Tate Gallery, Millbank
A study of the existing layout and new masterplan proposal

Prepared for the Trustees of the Tate Gallery

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AIMS AND OUTLINE OF THE STUDY

In July 1995, the Tate Gallery commissioned the Unit for Architectural Studies to carry out a study of the spatial design and patterns of space use in the existing Tate Gallery, as an aid to evaluating proposals for a new masterplan with a basement level entrance. The study was to comprise four stages:

computer modelling and analysis of the existing layout using 'space syntax' techniques;

observations of current patterns of movement and space use;

correlation of the spatial analysis and observations to provide a detailed picture of how the Tate is currently working;

computer simulation of the new design proposals in light of the findings of the study in order to evaluate the likely effects of changes in the layout on the pattern of movement and space use in the Gallery.

The observation study was carried out during the week of 7th August. Because Room 20 was closed at this time until 4th September, further observations in and around this space were carried out after this date to see how far the closure had affected the pattern of movement and space use. The lower ground gallery was not open during the first observation period, and was therefore also observed during this later period.
SUMMARY

1. On the whole, the Tate layout is working well. Visitors arrive at the main entrance and quickly diffuse into most parts of the building. The style of visiting is exploratory and informal, rather than guided or controlled.

2. Analysis of the layout in conjunction with movement and viewing rates, show that the spatial layout of the gallery is itself the prime determinant of how the gallery is used, more important than signage, or the guide, or the attractions of particular works. As in a good town, it is the structure of space itself that guides the visitor around the Tate.

3. The properties of the layout that allow the Tate to work this way include:

   - its balance of long and short axes;
   - its use of major axes to create an intelligible 'core' to the layout (the main axis, the parallel side axes and the lateral connections);
   - the fact that this structure is easily learned from the entrance spaces;
   - the organisation of room sequences into circuits which relate to this 'core' of axes.

4. In other words, it is the apparently formal properties of the spatial layout that make the Tate work in an informal and relaxed way, and give rise to its distinctive visitor style and 'spatial culture'.

5. However, the layout also works unevenly. Some parts underperform. In particular:

   - the complex of spaces to the right of the main axis have much lower rates of visiting and viewing than the corresponding spaces to the left;
   - rates of visiting and viewing in many of the Clore spaces are well below par;
   - the lower galleries perform poorly.

6. The study shows that these problems are not simply to do with the attraction of what is on show. They are also strongly, and negatively, affected by the spatial layout. The layout is responsible not only for much that is good in the Tate, but also some things that are less good.

7. Analysis of the new proposed masterplan suggests that, while acknowledging its architectural ingenuity as a response to the brief and constraints, we cannot be optimistic about its spatial operation and its effect on the Tate as a whole. The layout of the new lower entry level and the linkages between it and the main gallery level are too complex to achieve adequate integration between lower and main levels.
This will have a number of effects:

the new lower entry level would operate as a relatively segregated subcomplex in the new layout;

the old core structure of the gallery, based on the main axes and laterals would remain much as it is, and continue to be oriented towards the existing main entrance, but now misleadingly;

the fact that the entrance is now at the lower level would mean that the spatial structure of the gallery would no longer be easily learnable from the entrance spaces.

This would be exacerbated by the detail of the lower level layout. In particular, routes from the lower level to the main gallery would be confusing, because:

they offer two equal but equally uninviting choices;

they require the visitor to ignore the information given by the spatial structure of the building and to find routes which are are complex, and counter-intuitive;

similar effects would arise for the visitor arriving from the lower complex on to the main gallery floor, because equal choices are again offered, and the layout provides little guidance as to how the gallery is structured.

The most probable effects of these changes would be the progressive replacement of the current exploratory and informal visitor style of the Tate, in which the building is the main guide to the visitor, with a signage culture, in which visitors would need to be strongly directed along certain routes through a stronger regime of control and guidance. In the light of the findings of the Visitor Audit, it might well be that this change in the spatial culture might make the Tate a less attractive place for impromptu visiting and revisiting.

