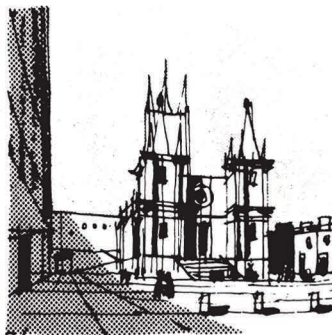


# THE CONCISE TOWNSCAPE



GORDON CULLEN



Architectural  
Press

The Concise  
**TOWNSCAPE**



# Taylor & Francis

Taylor & Francis Group

<http://taylorandfrancis.com>

Gordon Cullen

The Concise

# TOWNSCAPE

 **Routledge**  
Taylor & Francis Group  
LONDON AND NEW YORK

  
Architectural  
Press

Architectural Press is an imprint of Routledge  
2 Park Square, Milton Park, Abingdon, Oxon OX14 4RN  
711 Third Avenue, New York, NY 10017, USA

*Routledge is an imprint of the Taylor & Francis Group, an informa business*

First edition published by The Architectural Press 1961  
Paperback edition 1971

Copyright © 1961, 1971. All rights reserved

No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means electronic, mechanical, photocopying, recording or otherwise without the prior written permission of the publisher

#### Notice

No responsibility is assumed by the publisher for any injury and/or damage to persons or property as a matter of products liability, negligence or otherwise, or from any use or operation of any methods, products, instructions or ideas contained in the material herein. Because of rapid advances in the medical sciences, in particular, independent verification of diagnoses and drug dosages should be made

#### **British Library Cataloguing in Publication Data**

A catalogue record for this book is available from the British Library

#### **Library of Congress Cataloging-in-Publication Data**

A catalog record for this book is available from the Library of Congress

ISBN: 978-0-7506-2018-5

For information on all Architectural Press publications visit our website at <a href="http://www.routledge.com">www.routledge.com</a>
--

#### **Publisher's Note**

**The publisher has gone to great lengths to ensure the quality of this book but points out that some imperfections from the original may be apparent.**

# CONTENTS

6	Acknowledgements
7	Introduction
13	Introduction to 1971 Edition

## **Casebook**

17	Serial vision
21	Place
57	Content
87	The functional tradition

## **General Studies**

97	Squares for all tastes
103	Cross as focal point
106	Closure
111	Line of life
121	Legs and wheels
123	Hazards
128	The floor
132	Prairie planning
140	Rule of thumb
144	Street lighting
151	Outdoor publicity
155	The wall
162	The English climate
164	Casebook precedents
168	Trees incorporated
175	Change of level
182	Here and there
188	Immediacy
193	Endpiece
197	Index

