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On 'Whether a man could see before him and behind him both at once'

The role of drawing in the design of interior space in England *c.* 1600–1800

by LAURA JACOBUS

This article considers the history of a particular architectural drawing convention, the so-called 'laid-out wall elevation', which first becomes significant in English practice in the early eighteenth century and was to become a standard form of interior drawing for much of the century and beyond. Concentrating on one drawing-type the discussion will raise wider considerations about the nature and role of drawings in the design process.

It is necessary to begin by defining the essential characteristics of the drawing-type under discussion and it will help in this task if the usual term 'laid-out wall elevation' is rejected. Drawings thus termed frequently contain no true elevations at all, but they may well combine sections, ground plans, floor and/or ceiling plans. The generic term 'laid-out interior' will be used in this article to describe drawings having certain basic features in common, namely, that they use an orthographic (i.e. non-perspectival) system of rendering to show all upright sides of an interior arranged radially on a single sheet of paper (Figs. 11, 12 and 13).

These features may in themselves seem unremarkable, but by considering each of them independently it is possible to reach an understanding of their significance when combined as a single laid-out interior drawing.

Orthographic (orthogonal) drawing was not the only convention available to English architectural designers during the period. Perspective provided them with an alternative graphic language, developed in fifteenth-century Italy and transmitted to England via continental textbooks, paintings and drawings, and the travels of patrons and designers. Early seventeenth-century architectural designers found both systems useful, often mixing them freely even in the same drawing, but in the latter part of the century a separation of functions occurs. Perspective now came to be used only to record existing buildings, orthography to design new ones. The growing primacy of orthogonal drawing in English architectural design is closely related to developments in English architectural practice and style.

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Practice had been transformed during the course of the seventeenth century and architectural drawings changed accordingly. Surviving evidence suggests that at the beginning of the century the predominant method of rendering a design was the drawing of a ground plan by the designer, which would then form the basis of a collaborative process of building, involving patron, designer, surveyor, master-builder, and craftsmen.[1] Patterns and verbal instructions could be at least as important as drawings in the design process. However, as organizational developments within the building trade led to a gradual separation of professional and craft functions, so the designer tended to become removed from the scene of building activity and drawings became the primary means of communicating his intentions. The nascent architectural profession tended to favour orthography for such working drawings; a section or elevation drawn to scale and combined with a plan could convey a far greater volume of information than a perspective drawing (in which measurements became distorted and angles ambiguous).

The advent of the first fully classical style in England reinforced the reliance on orthography. A style of architecture which is governed by proportional relationships favours a graphic language which will express such relationships directly. Orthography may therefore be seen as the inevitable corollary of a classical style; it enables the designer to generate proportional relationships during the course of drawing out an idea, and to communicate that idea by graphic means rather than by mathematical notation. Thus it is no coincidence that Inigo Jones, the first professional English architect working in a true classical style, is also the first known English architect consistently to use the orthographic convention in his mature designs.

It must be stressed here that, despite the close associations with Italian Renaissance (especially Palladian) principles and practices, the process whereby orthographic modes of visualization came to dominate English architectural drawing is entirely separate from that which is usually understood to have taken place in High Renaissance Italy. In a seminal article published in 1956 Wolfgang Lotz argued that High Renaissance architects developed orthogonal projection as an expression of heightened spatial awareness.[2] In this view the principle of Albertian perspective was expanded so that the drawing continues to represent a projection plane intersecting rays of vision, but an infinite series of viewpoints is implied instead of the static, monocular viewpoint of Albertian theory. Whatever the truth of this argument in relation to Italian drawings, no such developmental model can be applied to the English experience since here Renaissance style and Renaissance graphic language were adopted as a ready-made 'package'. Moreover, the sophistication of Lotz's definition of orthography obscures the fact that orthogonal drawing can imply a much more 'primitive' way of seeing. Ancient Egyptian art, Medieval art and children's art all employ orthography as a way of depicting what is known to exist, as opposed to what is apparent to the eye. No notion of projection is necessarily implied and the relation of viewer to object is not relevant in such art.[3]

This difference is crucial if we are to understand how orthography reflects and affects the vision of the English architect. If there was a continuous tradition of orthographic drawing in England since medieval times then the increased use of such drawings in the seventeenth century (even if in response to Italian example) would not necessarily

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indicate a new spatial awareness. Alternatively, if the introduction of perspective had so disrupted the architect's traditional concept of what a drawing represents, leading him to think of it as a particular kind of visual image rather than as the pictorial notation of an idea, then the use of orthography in the seventeenth century could imply a new relationship between viewer and building.

From the evidence of English and other North European examples, it does seem likely that there was an indigenous tradition of orthogonal architectural drawing in use for design and working drawing purposes (whilst empirical perspectives could be used for recording existing buildings).[4] Such orthographic drawings were diagrammatic rather than illusionistic in intention and thus plans, elevations and sections were based on the same conceptual approach to drawing — namely that the drawing shows what is known rather than what is apparent to the eye. The advent in England of perspective architectural drawing might seem to herald a different approach, but in fact the convention could be grafted into the indigenous tradition. In many transitional drawings of the sixteenth and early seventeenth century the conventions of orthography and perspective are mixed complimentarily, with elements of perspective used to supplement the information conveyed orthographically. In such drawings the side of a building or room will be thought of as the main surface and so will be shown orthographically, whilst a balcony or chimney-breast will be thought of as having several surfaces and so these will be added in perspective. Mixed-convention drawings are too often treated as indicators of designers' ineptitude when in fact they reveal a habit of mind which is quite fundamental to English architectural thought during much of the period covered by this article. They are neither single-viewpoint drawings nor multi-viewpoint drawings; they are no-viewpoint drawings.

Of course, the further one advances into the seventeenth century, the more likely it is that architects would be aware of the notion that a drawing is to be equated with a projection plane. Inigo Jones' grasp of perspective principles was complete (as his scenographic designs demonstrate), and it is unlikely that he or Webb could have adopted Palladio's use of quite complex orthogonal sections without a clear theoretical understanding of the principle of orthogonal projection. John Evelyn's definition of orthography as 'but the simple representation of – that part opposite to the eye of the beholder, and thence by the Italians l'Alzato or l'Impiedi, facciata and Frontispiece'[5] indicates familiarity with, albeit limited comprehension of, projection theory. Nevertheless, it is perfectly possible for a more 'primitive' approach to visualization to coexist with a sophisticated knowledge of projection theory, especially where a drawing shows the elevation of a relatively flat wall. In such cases, which form the majority of interior elevations throughout the period, it will not be especially relevant to the architect whether his drawing is to be understood as a multi-point projection or a more abstract diagram, and the natural tendency must be for him to revert to the latter understanding in cases of ambiguity.

The use of an orthographic system for rendering interiors in seventeenth- and eighteenth-century England does not necessarily imply any interest in, or awareness of, the experience of interior space. It relates to a mode of thought which is conceptual and objective rather than sensory and subjective. It will help to shed further light on this

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question if we now turn to the second feature of laid-out interior drawings; the fact that they present all upright sides of an interior.

Lack of surviving evidence severely limits the conclusions that can be drawn about very early practices, but the Smythson Collection in the RIBA does provide a glimpse into early seventeenth-century drawing techniques. It contains many drawings of interior fittings and decorative motifs isolated from their architectural context and in this respect seems to reflect the piecemeal collaborative process whereby an interior acquired its final appearance at this time. Only in two cases can a more integrated process of interior design be discerned, and in each case several upright sides of the same room are shown.

Robert Smythson's design for a closet (Fig. 1) consists of three sheets depicting four walls fitted with panelling, desks and shelves. Orthogonal conventions are used throughout but the distinction between a section and an interior elevation is blurred (both forms are used) making it impossible to reconstruct the proposal in its entirety on the basis of information contained in the drawings.[6] There is, in effect, a tension in the design process between consideration of one wall at a time (through the separate drawings of interior elevations) and a more integrated approach (suggested by the paired sections which include aspects of adjacent walls).