The problems of an entrance on Atterbury Street are not insolvable. Ways could be found of linking the gallery level to an expanded ground floor in such a way as to make the two floors work as a single system. Strong visual links, coupled to direct access links, are the best way of doing this. The spatial models developed for the present study could be used to test architectural proposals as to how and where these links might be made, and how the two levels might be organised.
PREFATORY: THE 1993 VISITOR AUDIT

Before presenting the study it will be useful to review the 1993 Visitor Audit. The Audit does not deal directly with the Tate as a building, but it does have a number of indicators which we believe are of direct relevance to our study:

visitors experience the Tate building as easy to use and find their way about in, in spite of what is often said to be less than adequate signage. Visitors sometimes credit the guide, with its plan, for this ease of use, but our results show that the route recommended by the guide has rather little influence on wayfinding in the building. The results also suggest that the satisfaction with the Tate from this point of view has to do with the spatial layout of the Tate, and how it tacitly informs people about its structure, without the need for too much signage. This is similar to the way a traditional town does not depend on signs to tell the stranger where to go: the ways in which the buildings shape the space provide enough information;

much visiting at the Tate is relatively impromptu;

much visiting is repeat visiting;

people say they like to browse in the Tate;

the Tate is a popular gallery, and increasing in popularity in spite of being rather off the beaten track, especially for tourists.

All these suggest that the culture of the Tate stresses informality, spontaneity, relaxation. The overall impression of the Visitor Audit is one of an well-liked gallery, with an emphasis on informality which seems to belie its rather formal exterior. We believe that the evidence of our study supports this view of the Tate, and shows it to be intimately bound up with the design and management of the Tate as a building. We will see in what follows that there are strong reasons for believing that the spatial layout of the Tate plays a crucial role in creating this informal style, and this is therefore a key point in our conclusions.

THE STUDY

The questions to be answered

The question we were trying to answer through the study was: what can we learn from the Tate as it is now laid out and as it is now used by visitors that would help us understand how it would work if redesigned as proposed in the new masterplan? This becomes three questions:
How is the Tate working now?

What makes it work this way, and in particular what are the relative contributions of the layout of the gallery itself, the layout of exhibits, and of such aids as the official guide?

What therefore would be the likely effects of the new layout on how the Tate is used?

We will take the three questions in order. First, we will present the findings of the space use and movement study, then introduce the 'space syntax' analysis to 'explain' the patterns of use in terms of the layout, then use this 'explanation' to simulate and evaluate the new masterplan proposals for redesigning the layout. At each stage, the results of the study will also be presented graphically.

Observation techniques

First, we distinguish three visitor activities: moving, which means anyone walking, whether they are looking at works or not; viewing, which means standing still to look at a work; and sitting, again without distinguishing those looking at works from those simply resting.

Two principal techniques of observation were used, one to observe movement, the other to observe standing and sitting. Movement was observed by counting flows in both directions across the thresholds of spaces, as in Figures 1a and 1b. Room averages were then calculated by summing the flows across all thresholds for each room, then dividing by two (since each person both enters and leaves each space, though not necessarily within the time period of observation). These were then divided by 60 to give flows per minute, which are easy to visualise. The mean movement rate for all spaces in the Tate is 5.0077 per minute.

Because standing looking at a picture or sculpture cannot be calculated as a rate, standing people (and also sitting) were observed by taking 'snapshots' of each space 12 times through all the time periods, that is, an observer enters a space and marks on a plan the locations of all viewing people at the time of entry. For larger spaces, this was sometimes done in more than one stage, but without sacrifice of the instant snapshot aspect. The mean number of people viewing in each room at any moment in time is 5.0322, almost identical to the per-minute flows through each room.

Although the different observational techniques mean that we cannot strictly compare the figures for moving and viewing to each other, it is useful to combine the two figures into a notional total occupancy rate per space, which is not too far from reality, and which certainly allows spaces to be compared to each other. Figures 2a and 2b show all of these figures for the main spaces of the gallery. The top figure is the mean movement rate per minute, the bottom figure the mean snapshot of viewing people, and middle figure the sum of the two, or the notional total occupancy rate. Inspection of these figures provides a very clear idea of how visitors currently use the Tate.
Other observational techniques were also used to fill out the picture:

93 visitors, spread across time periods, were followed for ten minutes as they entered the gallery through the main entrance. Routes were traced and stopping points recorded. Route traces are shown in Plate One. The traces show some striking features. First, is the importance of the main axis in distributing and gathering movement. Second, even in the first ten minutes of visiting the gallery, visitors are already beginning to use the ‘rings’ of circulation in the gallery layout to move around, not simply going to predetermined points of interest. Third, even after ten minutes, people who entered the gallery more or less together and who took different directions within the Tate, could be about to meet, or at least to pass each other. The structure of the gallery thus probably generates a degree of subliminal familiarity amongst some of the people moving around it. This is quite unlike the type of gallery where visitors are encouraged, or even forced, along a single line of movement, in order to experience the exhibits in a predetermined order. The spatial style of the Tate is one of exploration from the moment of entering the gallery. It is also of interest that, as will be seen below, the pattern of movement densities established in the first ten minutes of visitor time closely follows the pattern recorded for the whole day;

the stopping points in the first ten minutes are shown in Plate Two. These closely follow the route traces, without obvious further biases. The traces were also used to generate directional split maps of route choice from the main axis during the first ten minutes of people’s visit to the gallery, up to the point where direction splits are about to meet. The results are shown in Figure 3 and 4. The first shows the general directions taken. Beyond the rotunda, where 15% of visitors go straight into the bookshop, and others turn towards the Clore, the bias to the left side of the main axis is very pronounced. The second shows the continuation of these trends into the individual gallery spaces;

five minutes of detailed observations of movement in each space were made by tracing the routes of people as they moved within the room, and where they stopped, and where they interacted. These were then overlaid onto a computer plan to give Plate Three;

moving visitors recorded during the snapshots of each space were plotted as a computer overlay on to the plan so that the rates of activities in different parts of the building could be visualised, as in Plate Four, as were sitting people (Plate Five) and people talking to each other (Plate Six). The last Plate shows that interaction happens throughout the Tate, roughly following the movement rates. It will not therefore be referred to again;

direction split maps were made of people leaving the bookshop through the rotunda during all time periods. The results are shown in Figure 5, indicating that most people leave the Tate after leaving the bookshop through the Rotunda, and only a minority recirculate into the gallery.
Virtually every aspect of space use and movement in the Tate was thus observed and recorded. The results presented below are necessarily selective, and have been chosen to illustrate the key results of the study. Much more, however, is available (for example for movement and standing rates for different times of day) and can be consulted if necessary.

**MAIN FINDINGS**

The three questions addressed by the study can now be taken in order:

**How the Tate is working now**

97% of visitors enter by the main entrance, 3% by the Clore entrance;

on entering the building, visitors disperse in all directions and quickly populate most parts of the building. There are no set routes, formal or informal. **Plate One** shows the routes taken by 93 people entering through the main entrance. **Plate Two** shows where they stood during this time to look at exhibits.

There are, however, strong biases, in the initial pattern of movement. The initial direction splits towards different parts of the building are shown diagrammatically in **Figure 3** and the further steps numerically in **Figure 4**. Both show:

a tendency for many to turn off the main axis early, including 15% who go directly to the bookshop;

a strong bias towards the left side of the main axis;

the diffusion of those entering the building into groups who take different directions but who quickly re-encounter each other as their routes cross, due to the ‘ringy’ nature of the spatial layout.

In many respects (though not all) the pattern established during the first ten minutes closely resembles the all day pattern of moving and viewing in the Tate, as shown in **Figure 2a and 2b**. The key features of this pattern are:

in the first ten minutes of entering the gallery, large numbers of visitors move down the main axis and stand to view exhibits. Later, however, the first space and the main axis and the octagon are used more for movement from one part of the Gallery to another, creating a strong bias towards movement rather than viewing in these spaces;

the highest level of viewing exhibits (as opposed to standing in the bookshop, which has by far the highest rate of standing people) are found to the left of the main axis in the central area, and also in space 15, where the Dali is a strong attraction. The highest rates for viewing are in space 9.
(Victorian Painting), space 15 (Surrealism and Abstraction, but especially the Dali), space 10 (the Pre-Raphaelites) and space 7 (Blake). All of these spaces are in high movement areas of the gallery (only the Blake room has slightly below average movement), but there is no doubt that the viewing numbers reflect the special attraction of these works. The complex to the left of the main axis as a whole has high basic movement (6.23 per minute) and viewing (8.325 per 'instant snapshot') rates and also quite high differentiation between rooms (especially when compared to the rooms on the right side of the main axis);

the corresponding complex of gallery spaces on the right side of the main axis is much less well occupied, both for moving (4.34 per minute) and viewing (3.80 per snapshot). It is also much more uniform in its occupation rates, and much more evenly balanced between moving and standing. This complex thus has much poorer background movement and viewing rates, and few special attractors compared to the left side complex;