## ACKNOWLEDGEMENTS

The author thanks the following for permission to reproduce photographs: Aerofilms on pages 46 bottom, 136 top left, 139 top; Agenzia Alinari, Rome, page 72, bottom right; the *Architectural Review* pages 26 top, 39 top, 41, 42 bottom, 44 both, 50 top and bottom right, 65 top, 70 top, 71 both, 75 top, 81 bottom, 93 bottom, 104, 123-6, 133 top and centre, 134 all except top left, 135, 136 all except top left, 145, 146 two bottom and centre right, 148, 149 top, and for illustrations by the following photographers: Dell & Wainwright page 18 left column, 40 top left, 78 top; Dewar Mills page 194 top; I. de Wolfe page 22 top, 23 bottom, 24 top and bottom left, 38, 51 both, 53 top, 54 top right and bottom right, 61 top, 76 both, 94 centre left, 103 bottom, 107-8, 109 top, 110, 129-131, 158 bottom left, 159 bottom, 161 bottom left, 177, 178 top and centre left, 181 both, 189-92, H. de Burgh Galwey pages 31 top, 32 bottom, 40 centre left, 58 top two, 61 bottom, 64 bottom, 79 bottom right, 87 right, 88 three bottom, and centre middle and right, 89 two bottom, 90 two bottom, 94 bottom right, 96 centre left, 112-6, 141-3, 178 top right, 179; Hastings page 96 right of centre and bottom centre; John Maltby page 40 bottom right; Ian McCallum pages 29 bottom left, 30 bottom, 36 bottom, 52 both, 53 bottom, 64 top, 68 bottom, 69 bottom, 82 bottom, 87 top left, 88 centre left, 90 top, 92 top, 94 centre right, 96 top centre and right, 158 top right, 160 two top, 161 top left, 171 top, 172, 176, 178 centre right; Ian Nairn pages 34 bottom, 35 top, 36 top, 47 right, 57 bottom, 58 second from bottom, 69 top, 73 top, 74 bottom; J. M. Richards pages 79 top, 87 bottom left, 90 centre, 95 top two left and bottom right, 96 top left, 161 top right; Sylvia Sayer page 60 top; W. J. Toomey pages 56, 58 bottom, 146 top right; also Black Star page 151 bottom; Oscar Bladh page 27 left; Charles Borup page 96 bottom right; Cracknell page 173 top; D'Andre Vigneau page 37 bottom; Eric de Maré pages 21, 23 top left, 46 top, 49 bottom, 66 top, 88 top left, 89 top; Entwistle page 78 bottom left; Fox Photos page 109 bottom; Marcel Gautherot pages 169-70; General Electric Co. page 146 top left; Hedrich Blessing page 161 bottom left; Hobbs, Offen & Co. page 149 two bottom; Jack Howe page 188; H. Dennis Jones page 22 bottom; Jose do Patrocinio Andrade page 158 bottom right; C. and S. Kestin page 83 bottom; G. E. Kidder Smith pages 33 bottom, 83 top, 168 right, 171 bottom, 173 bottom, 174 both; Herbert List page 81 top left; Millar and Harris pages 42 top; the National Gallery page 28; S. W. Newbery page 82 top; Cas Oorthuys page 23 right (reproduced from *This is London*, published by Bruno Cassirer); Photoflight page 134 top left; John Piper page 66 bottom, 95 bottom left; Poles Ltd., Birmingham page 146 centre left; Paul Popper page 168 centre left; Press and Publicity Photographic Co. page 139 bottom; A. E. Raddy pages 117, 119, 158 top left; Radio Times Hulton Picture Library page 48 bottom; Roads Campaign Council page 27 right; L. Sievking page 73 bottom; A. R. Sinsabaugh page 68 top; Spectrocolour page 96 bottom left; R. Stallard page 40 bottom left; Struwing page 37 top; *The Times* pages 47 left, 57 centre, 59 bottom, 77 both; Reece Winstone page 26 bottom. The remainder of the photographs were taken by the author.

All the drawings are by the author, but he would like to thank the Cambridge University Press for permission to reproduce the drawing on page 35 which appears in *The town of Cambridge as it ought to be Reformed* by David Roberts; and Messrs Methuen for the drawing on page 80 which is reproduced from *A Wanderer in London* by Ebbe Sadolin.

## INTRODUCTION

There are advantages to be gained from the gathering together of people to form a town. A single family living in the country can scarcely hope to drop into a theatre, have a meal out or browse in a library, whereas the same family living in a town can enjoy these amenities. The little money that one family can afford is multiplied by thousands and so a collective amenity is made possible. A city is more than the sum of its inhabitants. It has the power to generate a surplus of amenity, which is one reason why people like to live in communities rather than in isolation.

Now turn to the visual impact which a city has on those who live in it or visit it. I wish to show that an argument parallel to the one put forward above holds good for buildings: bring people together and they create a collective surplus of enjoyment; bring buildings together and collectively they can give visual pleasure which none can give separately.

One building standing alone in the countryside is experienced as a work of architecture, but bring half a dozen buildings together and an art other than architecture is made possible. Several things begin to happen in the group which would be impossible for the isolated building. We may walk through and past the buildings, and as a corner is turned an unsuspected building is suddenly revealed. We may be surprised, even astonished (a reaction generated by the composition of the group and not by the individual building). Again, suppose that the buildings have been put together in a group so that one can get inside the group, then the space created between the buildings is seen to have a life of its own over and above the buildings which create it and one's reaction is to say 'I am inside IT' or 'I am entering IT'. Note also that in this group of half a dozen buildings there may be one which through reason of function does not conform. It may be a bank, a temple or a church amongst houses. Suppose that we are just looking at the temple by itself, it would stand in front of us and all its qualities, size, colour and intricacy, would be evident. But put the temple back amongst the small houses and immediately its size is made more real and more obvious by the comparison between the two scales. Instead of being a big temple it TOWERS. The difference in meaning between bigness and towering is the measure of the relationship.

In fact there is an *art of relationship* just as there is an art of architecture. Its purpose is to take all the elements that go to create the



environment: buildings, trees, nature, water, traffic, advertisements and so on, and to weave them together in such a way that drama is released. For a city is a dramatic event in the environment. Look at the research that is put into making a city work: demographers, sociologists, engineers, traffic experts; all co-operating to form the myriad factors into a workable, viable and healthy organization. It is a tremendous human undertaking.