John Smythson's design for a room vaulted with marble for Bolsover Castle (Fig. 2) is probably the earliest surviving English design for a room which is drawn in perspective.[7] As such it appears to take the process of integrated interior design a stage further, and also suggests an interest in the viewer's experience of an interior. Both possibilities have to be considered with caution since this is not a design as such, but a presentation drawing which demonstrates the architect's idea in a form which is pleasing and comprehensible to the patron. The use of perspective construction (common in paintings of the time) would be more familiar to a layman than would an orthogonal elevation or section. Thus the fact that the drawing is using perspective can tell us very little about the way the designer himself thought about the interior during the process of design. The use of perspective is entirely passive in this case; it plays no discernible part in shaping the designer's vision.

The absence of corroborating drawings makes it impossible to say how representative of early seventeenth-century practices either of these drawings is. In contrast to other drawings in the same collection they both seem to indicate a desire for consistency in interior design, a way of viewing a room as an entity rather than as an agglomeration of separately designed fittings, but in neither case is there reason to believe that considerations of spatial experience played any part in the design.

The drawings of Jones and Webb confirm these tendencies. It is clear from their greatly increased use of internal elevations and sections that (at least at the level of 'high design' in the Office of Works) the architect has assumed overall responsibility for the appearance of the major rooms of a building. Decorative unity is a prime consideration in their drawings, the experience of interior space is not. In the minority of drawings which do show more than one internal elevation, the relationship of the walls to one another is not shown graphically (Fig. 3). The one-wall-at-a-time approach, seen to be vying with a more integrated approach in Robert Smythson's drawing, is here reasserting itself. Indeed, it was to be the dominant approach to interior design for the

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rest of the century as a new generation of Office of Works-trained architects followed the example of Jones, Webb and ultimately Palladio, in drawing their sections and internal elevations in splendid isolation on the sheet of paper.

Only the drawings of the amateur architect Roger North show evidence of reasoned dissent from the orthodox later seventeenth-century method of rendering interiors. His 'flying prospect' (Fig. 4) shows several sides of several rooms, their relationship to one another and to the whole, and parts of the exterior of the building.[8] So too, in a very different format, do his drawings arranging several sections through entire houses (Fig. 5).[9] Neither type of drawing can be used as evidence of a concern with viewer experience; North's description of the 'flying prospect' as 'representing the view one hath, that looks into a model . . .' makes it clear that he saw no fundamental difference between the convention needed for rendering the interior of a building and that needed for rendering the interior of any other hollow object (in this case, a model). Similarly, his grouped sections suggest the experience of looking into a doll's house rather than that of wandering through the rooms of a seventeenth-century residence. Fascinating as these drawings are, each is such an intellectual 'tryall and exercise' as to be virtually useless as an aid to design. North approached architectural drawing as a consumer — he thought of drawings as cheap substitutes for the presentation model and saw the problem as one of presenting as many aspects of a building in as condensed a form as possible.

A note of caution should be sounded at this point. The surviving evidence has lead to the conclusion that for most of the seventeenth-century orthographic drawings of one or several separate, internal walls dominate practice; that this convention was favoured by Jones and Webb and that it was then disseminated through the training of architects in the Office of Works. However there is some slight evidence of use of an alternative drawing form, akin to the type here designated a laid-out interior. John Evelyn appears to be referring to such drawings when he writes that 'Orthography, or the erect elevation . . . [should be] described in measure upon the former idea [i.e. the plan]: *Some do by this comprehend the sides likewise (but not so will I) to be seen as well within as without.* . . .' (my italics). No drawing fitting this description is known to have survived, but Roger North's eccentric laid-out sections through entire houses become more explicable if understood as an adaptation of a more serviceable drawing type, the laid-out interior. If such drawings were being used at this early date they were favoured by the least professionalized sectors of architectural practice, the artisans and the gentlemen amateurs. The same attitudes which lead Evelyn parenthetically to dissociate himself from such drawings could well have resulted in their destruction whilst the more orthodox output of the Office of Works survives in abundance, possibly to distort our understanding while seeming to extend it.

John Evelyn's remark raises the question of the third characteristic of laid-out interior drawings as defined in the introduction to this article; the radial arrangement of uprights. In most of the drawings considered thus far, arrangement of uprights has not been a consideration. Generally the seventeenth-century architect shows a single interior elevation or orthogonal section, leaving the appearance and relative position of other uprights to be inferred from the plan and/or written instructions. Alternatively, several or all uprights will be shown on the same sheet but they will remain

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disconnected, their relationship never expressed visually because never acknowledged. A room, such drawings imply, is no more than the sum of its walls; nothing is created by the act of addition which was not there before.

It is not until the first decades of the eighteenth century that this apparent indifference to the interrelationship of walls begins to break down. Drawings concerned with the arrangement of uprights appear, not in the work of professional architects, but in the work of those on the fringes of the profession; amateurs, wall-painters and craftsmen in wood. Their drawings fall into two related types which might be differentiated by the use of the terms 'ironed-out' (to describe the format favoured by John Talman and Sir James Thornhill) and 'laid-out' (to describe the format favoured by William Kent's circle). The origins of both types are obscure, possibly Italian, and probably not mutually exclusive. Bearing in mind that the significance of a form purposefully evolved in one context can be very different when transposed to another context (witness the foregoing discussion of the meaning and use of orthography in England), I do not propose to discuss at length the several isolated occurrences of similar drawings in previous centuries and other countries. It will suffice to say that such drawings have been subject to reinvention at various points in history, in the context of very different visual cultures.

Essentially, each of the new drawing conventions introduced early in the eighteenth century depends on the same principle; that the corners of any room are like seams which can be ironed-out or unpicked in such a way that all sides of the room can be viewed flattened into a single plane. The principle has obvious application to the problem of recording integrated schemes of interior decoration, which may exploit or disregard the boundaries of wall surfaces in such a way as to make it imperative to record the walls' relationships to one another. Thus, faced with the problem of recording the decoration of Antique, High Renaissance and Baroque interiors the Italian draftsmen employed by John Talman frequently resorted to the 'ironed-out' solution.[10] The largest of the three Talman albums in the Ashmolean Museum, Oxford contains several examples; that illustrated here seamlessly records the decorative interrelationship of longitudinal wall and barrel-vault (Fig. 6).[11]

It is important to note that Figure 6 is not an orthogonal drawing but a topographical one, that is, only relationships in two dimensions are shown; the surface of the sheet of paper is not a projection plane but an actual small-scale equivalent of the wall-surface itself. This will become apparent if one tries to understand the barrel-vault in terms of orthogonal projection, although it is possible to overlook the distinction when attention is focussed on either of the two upright walls. When the convention is adopted by John Talman himself in order to design schemes of interior decoration (rather than to record them), the distinction is lost sight of altogether because all the walls are perpendicularly related to one another and so potentially bear a similar relationship to a projection plane (Fig. 7). Talman himself appears unaware of the topographical nature of the 'ironed-out' convention since the furnishings and coving of his royal apartments are shown orthographically.

No such problems arise in interpreting Sir James Thornhill's application of the 'ironed-out' convention, which he frequently employed when designing fully Baroque decorative schemes, particularly painted stairwells (Fig. 8). As a painter he is concerned

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exclusively with the wall's surface, as opposed to its depth or the spaces it can generate, and he simply equates the surface of the paper with that of the wall. Indeed, where the real depth of the wall intrudes into the painted scheme in the form of an actual doorway or loggia (Fig. 9), he is obliged to mark the change by an abrupt shift into the perspective convention; were the drawings orthographic rather than topographic such a shift would be unnecessary and would lead the viewer to mistake the real openings for fictive ones.

