**XXIII**

**ARCHITECTURAL COMPOSITION**

1. **Enveloping Form**

Once the sizes, number, and arrangement of the rooms to be contained in a building and the structural system to be employed are determined, the form and dimensions of the enclosing envelope are implied. What the French call the partit has then been found. But the envelope usually has functions peculiar to itself, over and above that part of its purpose which is mere enclosure. These include its own stability, resistance to the weather, and economic efficiency. The design of the exterior of a building is, therefore, something more than a mere agglomeration of enclosing walls and roofs to such rooms within as happen to fall on the outside of the whole mass of accommodation. It not infrequently happens that the envelope of a complex organism, such as an animal or a building, is symmetrical for functional reasons of its own, while the internal organs are not. Thus the envelope of a building may take the form of a simple rectangular block with regularly spaced openings. It may, on the other hand, in deference to its contents, accept articulations from each and every organic element within.

Between these two extreme cases there are, of course, infinite possible gradations of compromise as to what derives from the contents and what may derive from the nature of the envelope, when discovering the form of the latter. There is here no question of a better or worse principle for guidance, independent of the case in point. The Palazzo Farnese in Rome, and Compton Wynyates in Warwickshire, may be cited as fairly extreme cases, and any Georgian mansion consisting of a main block and wings as an intermediate compromise. For any given case, that degree of compromise, between the enveloping form that would tell most about itself and least of what is behind it, and the enveloping form that would do the reverse, is best which, with due regard to internal amenities, is most economic. Best, that is, from the point of view of pure design; but evolution and tradition and artistry may introduce considerations to lead decision from a best of this kind.

Purity may be sacrificed for other virtues.

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The elementary house form is a rectangular parallelepiped in hot dry climates; and with a pitched roof set over it where rain is frequent. This structural enclosing envelope may be enlarged in two ways: by making it bigger (in one, two, or all three directions); or by adding other elements more or less like the first. The one...
followed the sheer which the envelope demanded. The guns thus stood on curved decks at varied angles. About the time of Mr. Pepys, the number of guns carried having increased, they were placed on a horizontal cambered gun deck, to facilitate accuracy when letting off a broadside, at a given moment, as the ships rolled. The stringers, carlins, and strakes for the structure of the hull retained their sheer, but were now partly dissociated from the level internal deck lines. Thus the level row of gun ports in these ships occurs out of reference to the strakes and stringers. This incongruity of form was usually partly masked by means of decorative wreaths around the gun ports. With the increase of guns and gun decks, the sheer of the hull was abandoned later on. So Nelson’s ships were built high and horizontally decked throughout. Then, inheriting the horizontal deck tradition, the merchant ships of mid-Victorian times were built without sheer, but low. These were wet, unhandy craft to work on. This bad type gave way before the ships of the Canadian Maritime Provinces and New England, with their pronounced sheer, which were safe and comfortable. This latter part of the story is irrelevant to the point at issue, though interesting as showing the law of survival at work in the evolution of structural design. It is the conflict of internal and external form revealed in the placing of gun ports and strakes in King Charles’s ships that illustrates so clearly what is meant by congruity and consistency between the inside and the outside of a structure.

The case of a certain hospital in Scotland may here be cited. It had a high gable with a large window in one of the wings. The gable contained a great sewing-room, and the window had its sill about seven feet above the floor. That sill had to be lowered to table height so that the sewing women might see out and so keep cheery. The placing of that window in the first instance was determined by the designer’s insistence on certain quasi-structural features, of frequent occurrence in an architecture which flourished a thousand miles to the southward three hundred years before that gable was built. After the lower lights had been cut down, these features became incongruous and lost significance; the window got ‘out of proportion’ and ‘out of scale’ in that its new characteristics of form were rather surprising with respect to the character of the other windows, and what might be called the architectural expectation. People said the gable had been spoiled and was now ugly, the architect leading the chorus; when they got accustomed to the ‘eye-sore’ it ceased to ‘hurt’. The matron then had some more windows altered for the happiness of the inmates. Such cases of failure to relate exterior structure to internal arrangement and use are not uncommon. They are due to inadequate exploration of function, and occur most frequently through the persistence of an accustomed form, without reference to a new fact—a putting of new wine into old bottles.