And yet . . . if at the end of it all the city appears dull, uninteresting and soulless, then it is not fulfilling itself. It has failed. The fire has been laid but nobody has put a match to it.

Firstly we have to rid ourselves of the thought that the excitement and drama that we seek can be born automatically out of the scientific research and solutions arrived at by the technical man (or the technical half of the brain). We naturally accept these solutions, but are not entirely bound by them. In fact we cannot be entirely bound by them because the scientific solution is based on the best that can be made of the average: of averages of human behaviour, averages of weather, factors of safety and so on. And these averages do not give an inevitable result for any particular problem. They are, so to speak, wandering facts which may synchronize or, just as likely, may conflict with each other. The upshot is that a town could take one of several patterns and still operate with success, equal success. Here then we discover a pliability in the scientific solution and it is precisely in the *manipulation of this pliability* that the art of relationship is made possible. As will be seen, the aim is not to dictate the shape of the town or environment, but is a modest one: simply to *manipulate within the tolerances*.

This means that we can get no further help from the scientific attitude and that we must therefore turn to other values and other standards.

We turn to the *faculty of sight*, for it is almost entirely through vision that the environment is apprehended. If someone knocks at your door and you open it to let him in, it sometimes happens that a gust of wind comes in too, sweeping round the room, blowing the curtains and making a great fuss. Vision is somewhat the same; we often get more than we bargained for. Glance at the clock to see the time and you see the wallpaper, the clock's carved brown mahogany frame, the fly crawling over the glass and the delicate rapier-like pointers. Cézanne might have made a painting of it. In fact, of course, vision is not only useful but it evokes our memories and experiences, those responsive emotions inside us which have the power to disturb the mind when aroused. It is this unlooked-for surplus that we are dealing with, for clearly if the environment

is going to produce an emotional reaction, with or without our volition, it is up to us to try to understand the three ways in which this happens.

1. Concerning OPTICS. Let us suppose that we are walking through a town: here is a straight road off which is a courtyard, at the far side of which another street leads out and bends slightly before reaching a monument. Not very unusual. We take this path and our first view is that of the street. Upon turning into the courtyard the new view is revealed instantaneously at the point of turning, and this view remains with us whilst we walk across the courtyard. Leaving the courtyard we enter the further street. Again a new view is suddenly revealed although we are travelling at a uniform speed. Finally as the road bends the monument swings into view. The significance of all this is that although the pedestrian walks through the town at a uniform speed, the scenery of towns is often revealed in a series of jerks or revelations. This we call SERIAL VISION.

Examine what this means. Our original aim is to manipulate the elements of the town so that an impact on the emotions is achieved. A long straight road has little impact because the initial view is soon digested and becomes monotonous. The human mind reacts to a contrast, to the difference between things, and when two pictures (the street and the courtyard) are in the mind at the same time, a vivid contrast is felt and the town becomes visible in a deeper sense. It comes alive through the drama of juxtaposition. Unless this happens the town will slip past us featureless and inert.

There is a further observation to be made concerning Serial Vision. Although from a scientific or commercial point of view the town may be a unity, from our optical viewpoint we have split it into two elements: the *existing view* and the *emerging view*. In the normal way this is an accidental chain of events and whatever significance may arise out of the linking of views will be fortuitous. Suppose, however, that we take over this linking as a branch of the art of relationship; then we are finding a tool with which human imagination can begin to mould the city into a coherent drama. The process of manipulation has begun to turn the blind facts into a taut emotional situation.

2. Concerning PLACE. This second point is concerned with our reactions to the position of our body in its environment. This is as simple as it appears to be. It means, for instance, that when you go into a room you utter to yourself the unspoken words 'I am outside IT, I am entering IT, I am in the middle of IT'. At this level of consciousness we are dealing with a range of experience stemming from the major impacts of exposure and enclosure (which if taken to their morbid extremes result in the

symptoms of agoraphobia and claustrophobia). Place a man on the edge of a 500-ft. cliff and he will have a very lively sense of position, put him at the end of a deep cave and he will react to the fact of enclosure.

Since it is an instinctive and continuous habit of the body to relate itself to the environment, this sense of position cannot be ignored; it becomes a factor in the design of the environment (just as an additional source of light must be reckoned with by a photographer, however annoying it may be). I would go further and say that it should be exploited.

Here is an example. Suppose you are visiting one of the hill towns in the south of France. You climb laboriously up the winding road and eventually find yourself in a tiny village street at the summit. You feel thirsty and go to a nearby restaurant, your drink is served to you on a veranda and as you go out to it you find to your exhilaration or horror that the veranda is cantilevered out over a thousand-foot drop. By this device of the containment (street) and the revelation (cantilever) the fact of height is dramatized and made real.