Thornhill's conceit of a drawing-of-a-drawing (Fig. 10) perfectly expresses the principle of the new convention, and the designer's manner of thinking. The walls of a room are as a single surface, without volume, which can be folded-up in the mind's eye to bring the walls into their proper relationship to one another. Where Thornhill favoured an 'ironed-out' format for the particular problem of designing stairwell decorations (the staircase imposes its own *origami* sequence), others generally found that a radial or 'laid-out' arrangement was cognitively simpler. Among the earliest such drawings now surviving are three anonymous designs for wainscotting of the state apartments at Hampton Court, associated with work there after the death of William III (Fig. 11).[12] The simplicity of the radial arrangement can readily be appreciated. Also worth noting is the fact that the surface has been abstracted from its context; there are no lines to indicate walls, ceiling or floor; nothing to indicate an awareness of the combination of volume and space which we call a room. Figures 10 and 11 provide us with pure statements of the values of the decorator. It is because the laid-out interior drawing expresses these values so succinctly that it evolved as and when it did.

The form entered mainstream architectural practice in the 1720s through the work of another decorator (turned architect), William Kent, and rapidly became the preferred method of rendering interiors amongst neo-Palladian architects of the Burlington 'stable'. Brief reference at this point to a 'control group' of drawings associated with the Baroque architect Nicholas Hawksmoor may help to throw the neo-Palladians' choice into relief, for Hawksmoor's drawings of interiors do not employ the laid-out interior convention, nor its 'ironed-out' variant. The convention's association with the idea of wall-as-surface conflicts with Hawksmoor's own interest in wall-as-volume, making it unsuitable for exploring or representing the effects that interest him.[13] Indeed Hawksmoor even strains against the conditions of orthography, reintroducing elements of perspective and emphatically modelling his forms in expressive or illusionistic shadow, in an effort to overcome the flattening effect and diagrammatic detachment of orthographic drawing. These drawings repay intensive study in their own right; here they serve as a reminder that graphic language is not neutral. The adoption of any particular convention involves choice, and therefore has meaning.

The neo-Palladian architect and writer Isaac Ware gives some clues as to the meaning of this particular choice of convention when he forcefully argues the merits of the laid-out interior drawing (although he has no name for the type) in his book *The Complete Body of Architecture* published in 1768. Chapter 8, Book 5, entitled *Of suiting the ornaments to one another* states that:

> The architect may very frequently design an elegant side of a room, which may yet be improper for the place, or disagreeable to the rest of the ornaments. The remedy for this is to reduce no part into practice, till he has upon paper designed the whole together . . .

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A room of the usual construction has four sides, or two sides and two ends; and it will disgust the eye if one side have ornaments, though ever so handsome, which do not correspond with those of the other.

This is a mistake so very obvious, that one would suppose none who deserved the name but of the meanest architect, could fall into it; yet we see it has been practised by some of the better credit: nay there is one instance of one who pretented to justify it, by asking, Whether a man could see before and behind him both at once?

. . . The four sides of the room being laid down on paper, with the space or proportion of floor between, the figure represents at once to the eye the whole and its several parts: they are easily seen to be uniform or disagreeable; fancy can at pleasure raise them perpendicularly, and see the room in miniature; divested of its ceiling.

Thus let the architect consider it as well as in the plane: it is a view which no other will ever look upon the work, because the room will not be finished in reality without its ceiling; but the view will be useful to him in the highest degree, for the true method of seeing the proportions with a geometrical regard is to view them in all lights, and under all advantages.

Ware's enthusiasm for the laid-out interior drawing stems from his belief that it will overcome the architect's tendency to consider only one wall at a time. Throughout the book, Ware demonstrates insight into the interrelationship between graphic language and design process, treating drawings as aids to thought and attaching positive value to sketching. He believes that the single interior elevation or section fosters an approach which he considers harmful, and that the laid-out interior drawing will encourage a preferable approach. Nevertheless, the limitations of Ware's discussion are revealing. He makes it clear that the advantage of designing all uprights in concert is essentially a gain in decorative unity, 'of suiting the ornaments to one another' rather than an increased awareness of spatial impact. When the sides of the drawing are folded up 'by fancy' he, like Roger North, envisages the architect peering into a small-scale model without its ceiling (whereas a more spatially imaginative architect might see himself standing in the centre of an appropriately scaled room). Ware knows this is 'a view which no other will ever look upon' but does not see this as a problem; the proportions of the room will be unaffected and he makes it plain this is all that concerns the architect. The strong spatial 'pull' which such drawings exert on the modern eye simply did not exist for Ware.

Ware was writing at a time when many of his associates had already adopted the laid-out interior drawing for purposes of design and presentation, and its form was fairly standardized. Forty years earlier, William Kent's own essays in the new format tended to be more experimental. Although he probably first adopted the technique as a decorator, much as Thornhill had done, Kent also tried to use it in a more purely architectural context in projects such as the Holkham Hall entrance hall and the chambers of the Houses of Parliament (Fig. 12). All are unusually shaped spaces, and having opted to use a laid-out interior format Kent was obliged to adapt it. In the drawing illustrated he produces a radial arrangement of sections, taken along one longitudinal and two latitudinal axes, centred on the floor plan and part of a ground plan (showing the masonry around the exedra). Even having made these adaptations he is unable to include the central pit of benches in section, and the drawing he has produced is exceptionally difficult to read. The problems arise because the nature of the space demands the use of orthographic sections, whilst the nature of the drawing-type is topographic. Orthography is capable of indicating depth, topography is concerned

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only with surface configurations. Using a topographic format, Kent must decide on the notional position of the walls' surfaces and the seams or edges at which they meet; yet the space Kent has designed has no walls in this sense, only a series of interpenetrating volumes and spaces. The contradictions entailed are manifold. If one tries to fold up the four sections in imagination the resultant space bears no direct relation to the plan because the sections are not shown in their true relative positions (the axes coincide or intersect, but here they are shown meeting neatly at four corners). The contradictions recede somewhat if one interprets the drawing as showing a decorative scheme involving fictive architecture (i.e. if it is read topographically) but of course this was not Kent's intention.

In effect, these drawings expose the ambiguities of orthography as it had come to be used in England over the preceding century. As has been seen, English orthographic drawing is subject to various conflicting interpretations. The orthodox interpretation derived from Italian theory and involved the idea of a parallel projection plane interposed between building and omnipresent viewer; conceptually, such drawings depict not only the edifice but also the space between it and the projection plane. An alternative interpretation pre-dates this visually-based theory and probably survives it; according to this interpretation, orthographic drawings are a diagrammatic means of noting knowledge. A third interpretation treats the apparent orthographic drawing as a small-scale topographic equivalent of that which it represents. Whereas Wren's sections or Thornhill's 'ironed-out' elevations clearly belong to the first and third groups respectively, the majority of drawings of interiors are unaffected by the range of interpretations, remaining comprehensible under each reading as long as they show, in Ware's words, 'a room of the usual construction', that is, one which has four flat walls, a flat ceiling and a floor. A laid-out interior drawing will work well enough when representing such a space, for its interpretation will remain unchanged whichever graphic language it is assumed to employ. But where a laid-out interior is used to represent anything other than the inner surfaces of a simple box, problems will arise.

