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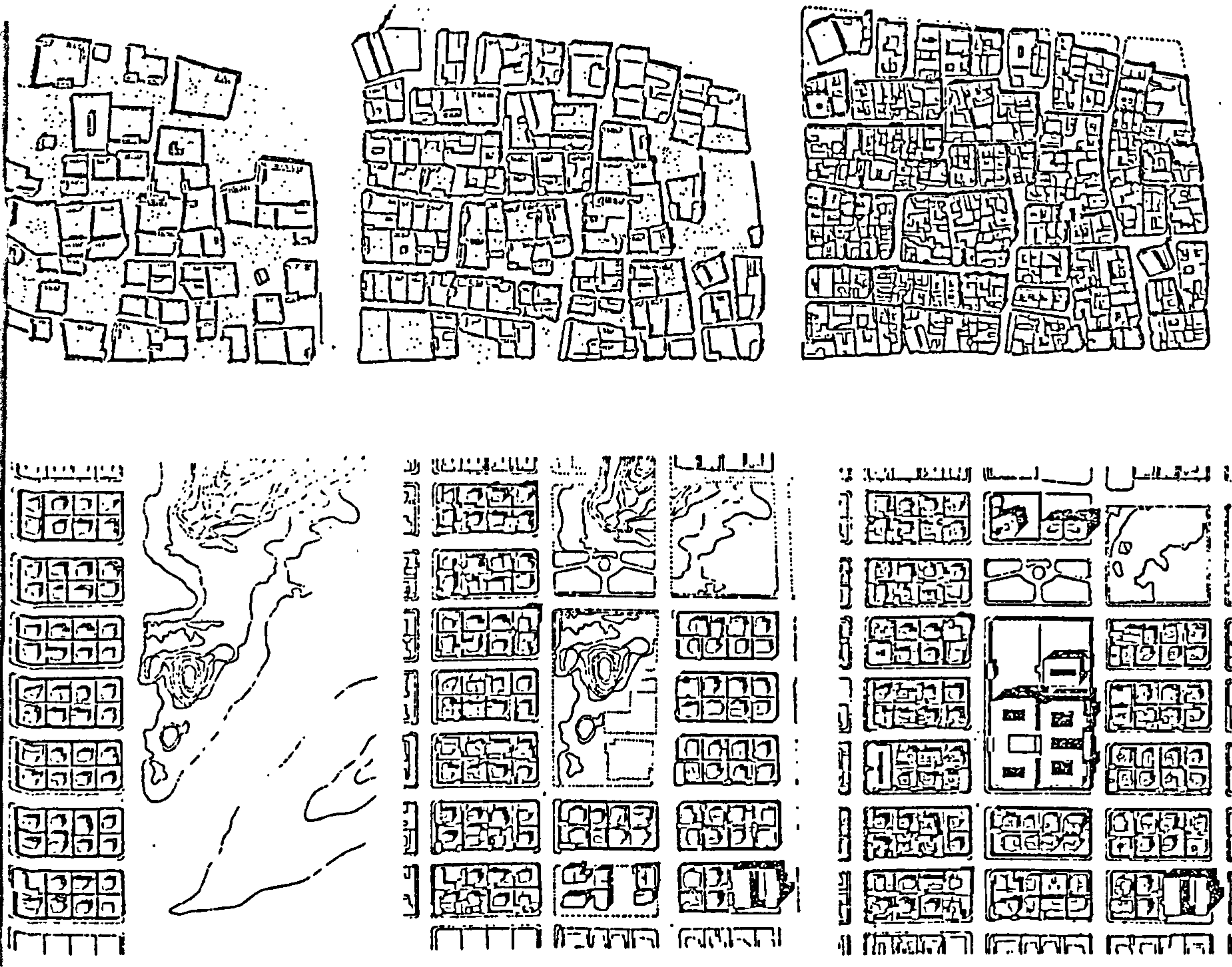
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TERRITORIAL BEHAVIOUR AND THE BUILT ENVIRONMENT. THE CASE OF ARAB-MUSLIM TOWNS, SAUDI ARABIA.