In a town we do not normally have such a dramatic situation to manipulate but the principle still holds good. There is, for instance, a typical emotional reaction to being below the general ground level and there is another resulting from being above it. There is a reaction to being hemmed in as in a tunnel and another to the wideness of the square. If, therefore, we design our towns from the point of view of the moving person (pedestrian or car-borne) it is easy to see how the whole city becomes a plastic experience, a journey through pressures and vacuums, a sequence of exposures and enclosures, of constraint and relief.

Arising out of this sense of identity or sympathy with the environment, this feeling of a person in street or square that he is in IT or entering IT or leaving IT, we discover that no sooner do we postulate a HERE than automatically we must create a THERE, for you cannot have one without the other. Some of the greatest townscape effects are created by a skilful relationship between the two, and I will name an example in India, where this introduction is being written: the approach from the Central Vista to the Rashtrapathi Bhawan<sup>1</sup> in New Delhi. There is an open-ended courtyard composed of the two Secretariat buildings and, at the end, the Rashtrapathi Bhawan. All this is raised above normal ground level and the approach is by a ramp. At the top of the ramp and in front of the axis building is a tall screen of railings. This is the setting. Travelling through it from the Central Vista we see the two Secretariats in full, but the Rashtrapathi Bhawan is partially

<sup>1</sup> The President's Residence, lately Viceregal Lodge.

hidden by the ramp; only its upper part is visible. This effect of truncation serves to isolate and make remote. The building is withheld. We are Here and it is There. As we climb the ramp the Rashtrapathi Bhawan is gradually revealed, the mystery culminates in fulfilment as it becomes immediate to us, standing on the same floor. But at this point the railing, the wrought iron screen, is inserted; which again creates a form of Here and There by means of the screened vista. A brilliant, if painfully conceived, sequence<sup>2</sup> (illustration, page 20).

3. Concerning CONTENT. In this last category we turn to an examination of the fabric of towns: colour, texture, scale, style, character, personality and uniqueness. Accepting the fact that most towns are of old foundation, their fabric will show evidence of differing periods in its architectural styles and also in the various accidents of layout. Many towns do so display this mixture of styles, materials and scales.

Yet there exists at the back of our minds a feeling that could we only start again we would get rid of this hotchpotch and make all new and fine and perfect. We would create an orderly scene with straight roads and with buildings that conformed in height and style. Given a free hand that is what we might do . . . create symmetry, balance, perfection and conformity. After all, that is the popular conception of the purpose of town planning.

But what is this conformity? Let us approach it by a simile. Let us suppose a party in a private house, where are gathered together half a dozen people who are strangers to each other. The early part of the evening is passed in polite conversation on general subjects such as the weather and the current news. Cigarettes are passed and lights offered punctiliously. In fact it is all an exhibition of manners, of how one ought to behave. It is also very boring. This is conformity. However, later on the ice begins to break and out of the straightjacket of orthodox manners and conformity real human beings begin to emerge. It is found that Miss X's sharp but good-natured wit is just the right foil to Major Y's somewhat simple exuberance. And so on. It begins to be fun. Conformity gives way to the agreement to differ within a recognized tolerance of behaviour.

Conformity, from the point of view of the planner, is difficult to avoid but to avoid it deliberately, by creating artificial diversions, is surely worse than the original boredom. Here, for instance, is a programme to rehouse 5,000 people. They are all treated the same, they get the same kind of house. How *can* one differentiate? Yet if we start from a much wider point of view we will see that tropical housing differs from tem-

<sup>2</sup> It was the cause of bitterness between Lutyens and Baker.

perate zone housing, that buildings in a brick country differ from buildings in a stone country, that religion and social manners vary the buildings. And as the field of observation narrows, so our sensitivity to the local gods must grow sharper. There is too much insensitivity in the building of towns, too much reliance on the tank and the armoured car where the telescopic rifle is wanted.

Within a commonly accepted framework—one that produces lucidity and not anarchy—we can manipulate the nuances of scale and style, of texture and colour and of character and individuality, juxtaposing them in order to create collective benefits. In fact the environment thus resolves itself into not conformity but the interplay of This and That.

It is a matter of observation that in a successful contrast of colours not only do we experience the harmony released but, equally, the colours become more truly themselves. In a large landscape by Corot, I forget its name, a landscape of sombre greens, almost a monochrome, there is a small figure in red. It is probably the reddest thing I have ever seen.

