary bolder, much plain surface, just enriched with slightly sunk panels, being allowed; yet both evince a subtle spirit of enthusiasm and of brilliancy such as seems to have been characteristic of our Gallic neighbors at all periods of their history.

These may well be compared with the two pulpits in the other Architectural Court, one from the Baptistery and the other from the

Cathedral at Pisa. Almost identical in date with the French examples just cited, they not only have the horizontal feeling of Classic or Byzantine times, but their details are so much so also as to lead one to question whether there ever was a true Gothic period in Italy at all—whether, in fact, these works and all others like them should not rather be classed as late Byzantine, with a Gothic admixture. In both there are several columns which rest upon lions' backs; in both there are capitals of acanthus character; in both the mouldings are of debased classic rather than of Gothic form, and are ornamented with debased leaf and dart and other classic enrichments; and in both there are square panels filled with small high-relief sculpture, in which the arrangement and the modelling alike tell of the classic predilections of the artists who were employed. Even later, and yet before the opening of the Renaissance, the same spirit is in distinct evidence in the cast of the Shrine of St. Peter the Martyr, in the Church of St. Eustorgio at Milan, which is dated 1339—a date at which a Gothic style was in undisputed sway in all Northwestern Europe; and, in fact, in this example the Classic is so strongly suggested that a perfect entablature is found to the main cornice, while all that is Gothic at all is a little crocketing and tabernacle work, and the small crowning canopy.

Returning to the French Gothic school, there are to be found plenty of good examples showing its later characteristics, the most prominent being a large cast of the main Western Portal of the Cathedral of St. Sauveur, at Aix in Provence. The bases of the door jambs and centre post show the curious continental feature of the base mouldings being proportioned and designed to suit each individual member separately, and not the mass as a whole—a feature which often results in great complexity, and which lacks the sturdiness and repose of the English method of treatment. The flat head to the doorways, with the angles rounded off, is also noticeable in contradistinction to the low four-centred arch which would have been used in England at that date (1477-1504). The doors themselves are richly carved, pure Gothic being mingled with pure Renaissance details, as this latter style was now creeping northwards. Unfortunately, in this and other casts, the portions representing stone and wood have alike been left white in the plaster representations, giving quite a false idea of the color values of the originals.

Close by are representations of a brass font and a stone shrine from the church of Notre Dame, at Hal, in Belgium, both of a slightly earlier and more purely Gothic period, and both more delicate in execution—as such gems ought to be—evidencing, too, that wonderful power of figure carving which the Flemings have always possessed, and do possess to the present day, especially marked where the figures are but statuettes.

French again, transitional between the Gothic and the Renaissance, is the Rood Loft of Limoges Cathedral, in which the lines are horizontal and almost all is Renaissance in form, being Gothic in spirit only—and it forms as good an example as could well have been chosen to place in a museum of that most beautiful and delicate transition style, which has all the artistic instinct of the work of the same time in England and in Germany, but is delicate and most refined where the latter is sturdy and even occasionally coarse. In this particular example, erected in 1533, the detail is so small and yet so boldly cut as to give the appearance, at a little distance, of elaborate knotted lace-work; but in this it is peculiar to itself, though the feeling is much the same as that which produced the beautiful chateaux of the Loire valley—such as those at Blois, Azey-le-Rideau, and Chénonceaux.

Comparable with these great French examples are those from Germany. The plaster cast of part of the oak choir stalls in the Cathedral of Ulm is typical of all such work to be found in the districts of the Black Forest and Bavaria—with bold lines and yet much flimsy tracery, mouldings rarely more than rounds and shallow hollows, and yet all treated in a masterful and most peculiarly masculine way, the curves in the intertwined foliage carving being particularly strong. Is there not something here, in the contrast between this and the extreme fineness of the Limoges detail, of the character of the two nations?

Nuremberg, the centre of the artistic life of Bavaria, second, even now that it is a great commercial city, only to its little neighbor Rothenburg in charm, is represented by two casts, both from the Sebaldkirche. One is from Adam Kraft's Shreyer Monument, in one of the bays outside the church, between two of the apse buttresses, and much better seen here in plaster, in its vigor and its overdone complexity, than in the original, which is dark, dust covered, and surrounded with close wirework. Architecturally a little stump tracery at the side of the return is most noticeable, showing the debasement of the Gothic in the fifteenth century, as it was marked in mid-Germany. The other cast is of the bronze shrine of St. Sebaldus which stands inside the church, and is the work of Peter Vischer. Of noble Gothic outline, yet the fact of its standing upon the backs of snails, and of there being much that is Renaissance in detail, if examined closely, all tell of the influence which his long visit to Italy had upon this craftsman, while the nobility and graceful pose of the many figures which enrich it speak both of this influence and of his own artistic power.

Unquestionably, however, from an architectural point of view, the Italian Renaissance is the period best represented at South Kensington, both the Italian Court and one of the Architectural Courts con-

taining a large number of well-selected examples, mostly in original. The fifteenth century which, in Northern Europe, saw the decay or elaboration of the Gothic style, was witness, in Italy, of a wonderful revival of the pure classic feeling, the architectural work being based upon that of the Romans during the Empire, but evincing a more free and yet a more refined spirit. This revival took place first at Florence, and though it has, of course, been impossible to trans-



Florentine Lavabo.

port to London huge gloomy palaces and gorgeous churches, yet a considerable number of beautiful little bits of detail have been acquired. One of these is from Florence, and of the very best period (A. D. 1490), when the workers had overcome the stiffness which is almost inseparable from first attempts upon new lines. It is a "Lav-

abo," or Fountain, of the black stone, known as *Pietra Lerena*, and consists of a bowl standing on a pedestal, and set in a recess domed with the shell ornament. It is flanked with pilasters carrying entablature and cornice over the whole, and all is enriched with carving in low relief, of vases and scrolls, acanthus leaves, scallop shells, and masks of human faces, all conventionally treated in a way which reminds one of, though it does not copy, the carving of the older Roman days.

Then there are several marble doorways, some bold, some quiet in design, but all good specimens and noble entrances to noble build-



Stone Chimney-Piece from a Palace near Como. A. D. 1520.

ings. One is from a palace in Genoa, made in 1519, rich with carving in bold relief; three others are from the palace at Gubbio, erected by Frederico, Duke of Urbino, about 1475 or 1480, and are carved in low relief with well-conceived acanthus scrolls; two others belonged to private chapels in a Church at Genoa, built by Lazaro Doria and Givigo Spinola in 1472 and 1480, and are of an absolutely black, hard stone, carved in very low relief; while yet the most important is the large gateway, said to have been brought from Ghedi, near Brescia, where it formed part of a palace erected by Nicola Orsini,

built in 1575, and for which the Museum authorities gave no less a sum than £602.

Then, too, there are some magnificent stone chimney-pieces, with the mantel projecting to form a hood for gathering the smoke up to the flue, and generally supported by trusses formed of male human figures, and all of about the same date—early in the sixteenth century. One of these is different, though. It is from the neighborhood of Milan, and is formed of one plane surface of green and white marble inlaid with grotesques, with shields of arms, and with the representation of an open temple, beneath which stands a globe—



Tomb of Filippo Decio.

all in colored marbles. It is curious rather than handsome, but rich in color and attractive by its gorgeously and brilliancy.

The most prominent object in the Italian Court is the sanctuary, with its arch and dome complete, together with the high altar, which originally formed part of the Conventual Church of Santa Chiara, at Florence, built in 1493, by one of the pupils of Brunelleschi. More simple and severe than most of the other objects exhibited here it forms an excellent example of the earlier Italian style, of the period of its earlier Florentine exponents.

Well-heads, capitals, corbels, portions of columns, and numerous other minor details are arranged about the court, in such positions as to be readily available to the many students who come here to sketch and measure—making this one of the best spots in Europe for the study of Italian ornament.

These are all originals; but in the Architectural Court are many more Italian examples—casts, it is true, but good representations—including many details from the famous Certosa, near Pavia, the elaborate marble window of the fifteenth century, and two large panels from the altar-piece. More beautiful still is the tomb of Filippo Decio, in the Campo Santo of Pisa, and dated 1530—the figure lying upon an



Rood Loft, Church of St. John, Bois-le-Duc. Dated 1625 A. D.

urn or bed, which itself rests upon a well-proportioned and elaborate pedestal. It is a good example of what the tomb of a wealthy man should be—not ostentatious, but refined and elegant, yet rich with a large amount of carving, and so designed that, were this carving omitted, it would still be beautiful and noticeable.

Of the Renaissance of other lands, the best examples are from Belgium, and they are in the Architectural Courts. First, in point of its resemblance to Gothic work, comes the Tabernacle (cast) in the Church of St. Léonard at Léau, erected in 1552, aspiring in form



Fountain in the Courtyard of the Old Palace at Munich.

and so calling to mind the more beautiful and purely Gothic one in the Laurenzkirche at Nuremberg, but of bold Renaissance detail, the angles at the base being carried by six strong male figures, or Atlantes, taking the place of columns. Two other exhibits are, however, of earlier date. The great chimney-pièce from the Palais de Justice at Bruges, the cast of which occupies almost all one end of one of the Architectural Courts, was erected in 1529, and is one mass of complicated carving, rousing wonder more than admiration after examination of the finer work of Italy—while its boldness of conception is well set off by its being flanked by a representation of the equally well-known, and more justly praised, door to the Council Chamber of the Hotel de Ville at Audenarde, made by Paul Van der Schelden, in 1534, with its many deeply recessed and elaborately carved panels—shown to better advantage here than in the Council Chamber itself.

Last of all, forming the exit from the Museum, is the Rood Loft from the Church of St. John, at Bois-le-Duc, dated 1625—a magnificently bold conception in dark colored marbles, but with the many figures in the niches and the carving of the friezes done in white. Seen here, in a suitable position, its full nobility can be understood. Belgium is full of such things—screens and altars—but they are there in churches of the Gothic period; they are incongruous and out of place, and it is impossible to appreciate them properly. If they could all be purchased as this was, even at so high a price as £900, and placed amidst suitable surroundings in new Renaissance churches or in great museums, they would be seen to better advantage themselves, and it would be better also for the churches which they now disfigure.

The German Renaissance is not well represented. There is nothing, not even the cast of a single figure, from Heidelberg, nor is there any representation of the quaint painted houses to be seen in so many of the larger German towns. In fact, most of the German examples of this period in South Kensington Museum are in the collection of iron work, which is so good and so large as to demand an article entirely to itself to do it even most scanty justice. There is, however, one cast—that of the Medusa Fountain in the courtyard of the Old Palace at Munich, which is admirable as showing the life-like pose and delicacy of treatment which generally characterises the sculpture of Renaissance times in Germany, and particularly in Bavaria, making it a meet subsidiary to beautiful architectural works.

G. A. T. Middleton.

THE SANITATION OF DWELLINGS IN ENGLAND.

Preliminary Chapter on Site and General Sanitary Conditions of the House.

SANITARY science is the determination of the architectural conditions favorable to health, and in this respect differs from hygiene, which determines the food, dress and exercise, etc., desirable in order to keep the body in a healthy condition.

Now it is not intended here to go deeply into the question of selecting a site for a building for the simple reason that other and larger works have already touched on this point; but a word or two on soil and aspect may be advisable. In examining a site for a proposed house, visit it under circumstances when damp will be most likely to be there, that is to say in the evening or during a fall of temperature when what are called radiation fogs are about. Soils are roughly divided into two kinds, viz., impervious and pervious. Of the former, stiff clay soils are bad from a sanitary point of view, because damp and water accumulate, and make the air cold. When it is necessary to build a house on a clay soil, therefore, greater care should be taken in its construction, viz., by building dry areas to the walls, by the more careful application of damp courses, by the sloping of the ground from the houses, by making sure of obtaining the greatest possible amount of sun into the living rooms, and by the proper heating and ventilating of the house generally.