2. Unity

The enveloping form may be so simple that its characteristic unity is never in doubt. Giotto’s Tower and the Baptistry of S. Giovanni at Florence, the Parthenon, any hipped, or gabled, or flat-topped house with a rectangular general plan, are cases in point. Again the enveloping form may be as richly complex as
that of a Medieval Russian Church and owe its unity to an all-pervading consistency of unique elaboration. When the enveloping form is based upon a highly articulated straggling plan, characteristic unity can be dependent on general similarity and analogy of form in the several parts, out of which the whole is made up. If there is no such general similarity, some part may be selected for special emphasis about which the other parts can be grouped in subordination. When there is no such singular element to exploit and no general similarity among the elements, each element remains a separate unit to be developed as such. In that case some axial arrangement involving balanced groups may yet be discoverable without unduly outraging the facts of the case.

Most structural problems find expression neither in a simple unit, nor in a heterogeneous collection of units; but in a form made up of a dominant mass with subordinate elements, the dominance being strong or weak as the case may be. Dominance is usually due to size; but often to character—sometimes to both. Thus, a country house may consist of a main block with wings of equal or unequal importance, symmetrically or unsymmetrically disposed. The main block then holds the whole together as a complex unit. It is then open to the designer to maintain a due distinction between the dominant and the various subordinate elements. He may exaggerate the contrast between the dominant and subordinate elements, or he may harmonize and reduce their characteristic differences, at will. That must depend on whether he feels the differences or the similarities as most characteristic of the thing as a whole. His predilection, or personal style, may be based on the technique of contrast, or on the technique of harmony; and he may have more ambition to exploit his way of solving problems than to explore his problems for their suggestions.

Thus some seek inspiration in their theme—the engineering solution of the problem, which then becomes the raw material of composition; others, less sympathetic to their themes, force their contrasts, or their harmonies, in obedience to their instinct for either basis of characterization. The greatest architects, like the greatest writers, modify their style to their theme. Both contrast and harmony are inevitably present in any complex form; where either dominates the other, it is usually attributable to the artist's style. It is rarely indeed, however, that the nature of the problem
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does not carry with it some implication as to precedence. After all, artistry in design is based on what the artist feels about his problems. The problem and the artist's feeling are both involved. Some artists feel much the same way about all their problems; some feel differently about every one.

Sir Christopher Wren's was an architecture of harmony. He was never abrupt in his transitions. One thing grows out of another to constitute a coherent whole, whether in plan, in internal, or in external composition. During the later Gothic period, on the other hand, one often finds a primary dependence on striking contrasts of form—the horizontal set against the vertical; the big set against the little; the high against the low—as at ‘Boston Stump’. In English architecture of the end of the last and the beginning of the present century, contrast is often predominant. The work of Sir Robert Lorimer and Mr. John Belcher, though differing greatly in temper, was of a kind to this extent, that no opportunity of exploiting a broad basis of contrast is missed. That does not mean that all sorts of forms are put in apposition to one another to the sacrifice of unity, but that the unity in any given case is mainly dependent on two sets of forms, each serving as a foil to enhance the characteristics of the other. Ludwig Hoffman, on the other hand, showed a versatile genius, sometimes forcing contrast to the limit, sometimes controlling every element in a disciplined harmony, as the occasion might suggest. Norman Shaw usually harmonized all the elements of his main composition, and then suddenly introduced some minor element contrasting sharply with the suavity of the major treatment.

3. Voids and Solids

Now the stuff the architectural composer has to deal with consists of very commonplace matters—walls, arcades, colonnades, windows, doorways, roofs, parapets, chimneys, and so on, which are all things complete in themselves; also piers, columns, lintels, arches, string-courses, cornices, and the like, which are the structural elements out of which such things are made up.

The arrangement of windows in walls, the commonest of all the exercises that claim an architect's ingenuity, may here be investigated; and first in the very ordinary case of a row of similar openings at equal distances centre to centre. If the number is equal, there is no question of a central emphasis; one then has the simple continuity of repetition, from end to end, the solids between the voids being similar. What of the end solids, where the wall returns at the quoins? The elevation consists of a series of equal bays, with windows, centrally placed, in each bay, whether partitions occur opposite the centres of the solids or not. The insides of the returning walls at the ends may then be expected to correspond more or less to the pier centres. How thick is the end wall and how wide are the intermediate piers? The face of the end solid is made up of a half intermediate solid, plus the thickness of the end wall. Is the width of this face greater or less than the width of an intermediate solid? If it is less, the end solids will be weaker, and look weaker, than the intermediate solids. There is what may be called a general expectation that they should be, and look, as strong, or stronger.