the Clore has movement (3.89 per minute) and viewing (3.49 per snapshot) rates even lower than the complex to the right of the main axis, though on the lower floor they are more or less comparable. However, there is in the Clore an illusion of greater movement than is really the case, because visitors must use the central space to move from one side gallery to another. The rates of both moving and viewing in the side galleries on the main floor are exceptionally low, and this is duplicated in the upper level spaces. In the Clore, movement rates in the central spaces are above average, but this does not generate movement or viewing in the side spaces. The Clore is deceptive: visitors get to the Clore, but not to the pictures;

the exhibition area has movement rates (2.28 per minute) of less than half the average, and viewing rates (1.65 per snapshot) of less than a third of the average;

the lower galleries have very low movement rates (1.44 per minute). Viewing rates were not recorded as the galleries were closed during the main observation period;

the ground floor cafe-restaurant area maintains a constant flow of movement (3.31 per minute), and in this sense works surprisingly well, in that people get to the area and through it in good numbers, in spite of the change of level. Movement is however very biased towards the stairs by the entrance, compared to the stairs from the space adjacent to the Duveen.

WHAT MAKES THE TATE WORK THIS WAY?

An analysis of the spatial layout of the Tate was conducted using 'space syntax' techniques. These techniques develop the findings generated by the observation study by combining them with computer generated representations of space within the
gallery complex. The aim in using this method of analysis is to study the design of buildings and cities by investigating the relation between human behaviour and spatial design.

An important concern of the space syntax method is the nature of movement patterns and, in particular, how these will be affected by changes in the spatial design of buildings and cities. Movement has been shown to be the key to the most successful buildings and urban areas. Without movement, space tends to be empty for much of the time and this can create danger in the form of crime in urban areas and poor levels of social and professional interaction in buildings.

The key to good levels of movement in both buildings and urban environments is the design of space. Extensive research by the Unit for Architectural Studies has shown that movement is a primary function of the layout of space and not simply the location of specific attractors.

In the case of the Tate, the space syntax method began by making a graphic computer representation of visitor-accessible space within the building to establish key features of it. The spatial information provided by this 'space map' was then correlated with the first-hand observation study of space use and movement to investigate the relationship between the pattern of space and the pattern of activity within the gallery.

The 'space map' was drawn by first taking the plan of the building and re-drawing it as a set of individual convex-shaped elements. Typically the shapes of these spaces correspond to the shapes of the separate galleries and rooms within the building although the occasional transition spaces which link them together were also included.

In the next stage of the analysis, the set of fewest and longest possible lines of sight and access were drawn which pass through the building. These lines have the effect of linking the individual gallery spaces into visual sequences. They are drawn on top of the set of shapes created in the first stage of analysis to produce the final 'space map' which is presented in Plate Seven.

Here, a further stage of the analysis has taken place in which the space map has been colour-coded to show the degree of 'spatial integration' of each room. Spatial integration is a space syntax measure, calculated by computer, which describes the strategic importance of each space with regard to the rest of the spaces in the space map. Strategic or 'integrated' spaces are better linked to the system as a whole than less strategic or 'segregated' spaces. Highly integrated spaces are coloured red, through orange to green, dark green, blue, dark blue and purple for the least integrated.

The analysis shows that the most integrated set of spaces within the building - the 'integration core' - runs from the main entrance and rotunda, down the main axis, and then biases strongly towards the left side of the main axis. In addition, the first space in the Clore (T9) becomes important because it makes the connection between the Clore complex and the main gallery.
In the plan which was analysed, Room 20 is closed, as it was during the observation period. It is important to note that this bias of integration to the left side remains when Room 20 is reinstated. Although the differences between left and right are less strong, they are still strong enough to have marked effects, as we shall see, on the pattern of visibility and accessibility, with consequences both for movement and viewing.

The pattern of spatial integration in the spatial layout, as shown in Plate Seven, has a very powerful effect on movement rates in the rooms. This can best be shown by 'correlating' the numerical 'integration' values of the rooms with the observed movement rates within and through them, as in the 'scattergram' in Figure 6a. Each circle represents one of the spaces in the gallery. Its position on the horizontal axis indicates the level of spatial integration of that space in the plan, and its position on the vertical axis the rate of movement in and through the space (in fact, for technical reasons, its logarithm). If the relationship were a perfect one, in which so much more integration were invariably associated with so much more movement, the circles would be distributed in a perfect line from bottom left to top right. As it is, the closeness of fit between the two shows (as indexed by the 'R-squared' value above the figure) that nearly 70% of the differences in movement rates between spaces is due to the structure of the spatial layout itself. This is a remarkable result, and demonstrates that the spatial analysis is not only bringing out the essential structure of movement, but also its functioning.