Statistics are abstracts: when they are plucked out of the completeness of life and converted into plans and the plans into buildings they will be lifeless. The result will be a three-dimensional diagram in which people are asked to live. In trying to colonize such a wasteland, to translate it from an environment for walking stomachs into a home for human beings, the difficulty lay in finding the point of application, in finding the gateway into the castle. We discovered three gateways, that of motion, that of position and that of content. By the exercise of vision it became apparent that motion was not one simple, measurable progression useful in planning, it was in fact two things, the Existing and the Revealed view. We discovered that the human being is constantly aware of his position in the environment, that he feels the need for a sense of place and that this sense of identity is coupled with an awareness of elsewhere. Conformity killed, whereas the agreement to differ gave life. In this way the void of statistics, of the diagram city, has been split into two parts, whether they be those of Serial Vision, Here and There or This and That. All that remains is to join them together into a new pattern created by the warmth and power and vitality of human imagination so that we build the home of man.

That is the theory of the game, the background. In fact the most difficult part lies ahead, the Art of Playing. As in any other game there are recognized gambits and moves built up from experience and precedent. In the pages that follow an attempt is made to chart these moves under the three main heads as a series of cases

*New Delhi 1959*

## INTRODUCTION TO 1971 EDITION

In writing an introduction to this edition of *Townscape* I find little to alter in the attitude expressed in the original introduction written ten years ago.

It has been said that a new edition of *Townscape* should rely on modern work for its examples instead of these being culled from the past. This has not been done for two reasons.

Firstly the task of finding the sharp little needles in the vast haystack of post-war building would be quite uneconomical. This leads to the second point, why should it be so difficult? Because, in my view, the original message of *Townscape* has not been delivered effectively.

We have witnessed a superficial civic style of decoration using bollards and cobbles, we have seen traffic-free pedestrian precincts and we have noted the rise of conservation.

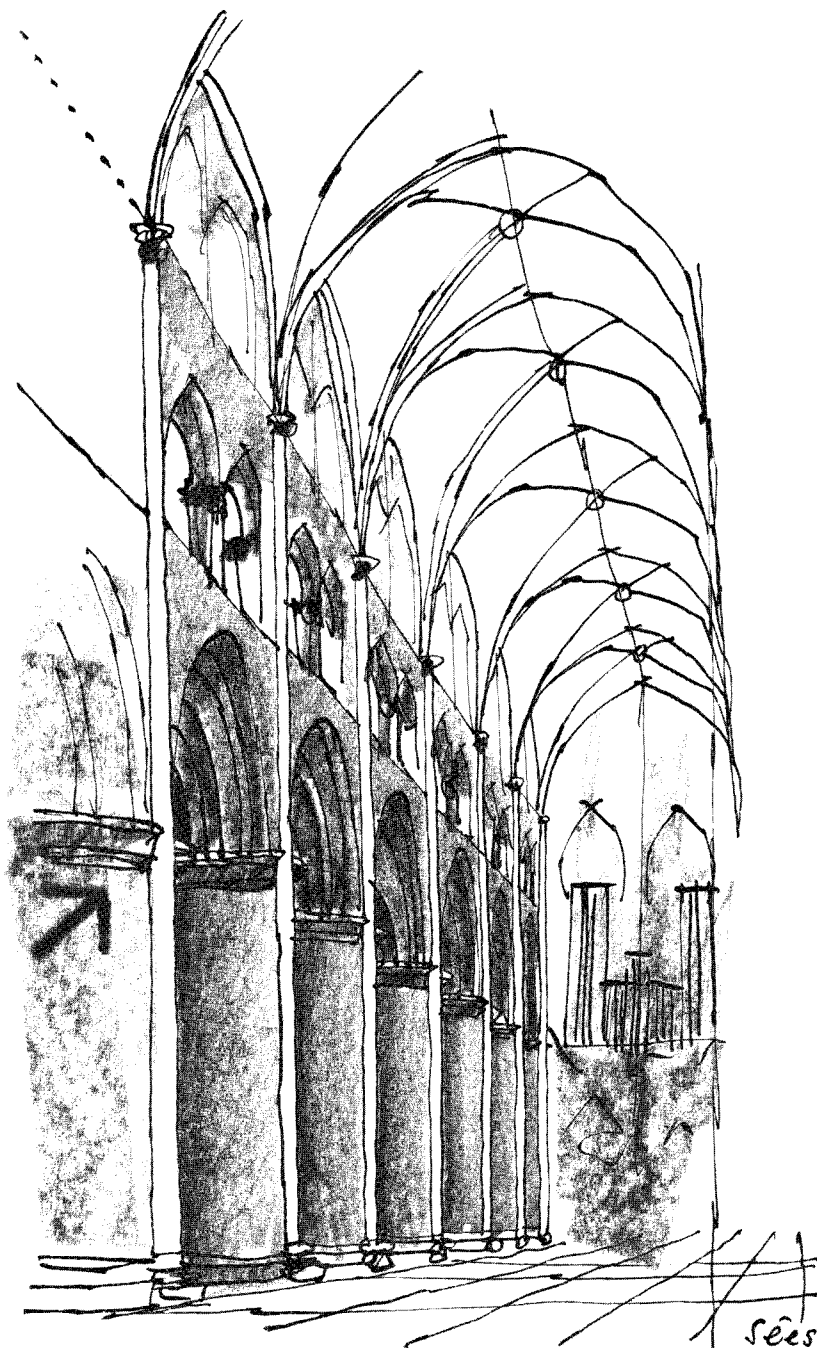
But none of these is germane to townscape. The sadness of the situation is that the superficials have become the currency but the spirit, the Environment Game itself, is still locked away in its little red and gilt box.