For suppose the openings are arched; then the thrust of each arch counterbalances the thrust of that adjoining it; but, when one gets to the end of the series, mass must be relied on to keep the thrust directed within the fabric. For this one requires either an extension of the wall, so that it may contain the thrust, or a top weight, or both. Additional top weight on a narrower end pier will at once produce uneven stressing in
the fabric, the larger intermediate piers or solids being less loaded than the smaller end ones.

Now, to return to the case of the row of windows, two courses are open. One may differentiate the narrow end solid to make it be and look stronger, as by building it in superior material, or one may make it as wide or even wider than the intermediate piers. This latter course presents no difficulty if the end wall is thick or contains an abundance of chimney flues. An end solid that looks weak, but is actually strong enough, is objectionable just because from time immemorial stronger end solids have been necessary. Surviving structures thus predominate in which a strong quoin is in evidence, and create the expectation.

The differentiation of the end solid or quoin, when it is narrower than the intermediates, is always possible; but there is a third way out, and that is to emphasize each solid throughout with a central column, pilaster, or pier, repeated at the ends by way of a quoin, and so dimensioned that the intermediate solids consist of one pier plus two pieces of curtain wall, while the end solid consists of one pier and one piece of curtain wall, all the pieces of curtain wall being equal. The horizontal division of the total wall, in the case of four openings, then becomes:

\[
\text{Width of wall} = \frac{1}{2} \text{pier} + 4 \text{bays} + \frac{1}{2} \text{pier},
\]
each bay being made up of an opening and two pieces of curtain wall and two half piers (one). Such a distribution of space exemplifies a basis for what is called architectural treatment.

Yet another way of disguising a difference between small end and wide intermediate solids may be mentioned. Instead of resorting to piers or pilasters at the bay centres, one may frame the openings. The architectural framing of an opening reads with the opening, not with the solid of which it is a part. Each intermediate solid then has its surface reduced by two framings, while the narrower end solid has its surface reduced by only one. The division in the case of four openings becomes:

\[
\text{Width of wall} = \frac{1}{2} \text{surface} + 4 \text{bays} + \frac{1}{2} \text{surface},
\]
each bay being made up of an opening with two frames and two half surfaces (one).

When an unequal number of openings is involved, the question of dealing with the outer solids is as before, but the centre opening of the group raises new issues. If there are three openings, the central one is strongly felt in any case; with five or seven, less so. Beyond nine the sense of axial symmetry in the group is lost in continuity. In the case of a group of three, demarcation of the central opening is a gilding of the lily; but in the case of five or seven, if the group impression is intended, some specialization of the central opening may be advisable so that there be no doubt about it. The common and natural occurrence of a central doorway often leads directly to some emphasis of the central window over the doorway as further advertisement of the way into the building. Such accentuation of central openings, coupled with the fact that a central doorway is apt to be wider than the openings flanking it, often leads to the widening of the central bay throughout its height, giving a slight interruption or modification of the general rhythm of the repeating bays, without actually cutting the composition of the wall in two. But when central emphasis is carried so far as to cut in two, there is another case altogether. The strong centre does not emphasize the continuity of the repeating group in which it occurs; it forces attention to the responding groups on each side of it and emphasizes their symmetry. It does not say, 'we are seven', but announces, 'as it is on the right hand, so it is on the left'.