Of the latter class, viz., pervious soils, may be reckoned chalk, sand and gravel, all of which are warmer and drier, and therefore preferable, as the water does not accumulate, but passes quickly away.

As regards the general position of a house, hollows should be avoided, as here water accumulates, and there is a general inclination to dampness. For the same reason the bottom of a hill is bad, and special precautions must be taken to prevent the entry of damp into the house, when it is necessary to build a house in such a position.

The position of chimneys also in external walls is a point which should be well considered; they should not, if possible, face those points of the compass whence come cold and dampness.

Dry air and equable temperature are points necessary to be observed in the construction of a building, and for this reason, water tight roofs and non-porous walls are necessary, as well as the effective exclusion of ground water. Damp air is bad because it reduces the temperature, favors decomposition of organic matters and the growth of disease germs.

Water-tight roofs are also absolutely necessary to the proper sanitary condition of a building, these depending on the quality and pitch of roofing materials, and the security of their joints and connections.

Non-porous walls depend on the quality of bricks, mortar and their thickness. To test the porosity of bricks, weigh them when dry and after soaking in water, and compare the differences. The following is a list of different materials with their absorption per cent. of their weight.

| | | | | |
|--------------------------|--------------------|--------------------------|---|---|
| Granite | $\frac{1}{2}$ to 1 | per cent. of its weight. | | |
| Malm bricks | 20 to 22 | " | " | " |
| Gray stocks | 10 | " | " | " |
| Hard stocks | $7\frac{1}{2}$ | " | " | " |
| Blue Staffordshire | 6 | " | " | " |
| Good sandstones | 8 to 10 | " | " | " |
| Portland stone | 14 | " | " | " |
| Bath stone | 17 | " | " | " |
| Kentish rag | $1\frac{1}{2}$ | " | " | " |

An ordinary hard stock only absorbs about 1-10th of its weight. A brick backing should be placed to a stone-faced wall, as it prevents the entry of water by capillary attraction.

Damp ascends the building by two ways, either through the walls or by the action of the ground water; now, as will be pointed out, the vertical action may be prevented by means of a horizontal damp cause, whereas the lateral action may be prevented by means of what is known as a dry area placed outside the wall and well ventilated.

The action of the ground water is met by a bed of concrete being placed over the whole surface of the site. Moreover the level of the ground water should be ascertained, and if within six feet of surface of the ground it should be specially drained away from the site.

Equable temperature is most important in a really healthful dwelling, and this is brought about by a proper construction of roof or walls; with a due regard to insulation, which is the important factor, and in which respect wood is particularly good, whereas metals are bad.

Taking the rate of conductivity of wood as equal to 1, we have: Wood equals 1; plaster equals 3; brick equals 4; glass equals 5; free-stone equals 10; slate equals 14; marble equals 18; lead equals 80; zinc equals 140; iron equals 150; copper equals 300.

Anti-pyœmian conditions are to be obtained by non-absorbent walls, ceilings and floors, and although much attention has been given to this subject of late, one cannot be too particular. A wall finished in Keen's cement and distempred is as non-absorbent as it is possible to conceive, and therefore absolutely healthy. Wall papers are bad because they are absorbent, and the paste employed to stick them to the wall necessarily decomposes.

Floors are rendered satisfactory by the use of parquet or close laid boarding or blocks paraffined or waxed.

Basements should be avoided wherever possible, as they are in general very unhealthy and liable to be damp however carefully planned. Where there is not sufficient room on the ground floor, the wine cellar and coal cellar may be placed in a basement where also the heating apparatus should be fitted up.

Attics.—Those with sloping ceilings are bad from a sanitary point of view, as they are extremely cold in winter and sultry in summer; care must be taken, therefore, to keep an air space between the inner and outer covering so as to counteract their defects.

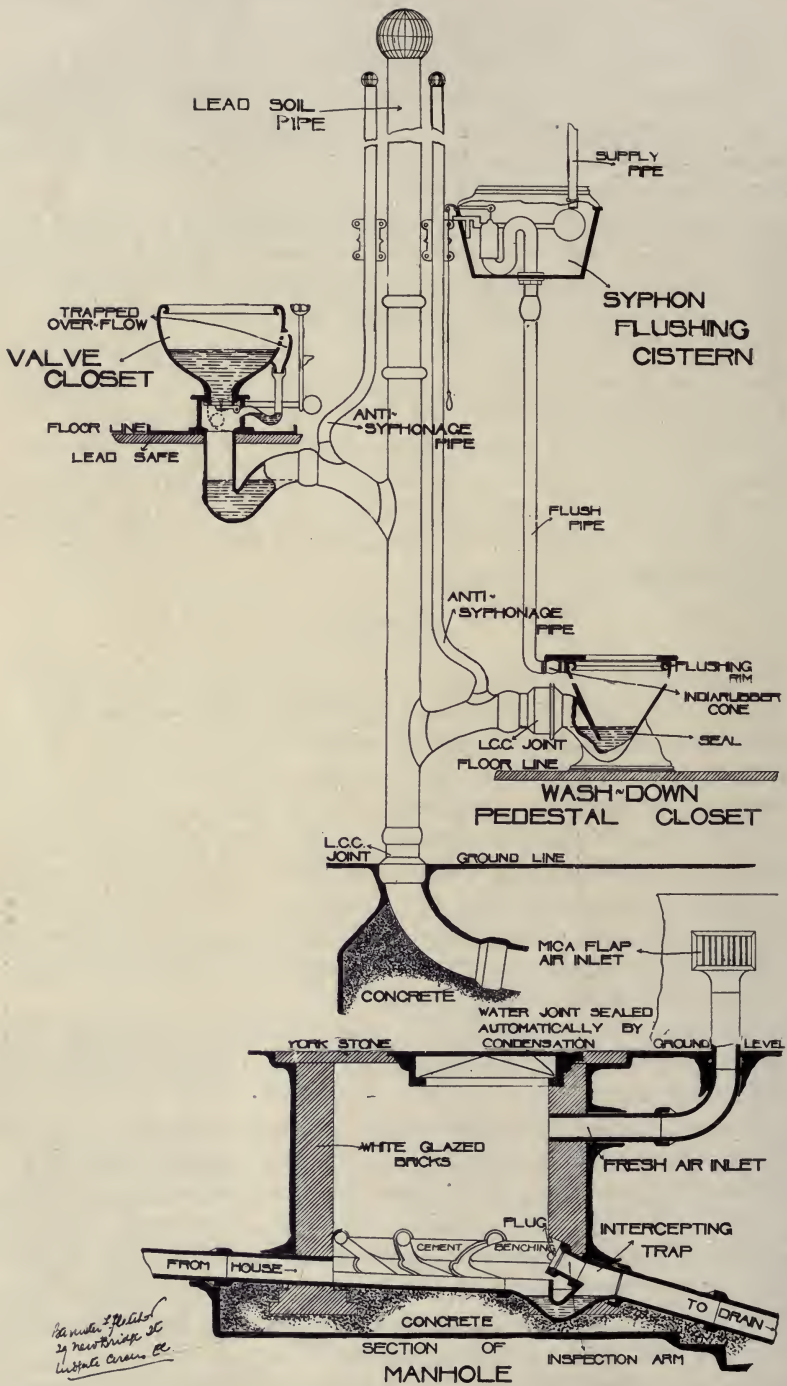
Trees.—Before closing this chapter one other point occurs, and that is the question of trees. Trees may be, and are, very useful as a means of sheltering the house on the more exposed parts, for instance on the north and northeast sides, but if placed too near a house they may be a nuisance, as the dead leaves will block up the gutters and the tree itself will shut out light and air from the house. A good plan is then that a tree should not be nearer to the house than its own height.

Drainage.

Introductory.—Of all the subjects connected with building there is no one which has received, and rightly more attention of late years than the sanitary condition of the houses in which we live. No one nowadays, at least with respect for his life, ever takes a house without a report from a competent architect as to the condition of the drains, and the general condition of the house in respect to dampness, etc., and its general sanitary condition. It behooves us therefore to be more than usually careful and precise in dealing with this subject. We have prepared a special plate of sketches showing the proper method of treating the various appliances of drainage, which will be found in this article.

Drainage.—The underground drains should be constructed of glazed stoneware, the pipes should be truly laid and securely jointed, and should have a fall of at least 3 inches in 10 feet. Probably the best form of joints is that known as Stanford's, which is made by Messrs. Doulton; it is comprised of a durable material, consisting of coal tar, sulphur and ground pottery. The composition is laid on the spigot end of one pipe, and in the flange of the next, and being made of a convex form when pushed home makes a perfectly water tight joint. More usually and perhaps as effectually a plain cement joint is made. It is scarcely necessary to mention that such a thing as a clay joint should not be permitted.

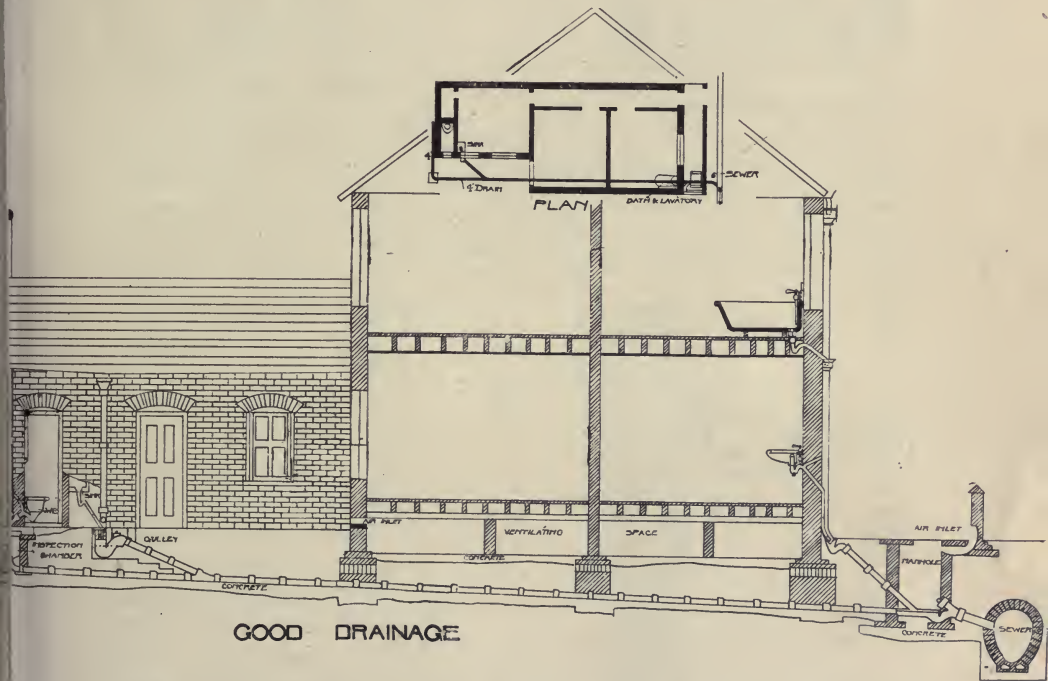
Size of Drains.—Not less than 6 inches is laid down as necessary for a drainage taking a discharge for a water-closet, and four inches



*See notes attached
 to next page of
 this case. C.C.*

is considered sufficient for rain water drains and for taking the wastes from baths, sinks, lavatories, etc.