Fahad A.M. Al-Said
B.Sc Architecture, M.Arch., M.CP (Urban Design)

A Thesis submitted in fulfilment of the requirement of the degree of

Doctor of Philosophy
in Architecture and Urban Design

Mackintosh School of Architecture

University of Glasgow

Glasgow

United Kingdom

October 1992

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IN THE NAME OF GOD, MOST GRACIOUS, MOST MERCIFUL

Dedicated

to

The two Abdul's aziz in my life... My father and my son.

ABSTRACT

There exist a vast literature in the two subjects of human territorial behaviour's effect on shaping the built environment, and the nature of the Arab-Muslim built environment traditional and contemporary. Despite this, there are few that combined these subjects in one bound. In these few studies, writers assumptions and speculations about the nature of human territorial behaviour phenomenon and the nature of the traditional Arab-Muslim built environment are voiced resulting in miss interpretation of the human territorial behaviour effect on the formation and the transformation of the Arab-Muslim built environment.

This study attempts to explore the effect of human territorial behaviour on shaping the Arab-Muslim built environment in the past, present, and future. Also, the study establishes a continuity between the traditional and contemporary Arab-Muslim built environment, the case of Saudi Arabian neighbourhoods.

To achieve these prepossess the study starts by a critical review of the existing body of theoretical knowledge about human territorial behaviour phenomenon in order to rationalise it and match it with the dynamic nature of the Arab-Muslim built environment. The thesis sees human territoriality as a spatial behaviour and traces it to its roots in the behavioural sciences, mainly Psychology and Sociology, and design as the art of space making. It proposes the human territorial behaviour phases (*Allocation, Attainment, Maintenance, and Abandonment*) in parallel to the built environment space design cases/stages (*Nesting, Stringing, and Clustering*).

The study, then, reviews the historical knowledge about the traditional Arab-Muslim built environment, and investigates the origin and process of Arab-Muslim territoriality and its affect on the built environment. The study looks at the Islamic law (Shari^h) ownership system and built environment easement rights as parameters for defining the Traditional Arab-Muslim built environments various territorial types (Public and jurisdictional, semi public, semi private, and private and personal space). This distinction verified the common belief that the Arab-Muslim built environment is a resultant on its residents continuous territorial encroachment on the available public spaces.

The study not only depends on the theoretical and historical critique review, but also depends on analysing aerial photos of the Saudi built environment dated from 1935 until now. This analysis leaves little space for speculation about the process by which the Saudi built environment was formed and transformed.

The study ends up by the possible notions which might be suggested by way of re establishing a sense of continuity between the past, present, and future effect of human territorial behaviour upon the Arab-Muslim built environment in the case of Saudi Arabia towns. This is achieved through the re-introduction of the traditional Fina concept into the contemporary built environment as a means for releasing its forgotten transformation characteristics at the street scale. This release is seen as a way of recycling the contemporary city spaces and governed by the designer, the neighbourhood local authority, and the city municipality.

The study is a turning point in Arab-Muslim built environment understanding, introducing the factor of human territorial behaviour that effects the Arab-Muslim built environment formation and transformation.

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My thanks is extended to the authors of numerous references used in this thesis whose ideas have enhanced my understanding of human territoriality and the Arab-Muslim built environment.

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For all the mentioned my thanks, but not the blame for the final production which remains the authors responsibility.

SYSTEM OF TRANSLATION

The system of translation from Arabic to English used throughout this thesis may not be fully compatible with the systems used in other literature. However in an attempt to chose the simplest and the best way to convey the nearest audible pronunciation, the translation system described in Bulletin 49 (November 1958) issued by the Cataloguing service of the Library of Congress, United States of America, was the main reference in constructing the following system.