The position may indeed have deteriorated over the last ten years for reasons which are set out below.

Man meets environment: unfamiliarity, shock, ugliness and boredom according to what kind of man you are. The problem is not new but is this generation getting more than its fair share? Yes. Reason? The reason in my view is the speed of change which has disrupted the normal communication between planner and planee. The list is familiar enough: more people, more houses, more amenities, faster communications and unfamiliar building methods.

The speed of change prevents the environment organisers from settling down and learning by experience how to humanise the raw material thrown at them. In consequence the environment is ill-digested. London is suffering from indigestion. The gastric juices, as represented by planners, have not been able to break down all the vast chunks of hastily swallowed stodge into emotional nutriment. We may be able to do many things our grandparents could not do but we cannot digest any faster. The process, be it in stomach or brain, is part of our human bondage. And so we have to make organisational changes in order that human scale can be brought into effective contact with the forces of development.

The critical  
point where the  
big column  
lets the  
slender column  
pass



The first change is to popularise the art of environment on the principle that the game improves with the amount of popular emotion invested and this is the crux of the situation. The stumbling block here is that in the popular mind administrative planning is dull, technical and forbidding whilst good planning is conceived as a wide, straight street with bushy-topped trees on either side, full stop. On the contrary! The way the environment is put together is potentially one of our most exciting and widespread pleasure sources. It is no use complaining of ugliness without realising that the shoes that pinch are really a pair of ten-league boots.

How to explain? Example: the nearest to hand at the time of writing is Sées cathedral near Alençon, p.14. The Gothic builders were fascinated by the problem of weight, how to support the culmination of their structures, the vault, and guide its weight safely down to earth. In this building weight has been divided into two parts. The walls are supported by sturdy cylindrical columns: the vault itself, the pride of the endeavour, appears to be supported on fantastically attenuated applied columns which act almost as lightning conductors of gravity between heaven and the solid earth. The walls are held up by man, the vault is clearly held up by angels. 'I understand weight, I am strong', 'I have overcome weight, I am ethereal'. 'We both spring from the same earth together, we need each other'. Through the centuries they commune together in serenity.

As soon as the game or dialogue is understood the whole place begins to shake hands with you. It bursts all through the dull business of who did what and when and who did it first. We know who did it, it was a chap with a twinkle in his eye.

This is the Environment Game and it is going on all round us. You will see that I am not discussing absolute values such as beauty, perfection, art with a big A, or morals. I am trying to describe an environment that chats away happily, plain folk talking together. Apart from a handful of noble exceptions our world is being filled with system-built dumb blondes and a scatter of Irish confetti. Only when the dialogue commences will people stop to listen.

Until such happy day arrives when people in the street throw their caps in the air at the sight of a planner (the volume of sardonic laughter is the measure of your deprivation) as they now do for footballers and pop singers, a holding operation in two parts will be necessary.

First, streaming the environment. It is difficult to fight for a general principle, easier to protect the particular. By breaking down the environment into its constituent parts the ecologist can fight for his national