All drains should be easy to get at, as straight as possible and should be well ventilated by air pipes, with proper air inlets, and in all cases be taken up outside the house. The fall of drains should not be less than 3 inches in 10 feet. It is advisable that, with few exceptions, the pipes should be laid on a bed of concrete formed to the required fall, care being taken that the whole of the pipe should rest on the concrete, and not only the flanges which is liable to cause fracture. If by any chance a soil drain has to be taken under a house it should be entirely cased in concrete so as to prevent any possibility

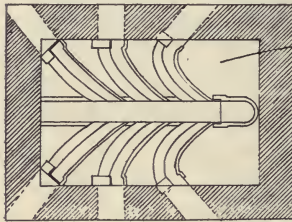


of the escape of bad air. While on the subject of drainage it may be mentioned that there is some diversity of opinion as to whether or no iron pipes should be used. Some engineers have expressed their opinion that they were as durable as stoneware, when treated with special solutions, but we are strongly in favor of galvanized earthenware, and should recommend its adoption everywhere. On the other hand, iron pipes are preferred by many, especially under houses, as there are fewer joints and less likelihood of leakage.

Water-closets must be placed where they can be thoroughly ventilated directly from the external air with top of windows level with ceilings, and if possible they should be shut off from the house by a well ventilated ante-room to prevent communication with other parts

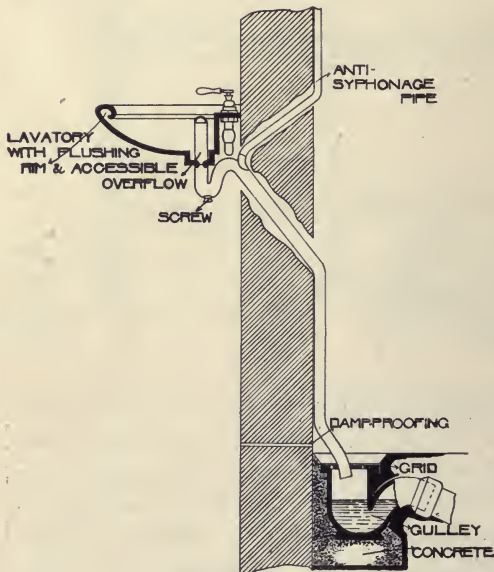
of the house. In some house plans it will be noticed that the lavatory take the place of the passage recommended above.

Soil Pipes.—Soil pipes are usually made of 8 lb. lead, and 4 inch in diameter, though some consider 3 inches sufficient. They, as well as ventilating pipes from drains, should be carried up above the roof and terminate sufficiently high to be clear of all windows. All the house drains must be entirely cut off from the sewer (or cesspool where



PLAN OF MANHOLE

there is no other system of sewage), and a through current of air be taken through the drains. This is done by means of an "inspection chamber" or manhole in which the pipes and junctions are continued through in special half section pipes to the syphon trap which is placed on the side nearest the sewer. This inspection chamber should be built in white glazed bricks in cement and should have an inlet of fresh air through a 4-inch galvanized iron pipe fitted with a mica flap, the outlet air shaft at the head of the drain, which is often the soil pipe carried up, may be fitted with an extractor, but many architects prefer to keep it quite open at the top or just fitted with an ordinary woven iron wire cover.



LAVATORY WASTE

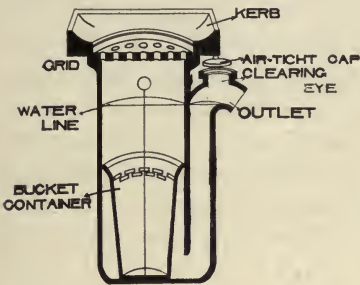
trapped gully so as to effectually cut off all connection with the soil drains. If from baths on the first floor these wastes should discharge into an open head.

Kitchen Sinks.—Wastes from kitchen and scullery sinks should be taken into a grease trap, so as to intercept the rush of grease to the

Rain Water Pipes.—Rain water pipes should not be allowed to act as ventilators, but should discharge over an open gully at the foot of down pipe. The inspection chamber should be fitted with a patent wrought iron air-tight frame and cover.

Lavatory Wastes, etc.—Waste from baths, lavatories, etc., should discharge over an open

drains, where it might help to form an obstruction. There are numerous forms of combined grease and gulley traps, the object being to give time for the grease to cool and form a cake there upon the surface which can be lifted out.



GREASE TRAP

One form is designed in connection with an automatic syphon flushing tank, by which the grease, when congealed, is broken up in the strong current of water and driven in a solid state through the drain; but I cannot impress too strongly on the reader the fact that a grease trap is worse than useless unless periodically cleaned out, and that the mistress herself must in many cases see that this is done.

Flushing Tank.—House drains, even if they have sufficient fall, should be supplied with a flushing tank provided with clean water at the highest point of the drain. Another method is to plan the house so that the bath is at the head of the drainage system; this, especially when the English system of cold morning baths by several members of the family is indulged in, is a capital way of cleansing the drains and keeping them in good condition.

Water Supply.—This is a most important point in the construction of a house, and one that cannot receive too much attention. Even where a constant supply is obtained it is better to have a small supply cistern in case the company may at any time shut off the supply for repairs, etc. Water for drinking, and in fact any purposes should be stored remote from all places where bad air or noxious gases are likely to occur, and it should therefore be well away from all outlets to ventilating pipes, soil pipes, wastes or drains. Water absorbs air just as a sponge does water, and when any impure air is near the water will soon be impregnated with it. You have only to place a pail of water in a newly painted room to obtain a good proof of this. A small room should therefore be provided, and should be well lighted and ventilated, and the cistern should not, as is frequently the case, be allowed to be put in any odd dark corner in the roof where it cannot be got at to be thoroughly cleaned at frequent intervals. All water used for sanitary purposes should be effectively cut off from the cistern; this is commonly done by taking the supply to each water-closet through a water waste preventer.

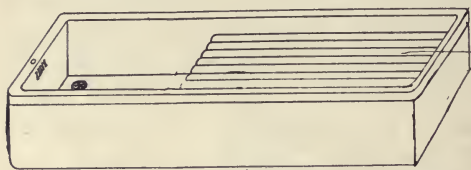
The best material for cisterns is galvanized iron, and a cistern should have a lead safe under it with outlet for same, so that in case of overflow the ceiling of the floor below would not be damaged. A stop-cock should be placed in the supply pipe from the cistern

(and close to it) to enable the water to be shut off and minimize the damage in case of a burst or broken pipe.

Amount of Water to be Allowed per Person.—In ordinary families in the country the usual consumption for all household purposes is from 18 to 25 gallons per head a day, but the amount is regulated by various circumstances, as the number of baths, etc., used. In or near London, where a constant supply can be obtained only a supply cistern is necessary as mentioned above, but in the country a cistern sufficiently large for the day's consumption must be provided.

Rain Water.—The rain-water in town houses and houses near London is generally run into the drains, and assists in cleansing them, but it is a good thing to have a fair-sized rain-water cistern, taking the water from part of the house, as rain or soft water is preferred by some for washing purposes, and a supply pipe may be led from this cistern to the housemaid's sink.

Slop Sinks.—These should be provided, as well as housemaid's sinks, and should be of such a form as to provide no place of lodg-



COMBINATION PANTRY SINK

ment in any part which would cause it to become unwholesome. The slop sink should have a lead 3 inch waste pipe from it, and a lead trap thereunder, with a brass screw plug in the underside for easy examination, if by any chance it gets stopped. These sinks are usually made in cast iron enamelled over on the inside with white porcelain enamel. The housemaid's sink, which is generally placed over the slop sink, may be in white enamelled iron, or it may be made of a wooden framing and lined with lead; in the latter case 8 lb., or better still, 10 lb. lead should be used, as the initial cost is not much more, and the endurance is much greater.

Before passing on it may be as well to mention that in the opinion of many sanitarians a slop sink is superfluous, and especially when the housemaid's sink is near the water-closet, which is generally the case. In this case, and when the water-closet apparatus is of the ordinary syphon or wash-down kind (see illustration), all wooden casings, which only harbor dust and favor disease are done away with, and the wooden seat is simply hinged at the back, so that the closet can be used as a slop sink and urinal as well.

It is a great thing to have as few appliances to get out of order as possible, and on this point only, it seems desirable if possible to do without the slop sink.

Baths.—Baths are made of various materials, and the usual method of finishing is by placing a wooden enclosure around the bath, and

thus providing a dark place for the harboring of dust and vermin. My advice is here the same as in regard to water closets, and that is to do away with these objectionable "casings" and let your bath be open all round, so that there may be no lodgment for dirt.

Of course the old baths which were made to be cased round do not look well when they are used without the casing, but baths of a fairly good design and perfectly presentable are now made by the best makers in either enamelled iron or porcelain. These latter are clean and durable, their only objection, which is a slight one, is that they are somewhat heavy; marble baths are also used.

Bath Fittings.—There is such a variety of bath valves and bath cocks that it will not be worth while to examine the merits of each. Let it suffice to say that valves of whatever description are always easier to open and shut than screw down cocks. The screw down and diaphragm taps take so many turns of the handle to open or shut, the water during this screwing is so obstructed that they are never likely to be extensively used. The quarter turn roundway valve gives a quicker water way and has this additional advantage that it opens and shuts at a quarter turn of the circle. The waste pipe and valve should not be less than $1\frac{1}{2}$ inches. The service and waste pipes with their valves should always be considered so as to provide for a quick supply and discharge. The service water should never be brought into the bath through the waste pipe or the dregs of the previous bath will get washed back again. According to the Metropolis Water Act the supply pipes must come into the bath above the water line, but this is too high for the hot water service, and when a hot bath is needed the room would be filled with steam. Every bath should be fitted with an overflow pipe near the top which should discharge in the open and be fitted with a hinged flap.

The hot water inlet to the bath should therefore be a few inches above the bottom.

Bath Safes.—They are necessary in a properly constructed bathroom, and should be constructed of 6 lb. lead and turned up $2\frac{1}{2}$ inches at edges, and should be sloped so as to cause the water to flow towards the outlet. But a better plan, especially when no casings are used for the bath as I have advised, is to have the floor of the part of the bathroom (or the whole may be done) laid with tiles in cement on concrete and give a fall of the floor towards a point in the outer wall when by means of a pipe with a flap on its outer extremity, any surplus water or overflow may be led into the open head which also receives the waste water. A cement skirting 6 inches high should be placed round the room.

It is advisable to put a fireplace wherever possible in a bathroom for ventilating purposes, and by using a special ventilating flue pipe, such as is made by Messrs. Doulton, the hot air and steam can be

withdrawn at the ceiling level, and so keep the bathroom in a healthy condition.

Lavatories.—These may be fitted up in a variety of ways from the simple plug basin upwards, but in all alike it should be remembered that the overflow pipes should be large enough to take away the water should the service pipe be left open, also that all the waste pipes from all lavatories should be trapped with a patent cast lead anti-D trap with a cleansing cap and screw at bottom. Waste pipes are usually $1\frac{1}{2}$ inches diameter. "Tip up" lavatories are much used and are preferred by many, they have the advantage of emptying the basin quickly, but care should be taken that the receiver into which the dirty water is thrown is cleaned periodically as the smell from soap suds is most unpleasant and unsanitary. The suddenness of the discharge into the waste pipe is likely to unsyphon the trap, unless the special anti-D form is used, which has been designed to resist this action, when however two or more of these traps are fixed on one stack of soil pipe or waste pipe, their branches should be ventilated to avoid syphonage. The waste pipe should always be made to discharge into an open head or open gully.

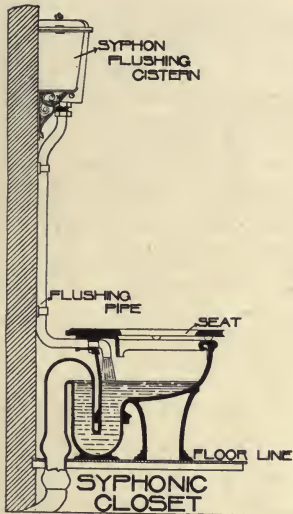
In several cases I have fitted up lavatories in the principal bedrooms and dressing rooms, and there is no doubt that much labor is saved to the servants by so doing, as well as the convenience of always having a supply of hot or cold water ready for use. There is no doubt that in these days there is a great tendency to save unnecessary trouble and labor in all classes, and it is possible that the introduction of the lavatory into the best bedrooms will soon be looked on as a necessity.