A sketch by William Kent for the Queen's Library at St James's Palace (Fig. 13) shows how these problems can encroach on the design process. In a sense it shows him thinking aloud on paper, evolving a design graphically (as later advocated by Isaac Ware), and so affords us an insight into the relationship between graphic language and design process. Kent uses the laid-out format to juxtapose two alternative treatments of the room but it is clear that only one version can be accommodated satisfactorily within the chosen graphic convention. The 'upper' side of the room explores a plastic approach involving concave and convex surfaces, projecting and undercut architectural elements; the wall is treated as a mass of sculpted masonry. The 'lower' side of the room is much more shallowly articulated, using the same three-bay system and very similar architectural motifs as the upper side, but disposing them in a series of flat, parallel planes; the wall is treated as a surface, albeit a layered one. As has been seen, the laid-out interior format is closely allied to the concept of wall-as-surface and demands to be folded-up along the edges of the wall. With minor adjustments to the convention Kent can show the lower side by taking one main surface as his notional wall and treating the pilasters as additions to it, showing them in plan along the 'fold-line'. The lower left corner of the design shows how neatly this works; the fold-lines have been displaced

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outwards, but not to a disturbing extent. However, the upper side cannot be so easily accommodated in the laid-out interior format since it deals with wall-as-mass rather than wall-as-surface. Kent must place his notional wall surface deep in the masonry and treat the entire side of the room as projecting additions to this notional wall; the fold-line has not only been displaced, it has become virtually meaningless. The upper right corner of the design is messy and hard to define, particularly as a section through an upper side niche is included in the right end. It is scarcely surprising that when he came to draw the upper left corner of the design, Kent abandoned the effort and resorted to doodling an unamused Queen Caroline. Moreover, in the lower right corner of the design Kent has roughly inked-in the lower right bay, trying out the effect of an almost completely flat wall which would relieve him of the necessity of including any elements of a plan, removing all the confusions and ambiguities that otherwise occur. It is interesting to note that later drawings in this series[14] develop the shallower version of the design, suggesting that — consciously or unconsciously — Kent baulked at the difficulties of plastic visualization in his chosen drawing technique. This seems to be a case where the form of a drawing has influenced its content.

In the case of the Kent sketch for the Queen's Library it is possible to detect a causal link between drawing form and design content, because the sketch can be accepted as a record of the workings of the architect's mind. The link between mental conception and graphic expression may be extremely complex in psychological terms, but at least it is short. The further away from the sketching stage a drawing is, the more tenuous that link becomes. It is therefore inappropriate to extrapolate from the basis of the Kent sketch towards the more general conclusion that the use of laid-out interior drawings caused the neo-Palladians to design box-like rooms. However, it is plausible to assume that a predilection towards the design of simple room shapes existed amongst this group of architects, and that such a predilection would be reinforced by the growing reliance on laid-out interior drawings at all stages of the design process from sketch to presentation drawing.

The supremacy of the laid-out interior drawing lasted from the second quarter of the eighteenth century until its end. Initially associated with the neo-Palladian style, the convention survived in the work of many neo-classical architects. Robert Adam's laid-out interior drawings frequently arrange the uprights around 'plans' which show only the inner surfaces of the wall, demonstrating the inherited conception of a room in terms of its decorative surfaces. One can only speculate on whether Adam's chosen mode of visualization caused him to rein-in his imagination (as Kent had done), or whether it constrained his imagination from the outset.

The case of Sir John Soane is particularly interesting. Accustomed since youth to sketching in the laid-out interior format, he nevertheless evolved a truly spatial mature style making use of curved walls and ceilings, interior vistas, and appreciable disjunctions between adjacent spaces of varied shape and height. Soane persisted where Kent had turned back, past the point at which the topographic nature of the laid-out interior drawing collides with the assumptions of orthographic drawing. He sketched spaces as sections arranged around thick-walled plans (Figs 14 and 15) destroying the simplicity of the laid-out interior drawing-type, and thereby transcending its limitations. Eventually, Soane was to abandon the laid-out interior, but his subsequent experiments do

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not negate the earlier drawing-type's contribution to his vision; as has been stated before, the significance of a form purposely evolved in one context can be very different when transposed to another. The laid-out interior drawing in its pure form expressed the values of the decorator by abstracting the wall surface from the mass of masonry behind it. In Soane's interiors the wall surface is also abstracted from its material context, but now marks the boundaries of a spatial solid. Although a very different concept of architecture is entailed in Soane's work, the laid-out interior drawing permitted — perhaps suggested — his imaginative leap.

New types of drawing evolve to meet new design requirements and, in evolving, they can create, shape and limit the conditions of design. The laid-out interior is only one such convention, reflecting and affecting architects' attitudes to such basic elements of architectural design as surface, mass and space. It is clear that the use of this and any other drawing-type is historically and geographically specific, but our understanding of why this is so remains limited. A full typological history of architectural graphics would surely allow drawings a more prominent role in the history of architecture than is currently allotted them.

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Figs 1, 2, 5 and 12 by courtesy of the British Architectural Library, RIBA, London.
Fig. 3 by courtesy of the Provost and Fellows of Worcester College, Oxford and the Courtauld Institute of Art
Figs 4 and 5 by permission of the British Library
Fig. 6 by courtesy of the Ashmolean Museum, Oxford
Figs 7 and 15 by courtesy of the Trustees of the Victoria and Albert Museum
Fig. 9 by courtesy of the Yale Centre for British Art, Paul Mellon Collection
Fig. 10 by courtesy of Christie, Manson and Woods Ltd
Fig. 11 by courtesy of the Warden and Fellows of All Souls College, Oxford
Figs 13 and 14 by courtesy of the Trustees of Sir John Soane's Museum.

NOTES

1 See M. Airs, *The Making of the English Country House 1500–1640* (London, 1975) for detailed discussion of early design practices (especially ch. 3 pp. 21–45).

2 W. Lotz 'Das Raumbild in der Architekturzeichnung der italienischen Renaissance', *Mitteilungen des Kunsthistorischen Instituts in Florenz*, 7 (1956), 193–226, translated into English and published with a postcript as 'The Rendering of the Interior in Architectural Drawings of the Renaissance' in W. Lotz, *Studies in Italian Renaissance Architecture* (1977).

3 See H. Schaefer, *Principles of Egyptian Art*, eds E. Brunner-Traut and J. Baines (Oxford, 1986) for discussion of the parallels between Egyptian art and children's art.

4 See, for example, T. Bowie (ed.) *The Sketchbook of Villard de Honnecourt* (Bloomington, 1959) and L. R. Shelby, *Gothic Design Techniques: the fifteenth century design booklets of Mathes Roriczer and Hanns Schmuttermayer* (Southern Illinois University Press, 1977).

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5 J. Evelyn, *An Account of Architects and Architecture together with an Historical, Etymological Explanation of certain Terms particularly affected by Architects* (London, 1664), p. 122.
6 Assuming (as seems reasonable) that the drawings all relate to the same project and that no sheets are missing.
7 Dated *c.* 1625 by J. Harris, J. Lever and M. Richardson, *Great Drawings from the Collection of the RIBA* (1984), p. 31.
8 This unusual drawing-type was probably taken from a continental source such as J. Perret, *Des Fortifications et Artifices: Architecture et Perspective* (Paris, 1601), which has several plates in this format.
9 In addition to the example illustrated, other drawings of this type include London, British Library Add. MS 23005 fols 2, 4 and 12.
10 There exist some sixteenth-century Italian examples of similar solutions being adopted to record schemes of decoration, eg. Hippolito Andreasi's drawing *c.* 1567 of the decoration of the Sala delle Aquile in the Palazzo del Te (Dusseldorf, Kunstmuseum, inv. no. FP 10906, illustrated in E. Verheyen, *The Palazzo del Te in Mantua* (Baltimore 1977)), or Jacopo Sansovino's drawing of the vault of the Tempio di Sibilla (Florence, Uffizi). These appear to be independent solutions to similar problems; there is no evidence of any continuous tradition of such drawings in Italy or elsewhere before the eighteenth century.
11 Other examples in this album include fols 49, 51 and 56. Many of the drawings commissioned by Talman were sold to English collectors and so drawings of this type would probably have been widely dispersed.
12 Oxford, All Souls, vol. IV 7, 8 and 9. *Wren Society Publications* VII, 254 (illustrated on Pl. XXVI), suggests that the drawings relate to work under Wren or Vanbrugh in the reign of Queen Anne or George I.
13 There are exceptions. Two highly schematic line drawings in a laid-out format do survive on the versos of large, finished drawings (Oxford, Queen's College, Muniment 106, Downes cat. 242v and 196v). They were possibly used to calculate rough estimates of the area of wall surface before being cut up and/or glued to other sheets. Being topographic in nature, laid-out interior drawings are a useful basis for quantity surveys (of ashlar, plaster, paint etc.) and may have been used by Hawksmoor in this way. My point is that he did not favour them for design purposes.
14 London, Sir John Soane's Museum, Pennant II, 193, 194, 195, 198.