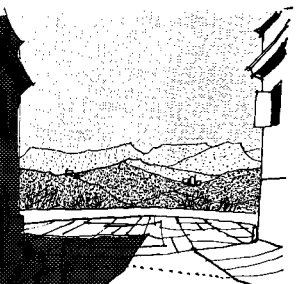
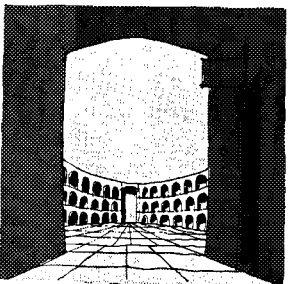
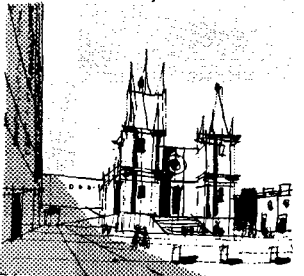
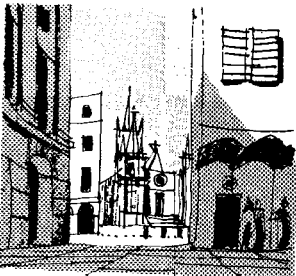
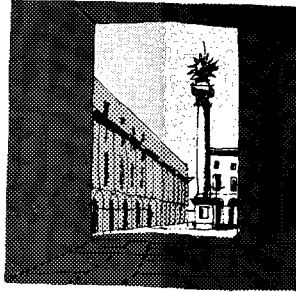
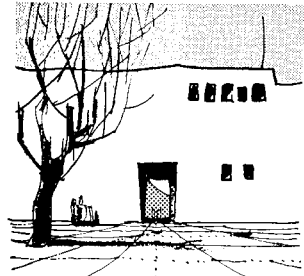


parks, local authority for its green belts, antiquarians for conservation areas and so on. This is already happening.

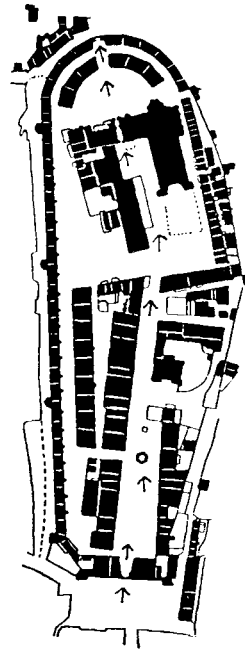
Second, the time scaling of these streams. Change, of itself, is often resented even if it can be seen to be a change for the better. Continuity is a desirable characteristic of cities. Consequently while planning consent in a development stream might be automatic one may have to expect a built-in delay of ten or even twenty years in an important conservation area. This is not necessarily to improve the design but simply to slow down the process. This also is happening, if grudgingly, in the case of Piccadilly Circus.

But the main endeavour is for the environment makers to reach their public, not democratically but emotionally. As the great Max Miller once remarked across the footlights on a dull evening 'I know you're out there, I can hear you breathing'.

## CASEBOOK: SERIAL VISION



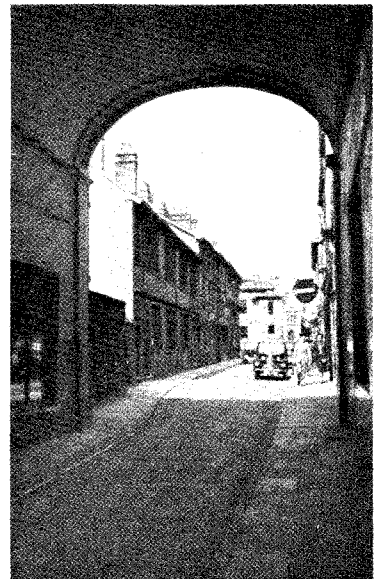
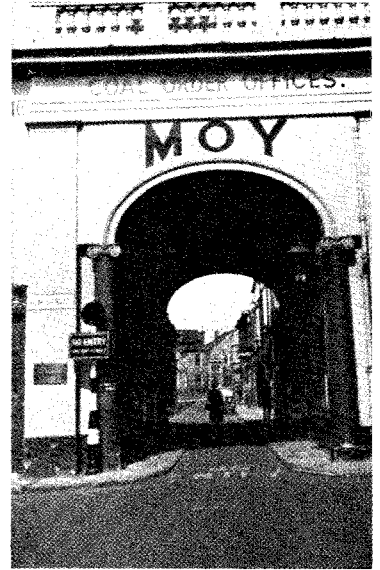
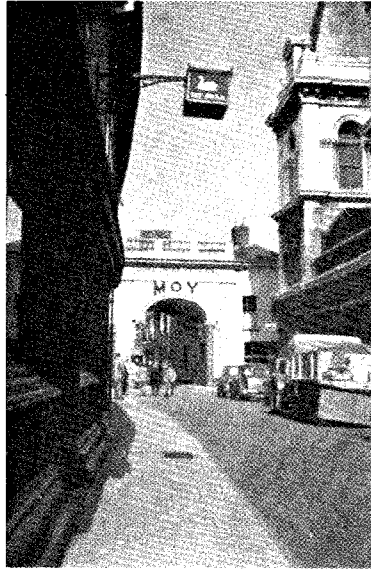
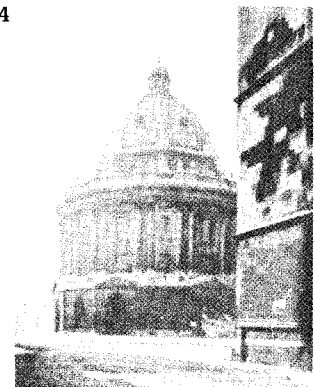
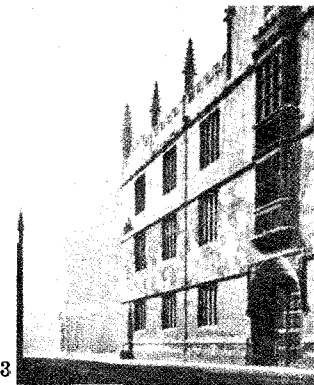
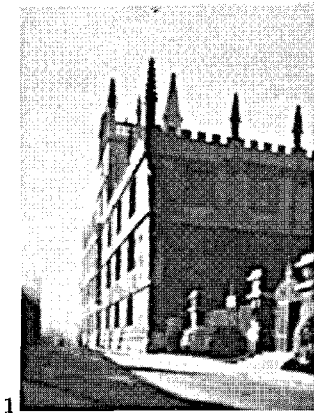
To walk from one end of the plan to another, at a uniform pace, will provide a sequence of revelations which are suggested in the serial drawings opposite, reading from left to right. Each arrow on the plan represents a drawing. The even progress of travel is illuminated by a series of sudden contrasts and so an impact is made on the eye, bringing the plan to life (like nudging a man who is going to sleep in church). My drawings bear no relation to the place itself; I chose it because it seemed an evocative plan. Note that the slightest deviation in alignment and quite small variations in projections or setbacks on plan have a disproportionately powerful effect in the third dimension.