Urinals.—Urinals may be looked upon as not necessary in a private house. The syphon closet with lift-up hinged seat which should be placed in the ground floor water closet answers the purpose of a urinal. These hinged seats are also advisable where no slop sinks are provided.

Water Closet Apparatus.—These may be roughly divided into two sorts, for thanks to the progress of sanitary science the old pan closet with its pestilential D trap is, we hope, a thing of the past. The first is the "valve closet" and this sort, if of the very best manufacture, is undoubtedly the best. A valve closet, however, is expensive, and it is clear, therefore, it cannot be used in many places on account of the cost; it is generally used in the better class of house. This form is practically a double trap, the upper body of water being retained by a flap either ground to its seat or else fitted with India rubber, which makes it water-tight, the lower trap being simply an S trap.

The second kind is what is known as the wash-down closet; these are made by various makers under different names. In this class

the wooden casings which are so objectionable and so unsanitary can be entirely cleared away and the china basin itself exposed to view. It consists simply of a basin at the bottom of which is a syphon trap all formed in one piece. In some of these the lead soil pipe is joined at the floor level with the glazed earthenware apparatus, but though



great care may be taken by performing the joint in tow and red lead, it is a difficult thing to make a good joint between metal and earthenware, and a better plan is to have the trap made of stout lead, which enables a thoroughly sound joint to be made with the soil pipe, the joint between metal and earthenware being above the trap, and therefore the danger of sewer gas entering the house can be entirely done away with. The trap in every case should be ventilated by a special pipe taken above the roof; this pipe also prevents the unsealing of the water trap, which is likely to occur when two closets, one above the other, discharge into the same soil pipe.

(That form of closet known as the washout is bad in principle, and in many respects as bad as the old pan closet, and should not be used.)

Water Supply to Closets.—The best method is undoubtedly what is known as a “Water Waste Preventor” placed at the ceiling level in the water-closet, and which, when pulled, discharges a two or three gallon flush as the case may be. A supply pipe, which should not be less than $1\frac{1}{4}$ inches, is led from this cistern to the flushing rim of the pan. An overflow pipe should be taken from these cisterns to discharge through the wall in the open, and this overflow should be at least twice the size of the service.

Heating, Lighting and Ventilation.

We propose offering a few remarks on the above subjects in so far as they refer to the subject in hand. The fuller details as to the subject generally about which whole volumes have been written, we must refer to work specially bearing on these subjects.

Heating Fireplaces.—In a climate like ours, it goes without saying that to properly warm our houses in the most efficient way, without being injurious to health, is one of the most important problems which we have to solve. We all know that the old-fashioned fireplaces, while being the most wasteful, are at the same time the most cheerful means of heating our rooms, and this being so, we must en-

deavor to keep the open fireplace, while at the same time mitigating the evils for which they were noted. These are:

1. Waste of fuel and loss of heat.
2. Excessive production of soot and smoke.
3. Large addition to ash-pit refuse by cinders which are really unburnt, and therefore waste fuel.

One of the great drawbacks is undoubtedly the large supply of air which was necessary in order to keep the fire going, and which is the great cause of draughts in rooms, without which the fire has a tendency to smoke. There are two ways of diminishing this tendency to draughts and great waste of fuel. One is the introduction of fresh air direct to the fire by air-ducts from without, and the other by the adoption of what are known as slow-combustion methods, and the adoption of a form of grate which shall thoroughly burn the coal, cinders and all, and not leave these to be thrown away, which is a most wasteful method. Mr. Pridgin Teale, F. R. S., was the first in later years to draw public attention to the extravagant waste of the ordinary open fireplace, and to propose in its stead a fireplace constructed on scientific principles. The special features of these fireplaces may be enumerated as follows: 1. As little iron as possible is used in their construction, iron being a conductor of heat. 2. Fire lump back and sides to fire. 3. The sides set at an angle of 60° . 4. The upper part of the back projecting over the fire $1\frac{1}{2}$ inches, and from there leaning over the fire at an angle of 70° . 5. The fire of considerable depth from front to back. 6. The openings in the bottom grating of the fire not more than $\frac{1}{4}$ inch wide, to prevent any ashes passing out of the fire unconsumed. 7. The front bars vertical, made of steel $\frac{1}{4}$ inch thick and $\frac{3}{4}$ inch apart, so as not to obstruct the radiated heat, and to prevent the coal falling on the hearth. 8. A plate below the bars called the "economizer" to prevent the air entering the fire below the bars with ash pan to catch the dust, and, finally, 9, a narrow opening into the chimney, which, while ample for the escape of smoke and ventilation, yet prevents any unnecessary escape of heated air from the room and so keeps the room much warmer. This narrow opening to the chimney also tends to prevent smoky chimneys.

The advantages claimed are saving of coal, dust, and labor, increase of warmth, little need of attention (with the aid of a damper the fire being kept alight for about 10 hours), reduction of soot and smoke.

It is claimed that a fire 13 inches wide will heat a room containing 2,000 cubic feet, 15 inches wide will heat a room containing 3,000 cubic feet, 17 inches wide will heat a room containing 4,000 cubic feet.

We well remember attending the lecture by Mr. Pridgin Teale at

the Architectural Association when he advocated this system when he produced some coal which had been burnt at the Leeds Infirmary, which was reduced to a fine powder, thus showing the absolute combustion which takes place. It was claimed that the saving in coal at that institution was reduced nearly one half by the use of these grates.

So much for the improved method of treating the open fireplace which from the cheerfulness it always possesses must commend itself to us in, at any rate, the use of all sitting rooms in preference to hot water and hot air generated from a furnace.

Hot Water Heating is useful and most necessary for the passages and halls of larger houses, and is most important for the prevention of draught from doors, etc. It is also necessary that the passage should be thoroughly and efficiently warmed, and perhaps this is best done by hot water pipes and coils heated from a central position in the basement. That known as the high pressure system is one of the methods adapted for the ordinary house, and consists of a closed system of small pipes built with a furnace, the pipe being continued from the upper part of the coil and passes round the building proposed to be warmed, forming a continuous circuit when again joined at the bottom of the coil. A large pipe called the expansion pipe about $2\frac{1}{2}$ inches diameter is placed at the highest point of the apparatus, and from which the cistern is filled with water, the cistern being afterwards hermetically sealed. This expansion pipe is calculated to hold 1-12th as much water as the whole of the system, this being necessary in order to allow for the expansion that takes place in the volume of the water when heated, and which, otherwise, would inevitably burst the pipes, however strong they may be; water possessing but a small degree of elasticity. The advantages of the high pressure system are:

- (1). That the pipes do not require filling, and water practically lasts for an unlimited period.
- (2). The water is very easily raised to a high temperature.
- (3). Small pipes less unsightly than large pipes.
- (4). Cheaper in first cost, but more expensive in maintenance.

The disadvantages are:

(1). The high temperature of pipe and the consequent liability, without precaution, of setting fire to buildings and the scorching of dust which settles on the pipes.

(2). Possibility of explosion (which of course with proper treatment is reduced to a minimum).

(3). Temperature, although quickly raised, as quickly falls unless attention is paid to the heating apparatus.

The Low Pressure or Open System is an open system of large pipes, generally 1, 2, 3 or 4 inches in diameter, placed in a continuous

circuit and warmed by a saddle back boiler. From the upper part is taken an open expansion pipe. The low pressure system may be fitted up in connection with the kitchen boiler, and thus the heat of the kitchen fire utilized for heating the house, as well as supplying hot water for domestic purposes.

The advantages of this system are:

- (1). Cheaper in maintenance.
- (2). Retains heat for a longer period.

The disadvantages are:

- (1). Unsightliness of large pipes.
- (2). Difficulty of application to complicated buildings.
- (3). The heat requires a longer time to generate.

Steam, at high or low pressure, is also used for heating purposes, but not in general for the class of house we are referring to in England, but it is largely used in the United States, where great care has been expended on the appliances necessary for its production and circulation.

The hot air system consists in having a stove in a chamber in the basement, to which fresh air is admitted and warmed and passed by ducts or hot air pipes direct to the rooms themselves. It has often been attempted to heat the house entirely by this method, placing inlets and outlets in each room and thus avoiding fireplaces entirely, but it has not been found an acceptable method for heating a house. If it is adopted for heating the halls and passages care should be taken that cellar or ground air is not distributed throughout the house, but the air to be heated should be taken 6 feet from the ground by specially constructed air ducts from opposite sides of the house. The air chamber itself should be quite impervious to ground air and provided with a smooth cement floor and walls. An evaporating pan should be kept full of water in order to keep the air sufficiently moist and an air filter should be in use where the air is liable to be charged with impurities as in London or large towns. In my opinion, already expressed, none of these systems should supersede the open fire for sitting-rooms, but it should be used for warming the house generally in conjunction with the open fireplace.

Gas fires are often used, and in the case of bedrooms or in rooms likely to be used for a short time only they have been found useful. They should of course always have a flue, as in a coal fire, to take off the fumes of combustion, as these are most injurious to health. In addition a tray of water which need not necessarily be of an ugly description should be placed in front of the fire in order to keep the air of the room sufficiently moist.

The matter of gas cooking it is hardly our province to touch upon, but if gas is burnt in properly constructed ranges in which the

air can get to the articles to be roasted, there is no doubt it is equally efficacious as an open fire, and when we remember that you have your fire at once by turning on a tap, without smoke or soot or a large amount of coal wasted, and that you can as easily turn it off there is a great deal to be said for it on economic grounds.

Ventilation.—The object of ventilation is, shortly, to remove the foul air in a room or building and to provide fresh air to take its place.

The principles to be remembered are:

- (1). That air when heated expands and rises.
- (2). That fresh air is lighter than foul air of the same temperature.
- (3). That warm air is lighter than cold air of the same density.

Ventilation may be divided into natural and artificial. The latter being further subdivided into plenum and vacuum. In general the fireplace is the ventilating agent by which our rooms are kept habitable. Artificial ventilation is costly and difficult to manage, and is always liable to get out of order, and is not used for the class of buildings about which we are writing. For their purpose we must provide inlets which should be placed near the warmest parts of the room, and not on an outside wall (which is usually made use of), and thus the incoming cold air will tend to equalize the temperature of the room. The inlet should be placed about the levels of the heads of the occupant so as not to cause draughts, i. e., about 6 feet high. The form of inlet, so long known as a Tobin's Tube, is an admirable plan for the admission of air, and by means of a butterfly valve is under the control of the occupant. In very cold weather, in order to avoid cooling the room too much, half the fresh air admitted should be warmed up to 60°. The outlet for the foul air is in the majority of dwelling-rooms the fireplace, but special flues are sometimes built with extracts at the ceiling level. We have used with success for this purpose the combined flue pipe and ventilating pipe, made by Messrs. Doulton, in which by the side of the flue pipe, but distinct from it is the space for carrying off the vitiated air which is of course helped in its upward tendency by the heat of the chimney connected with it. A jet of gas kept burning at the top end of the vent pipe will also help to keep a continuous motion up the pipe. The subject of ventilation is so vast and so many complications are likely to arise that of course we do not pretend to deal with it in this small space, but the above hints may be found useful.