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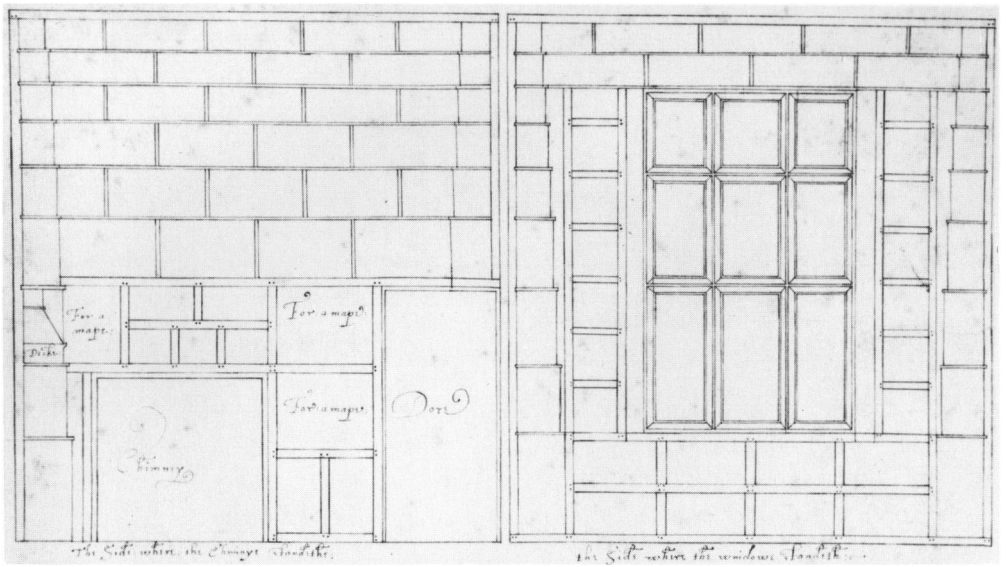

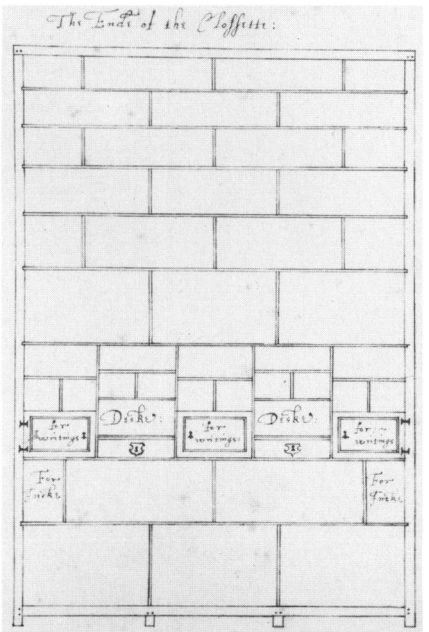

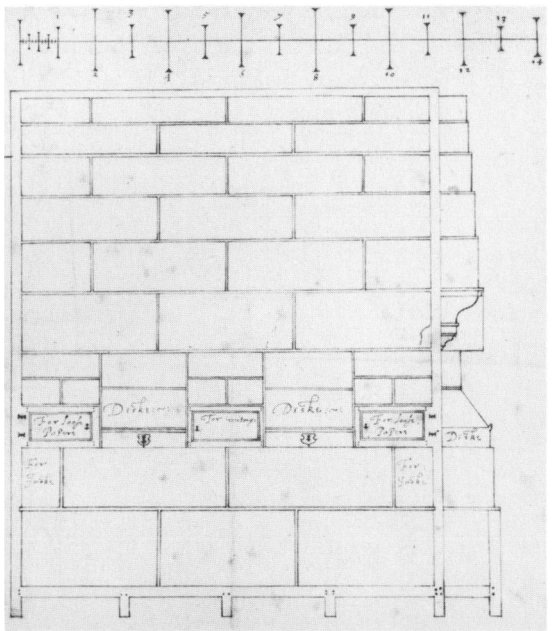

Fig. 1 *Robert Smythson, design for a closet or business room (RIBA Smythson II/13)*

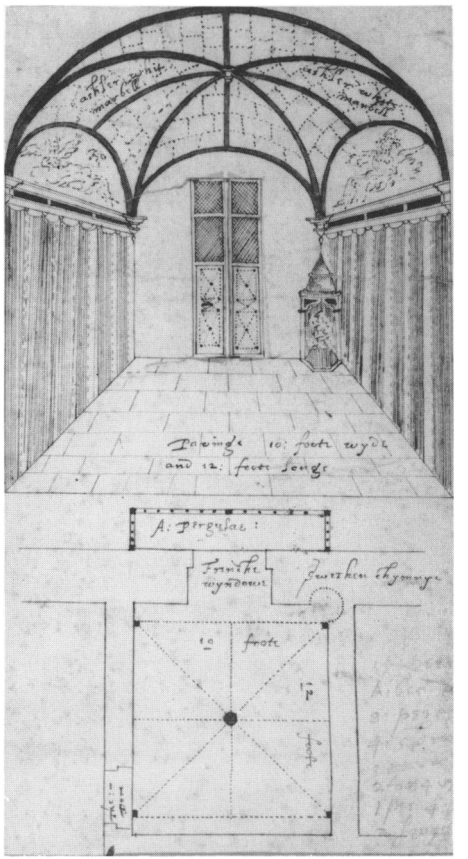

Fig. 2 *John Smythson, design for the Marble Room, Bolsover Castle (RIBA Smythson III/2)*

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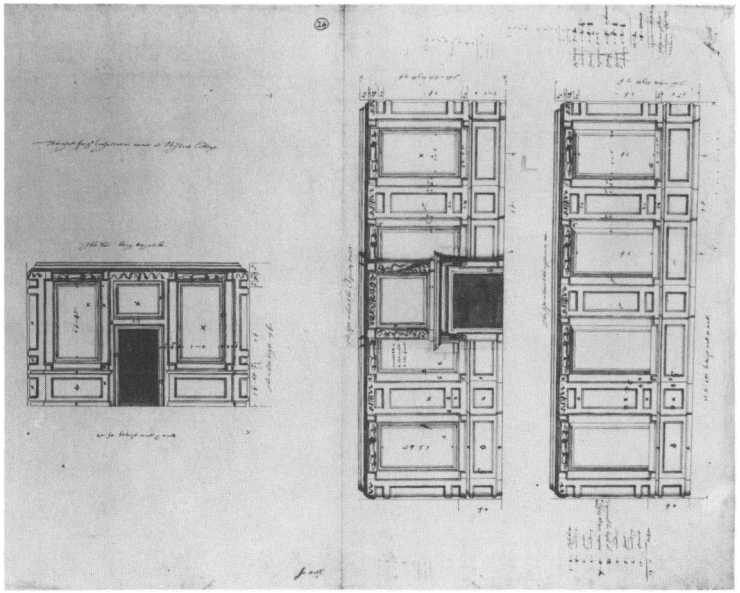
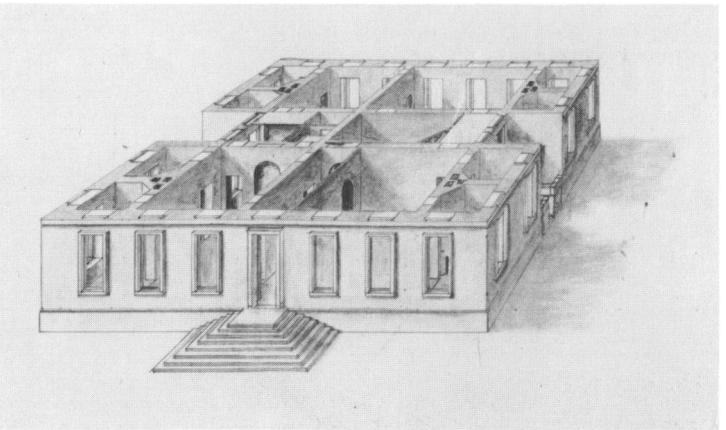