OXFORD

IPSWICH

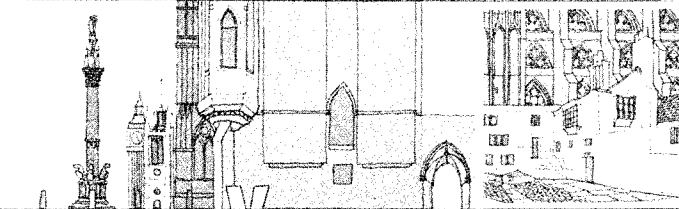
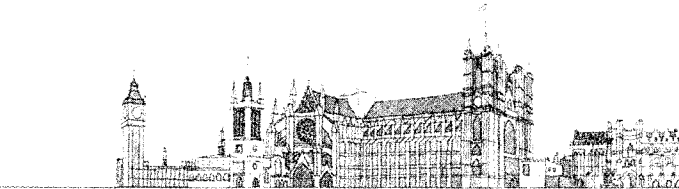
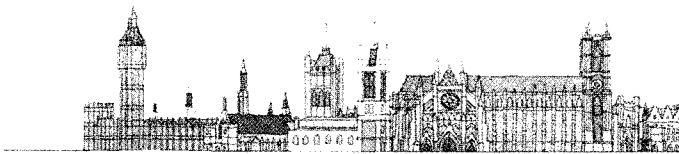
1, 2



3, 4

## WESTMINSTER

These three sequences, Oxford, Ipswich and Westminster, try to recapture in the limited and static medium of the printed page a little of the sense of discovery and drama that we experience in moving through towns. Oxford; the cube, 1, the drum, 3, and the cone, 4, create an unfolding drama of solid geometry. This is the unfolding of a mystery, the sense that as you press on more is revealed. Ipswich; a modest archway performs the office of dividing the prospect into two things, the street you are in and the place beyond, into which you emerge so that you move out of one ambience into another. Westminster; the shifting interplay of towers, spires and masts, all the intricacy of fresh alignments and grouping, the shafts of penetration and the sudden bunching of emphatic verticals into a dramatic knot, these are the rewards of the moving eye, but an eye which is open and not lazy.



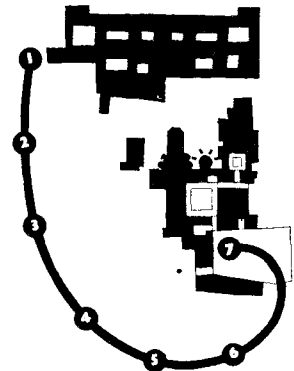
1

2

3

4

5



Plan of Westminster, showing  
6, 7 viewpoints