Lighting.—Either oil, gas or electricity is used. Gas, as is well known, vitiates the air of the apartment and renders it unfit for occupation unless the room is properly supplied with outlets, and in dealing with these we must remember that one jet of gas vitiates as much air as two grown-up men, and ventilation must be allowed for accordingly. In a small-sized room, the well-known central gasalier

is, we think, a mistake as it apparently decreases the size of the room, and is not in that position to my mind in harmony with the adjuncts of a small room. If gas is used a couple of brackets on the chimney piece is a better position, but personally for sitting-rooms, at any rate, we are not in favor of gas as an illuminant because of the unhealthy atmosphere it creates. It has also a destructive effect on pictures, wall paper and ceiling alike, and for the centre of the table at dinner or for reading a well shaded and well trimmed oil lamp is much to be preferred, and preferably one of the Defries' pattern, which are what is known as safety lamps, and which go out if by any means they are knocked over.

Nothing could be better than the electric light, and it is no doubt coming to the front at last, and is to be had even now in many of the suburbs of London, and we may look forward to its general use in the near future when it will be as natural to lay it on to a house as it is now with gas. In the meantime our advice is use oil in preference to gas for your sitting-rooms.

In drawing our necessarily brief and condensed notes to a conclusion, we may remind our readers that we have touched upon the three main points of sanitation in connection with the house, the site, the drainage, and the heating, lighting and ventilation. In the two former articles of this series upon the smaller houses of our provinces and suburbs, we treated in No. 1 of plan and design, in No. 2 of construction, while in a future article No. 4 we shall deal with interiors and decoration, giving special photographic illustrations of the best modern work.

Banister F. Fletcher.



Examples
of

Recent
Architecture





McCORMICK BUILDING.
130 Michigan Avenue, Chicago, Ill. Louis H. Sullivan, Architect.



DRY GOODS STORE.

State and Madison Streets, Chicago, Ill.

Louis H. Sullivan, Architect.



OFFICES OF MESSRS. ISMAY, IMRIE & CO.
Liverpool, Eng. Messrs. R. Norman Shaw, R. A. and J. Francis Doyle, Architects.
(From "The Architect," London.)



Paris, France.

THE NEW OPERA COMIQUE.

M. Bernier, Architect.

(From "The Builder," London.)



Pinner, England.

HAYDEN HALL LODGE.

Ernest George & Yeates, Architects.

(From "The Architect," London.)



NEW OFFICE BUILDING.

84 Broadway, and 3 and 5 Wall St., New York City. W. Wheeler Smith, Architect.



Newport, R. I.

"CROSS WAYS."

Residence of Stuyvesant Fish, Esq.

Dudley Newton, Architect.



HALL IN "CROSS WAYS."



LIBRARY IN "CROSS WAYS."



DRAWING ROOM IN "CROSS WAYS."

Theoretical Basis.

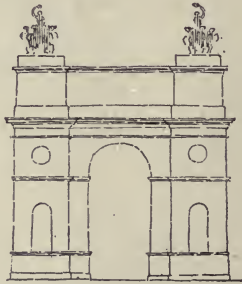


T may seem to some that in the foregoing pages an undue stress has been placed upon the number three. Our insistence upon it has not been a reminiscence of the superstitious reverence that has in the past attached to the number, but is based upon certain qualities therein inherent and easily explicable.

As used in composition, the only mystical property assignable to the sacred number is the fact that two and one are three. That is to say, that, by a slight difference in accentuation of parts, a single group becomes a double one, and a double becomes a triple; it is in the power of the designer to pass from one to the other often without destroying, or even injuring the design for practical use or in constructive facility.



235. A single arched opening. The niches in the piers count merely as details in their treatment.



236. By an increase in relative size the piers count as the elements of a double group; the arch is reduced to a link between them. The arch should be still smaller than here shown, for due subordination.



237. The niches in the piers are here increased until they count as members in a triple group of arches.

At 235 we have the outline of the ordinary triumphal arch. It is clearly a single arch; the abutments, although there are two of them, are quite subordinate, nothing more than the support of it. But, should we need to change the scheme, we may, at any moment, shrink the arch, and magnify the abutment masses into a group of two—towers, or something of the sort—with a moderate gateway to connect them. The sides have become the leading motive; the central part subordinate, 236.

Or we may do still a different thing by increasing the side parts, leaving the central undiminished, 237, the niches growing into

archways, comparable, though not equal, to the central, the whole constituting a triple group of arches.

In the desire to maintain the identity of the object through the different variations, regard for the proportions of the parts has been relaxed, leaving the sketches rather crude, but sufficient to illustrate the point in question.

These transformations shed light upon the just-mentioned mystical property of the number three. Every architectural object consists of a central part and two sides, the central usually a void, the lateral solids. Architecture is, indeed, in its essence, the surrounding or limiting of voids with solids. The building itself is a part of space, surrounded by walls and topped by a roof; while the most important architectural objects are the holes made in the walls—windows, or doors, or intercolumniations—each of which is a void flanked by pier or column and topped by lintel or architrave.

Thus it is that three leading parts, one centre and two sides, become a definite category of architectural thought, to which the mind intuitively reverts, even though the central object cease to be a void and become a mass, or the laterals cease to be solids and become openings; and even though the sides, in the case of double grouping, become more important than the central part.

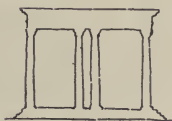
So again a group of three intercolumniations, as at 238, by the shifting of the intermediate columns toward the sides, becomes a single opening between coupled columns, 239; shifting them to-



238. Triple openings.



239. The same, with intermediate columns moved so as to leave a single opening.



240. The same, with intermediate columns moved toward the centre, leaving double openings.



241. The same as 240, with exterior central column.



242. The same as 240, with exterior coupled columns.

ward the centre gives double openings with a double column in the middle and single at the sides, 240, not a very satisfactory arrangement, certainly, but perhaps as much so as that with three single columns, 241. But if we double the columns at the sides, as at 242, a perfectly satisfactory result is obtained.

In passing we may glance at 243, a Greek example, in which the designer seems to have hit off precisely the amount of widening that the central opening will bear, with the corresponding reduction of the side openings, without reducing the latter to spaces between coupled columns and with distinct preservation of a sense of three openings.



243. Gate of the Agora at Athens.

The middle opening is widened as much as possible without losing the identity of the lateral as members in a triple group of openings.

Through all the different stages of composition we have it in our power to pass from one accentuation to another, to express the centre and subordinate the sides, to make the sides the most important and to suppress the centre, or finally to give full force to all three, either equally or with the middle predominating.

This seems to be the real reason why three leading masses is the largest number that can be coherently united. This reasoning applies to unsymmetrical groups as well as to symmetrical, for in the former as well as in the latter it is essential that the objects should be nearly the same size and nearly of the same general appearance. The double unequal group at 244 depends for its proper expression upon the approach to equality of the unequal members, as well as upon their general similarity of appearance. This studied difference in size was a favorite device of the mediæval designers to add interest and poetry to their creations. At 245 is a modern instance of the same sort of thing, although upon a much humbler scale. Here the general similarity of each mass—house and barn—is very marked. Each has a hipped roof, of equal pitch, with an appendage similarly attached to each, and with a small dormer upon each. Each



244. St. Jean des Vignes, Soissons.

Group of two unequals. Such a group must have the members approximately equal and nearly similar in treatment. In this case each feature above the upper string-course is repeated and shortened in the smaller tower. The lateral buttresses are so arranged as to give the effect of greater width to the higher tower.

also has a single subordinate mass, with a difference; that upon the house being a round tower, carefully subordinated in height, while that upon the barn is a ventilator on top. This example carries the subordination of the central part to an extreme point, nothing being left of it but a fence, yet from a pictorial point of view the result is quite satisfactory.

An unsymmetrical triple group is shown at 246, where again in spite of the lack of symmetry the sense of centre and sides is very marked. Another example is at 247, although in this the central gable has a subordinate tower grouped with it. The wings are very different from each other, yet the sense of one being on each side is distinct.



245. House and Stable at Bethlehem, Pa.
As in 244, the treatment of both members is very nearly alike.



246. A Double Private House in Heidelberg.
The entire lack of symmetry in the lateral members does not in the least detract from the sense of triplicity in the group.



247. Union Passenger Station at Ogden, Utah.
The sense of triplicity in the grouping of the gables is not diminished by the asymmetry of the terminal gables.

Incidentally, it might be desired that the tower should either be a little smaller and stand on the same plane as the middle gable, and a little closer to it; or else should be much larger, large enough to dominate the whole group, and stand somewhere back, allowing the central gable to be completed.

Such a group as 248, although it exhibits three objects, is not properly a triple group; the unlikeness of the members renders such a conclusion antagonistic to sense. It is a single object of predom-



248. Entrance to the Antwerp Exposition of 1885. Although there are three objects, their dissimilarity in size and shape forbids classing it as a triple group.

inating size, with a subordinate double group, corresponding with a single opening flanked by coupled columns; the spaces between the columns do not count at all as openings, on account of their lesser size and different proportions. Each of these groups passes into another with perfect flexibility in the hands of the designer, and to make such transitions he must always hold himself ready.

XII.

Transformation of Motives.

The classification of a composition depends upon the predominant group, and this is often determined by a very small difference. A very frequent motive for small houses is shown in 249, in which the main body of the house is a single object, the front gable a single subordinate object upon it.



249. Motive for a small house. A single front gable as a subordinate mass.



250. Same as 249. Ridge of subordinate gable raised to level of main ridge. A faulty composition.

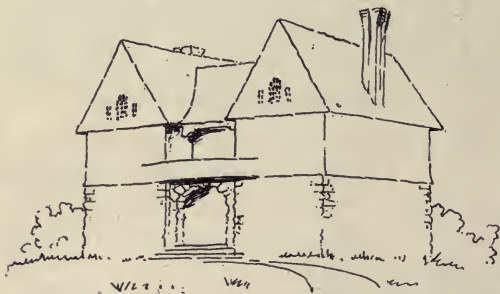
If the ridge of the latter be raised to the same height as that of the former, 250, we have the elements of a bad composition. There is no telling, as we look at it, which is the leading part. Many carpenters' houses that might otherwise be fairly satisfactory are spoiled by this very fault.

But as soon as the ridge of the front gable overtops that of the house behind, 251, we have a new and excellent group, the front gable becomes the dominant single mass; the rest of the house is reduced to two appendages.



251. Same as 249. Ridge of front gable raised still more, until it has become the principal mass.

So, again, in the case of a double group, as 252. It is necessary for a satisfactory result that the ridge of the link should be lower than those of the two masses. If the need for garret room, or other exigency, require the ridge of the link to be higher than this limit



252. The ridge of the link must be lower than those of the members of the group.

it is hardly permissible to raise it to the same height as those of the members of the group. Under certain circumstances, as where there is sufficient relief of the masses in plan, it may be raised to an equal height; but if the conditions demand a still greater elevation we may raise it higher only by changing the motive, prolonging the building until the ridge of the link becomes the main ridge, 253, and the two gables are reduced to subordinate masses upon it.

Or, if we need added length, without any more height, we may leave the link as it was, and put the additional length in the form of appendages, taking care to keep the ridges of these even lower than that of the link for proper effect, 254.



253. Ridge of link raised above those of members; the latter becoming subordinate masses upon a single main mass.

In each case it is the predominance of the ridges that determines the group, and it is essential that one arrangement or the other should be defined unmistakably as the principal motive of the composition.

In this way the designer who understands, or feels without understanding, the rules of combination by which he must be guided, holds his problem fluent in his hand; adding here, to accommodate



254. Ridge of link not raised. Building extended by appendages, whose ridges are yet lower than that of the link.

any unprovided-for room by an unsymmetrical appendage, or a subordinate mass projecting boldly forward; but always maintaining a proper dominance of the motive which he has adopted, or, if occasion require a change of motive, insisting as clearly upon the new one.