Fig. 3 *John Webb, design for the consulting room of the College of Physicians (Worcester College Library, Harris and Tait 80, Gotch 1/24)*



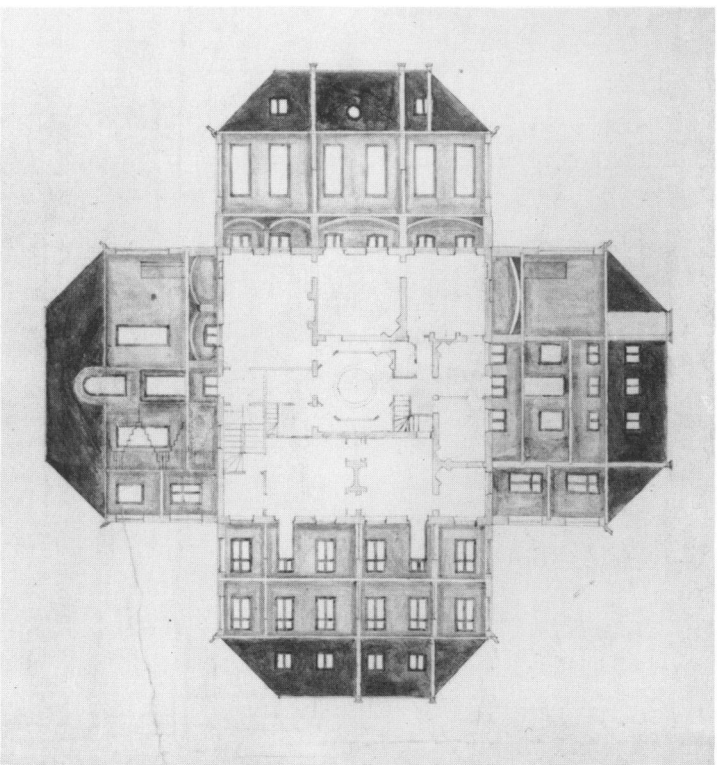


Fig. 4 *Roger North, 'flying prospect' design for a house (British Library Add. MS 23005 fol. 11)*

Fig. 5 *Roger North, design for a house (British Library Add. MS 23005 fol. 3)*

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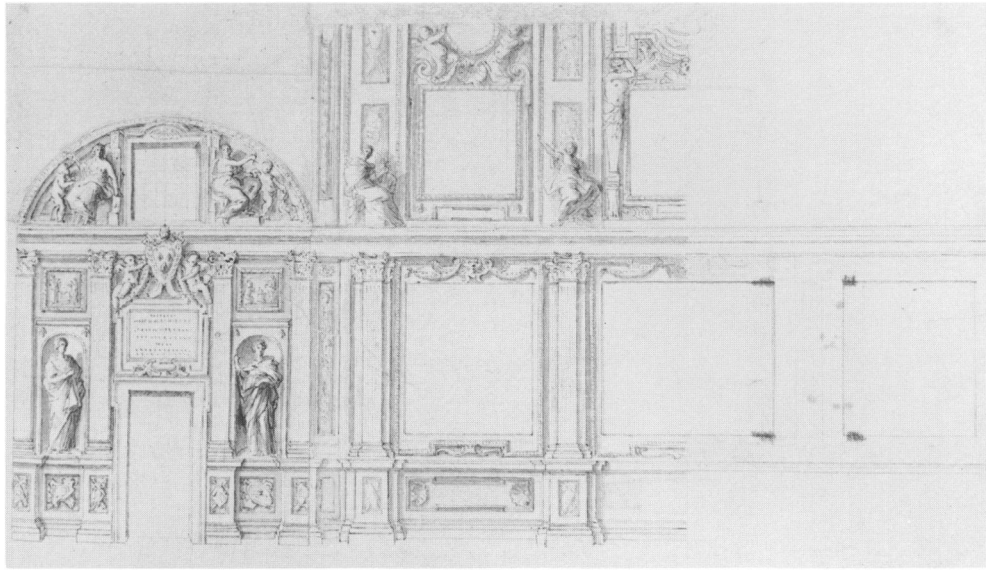

