TOWARDS AN IDEOLOGY OF URBAN FORM

Open Space in the Built Housing Environment

with particular reference to the
Arid Urban Environment in the Middle East

by

Charles I Kidess

A Dissertation submitted for the fulfilment of
the requirements for the degree of

Master of Architecture

at the
Department of Architecture
The University of Adelaide

Adelaide, May 1991
Errata

In spite of the attention taken in the production of this work, a number of errors have been located after the thesis was bound. These are listed below.

- In the declaration page following the acknowledgement section, third line, "research of the author" needs to be corrected as "research of the author".

- Page 27, sixteenth line, "..receptacle", Accoring.." the comma needs to be changed into a full-stop as follows: "..receptacle", " Accoring."

- Page 33, second line of the quotation in italics, "..civilisations have.." needs to be spelt as "civilisations have.."

- Page 46, footnote 5, "..late sixties an earl seventies.." is to be corrected as "..late sixties and early seventies.."

- Page 59, Claibourne's quotation, fifth line, "..into areas were he could.." needs to be corrected as "..into areas where he could.."

- Page 71, the sentence "This shows that ... been regarded as entities." on the lines 2, 3 and 4 is to be eliminated.

- Page 76, fourteenth line, the sentence "..seem to have implicitly related to.." needs to be changed to "..seem to have implicitly led to.."

- Page 105, fourth line, "..and content. a concave..", the small a needs to be changed into a capital A as follows: "..and content. A concave.."

- Page 118 fourth line, "..processes becomes.." needs to be corrected as "..processes become.."

- Page 189, fifth line, 'conversionce' is to be corrected as 'convergence'.

- Page 194, second line, (among other) needs to be corrected as (among others).

- Page 207, illust. 13, "house" needs to be plural: "houses".

- Page 234, illust. 42, "A Typical.." needs to be corrected as "A typical.."

- Page 241, illust. 49, "..aimed at developin.." needs to be corrected as "..aimed at developing.."
Contents

Contents .................................................. ii
List of figures ........................................ iv
List of illustrations .................................. vi
Abstract ................................................ ix
Acknowledgements ................................... xi
Prologue .................................................. 1
Introduction ............................................ 3
   I. Background: Age of chaos ................... 4
   II. Scope and definition ......................... 6
   III. Hypothesis ..................................... 11
   IV. The evidence as presented ................. 13

PART I BASIC CONCEPTS ....................... 16

Chapter 1 Space ...................................... 17
   I. New directions in space ...................... 18
   II. Concepts of space ........................... 24
   III. Space, art, and architecture .......... 33

Chapter 2 Climate and Culture ............... 44
   I. Climate and climatic stability ............ 45
   II. Culture ........................................ 47
   III. Culture and environment ............... 55
# PART II  OPEN SPACE IN THE BUILT HOUSING ENVIRONMENT

<table>
<thead>
<tr>
<th>Chapter 3</th>
<th>Open Space: Analogy and Patterns</th>
<th>71</th>
</tr>
</thead>
<tbody>
<tr>
<td>I.</td>
<td>Directions of space in architecture</td>
<td>72</td>
</tr>
<tr>
<td>II.</td>
<td>Elementary generators of urban form</td>
<td>85</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chapter 4</th>
<th>The Ideology of Urban Form: The ‘Concave’ and ‘Convex’ Model</th>
<th>95</th>
</tr>
</thead>
<tbody>
<tr>
<td>I.</td>
<td>The ideology of ‘concave’ and ‘convex’ patterns</td>
<td>96</td>
</tr>
<tr>
<td>II.</td>
<td>Modes of human-environment relationship</td>
<td>112</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chapter 5</th>
<th>Culture and the Built Housing Environment: The Case of the Middle East</th>
<th>130</th>
</tr>
</thead>
<tbody>
<tr>
<td>I.</td>
<td>The Islamic city</td>
<td>132</td>
</tr>
<tr>
<td>II.</td>
<td>Past traditions and modern trends</td>
<td>147</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chapter 6</th>
<th>Towards the Continuation of Tradition in the Housing Environment</th>
<th>157</th>
</tr>
</thead>
<tbody>
<tr>
<td>I.</td>
<td>Tradition and development</td>
<td>158</td>
</tr>
<tr>
<td>II.</td>
<td>Regionalism: Its scope and prospects</td>
<td>165</td>
</tr>
<tr>
<td>III.</td>
<td>Towards a revision of existing ideologies in the housing environment</td>
<td>169</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Conclusions</th>
<th>185</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illustrations</td>
<td>195</td>
</tr>
<tr>
<td>Bibliography</td>
<td>242</td>
</tr>
</tbody>
</table>
List of Figures:

Fig. 1.1 The 'whole' and the 'part'. 36
Fig. 1.2 Dichotomy vs. continuity. 36
Fig. 1.3 Causal interaction between the different parts is defined by the whole. 41
Fig. 4.1 The whole and the part. 98
Fig. 4.2 Parts within the whole. Each part is related to a particular whole, together contributing to one greater whole. 98
Fig. 4.3 Internal relationships. a) the relationship between the part and the whole. b) the relationship between two parts within the whole. p99
Fig. 4.4 External relationship. 100
Fig. 4.5 A concave pattern: a cumulative construct of the causal forces of the parts. 100
Fig. 4.6 A concave pattern of interaction. 101
Fig. 4.7 Large area of interaction between the parts, leading to strong causal relationship between the two. 101
Fig. 4.8 A convex relationship. 102
Fig. 4.9 Projection of causal forces from a convex pattern. 102
Fig. 4.10 A convex pattern of interaction. 103
Fig. 4.11 Concave physical structure (such as a house). 104
Fig. 4.12 Open space results from the combination of physical structures. 104
Fig. 4.13 A concave spatial pattern. 105
Fig. 4.14 Concave pattern of interaction.

Fig. 4.15 A convex spatial pattern.

Fig. 4.16 Convex pattern of interaction.

Fig. 4.17 Dominant concave pattern. Local spatial patterns are reflections of social and cultural characteristics. Interaction is maximum, leading to an 'effective' open space environment.

Fig. 4.18 Both concave and convex patterns are effective.

Fig. 4.19 More dominant convex pattern, causing a cleavage to exist between the two concave patterns. This leads to weakening the relationship between the two parts.

Fig. 4.20 Diminishing concave pattern, and a more dominant convex pattern. Polarity between the two local entities, therefore weak social interaction in between, leading accordingly to an ineffective open space environment.

Fig. 4.21 Symbolisation.

Fig. 4.22 Screening ability of the (subconscious) mind; reflection of local structures through the concave pattern.

Fig. 4.23 Perception of the environment is largely an unconscious process of obtaining information, where the individual and the environment become united under one concave pattern; i.e. meanings and experiences which are shared between the two.

Fig. 4.24 Intentional perception: interpretation of the information by the mind through the projection of information from a convex pattern.

Fig. 4.25 A dichotomy between the individual and the environment is related to lower responsiveness of the environment, and higher consciousness on the part of the individual. Here, external forces (such as climate) are more dominant than the environments ability to respond to these forces.

Fig. 5.1 The city in the cultural context.

Fig. 5.2 The ideological pattern of traditional urban development in the Islamic city.

Fig. 5.3 Present ideological patterns in the housing environment in the Middle East; the estate principle.

Fig. 6.1 The effect of central forces on a community. a) The discontinuation of the past. b) The cleavage which exists between member of a community. and c) The result is in the form of a highly individualistic society controlled by a hierarchy of central forces.

Fig. 6.2 The construction of a concave pattern.

Fig. 6.3 The architect as a mediator.
List of Illustrations:

Illust. 1 The Koch 'snowflake'. "A rough but vigorous model of a coastline," in Mandelbrot's words. (Source: Gliek (1988), p99 ) Refer to pages 5, 20. 196

Illust. 2 'Yin yang'. Refer to page 26. 196

Illust. 3 An example of visual illusion. "My Wife and my Mother-in-law." Drawing by W. E. Hill. Refer to page 115. 197

Illust. 4 The effect of uniformity on visual perception. Refer to page 117. 198

Illust. 5 Perception of complex pattern. Refer to page 117. 199

Illust. 6 Aerial view of a part of Tunis. Refer to page 132. 200

Illust. 7 Examples of Muslim cities. Refer to page 134. 201

Illust. 8 Structure and constituents of medieval Muslim cities. Refer to page 135. 202

Illust. 9 Plan of Cairo's street pattern. Refer to page 136. 203

Illust. 10 Barnsley Fern (named after its creator). Refer to page 136. 204

Illust. 11 Residential quarters in Tunis. Refer to page 136. 205

Illust. 12 Views the mosque's courtyard. Kadhimain mosque in Baghdad and Mosque of Ibn Tulün in Cairo. Refer to page 137. 206

Illust. 13 Cluster of courtyard house, Ur, 2000 B.C. Refer to page 137. 207

Illust. 14 A typical courtyard house in Baghdad, illustrating plans, sections, and thermal systems. Refer to page 137. 208

Illust. 15 The effect of an internal courtyard on air circulation. Refer to page 138. 208
Illust 16 Examples of facade styles in traditional Egyptian cities. Refer to page 138.