Not for a moment must it be supposed that anything like the inflexible stiffness of the last half-dozen sketches is the ideal of the designer. In elucidating the principles, simplicity of grouping must be the first thought, and stiffness is the inevitable accompaniment.

But in practice it is quite a different matter. As long as the leading motive is explained and not obscured by them, uncatalogued

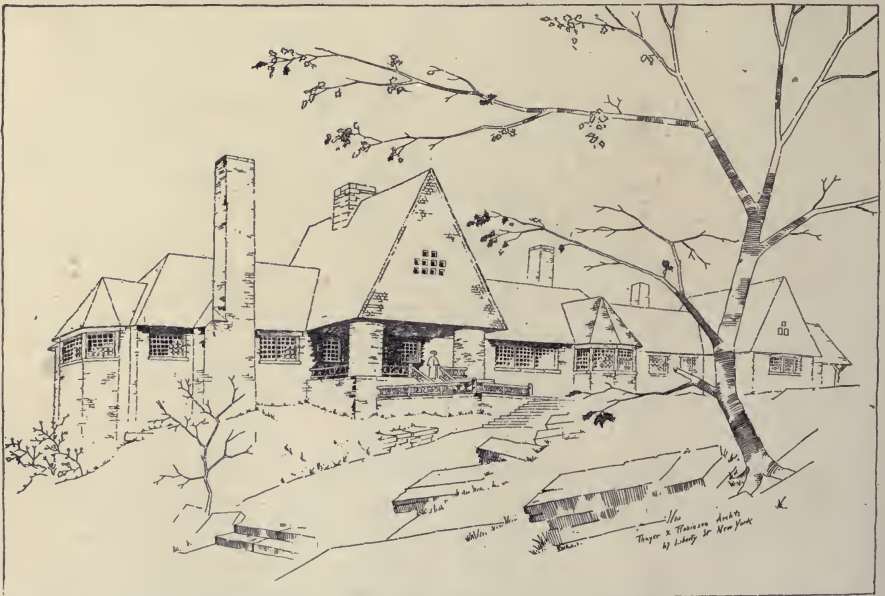
and uncataloguable variations are not merely permissible, but add grace and charm to what might be without them prosaic and cold.

The house shown at 255, for instance, is, in its leading motive, a single mass, with two unequal gables as subordinate masses. There is, however, another almost symmetrical subordinate group of two turrets, set quite unsymmetrically with reference to the gables.



255. Double unsymmetrical group of gables, with an additional double symmetrical group of turrets.

One of the gables, too, runs down on one side, quite regardless of anything else, yet notwithstanding all these irregularities, the main motive of the two gables is not in the least obscured.



256. The smaller gable, upon the right-hand appendage, suggests a double group in connection with the gable of the principal mass.

In 256 the primary group is the large single gable, with the rest of the house attached on each side as appendages. The addition of the smaller gable, giving in connection with the main gable a faint suggestion of a double unequal group, adds interest to the whole composition.

Another complex group is at 257. It is a group of two unequal masses, differing from each other in elevation and even more in plan. The largest mass is at the left, and it is composed itself of two unequal masses, the gables, also irregular in plan, and a subordinate mass, the octagonal turret. The smaller of the leading masses is a



257. Denby Hall, Bryn Mawr College.

A complex double group; the larger member is itself a double group with a subordinate turret.

simple gable, elaborated by a single gable placed on the return as a subordinate mass. Although so irregular, the group is as articulate and coherent as the most absolutely symmetrical combination could be.

On the other hand, a symmetrical grouping is shown at 258, in which each of two equal masses is combined with a tower as a sub-



258. Another complex double group. Each member has a tower attached as a subordinate mass.

ordinate mass. Incidentally it may be remarked that the slight variation in detail in the disposition of the openings, upon the fronts of both the wings and the attached towers, does not at all detract from the symmetry of the whole composition. Again, at 259, is another compound symmetrical group. The principal mass is a group of two gables and there are two appendages; the more distant scarcely distinguishable, except to permit us to say that it is quite different, in plan as well as in elevation, from the nearer. The latter, the appendage on the left, is compounded with another appendage, marked by a break in the roof line, and by a subordinate

mass, which is a double gable like the principal mass. The roof of the appendage is rather muddled with three detailed gables, all different: it would have been better if the smallest might have been



259. Piggot's Manor, Hertfordshire.

A complex group of single principal mass with two appendages, all parts asymmetrical and compound.

thrice repeated. The distant appendage also seems to have the ridge a little too high, although it is too much obscured by the principal mass to speak positively. The whole is a coherent and pleasing composition.



260. House at Chestnut Hill, Mass.

The main gable and those of the dormers are alike in treatment.



261. House at Chestnut Hill, Mass.

Here again the hipped dormers correspond to the hipped main roof.

In the disposition of details upon the principal and subordinate masses, the most general caution to be observed is that the same general character should mark both the details and the masses. Thus, in 260, the gables of the dormers repeat the gable of the building; in 261 both mass and dormers are covered with hipped



262. Buchan Hall, Sussex.

The treatment of all the gables of main roof and dormers is as much alike as possible.

roofs. In 262, which, by the way, is another admirable example of a coherent, although unsymmetrical group, all the gables, both of masses and details are treated as nearly alike as the difference in size will permit. Every one is crowned with a small pediment, flanked by two pinnacles, divided horizontally by mouldings and perpendicularly by colonnettes.



263. House at East Orange.

Another example of the happy effect of similar treatment of parts varying in size and importance.

A more simple, and as marked, example is at 263, where the similarity and the excellence of effect thereby produced are conspicuous.

For certain definite purposes, however, precisely the opposite course must be pursued, and treatment must be used, varying according to the circumstances of the case.

At 264 is a composition of a double group, the two large gables, united by a link. To this is added an appendage, the lower wing at the right, and a single subordinate mass, the tower. The dormers upon



264. Passenger Station at Cheyenne, Wyo.

In this case the dormers of the appendage are suppressed as much as possible, to mark it as an appendage.

the link are treated with hipped roofs, and not with gables, in order to more clearly limit the height of the wall of the link to one story, thereby distinguishing masses from link as perfectly as possible. Upon the appendage, the dormers are kept low, flat and inconspicuous, to aid in asserting the subordination of this part of the building.

Sometimes, too, details are grouped upon the background which the building itself affords, very much as if they were an independent composition. In this case, again, they must be of such a character as will make clear the grouping that is intended.

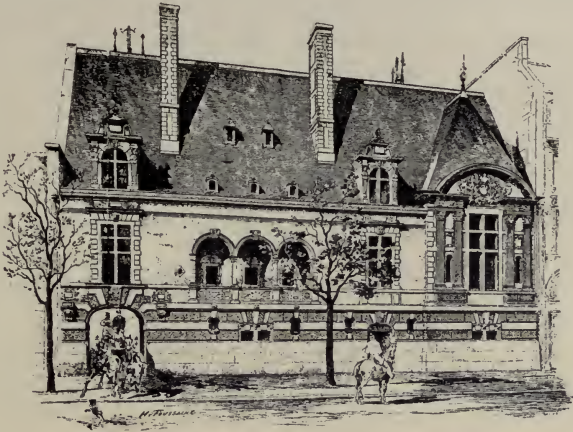
Such a treatment is at 265, the datum given being an unmanageable second story projecting through a gambrel roof, presenting a continuous vertical wall, of the height of the second story windows,



265. House at Little Harbor, N. H. The dormers are arranged as an unsymmetrical triple group.

or a little more, which must be gracefully roofed. It has been skillfully done. The character of all the dormer roofs, as usually befits a minor composition upon a larger mass, is different from that of the main roof. That is a gambrel gable; these are hipped, square or octagonal, and they form a group of three members, the central octagonal, the side square, connected by a low, straight line produced by

bringing the main roof down at a lower pitch. The same sort of thing might have been done in several different ways. Two octagons might have been formed, the present and another on the left, in place of one



266. Private House, Paris.

The pavilion is a single subordinate mass; the dormers and other details are separately composed in a double grouping.



267. House at Hampstead, England.

An interesting parallel to 266. Here, however, the details are a triple group.

of the square dormers. Or the present octagon dormer might have been enlarged, which would not have looked well, and so on, but a more pleasing result it would have been hard to reach.

266 and 267 are a pair of rather curious examples of parallel motives in quite different styles, one modern French and one modern

English, both good of their kind and both quite characteristic. Both are single masses, with straight front walls and high pitched straight roofs, ending at gable walls, actual or potential. Each is provided with a single subordinate mass; that in 266 being at the extreme right hand of the façade, a graceful French Renaissance pavilion with hipped roof; the other at the extreme left hand, an unpretending English bay, also with hipped roof.

The rest of the detail in both examples is treated as a separate composition, in the English specimen, a group of three equal members, in the French, a composition of two members joined by a link, the openings in the first story and the dormers on the roof being suitably modified to carry out this impression.

Such examples as these, in which designers of schools so opposite as to be almost antagonistic, have arrived at so nearly the same solution of a problem, indicate how closely such schools are really connected, notwithstanding superficial separation. They show, too, how necessary it is in laying down the law in such matters to avoid dogmatism, as a skilful designer will always be ready to avail himself of new and untried combinations.

But where no special difficulty is to be overcome, the handling of the masses of a design, with the aid of the rules that have been elucidated, becomes almost a mechanical matter.

Each group that we have indicated becomes clearly fixed in the mind, with its variations and modifications; one gliding into the other by such easy changes, and the limits of possible changes being definitely fixed, that we are restrained from false steps, and soon learn to instinctively assign to each new plan its appropriate treatment.

Each arrangement, too, we learn to think of as independent of "style"; as indeed, practicable in any style, although some may lend themselves more readily to one sort of treatment than another.

Thus the three designs shown on page 449 are all of the same motive, adapted in treatment to different styles. The motive of each is a single mass, with one subordinate mass placed unsymmetrically, and with two appendages, one of which also has a subordinate mass, placed also unsymmetrically.

The first, 268, shows the motive treated in modern rural style, a design suited, perhaps, for a country hotel. In this case one of the appendages is placed diagonally in plan, without influencing the motive. All of the three roofs of main mass and of both appendages are made with gables and long ridges. Hipped roofs for all might have been adopted just as well, as far as the unity of the design is concerned, or the main roof might have been gabled, and the appendage roofs hipped. The single subordinate mass is applied in the form of an oriel turret. This turret is not started from the ground, because

such treatment would destroy its proportion to the masses. These latter are all open rectangles, rather "chunky" in build, and the chunkiness of the turret which is obtained by shortening it is quite



268. A composition of a single mass with one subordinate mass and two appendages.

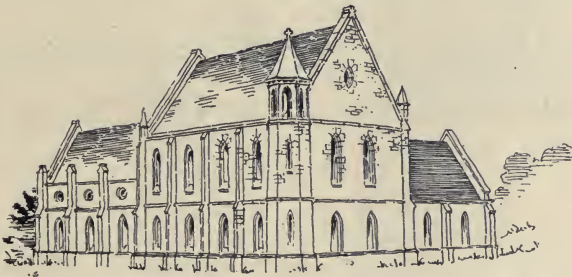
in keeping. Moreover, keeping it up from the ground accentuates the line above the first story, which runs through mass and appendages, subdividing the design horizontally into two parts, an effect



269. The same composition as 268, in an entirely different style.

which would be antagonized and spoiled if the tower were carried to the ground.

The next, 269, is an application of a horizontal Italian style, to the same motive. Deference to precedent urges us to straighten out, in



270. The same composition as 268 and 269, but differing in style from both of them.

plan, the appendage that was before diagonal. The treatment of all the roofs is low and flat, scarcely showing above the cornices; and the projection of the latter is somewhat more than in proportion to the dimensions of the separate members, rather to those of the group as

a whole. It would be fatal to allow this to be cut into by a turret: the subordinate mass accordingly is chopped off at the top as well as the bottom, and the roof of it flattened to match the other roofs. At 270 is the same motive again in Gothic treatment.