Letters of the alphabet

Initial	Value	Initial	Value	Initial	Value
ا	consonantal sound	ط	t	ظ	z
ب	b	ز	z	ك	k
ت	t	س	s	ل	l
ث	th	ش	sh	م	m
ج	j	ص	s	ن	n
ح	h	ض	d	ه	h
خ	kh	ع	c	و	consonant w
د	d	غ	gh	ي	consonant y
ذ	th	ف	f	(^ء)	hamza ' .
ر	r	ق	q	ا	a
				آ	at

Vowels and diphthongs

/	(fatha)	a	ّ	(Shaddah double English letter i.e. mm)
و	(damma)	u	ي	(long vowel) ee
ـِ	(kasra)	i		

The Arabic pronunciation will be written in parentheses, such as ownership (Mulkiyah). English quotation or names of authors or books are left the way they are, even if they do not abide by the above system.

Dates and periods

The Arab-Islamic calendar is the Hijri date. The Hijri date will be written first, followed by the cirica date with a slash in between, i.e. 1413/1992. Also to annotate centuries, the Hijri century is written first, followed by the cirica century with a slash in between, i.e. fifteen/twentieth century.

Territorial behaviour and the built environment. The case of Arab-Muslim towns, Saudi Arabia.

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INTRODUCTION

Many Saudi Arabians -above the age of twenty- grew up in a traditional built environment, but now live in a contemporary one. For instance, in the late fifties the author was born in Buraidah town in a traditional built environment neighbourhood of mud-brick court yard house, within pedestrian only narrow crooked, shaded streets. During a period of about ten years, the physical pattern of the street and the house experienced several changes. The layout of the street was altered slightly, and three overpasses (qubah) were built and/or removed. The court yard house pattern was extended, and new structures were added or removed. Due to a heavy rain storm which caused a severe structural failure, portions of the house were demolished and rebuilt, this time with two courtyards, and an overpass was built to connect it with a new property bought across the street. Each time the house reconstruction is completed, a big meal is prepared and relatives and neighbours are invited to attend (Nizalah) party. In the early seventies, the author's family moved to a newly designed and constructed neighbourhood in a district of the city of Riyadh. The streets were of twenty meters wide, paved and devoted to cars movement. The house lot was of about five hundred square meters surrounded by a three meters high fence, with a villa type house built in the middle using concrete frame and bricks. Five years later the villa house balconies were blocked up and added to the adjoining rooms. Shortly after that two rooms and a bathroom were built along side the villa fence for casual visitors. These traditional and contemporary built environment experiences and transformations have occurred not only in Saudi Arabia, but also in most of the Arab-Muslim world, and makes the observer wonder: what are the reasons behind the continuous changes in the street and house pattern of the traditional Arab-Muslim built environment? What are the reasons behind the changes in the house but not the street pattern of the Arab-Muslim contemporary built environment? What is/are the relationships between the traditional and contemporary built environment formation and transformation? and finally what is the future of Arab-Muslim built environment going to look like? Answering some of these questions have been the subject of many

investigations and writings among designers and others from the point of view of climate, culture, social, legislation, technology, economy, etc. In these writings speculations about the territory type of the traditional built environment streets formation and transformation were given, and its spaces were labelled as public, semi public, semi private, and private. From these speculations serious facts were concluded, and decisions were taken and are built upon these facts for the past, present and future of the Arab-Muslim built environment. Even though human territorial behaviour plays a major role in shaping the built environment, little is known about its role in shaping the Arab-Muslim built environment. This can be attributed to the relatively new subject of human territory in general, and its effect in built environment in particular.

The definition of human territorial behaviour types has been the subject of many disciplines interests. Disciplines such as ethology (the biological study of animal behaviour, and the founder of this phenomenon), psychology (the study of human behaviour), anthropology (the study of cross-cultural observation of human behaviour), geography (the study of nature and social environment), and sociology (the study of behaviour and environment-relations of individual and groups). In the past sixty years these sciences have produced a great deal of literature about this phenomenon in general and human territorial behaviour in particular. They listed its definition, function, mechanism, and characteristics, but most importantly, they introduced territory organisational models specifying the various types and their spatial organisation for human day-to-day life. In the Arab-Muslim built environment these facts add another question to the way of understanding the traditional and contemporary built environment from a territorial point of view. The question is: among various organisational models of human territorial behaviour, which model satisfies the types (i.e. private and public), and the nature of the dynamic traditional and contemporary Arab-Muslim built environment?