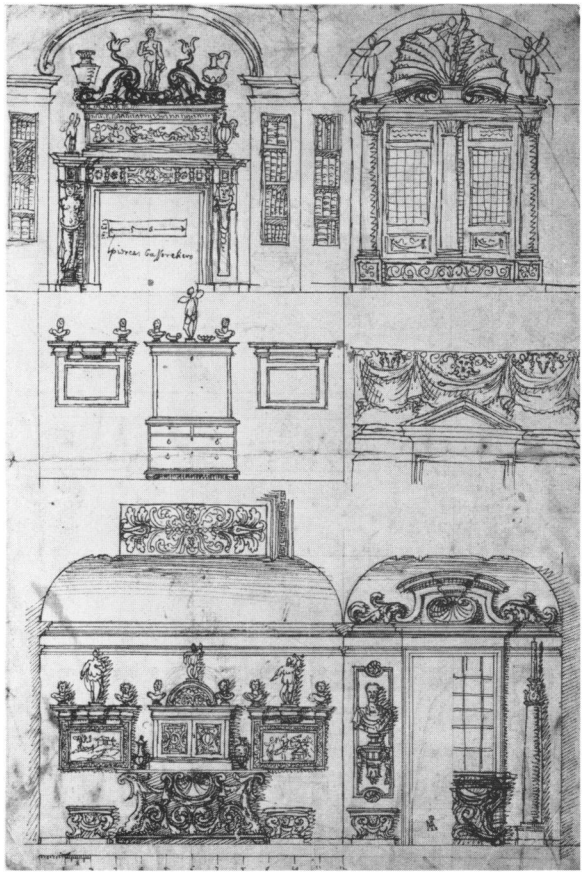

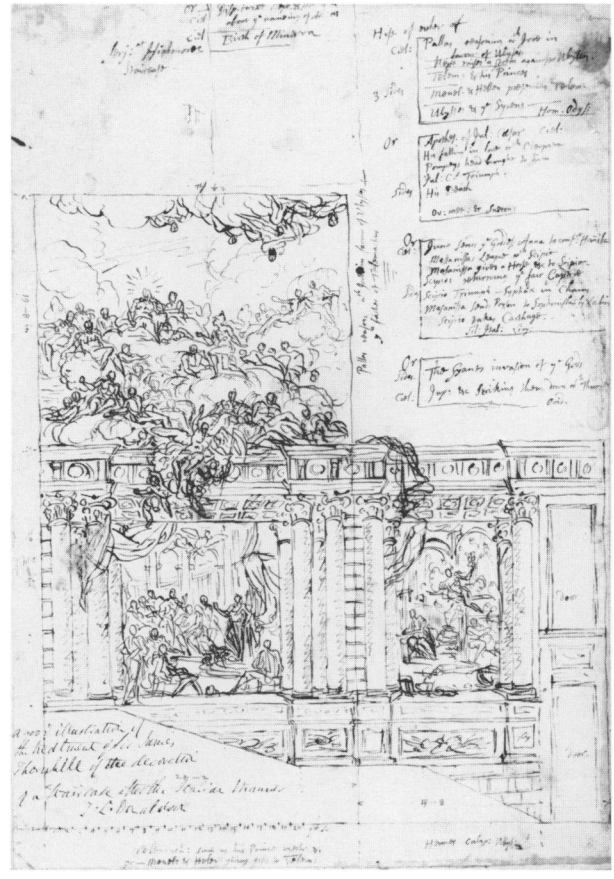

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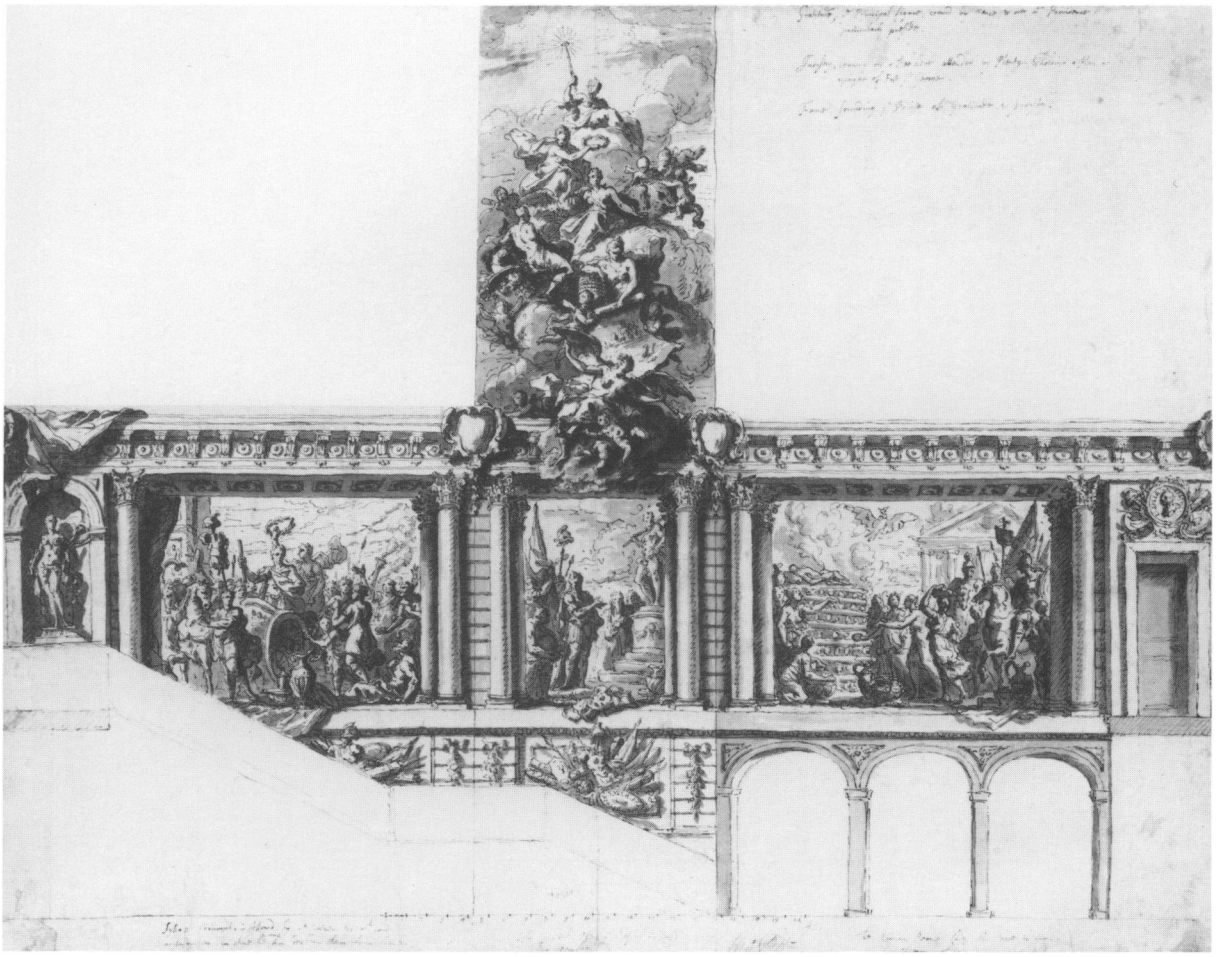

Fig. 9 *Sir James Thornhill, design for stairwell decoration (Collection of Mr and Mrs Paul Mellon)*

Fig. 6 *Unidentified Italian draughtsman, record of the decoration of a barrel-vaulted hall (Ashmolean Museum, largest Talman Album fol. 47b)*

Fig. 7 *John Talman, design for a royal apartment (Victoria and Albert Museum)*

Fig. 8 *Sir James Thornhill, design for the stairwell decoration of Thomas Highmore's house (RIBA)*

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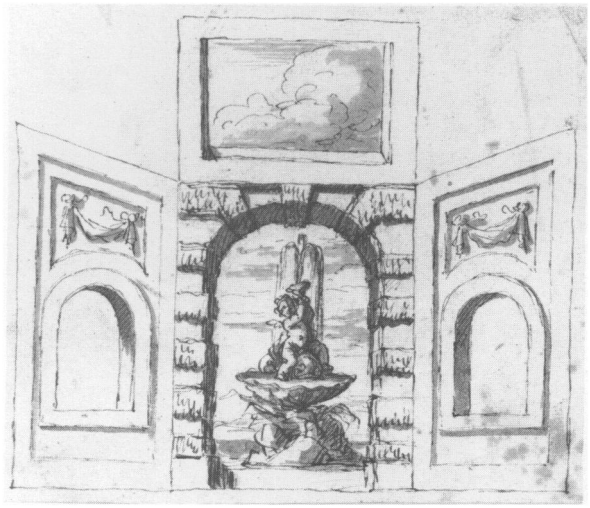