Illust. 17 Examples of shading devices in internal streets. Refer to page 138.

Illust 18 Bazaar of the Silk Marchents in Cairo ca. 1840, and a view from the city of Tunis. Refer to page 138.

Illust. 19 The takhtabûsh principle, driving cool air from the shaded courtyard through an outdoor sitting area into the less shaded back garden. Refer to page 138.

Illust. 20 The double-use of mashrabiyya as a cooling device and a window screen. Refer to page 139.

Illust. 21 The use of malqaf or badjîr (wind catcher). Refer to page 139.

Illust. 22 Examples of the use of malqaf. Refer to page 139.

Illust. 23 A cluster of houses in Fustat, c.11th century, and in Baghdad. Refer to page 140.

Illust. 24 The Finâ’ of a building is its exterior adjacent space. Refer to page 143.

Illust. 25 Accretion principle - encroachment of public spaces. Refer to page 143.

Illust. 26 Views of internal open spaces. Refer to page 143.

Illust. 27 View of sabôt (overpass) in Tunis. Refer to page 143.

Illust. 28 Transformation of physical fabric of Damascus after Sauvaget. Refer to page 144.

Illust. 29 Transformation of physical fabric of Aleppo. Refer to page 144.

Illust 30 View of the city of San’a in Yemen. Mud-brick highrise buildings with no courtyards. Refer to page 146.

Illust. 31 The juxtaposition of old and new in Tunis. Refer to pages 147.

Illust. 32 Aerial view of Yazd, Iran, 1964 showing major roads and traffic circles cutting through the old city. Refer to pages 147.

Illust. 33 Old and new; contrasts in urban forms. Refer to page 149.

Illust. 34 Examples of modern housing environments. Refer to page 149.

Illust. 35 The new metropolis. Cairo: Maydân al-Tahrîr. Refer to page 151.

Illust. 36 Pedestrians vs. vehicles. View from Ramses Square in Cairo. Refer to page 151.

Illust. 37 The effect of spatial aggregation on social interaction. Refer to page 153.
Illust. 38 Modern apartment building in Jeddah, Saudi Arabia. Refer to page 155.

Illust. 39 Accretion at present. Refer to page 155.

Illust. 40 Pruitt-Igoe destruction. Refer to page 164.

Illust. 41 Sadruddin Aga Khan House. Designed by Fathy (1980). Refer to page 166.

Illust. 42 New Gourna village. Refer to pages 166 and 168.

Illust. 43 Halawa house, Agamy, Egypt, by El-Wakil (1975). Refer to page 166.

Illust. 44 View into the courtyard form the loggia (b) in Halawa House, illustrating the use of the takhtabûsh principle. Refer to page 146.

Illust. 45 National Commercial Bank, SOM, Jeddah. Refer to pages 166.

Illust. 46 Examples of Badran’s work. Refer to pages 167.

Illust. 47 Master plan and drawings by Badran for the Queen Alia housing scheme in Amman, Jordan. Refer to pages 167 and 168.

Illust. 48 Self-Help Housing schemes in Egypt. Examples of core-house systems which allow for gradual development through time in relation to needs. Refer to page 182.

Illust. 49 Three stages in the evolving self selection process of a developmental project for the city of Indore, India. Refer to page 183.
Abstract

The analysis of architecture is most often being restricted to its formal or visible characteristics. Once relationships are being considered, however, aspects of meaning and praxis become indispensable to any such analysis. But even then, the view of the built environment as a combination of more or less separate entities seems to persist, while different aspects remain expressed as mere dichotomies. The question here comes: is it enough to consider architecture as the space of representation and/or of experience? This thesis argues that this is not so, as such position would imply passivity on the part of those who experience space, or to whom the space is being represented. Rather, it will be argued that a proper understanding of the built environment is primarily attached to an understanding of ideology, as it is conceived through the architectural process.

From this point of view, the hypothesis tested is that the question of the architectural creation is not in 'space', nor in its constituent elements, but in the nature of the causal forces which put them together in a particular combination in time and place (i.e. ideology). Moreover, that the quality of the environment lies in the ability of its various elements to influence one another, and interact causally. It is suggested that the misconception
of this basic fact stands as a central factor behind many of the problems that the architectural environment currently faces. The aim is to offer a critical analysis or explanation for the failure of some earlier architectural/planning ideologies, and hence, outline some principles which would avert these failures. The arguments are focused on open space in the built housing environment, with particular reference to the arid urban environment in the Middle East.