This is not, of course, the whole story. The vertical distance of a circle from the 'regression line' indicates the degree to which movement in that space needs to be accounted for by factors other than the layout. If the circle is above the line, this means that to that extent the space attracts extra movement for that degree of integration; if below, then it attracts less than it should. For example, the space farthest above the regression line in the top centre of the scatter is the central space of the Clore main gallery. This appears to have more movement that it ought from its degree of integration. However, this arises from the fact that (uniquely for the Tate) movement between the gallery spaces adjacent to the central space must always pass through this space, creating an appearance of a greater number of visitors than is really the case (as can be seen from the consistently low number of visitors viewing works within these rooms).

The importance of the layout in creating the pattern of movement in the Tate can be be shown even more strongly by dividing the building into 15 areas (or groups of adjacent spaces): entry (entrance, rotunda, transition space to main axis); axis (rooms A, B and C); bookshop; left one (rooms 15, 16, and special displays room); left two (rooms 10-14); left three (rooms 5 - 8); left four (rooms 1-4); right one (rooms 17-19); right two (rooms 20-24); right three (rooms 25-30); special exhibition area; lower Clore; upper Clore; lower galleries; and lower ground area.

The average movement rates in these areas can then be correlated with the mean spatial integration of that area. The result is shown in Figure 6b: 86% of the differences in movement rates between areas can be accounted for by the different degrees to which those regions are integrated into the spatial layout of the gallery as a
whole. These two results (the building analysed by individual room and by area) taken together show that the main determinant of the movement pattern in the Tate is the pattern of visibility and accessibility, as shown in the analysis of integration. The degree of attraction of the works shown in the various rooms then fine tunes the rates.

The pattern of integration is also powerfully related to the rates of viewing works, as shown in Figure 6c for individual rooms, and at the area level in Figure 6d. Figure 6d is particularly illuminating, because it shows that the three areas with highest rates (the circles at the top of the scattergram) well above the 'regression line', that is, well above the level that the spatial layout alone would give them, are the first three areas to the left of the main axis (left one, left two and left three). The circle to the far upper right represents the axis spaces, which get about what the spatial layout gives them (as shown by the position close to the regression line); the cluster of three areas in the centre are the two centre right areas (right two and right three) and the lower Clore; the circle in the bottom left corner (least integrating, least people viewing) is the upper Clore. The lowest circle of all (bottom centre) is the special exhibition complex which, during the course of the observation study, had fewer visitors than its level of integration would suggest. This finding must be treated carefully however because the special exhibitions complex is transformed from exhibition to exhibition and its attendances vary.

What this in fact shows is that in the main gallery, whether unconsciously or by design, the most popular groups of works have been placed in more integrated locations, and the less popular in the less integrating. This has the effect that both layout and attraction work together to make some parts of the gallery much less occupied than others. This point is reinforced by correlating moving and viewing rates for individual spaces, as in Figure 6e and for areas, as in Figure 6f. The 'bifurcation' of the scatter means that the circles in the upper half have higher viewing than movement rates (though these are also quite good). These are all the key spaces to the left of the main axis. The circles in the right part of the scatter have high movement but low viewing rates. These are the main axis spaces, but also include the central space of the lower Clore, with its artificially high movement rates, and low rates of viewing.

These results show the degree to which the pattern of occupancy in the Tate is determined by the structure of the gallery layout itself, rather than simply by special attractions or by the guide. They also show that the Tate layout is on the whole working well, if patchily. In fact, these results lead us to a key conclusion of this stage of the study; that although visitors to the Tate tend to use an exploratory and highly variable style of visiting, rather than a strictly sequenced or repetitive one, the spatial layout is such that it is able to turn an accumulation of individual explorations into a predictable and reliable overall pattern of space occupancy. Our belief if that it is this relaxed approach to visiting, coupled to the fact that this does lead to a reliable overall pattern, that underpins the informal spatial culture of the Tate, as evidenced in the Visitor Audit. Our view is that this is important to the Tate. Visitors do not return to a gallery to experience the same exhibits in the same sequence. They return, as they do at the Tate, because of the variety of experience, and of the sequencing of experience, that the Tate creates.
How this spatial structure is achieved architecturally thus needs to be understood. The problem of gallery design is to create a layout which is easily intelligible but without being too simplified, which guides visitors through sequences of spaces but without losing their picture of the overall layout, which offers enough, but not too much choice so that experience of the gallery is diverse and can be different for each visit, which offers a diverse experience of other visitors as well as an experience of exhibits and in which the building exerts sufficient tacit control, within the right degree of choice, so that the regime seems informal to the visitor.