The task of the thesis is to answer these questions from a territorial point of view, and in return to contribute to the understanding of the human territorial

behaviour in shaping the Arab-Muslim built environment in past, present, and future, particularly in Saudi Arabia. This task requires the investigation of the world wide theoretical base of human territorial behaviour phenomenon. It also requires the historical analysis of the formation and transformation of the Arab-Muslim traditional built environment. These theoretical and historical reviews will be tested against the existing built environment of Saudi Arabian neighbourhoods, in order to provide a continuation into the future of the Arab-Muslim built environment in the case of Saudi Arabia.

Thesis objectives

The general objective of the thesis is to investigate the previously mentioned questions from a human territory point of view. This implies six points:

First Providing a theoretical base for human territorial behaviour through literature review of the writings on this phenomenon. This requires selecting the proper vocabulary among human territorial behaviour in the built environment disciplines mainly: psychology, sociology, and most importantly design.

Second Contributing to the human territorial behaviour in the built environment phenomenon through focusing on the time dimension in this phenomenon.

Third Adding to the understanding of the Arab-Muslim traditional built environment formation and transformation from a territorial point of view.

Fourth Validating or refuting the widely held belief among writers that the traditional Arab-Muslim built environment is the resultant of its inhabitants continuous spatial "encroachment" upon its available public spaces.

Fifth Adding to the understanding of the relationship between the Arab-Muslim contemporary built environment and its residents territorial behaviour.

Sixth Projecting an image of the future of the Arab-Muslim built environment and its relationship to the traditional and contemporary, in the case of Saudi Arabia towns.

Thesis organisation

The objectives of the thesis are structured in a sequence of procedures by which the thesis will satisfactorily fulfil its objectives, (fig I).

Part one: aims and contents

This part is aimed toward fulfilling the first and second objectives. To achieve this, part one will be a literature review of territorial behaviour related disciplines and subjects. It is an attempt to show the wide terminology in territory phenomenon used by different disciplines to define environment, behaviour, spatial behaviour, and space design. Selecting a proper vocabulary to be used throughout this thesis demands discovering and filling the gaps in vocabulary between various disciplines.

The specific aims of this part are:

- reviewing the literature that relates to human territorial behaviour phenomenon in different disciplines.
- selecting a vocabulary that will be used throughout this thesis.
- Knitting and filling the gaps between the deferent disciplines vocabulary and territorial behaviour in the built environment.

To achieve these aims, part one is divided into four chapters. Chapter one is concerned with reviewing the literature about environment, behaviour, and spatial behaviour. Chapter two reviews the space in design language and its concept, types, and graphical vocabulary. Chapter three is devoted to human territory as a segment of proxemics theory (privacy, personal space, and territory). Chapter four represents the

author's view of the phenomenon. Part one ends by a conclusion concerning the human territorial behaviour phenomenon.

Part two: aims and contents.

Part two is aimed toward the fulfilment of the third, fourth, and fifth objectives of the thesis. It is a historical literature review of territory relating subjects in the Arab-Muslim built environment mainly ownership system and easement rights, and the deferent opinions of schools of laws. The aims of this part are:

- defining the parameters of the Arab-Muslim territory and its types.
- contributing to the understanding of the traditional built environment.
- forecasting the future of the Arab-Muslim built environment from a territorial point of view.

Part two is divided into four chapters. Chapter five reviews the historical literature that relates to territory types in the traditional built environment mainly ownership system and properties easement rights, and the jurists legal opinions. Chapter six is an attempt to define the various territory types in the traditional built environment. Chapter seven is an analysis of the built environment elements of the house, street, and the settlement as a unit in relationship to their territory types. The chapter ends with an analysis of the existing writings about the traditional built environment from a territorial point of view. Chapter eight reviews the contemporary built environment territory types and their effect on the new physical pattern. It shows the trends toward this change, and defines the future of the physical pattern from a territorial point of view.