Central to the evidence presented is the ‘concave’ and ‘convex’ model. This is a method that this thesis has developed which aims at illustrating the effect of various factors (social and cultural factors) and forces which are applied (local or global) on the level of causal interaction in the local environment. This method is based upon principles which are derived from preliminary discussion of some basic concepts (space, climate and culture), and the critical examination of existing theories in social and urban patterns. It is contemplated that the ‘concave’ and ‘concave’ model provides an important addendum for the explanation of urban phenomena. Particularly, this method helps in illustrating the significance of relationships over entities, and of causal interactions over spatial patterns.

It is concluded that the hypothesis tested is correct. It is thus argued that the efficiency of the built environment is related to the extent that it facilitates interaction between its various constituents (physical and/or social), as well as being itself the cumulative outcome of such interaction. Some of the implications of this in terms of architecture and the role of the architect are analyzed.
Acknowledgement

If the English words that I learnt to use might have been able to point to a concept, or prove a hypothesis, I certainly found them very deficient in expressing my deep gratitude to all those people who through their commitment, concern, support or encouragement, made this thesis possible.

First, I would like to thank my family, particularly my parents for their moral and financial support, and for a life long dedication and hard work which enabled me to reach to this stage. I am indebted for the opportunity to do this thesis to Paul Downton, one of the first teachers in architecture whom I happened to know and respect. Only through his dedicated efforts was I able to come here to Adelaide to undergo my study. Thank you Paul, Cherie and 'kids' for accepting me as a member of the your family for the initial period of my stay. Also, sincere thanks to Dr. Judith Brine (now professor), ex-Head of the department, and Sharon Mosler, ex-Assistant Registrar, who as I understand took special measures in securing my candidature.
My most sincere thanks go to my supervisor, Albert Gillissen, who through his guidance, criticism, open encouragement, and most of all, through his patience, helped me out of the ruins I was in at the start. Thank you Albert for being a mentor and a friend. In its initial stages, this thesis was partially supervised by Dr John Brine, and Wally Dobkins, for whom I also express sincere thanks.

I would like to express my deepest gratitude to J Derrick Kendrick, ex-Head of the department, now Dean, for his warm and continuous support, concern and understanding, and for showing his willingness to rise over the limits and barriers on a number of occasions. Particularly due to his persisting efforts, I was able to obtain a special one-year scholarship award when it was most needed. Thank you Derrick.

I would like to also acknowledge the general support I received from the various people I was to deal with whilst undergoing my study in the department. Particularly, this goes to Professor Anthony Radford, present Head, for his guidance and support, Janet Duddy and Sue Brooke for managing administrative matters, Peter Harley for elegantly handling my research finances, Rodger Chan and Simon Coppings for their technical assistance. To all these people I express sincere thanks.

I owe personal thanks to Vivien Hope, the Overseas Student Adviser at the university, who in many instances turned the bureaucratic roundabouts into humanly conduct, and helped ease my stay in Australia. Also, a word of appreciation for the general support and friendly service offered by officials and staff, particularly in the Baar Smith Library, and various other university departments.

Thanks also go to Deborah White for her last minute advice on some vital points in the final presentation. My warmest gratitude to Mrs. Allan, Christina, John, Marina, Jan, Robert and Davy, for the generous help, support and encouragement that they offered in the final stages of preparing this thesis. Your separate contributions are most appreciated.

Lastly, I would like to express my great pleasure for the opportunity to meet and know the many lovely people of Australia, colleagues and friends, with whom I was to share
memorable times whilst at study in here in Adelaide. Of those I would like to particularly mention Paul Horrocks, one of the very few postgraduates in the department, with whom the discussions over the many cups of coffee I often found enlightening. Thank you Paul for offering help wherever a chance occurred, and best of luck for your thesis.

For all these, and the others that I might have unknowingly missed, thank you very much - or as we say in Arabic, shukran.
Except where otherwise acknowledged in the text, this thesis represents the original research of the author.

The author consents for the thesis being made available for photocopying and loan.

Charles I Kidess
To

Issa A Kidess and Regina T Kidess

my parents
The journey of love is a very long journey
But sometimes with a sign you can cross that vast desert
Search and search again without loosing hope
You may find sometime a treasure on your way

Muhammad Iqbal

If you can look into the seeds of time,
And say which grains will grow and which will not,
Speak then to me ...

William Shakespeare