The detail appropriate to that style cuts the masses up into narrow vertical slices, quite subordinating the horizontal lines. In harmony with this the turret is prolonged both downward to the ground and upward above the main roof. All the roofs are of steep pitch, and the subordinate oriel window which adorned one of the appendages in the two preceding examples is omitted, as more in keeping with Gothic work.

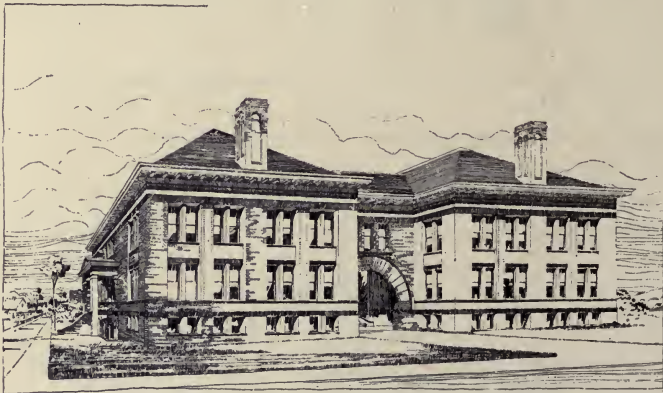
XIV.

Double Composition.

A few words of further explanation upon the question of "double composition," once before referred to, may be in place.

It is well known that two like objects set side by side, unless the junction is properly managed, look exceedingly ill. This fault is called "double composition," and is so well recognized that it is not easy to find very good examples.

The chief cause of error in this respect is the failure to make the connecting link sufficiently evident. A fair example is at 271. From

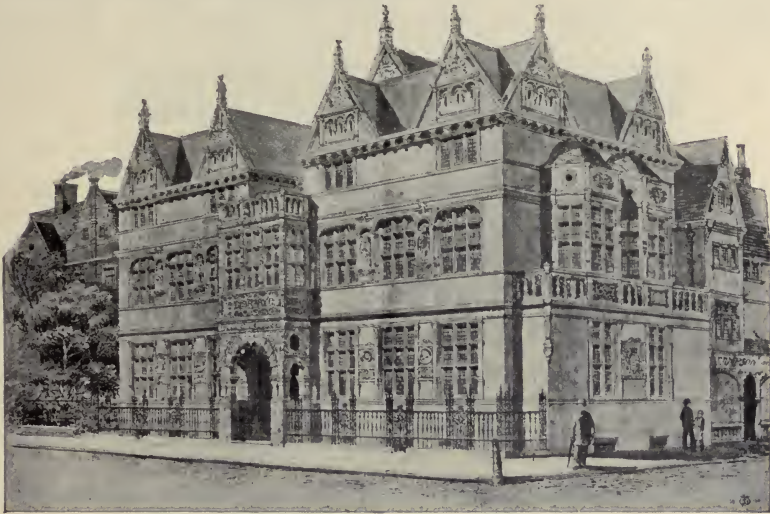


271. The too great retreat of the link renders this almost a case of "double composition."

the point of view of the picture the link is quite visible, and the "doubleness" not so striking, but if the spectator should stand a little further on one side the link would pass out of sight and the "doubleness" become manifest.

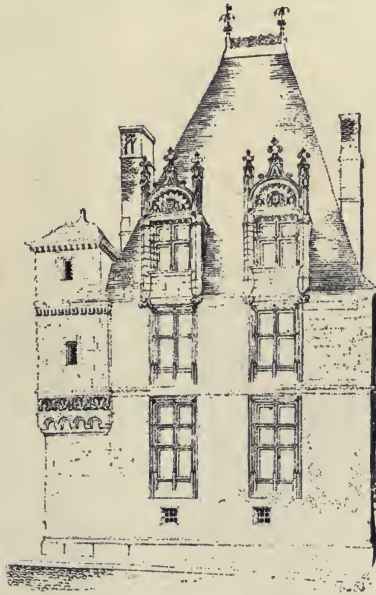
A similar fault often occurs in New York apartment houses, where two houses standing back to back occupy the whole frontage at the end of a block. Sometimes the defect is partly remedied by the addition of a colonnade to connect the two buildings.

So in 272 the two parts of the building would not look well were they not connected by the porch, which the architect has, very judiciously, carried through two stories.



272. This design is rescued from the charge of "double composition" by the prominence of the projecting porch.

These two are examples of principal masses, with reference to the defect in question. As for subordinate masses and details it is much



273. Hotel de Ville, Amboise. The double treatment is united by the high roof of the building.

easier to avoid "double composition"; because they are so well united by the background of the mass upon which they occur, that often

no other connection is needed. At 273 is a pair of dormers, which would certainly fall under condemnation were it not for the large roof behind them, which ties them together; as it is they barely escape it. Another instance, which is scarcely redeemed by the pres-



274. Parish School, Charleton, Devon.

The main mass behind is barely large enough to properly unite the two gables.

ence of the principal mass behind, is at 274, the two gabled masses not looking so well as if they were connected by something flush, or nearly flush, with the face of them.

Sometimes the welding is done by the addition of a subordinate object, of which a particularly fine instance is at 275; the two gables

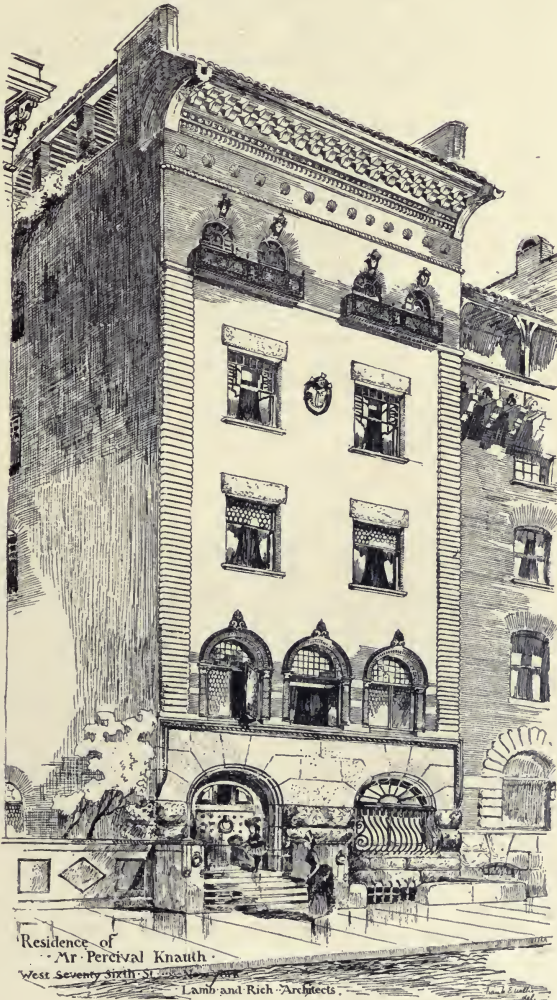


275. Church of English Martyrs, York.

The two gables, which without it would be a flagrant case of "double composition," are admirably united by the central tourelle.



276. Postoffice, Surbiton, England. The central doorway serves to unite the double treatment.

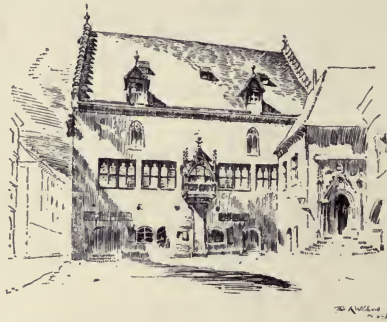


277. Private House, New York.

The wreath in the fourth story unites the double treatment of third and fourth stories.

would look badly without the clever turret between, which "pulls them together."

Very often the addition of a central detail of this kind will have the desired unifying effect. 276 is a case in point, where the central doorway is so used, also the window above it has some effect of connecting the double motive, although this effect would be greater if the window were oval, or circular, or a cartouche, or something differing more from the windows on each side. 277 is another case, in which the wreath between the two fourth story windows has a wonderful effect in connecting the two windows of third as well as those of the fourth story; and again, at 278, the canopied balcony connects



278. Rathaus, Ratisbon. Double treatment united by central balcony.

the double motive of the front. There are other ways of uniting two objects that are not sufficiently well connected. Two gables standing side by side are apt to fall under the charge of "double composi-



279. Llewellyn Almshouses.
Double gabled treatment united by heavy overhang of gables.

tion" unless measures are taken to join them. Usually a heavy projection is managed, either just below them, as is seen in the double gables in 279; or a series of marked horizontal lines in the mass below, as at 280, forms an adequate bond. Sometimes they are



280. Double gables united by marked horizontal lines.

laid together bodily, as at 281, 282, a part of each being chopped off in order to unite the two into a whole.

In one frequently recurring requirement of design "double composition" is imminent. In every couplet window, with a central



281. Private house at Detroit, Mich. Double gables united by juxtaposition and merging together



282. House at Interlaken, Fla. Same as 281.

mullion, the tendency to double is felt. If in any way the individuality of the mullion is too marked, as by making it a column, it is almost sure to involve "double composition."

Accordingly in almost all arched couplets we find three columns or columns are used, and in the rare cases in which a colonnette is used for a mullion in a square-headed opening, the situation is often

rescued by putting a row of such openings together, and overcoming the effect of individuality, that with one column would detract from the desired effect of a duplex opening, by the appearance of continuity in the succession of both columns and openings.

XV.

Criticisms.

When such a design as 283 is presented for our opinion as to its merits, it is easy to speak the word of condemnation without hesitation; not so easy to name and classify our objections, and show how



283. A design for critical analysis.

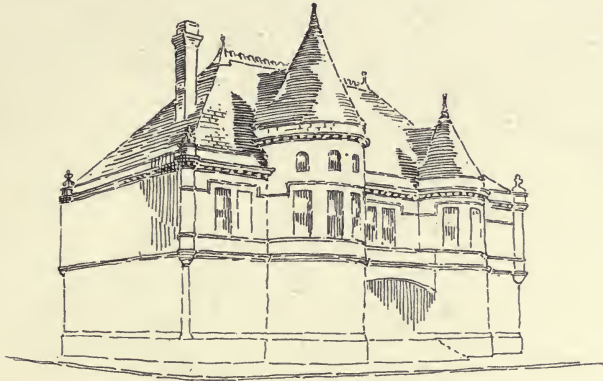
the faults discovered may be removed. By the aid of what we have learned, however, we may hope to succeed in the attempt.

The first really critical thought is that the mass of the building predominates; all of the towers and other projections, whatever their merits or defects, are subordinate to the building itself.

Our next thought is that the arrangement of octagon tower roof, dormer and circular bay upon the front is hardly clear; there seems some intention of uniting the tower and bay in a group of two by the balcony at the second story, but the dormer is so large and self-assertive that, above, it looks more like a group of three. Do away with the dormer entirely, let the attic go without light if need be—light has nothing to do with appearance—and it is at once much improved.

The tower and bay are still at variance, and they must be made of similar character before they can be united. The conception of the

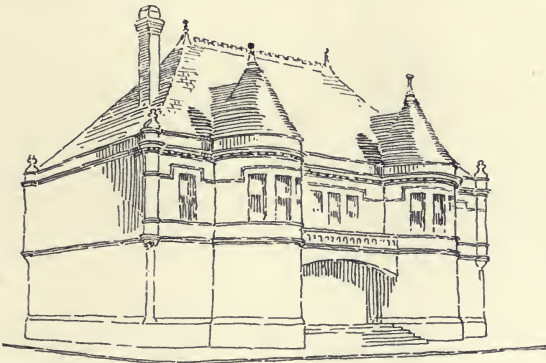
designer seems to have been that of a group of two unequals, and this is quite practicable. In order to make such a group we must widen the large tower in order to make its dimensions proportionate to those of the bay, and we must also make both bay and tower either circular or octagonal in plan, thus, 284.