The less common problem of placing a number of openings unsymmetrically in a three- or four-story gable is of interest. The openings are, perhaps, quite heterogeneous in character; there may be a tall staircase window crossing a floor-level, a bay-window off centre of the gable, and so on; but, if there is a window at all near the apex, it will probably be on centre. The plan may absolutely fix the positions for some of the openings, but others may be subject to some shifting to right or left. After investigating the locations of the windows, the several types involved, and all available options, composition may proceed. Possibly there is the intention
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of securing balance and avoiding a lop-sided impression. If this is the desire, one may, as before, keep all windows well away from the quoins, and then regard them all together as an irregular group with a centre of attention of the group. This is something like seeking the centre of gravity of a set of objects whose weights the areas represent, or the centre of pressure of a sail plan. If this centre of interest does not fall on, or near, the central vertical line of the gable—in which case there is not much more to be said— one may by artifice contrive special emphasis for one or two of the windows on the side of the line where 'weight' is wanting. A very interesting bay-window or porch may thus be balanced by more area of plain window on the opposite side of the centre line; while a large area of blank wall on one side may be balanced by two smaller areas on the other side. One may, as a last resort, have recourse to placing a decorative panel or spot of interest at a point where it will restore balance. If somewhere one window occurs centrally over another, so much the better, but these two will form a rather emphatic sub-group, and may need compensatory balancing. Should a window occur over another, but just off centre, manoeuvring of the plan may have to be resorted to so as to get them either exactly over one another, or well off each others' centres. So also, if a left jamb of one window falls in the same vertical line as a right jamb of another, the placing should be manoeuvred to get the openings to stand clear of one another, or to overlap distinctly. In such cases, the greater the vertical distance between sills and the heads of openings below the better. These precepts are as much in the interest of good construction and the avoidance of sharp cross-strains in the wall, as for the mitigation of optical impressions of instability. The study of irregular medieval design and of the handling of asymmetrical problems in fenestration by that greatest of modern masters of such difficulties, Norman Shaw, is recommended in this connexion.

If no balance of interest as between a major element, such as a wall and the minor elements of voids and solids comprised within it, be wanted, the maintenance of strong solids at the quoins and the avoidance of nearly centrally superimposed openings, and of right and left jambs in line with one another, may be all that is necessary. Sometimes it happens that regularly spaced groups of windows have to be superimposed, where the groups are diversified as to the number of windows in each. In that case it is obviously appropriate to centre one group over another, and to centre the outside openings of each group over one another, or at least to set their outer jambs in line over one another. Thus three windows may, as a group, be centred over a group of four windows. In such a case it may be in order to emphasize the central window of any group containing an odd number. The placing of windows, in cases where truly superimposed rows are out of the question, is akin to the distribution of 'charges' on an heraldic 'ordinary' and similar problems of the ornamentalist when seeking to fill his space evenly, but not symmetrically.

These general principles for regular and irregular fenestration have their applications in many other connexions that arise in composition. The nearly regular arrangement, the nearly symmetrical composition, is very apt to be confusing, just as a lame line in verse, a bad rhyme, or a disjointed phrase is confusing. Expectation is baulked; one ceases to have the meaning of what one is contemplating or reading helped into one's mind by a rhythm, when that rhythm breaks down. In place of apprehending there is a surprised wonder


Note: The great doorway is off centre as to the gable.

FIG. 149. Palace of Porphyrogenitus, Constantinople.

Note: The upper range of windows is not centred on those below. This is not noticeable because they form a continuous group while those below form two groups and there is a broad frieze between.
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as to what is the matter. The engine has back-fired, so to speak—Pegasus has bucked.

4. Axiation

Leaving the problems of composition which arise in the case of an individual wall with openings, it is time to consider the greatest of all devices which the architectural composer possesses for the orderly assemblage of the commonplace things with which he has occasion to deal—axiation. A scheme may be based on one axis of superlative importance with distinctly subordinate axes, the main axis leading to a focal point; or it may be based on several axes, differing in importance. In either case the axiation—provided it is appropriate to the nature of the problem—will make for clarity and ease of apprehension.

But it is fatal to the expression of organic relations of any kind to compose with two axes of equal or competing importance at right angles to one another and interest centred at the point of intersection. In that case conflict and confusion is assured. In the planning of the main group at Columbia University this was attempted with disastrous results. Reverse, inverse, and obverse forms then struggle for mastery, and without a gigantic compass suspended over the central library—itself a superb building redeemed from this confusion of orderliness, one cannot readily tell what part of the great organism one is about to enter, or readily apprehend where the other parts lie. Compare this with the clear composition of the Virchow Hospital at Berlin, with one powerfully dominant axis leading from the gatehouse to the Mortuary Chapel—a simple little building of marked individuality, whose interior is unsurpassed by any other architectural achievement since the Middle Ages.

The main axis as used by the Romans always entailed progression to a focal point. There may be something at each end of a main axis, but there is confusion if what is at one of the ends is not more important than what is at the other; otherwise a main axis becomes an altogether arbitrary basis for meaningless pattern.