Part three: aims and contents

This part explains and evolves the objectives through taking two case studies of the traditional and contemporary built environment in Saudi Arabia. The aims are:

- documenting the territorial effects shaping the physical pattern of Al-Dawaser west neighbourhood in Dammam city as an example of the traditional built environment.
- documenting the territorial affect on the shaping of Al-Malaz neighbourhood in Riyadh city as an example for the contemporary built environment.
- forecasting the territorial affect on the future of the contemporary Saudi Arabian neighbourhood physical pattern.

Chapter nine is a study of one of Dammam city neighbourhoods as an example of the traditional Saudi Arabian built environment. Chapter ten is a study of Riyadh city Al-Malaz neighbourhood as an example of the contemporary Saudi Arabian built environment. Chapter eleven is a design image workshop showing the expected territory effects on the future of the neighbourhood's physical pattern in Saudi Arabia.

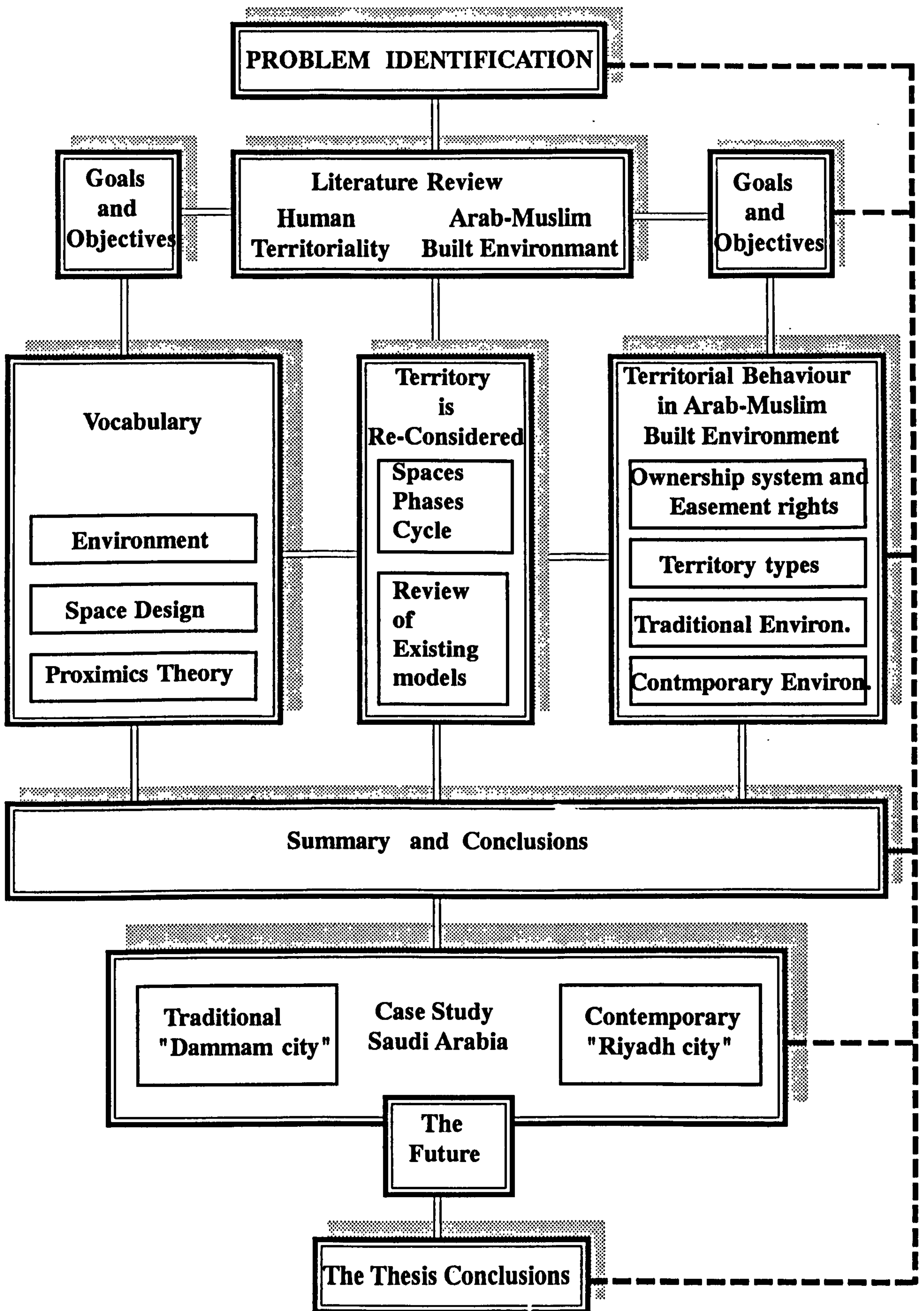


Figure 1 Thesis organisation framework.

PART ONE

***VOCABULARY: ENVIRONMENT, SPATIAL BEHAVIOUR,
SPACE, AND TERRITORIALITY.***

CHAPTER ONE

***TERRITORIALITY AS MAN TO ENVIRONMENT SPATIAL
BEHAVIOUR***

CHAPTER TWO

TERRITORY AS SPACE DESIGN

CHAPTER THREE

***PROXIMICS THEORY, PRIVACY, PERSONAL SPACE, AND
TERRITORIALITY.***

CHAPTER FOUR

TERRITORIALITY IS RECONSIDERED.

CONCLUSIONS.

CHAPTER ONE

TERRITORIALITY AS MAN TO ENVIRONMENT SPATIAL BEHAVIOUR

1.1 THE ENVIRONMENT AND ENVIRONMENT COMPONENTS

1.2 MAN, ENVIRONMENT, AND BEHAVIOUR

1.3 SPATIAL BEHAVIOUR

1.4 FINDINGS

CHAPTER ONE

TERRITORY AS MAN TO ENVIRONMENT SPATIAL BEHAVIOUR

The importance of defining spatial parameters is in the territorial context self-evident. First among crucial concepts comes environment, as territory both includes parts of, and means adaptation to, milieu. Unfortunately there is as yet no unanimity about an adequate definition and a unified theory of the nature of the environment, (Melemberge 1980 p.3)

This chapter introduces the different definitions of environment, behaviour, and spatial behaviour as a start for identifying the territory phenomenon problems.

1.1 THE ENVIRONMENT DEFINITION