284. The same as 283, with the large front dormer removed, and the towers made similar in treatment, although of different sizes.

Incidentally, we abolish the octagonal bay on the side of the building. It is rarely advisable to use anything like the same treatment on the side and front of a building. One or the other should receive the principal treatment, not both the same. So if we must have a bay at the side we should take off the roof and terminate it with a balcony only; or, better still, stop it at the second story.

Even as we have made it the design is not yet satisfactory. The reason is that, in making the larger tower proportionate to the



285. The same as 284, but the towers reduced to a group of double equal subordinate masses.

smaller, we have made it too large to appear quite as a subordinate mass. We must give up the idea of a double unequal group and make a double group of equals as at 285. The composition now is

much improved, although the details of windows, corner tourelletes, and others are yet susceptible of improvement.

As for lighting our attic, it must go unlighted, or at the most receive a glimmer through the smallest possible roof slits, none at all would look best. If a brilliant light is indispensable we must put three large dormers on the front slope of the roof and take away our bays entirely. The two treatments cannot be combined, 286.

A very fine example of hesitation in subordinating the members of a group is shown at 287. Here are three objects—a tower, a gable, and a pavilion, all of about equal size, none of the three pre-



286. The original design of 283 modified in an opposite direction, the towers omitted and triple dormers developed.

dominating sufficiently to enable us to say whether it is a group of one, two or three parts. Nor is any of them large enough to be regarded as subordinating the main bulk of the building to a mere ap-



287. Another example for critical analysis.

pendage; nor small enough to reduce itself to a subordinate mass upon the building.

So that we must first make up our minds as to this latter point, whether the objects are to be principal or subordinate masses—whether the composition is to be one large thing, with several small things upon it; or whether it is to be a group of things of varying sizes, each properly related to the other.

Beginning with the former arrangement we have as a foundation a perfectly straightforward, square building—very safe and satisfactory as a motive at all times, 288. It has a mansard roof, somewhat



288. The base upon which 287 is composed.

difficult to treat—more difficult upon an isolated building, such as this is, than upon a façade. Moreover, the proportions of the stories and of the roof are unsatisfactory.

Leaving these for the moment, for we must not lose sight entirely of the building that we are analyzing, we endeavor to restore some



289. An attempt to recompose design of 283. Round tower omitted and replaced by a symmetrical pavilion.

of the objects, as in 289, wherein we have changed the round tower into a pavilion, knowing well that three unlike and equal objects cannot be united in a group. We hope by doing this to obtain a



290. The same, with the central gable abandoned and a pavilion like the sides substituted.

group of three, the central unlike the sides, and predominating over them. Our hope fails us. The central mass is not big enough to dominate the group; besides, there is a painful lack of similarity be-

tween its slope and that of the side pavilions: we must assimilate it to the others, and make a group of three like masses, 290, which is fairly practicable, although the details and proportions need much further study.

As to faults of proportion, one thing especially comes to our attention—the narrowness of the link walls, and the lack of similarity between their dimensions and those of the pavilions. The windows, too, seem to be crowded in, but the idea of being crowded is an intellectual and not an æsthetic one; the real æsthetic defect is the comparative broadness of the pavilions contrasted with the narrowness of the curtain walls between them.

With the view of obtaining a broader link space we determine to try a double grouping as at 291. This promises better results. The



291. Central pavilion omitted and composition changed to double motive.

effect of the pavilion at the nearest angle, however, is unfortunate: it is not clear whether the pavilions are subordinate or principal masses. We therefore relinquish the motive that we have hitherto pursued and determine to make them definitely the latter by raising their ridges as in 292.



292. The same as 291, with the members increased and the link subordinated.

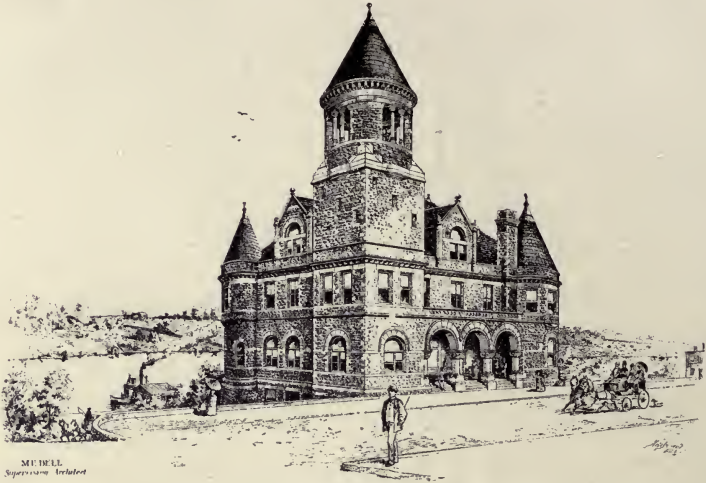
Not one of the motives that we have thus obtained is satisfactory until much more study has been given to it than we can afford to give here. Enough has been said to indicate the methods by which our efforts at improving the design should proceed.



293. Another example for critical analysis. Masses not properly subordinated.

In 293, apart from the lack of grace which occurs in all parts, the fundamental error is the same as in 287; the pavilions and other parts that are upon both front and side are either too large for the building or the building is too large for them. They must all be very much lessened and properly disposed upon the building as subordinate masses; or else very much increased; and, in this latter case the number of them must be diminished. Besides this the treatment of the side must be less individualized: it is almost impossible to treat successfully both a front and an adjacent side with important central masses.

So frequent and so fatal is this last error that one or two added examples may well be examined. An excellent illustration is shown in 294. Although there are other points that might be criticized, by far the most interesting is the ill effect of the exactly similar treatment of front and side. The reason is that the whole art of obtaining unity in a design is the observance of a due subordination in the various parts. One side or the other, either front or return, must in some way predominate in treatment. If our design is a simple pedimented or gabled mass, the pediment or gable is sufficient to give predominance to the side on which it occurs: if, on the other hand, one side is distinguished by a certain grouping of subordinate



294. Illustrating the unfortunate effect of treating both front and side alike.

masses, some entirely different treatment is needed for the adjacent side.

There are innumerable houses of the most modest dimensions and extremely bad design, that are erected every year by builders who regard themselves as architects, but lack the chief requisite to justify such a view—the power to make an agreeable composition. At 295 is an instance of which the faults may at once be pointed out;



295. Design for critical analysis. The front dormer is excessive, if it is meant to be a subordinate feature.



296. The same as 295 with the excessive dormer reduced.

the most serious is the excessive size of the front gable. This is clearly meant to be a subordinate mass, as indicated by its bracketed support; its excess in height above the main ridge, however, quite contradicts this assumption.

In order to make it tenable we must lower the front gable as in 296. This is an improvement, but it still leaves us in trouble with

our piazza. Any marked horizontal line which stops short as this does of the horizontal lines of the principal mass, is difficult to manage. It is almost as bad if it is returned at one end and not at the other. Perhaps as good a solution as can be reached without an entire restudy of the plan is that shown in 297, where the piazza is carried across the entrance front, the roof of portion on the return being omitted. The flat-roofed one-story part must be treated as an ap-

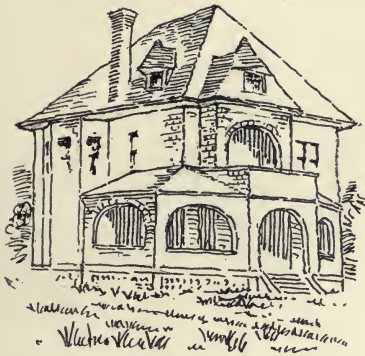


297. The same as 296 with dormer and main roof united by similar treatment.



298. Design for critical analysis. Almost incorrigible.

pendage, and the back wing separated from the main house by a break in plan, which will make it compose as an appendage from a side view.



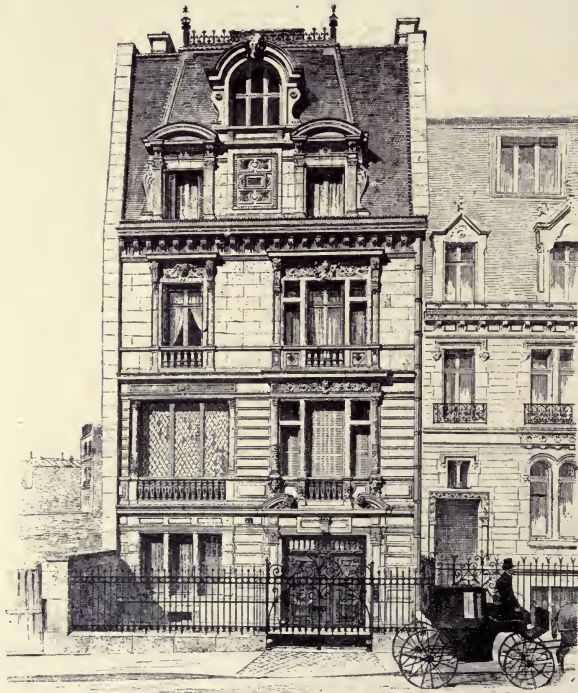
299. An attempt to improve upon 298.



300. The same as 299, farther modified, but not yet successful.

A still finer specimen of a bad composition is at 298—so bad indeed that it is scarcely possible to suggest improvements without beginning with total erasure of all that has been done. The main building appears to be meant for a hipped roof, but the various subordinate parts are so disposed that the outline of the roof is barely discernible. This is the most serious fault: we proceed to radically

extirpate it in 299, where we have restored the main roof, leaving the lower part much as it was. The single subordinate hipped part that remains is very unmanageable, because it is at variance with the heavy horizontal line of the overhanging eaves. Moreover, on so small a building, it should be in the centre or else still more to one side. Besides this the unsymmetrically placed piazza will not do without further study. We make an attempt at 300 to right these matters, by putting both piazza and upper projection on the corner of the building, making them octagonal to excuse the asymmetry. The result is not happy, the vertical lines of the turret are still at variance with the eaves, and its proportions fail to harmonize with those of the piazza.



301. Example for critical analysis. Faultry composition of details.

Further study would give us a new and satisfactory motive, but not without losing the identity of the design that we are criticising.

At 300 we have a specimen of faulty arrangement of details, less offensive, indeed, than some of the foregoing faulty examples, as a façade is hardly capable of being either as beautiful or as ugly as an isolated building.

Such a spacing of windows, with an excessively narrow pier on one boundary, as occurs in the basement and first story, is not to be excused on any grounds of convenience of internal arrangement.

Not because a narrow pier suggests constructive weakness: this may be true, but it is not with such criticisms that we now busy ourselves: simply because of its entire dissimilarity with any other part of the building, especially with any other pier, such a narrow pier as this the eye cannot tolerate.

If the conditions are inflexible, we must seek a solution by making the other piers also narrow, which would look badly enough, but not so badly as at present, because one serious æsthetic objection would be removed, though new ones of lesser importance might be presented.

A still more serious error is in the grouping of the three dormers on the roof. In the first place the roof itself offered a suitable background, without cutting it up with hips apparently intended to suggest a pavilion, but having too little relief to look well. In the second place, if pavilion there must be, its sole function was to be a background to the three dormers, which is negated by starting the hips from the top of the lower dormers, instead of from the main cornice.

In the third place the topmost dormer should be of the same character as the two below; or if it must be different, it should be very much more different than it is, and if possible, much larger.

In the fourth place the panel between the two lower dormers is most unfortunate; there should be no panel there, but only roof surface: if panel there must be it should have less individuality, so as to unite the dormers rather than assert itself.

John Beverley Robinson.



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