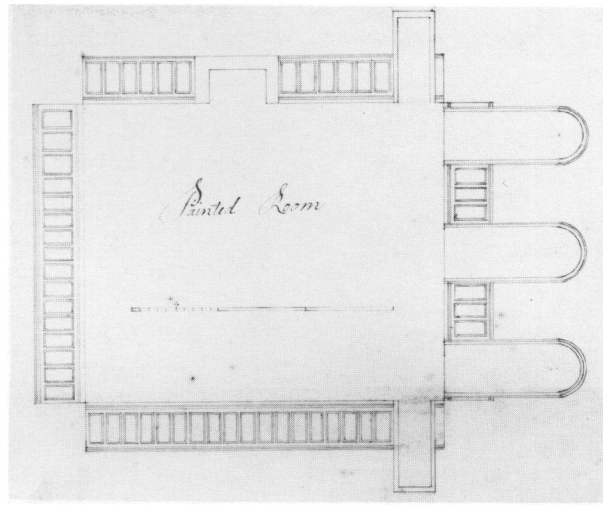

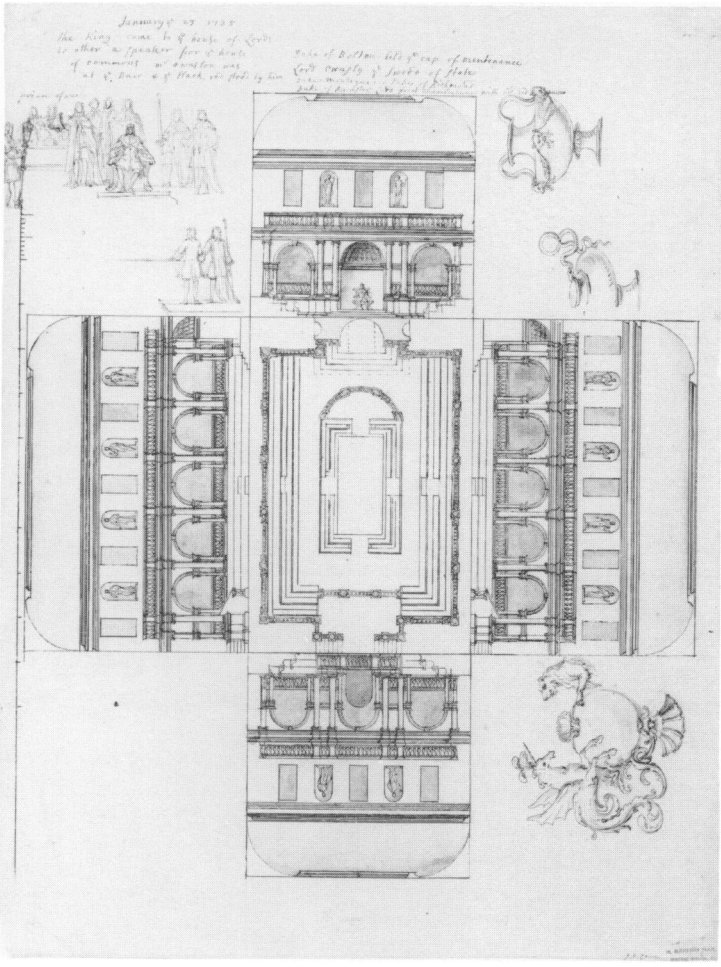

Fig. 10 *Sir James Thornhill, design for mural decoration (Christie's Sale, 30 November 1983, lot no. 160)*

Fig. 11 *Unidentified draughtsman, design for wainscotting of a room in the State Apartments, Hampton Court (All Souls, vol.* IV, 7)

Fig. 12 *William Kent, design for the Chamber of the House of Commons (RIBA)*

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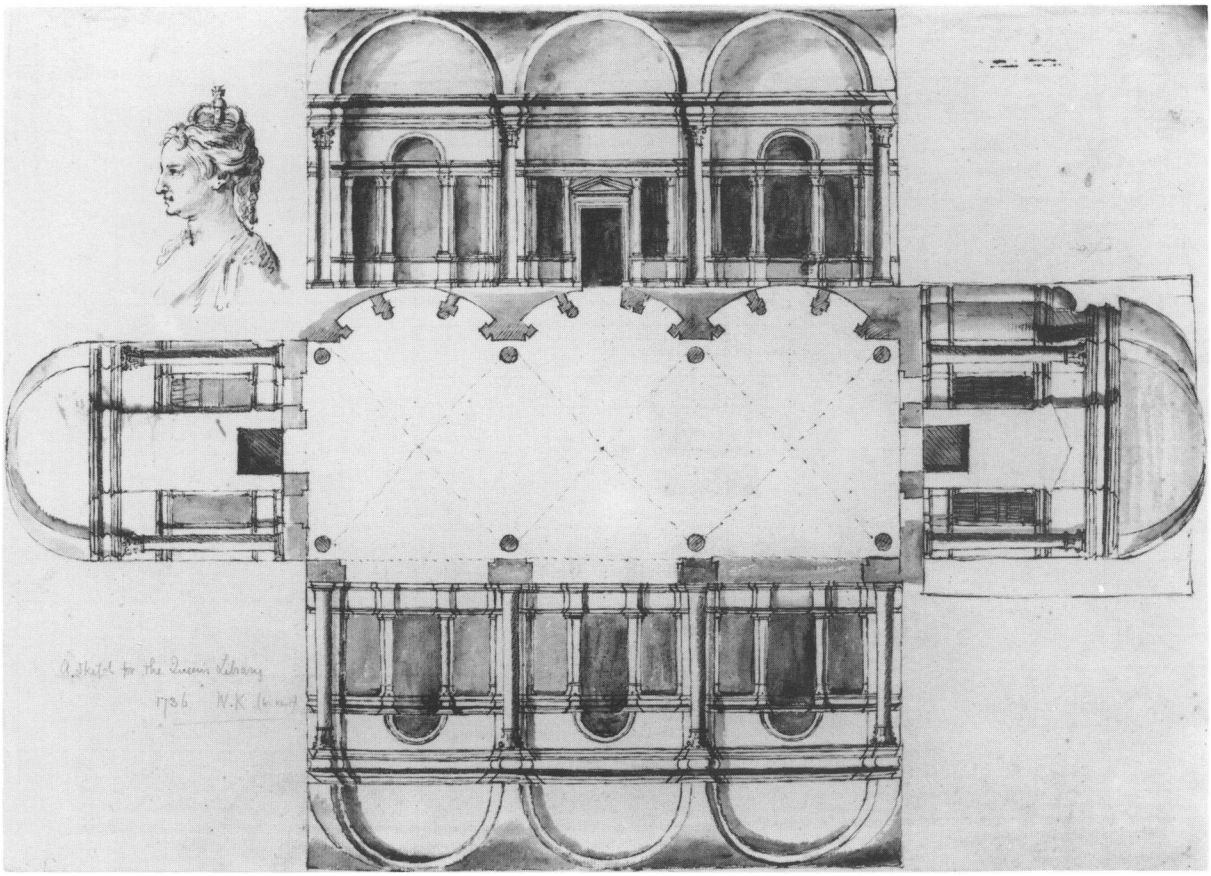

Fig. 13 *William Kent, design for the Queen's Library at St James's Palace (Sir John Soane's Museum, Pennant II/197)*

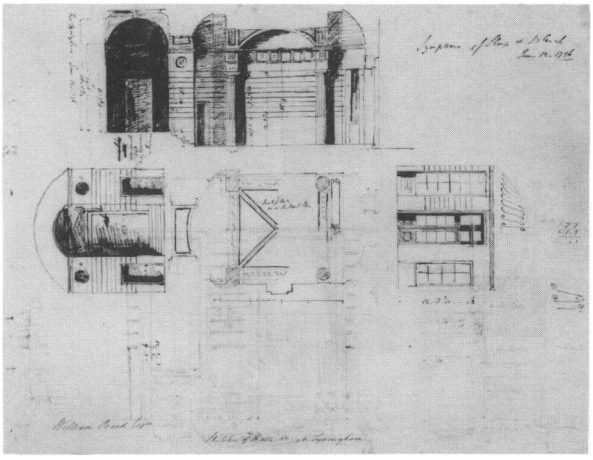

Fig. 14 *Sir John Soane, design for the hall at Tyringham (Sir John Soane's Museum, Drawer 3, Set 3, Item 36r)*

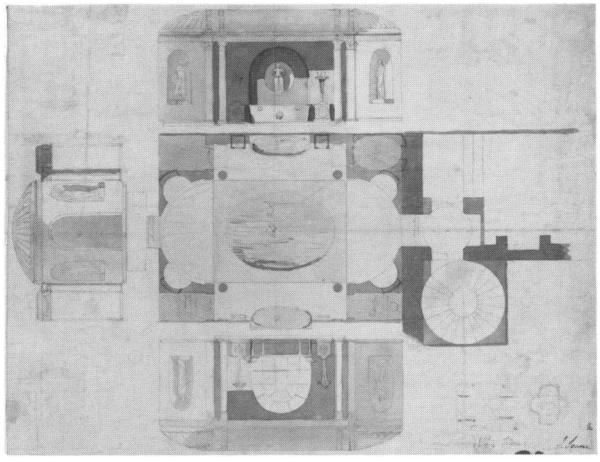

Fig. 15 *Sir John Soane, design for the bathroom at Malvern Hall (Victoria and Albert Museum, 3436.188)*

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