As examples of axiation, properly employed on the grand scale, one may cite Wren's scheme for Greenwich Hospital, where he had the existing Queen's House and the Jones block to work in, and his no less masterly marshalling of humbler elements at Chelsea
The splendid axial scheme, terminated at the major end by the Madeleine, and at the minor end by the wholly false façade of the Chamber of Deputies, in Paris, may be regarded as made up of two schemes, face to face, with a bridge over the Seine between. The grounds and château at Ligny, in the north of France, furnish

In these compositions, by Sir E. Lutyens, symmetry is resorted to only so far as it is natural to the solution.

Boffrand always discovered a form quite graceful and fully efficient.

a modest example in the grand manner. This simplest and most charming of all French country houses, a long low building, is placed across the main axis which extends, on the one side, over a formal lake to a distant church on a hill, and on the other, to the gates of the park, flanked by stables of quadrant form—a superb composition of distant scenery, water, avenues, buildings, and outbuildings, all related in series by a formal arrangement.

Several of Sir Edwin Lutyens's country house plans consist of an irregular group composed of several related groups, each with a main exit of its own, but not all of equal importance. Boffrand's

plans for the eighteenth-century hôtels of Paris are remarkable for the ingenuity of their axiation applied to internal planning, and for the consummate grace with which unpromising sites are made to dissolve into practical accommodation.

5. Unsymmetrical Composition

There is no occasion to deal at great length here with the matter of asymmetrical composition, after what has been said in this connexion in an earlier chapter on planning. The irregular nature of a site, or the fundamental requirements of a problem, may militate against any attempt to put a naturally unsymmetrical subject into an axiated straight-jacket. When axiation is not, or cannot be, resorted to, or when it is only applicable to certain elements, as distinct from the thing as a whole, the designer can rely on other equally potent means of impression. He then deals with integrally whole things, rather than with things made up of two halves. What is lost in harmony may well be made up in contrast. Differences can be exploited in cases where resemblances cannot be established. It is a case of having something to say that can best or only be said in prose. The statement may be as exquisite as anything said in verse, but not versifiable.

Some of the irregular groups of associated structures which have not been designed by one master at one time, but, as in the cases of Edinburgh Castle and Mont St. Michel, have developed into what they are by an agglutinative process extended over several centuries, may nevertheless be regarded as examples of intentional composition. The difficulty of their sites and the variety of their elements have not been a hindrance, but a source of inspiration to the successive designers who have played their parts in masterpieces of joint effort. Such things cannot be explained away as mere accidental agglomerations of harmonious form and fortuitous contrasts. True, there is a natural quality about them, as in the case of any group of mixed trees and bushes growing on a rocky islet. But one may well bear in mind that under such conditions every tree and bush has a character of its own which is very largely the result of the growth of the trees and shrubs adjoining it. It is so with such groups of buildings—each element has a form profoundly modified by that of its neighbours. If this is not design, it must at least be admitted that it is good manners in building and, like all good manners, gives abundant scope for individuality.

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1. See Fig. 133 above.
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besides facilitating corporate action directed to one end. The turret from which the Scottish Royal Standard is flown on occasion over Edinburgh Castle, and the soaring flèche above Mont St. Michel, are far from being accidents. Allowing for all prejudice in their favour due to archaeological respect, historical association, and to one's never having known them otherwise, what designer could suggest anything much different yet worthy to take the place of either? Far otherwise is it in the case of an accretion of recent date—the Curfew Tower—upon the outer walls of Windsor Castle, a monstrous form, born out of due season. One does well to remember, however, in these days of violent self-assertion, that there were times when, within the limits of a narrow spiritual experience, building was indeed the mistress art; times when the generality of men were artists enough to be aiders and abettors of a corporate artistic instinct that could do no wrong. How otherwise can one explain the infallibility of taste that is so astounding whenever the attention is turned to the work of men's hands done from the twelfth to the seventeenth centuries?

Old Rodin has put it well:

'We moderns are but faint shadows of those who went before us, and should perish of thirst but for the springs which their spirit and faith have discovered for us.'

Among the arts of which the modern world has lost all but the distant glimmer, is the great art of asymmetrical composition in architecture. Perhaps we are wisest when we do not attempt it, but keep rigorously to our dividers and flatter ourselves with what the dividers bring into being.