Some galleries adopt extreme solutions to this problem. For example, if visitors are forced through a single sequence of spaces, without any choice or diversion (as happens in certain London galleries) then control of the visitor is maximised, but it would be doubtful if the building added much to the visitor's experience. Only the most dedicated visitor would return frequently to experience the same exhibits in the same order. One can also easily conceive of the opposite extreme, where the layout provided choice of route at every point, creating an overly rich structure giving visitors little guidance as to the overall structure of the layout.

It seems to us that the Tate works well because of the way in which the layout resolves these problems. The key features seem to be:

- a balance between strong and weak axes of visibility and access which constantly provides the visitor with reminders of the overall structure of the layout, and counteracts the possible confusions that can result from ordering space into sequences;

- the organising of the main axes into an overall 'core' structure for the layout;

- relating the sequences on the major axes to intersecting circuits of spaces, which both take the visitor away from the main axes and bring him or her back, and in this way create the right balance of structure and choice in the layout; and finally, and perhaps most importantly;

- the clarity of this structure from the point of view of the visitor entering the main entrance to the gallery.

The distinctive visitor style of the Tate, with its relaxed and free way of exploration, and its feeling of informality within a necessarily controlling regime, is, we believe, very much a product of these properties of the layout, and of the management style that they permit and encourage.

**HOW THE PROPOSED MASTERPLAN MIGHT BE EXPECTED TO WORK**

In the light of these findings and conclusions, we may now consider the likely impact of the new masterplan. Because the correlation between the pattern of spatial integration of the existing Tate and its pattern of movement and viewing has been shown to be a close one, we may model the new masterplan in the computer and
analyse how it will change the spatial structure of the Tate, and how it might therefore be expected to work.

While acknowledging the ingenuity of the proposed masterplan in answering the brief, and its many excellent architectural qualities, our analysis of the effect the new masterplan would have on the spatial layout and functioning of the Tate causes us considerable concern. The effects of the new masterplan would seem to be as follows:

first, as Plate Eight shows (Room 20 has been reinstated) because of the complex pattern of connections from the new ground floor area to the main body of the gallery, the new ground floor area becomes a rather segregated subarea in the gallery complex as a whole. Neither its internal integration nor its integration with the main Tate are enough for the new area to make a substantial impact on the spatial structure of the main gallery. In effect, this leaves the spatial structure of the Tate much as it was, except that a relatively segregated entrance complex would be added to it. As a result, the new ground floor area would operate as a distinct entrance complex, relatively independent of the main exhibition spaces;

one effect of this would be that for the people entering the gallery by this route, the links between the entrance complex and the intelligibility of the gallery as a whole - a relationship which, as we have seen, is a prime factor in how the Tate currently works - would be lost. This is not only because the new entrance complex as a whole is not adequately integrated into the main gallery but also because all the spatial cues, which are so right in the existing entrance area to the Tate, are now misleading: the longest axes lead nowhere, the routes that visitors need to take are unclear and cannot be seen, or even worked out by a visitor from what he or she sees of the building. Even when the routes are found, they are complex and do not reveal destinations until the visitors virtually arrive at them. This would inevitably lead to a need for many more signs (already thought inadequate in the Tate according to the Visitor Audit) but even with signs, the fact that there are two routes from the entrance complex to the main galleries, and that both are spatially complex, would create significant way-finding problems;

if the new entrance were to become the main entrance within the proposed masterplan, then this would inevitably require a change in the 'spatial culture' of the Tate from one in which the building itself guides people around, to a more signage based culture. In effect, the new masterplan would be likely to undermine the existing visitor style of the Tate, by replacing a spatially based culture with a signage culture. Because the building would not guide people around in the current informal way, much more would have to be invested in guidance. This would, we believe, lead to considerable frustration on the part of visitors, especially those familiar with the existing Tate and its visiting style, though this would least affect organised groups.
BUT ALL IS NOT LOST...

By employing the computer model to investigate the spatial organisation of the Tate, we are able to suggest certain guidelines which any development should follow if it is to build upon the particular spatial culture of the present gallery complex. For example, there could be significant benefits from a new entrance at the lower level on Atterbury Street if, in addition to opening up the ground level to provide more space in the gallery as a whole, four design objectives are achieved:

that the new entrance complex draw the integration core of the gallery as a whole towards itself - that is, if the entrance became integrated into the building as it is now;

that a relation of direct visibility and intelligibility could be created between the levels;

that the lower complex as a whole becomes well integrated into the gallery structure, rather than operating as a segregated sub-complex;

and, that the spatial principles already outlined which make the Tate work well also guide the new additions, especially in creating the relationship between the lower and upper areas.

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Tate Gallery, Millbank  Adult Movement Flows per hour  10-12;  12-2;  2-4;  4-6;

Figure 1a. A map showing the movement flow of adults per hour in the spaces of the Tate Gallery, Millbank throughout the day.
Tate Gallery, Millbank  Adult Movement Flows per hour

10-12; 12-2; 2-4; 4-6;

Figure 1b. A map showing the movement flow of adults per hour in the spaces of the Tate Gallery, Millbank throughout the day.
Tate Gallery, Millbank  All Day Average Room Rates per minute

Gallery Level Plan

Figure 2a. This shows the per hour rates for movement density in each room averaged throughout the day at the Tate Gallery.
Tate Gallery, Millbank All Day Average Room Rates per minute

Figure 2b. This shows the per hour rates for movement density (standing people only) averaged throughout the day in the Clore Gallery.
Tate Gallery, Millbank
10 minute Dispersal Map

10-12; 12-2; 2-4; 4-6;

Gallery Level Plan

Figure 3. A map showing to where people are moving from the main axis in the Tate Gallery, Millbank throughout the day.
Tate Gallery, Millbank 10-12; 12-2; 2-4; 4-6;
Directional splits of people during the first 10 minutes of their visit.

Figure 4. A map showing the directional splits of where 93 people are moving to in the first 10 minutes of their visit to the Tate Gallery, Millbank.
Figure 5. A map showing the route choices of 272 people as they left the gallery shop through the octagon entrance over the entire day at the Tate Gallery, Millbank.
SCATTERGRAMS DEMONSTRATING THE RELATIONSHIP BETWEEN OBSERVED LEVELS OF MOVEMENT AND SPATIAL INTEGRATION.

**Figure 6a.**

\[ y = 3.586x - 1.989, \text{ R-squared: .68} \]

**Figure 6b.**

\[ y = 3.1756x - 1.3547, \text{ R-squared: .8619} \]

**Figure 6c.**

\[ y = 2.133x - .561, \text{ R-squared: .37} \]
SCATTERGRAMS DEMONSTRATING THE RELATIONSHIP BETWEEN OBSERVED LEVELS OF MOVEMENT AND SPATIAL INTEGRATION.

**Figure 6d.**

\[ y = 1.745x + 2.436, \text{ R-squared: .485} \]

**Figure 6e.**

\[ y = .407x + 2.887, \text{ R-squared: .19} \]

**Figure 6f.**

\[ y = .417x + 3.016, \text{ R-squared: .311} \]
Tate Gallery, Millbank
Gallery Level Plan

Plate One. Movement trace of routes taken by people during the first 10 minutes of their visit to the Tate Gallery, Millbank.
Plate 2. Location of stops made by people during the first ten minutes of their visit to the Tate Gallery.
Plate Three. A map showing the pattern of movement for each space in the Tate Gallery based on observing movement in each space for five minutes 3 times throughout the day (once each time period between 10-12, 12-2 and 2-4).
Plate Four. A map showing the pattern of movement by people throughout the day at the Tate Gallery based on instant 'snapshots' of every space in the Tate Gallery 12 times throughout the day (3 times each time period between 10-12, 12-2, 2-4 and 4-6).
Plate Five. This shows the pattern of sitting people throughout the day at the Tate Gallery based on 'snapshots' of every space 12 times throughout the day (3 times each time period between 10-12, 12-2, 2-4 and 4-6).
Plate Six. A map showing the pattern of talking by people throughout the day at the Tate Gallery, Millbank.
Plate Seven. Space map showing the pattern of global integration in the plan of the Tate Gallery, Millbank during the course of the observations (Room 20 was closed). This shows a composite model of the axial and convex organisation in the layout and is coloured from red for the spatially most integrated through to blue for the spatially most segregated.