One of the key points needed to understand the role of territory in the built environment is to understand what is meant by environment. The key to any definition is that the environment "surrounds", (Gibson 1966, Ittelson 1973). This has resulted in terminological and conceptual problems in understanding the meaning attributed to the use of the word environment. The geographer may refer to environment as land form and climate, the psychologist to the individual's home background and personality, for a sociologist it may mean the social context and the various social interactions, organisations, and processes. To architects, the environment may mean the three dimensional layout of buildings and landscape, (Porteous 1977). Broad definitions of the environment result in a variety of terms and a distinction between : 1) the *physical* environment, consisting of the terrestrial or geographical setting; 2) *psychological* environment, consisting of images that people have in their heads; 3) *behavioural* environment consisting of those elements to which a person responds; and 4) *social* environment as the interpersonal and inter group organisations, (Lang 1987). Lang (1987) mentions that the basic point of these classifications and others alike is the differentiation between the 'actual, real, or objective world' which the individual is surrounded by and the 'phenomenological

world' the individual perceives which consciously or unconsciously affects people's behavioural pattern and emotional responses.

Researchers have attempted to classify and categorise the different types of environmental components. One of the earliest attempts goes back to Gestalt psychology when Koffka (1935) differentiated between the *geographical* environment and *behavioural* environment. He defines the geographical environment as the objective environment of what actually surrounds the individual, while the behavioural environment is what is in the individual's head, or the cognitive images of the objective environment,(Krupat, 1985, Lang 1987).

Kurt Lewin (1936) provided a formula to assist the behaviour in the individual's "life space" : $B=f(P,E)$, where (B), that is the represented behaviour or any kind of mental activity, is the (f) function of the person (P) and his environment (E). He clarifies that every psychological activity depends upon the state of the person and at the same time on the environment, although their relative importance is different in different cases, (Lewin 1951, Krupat, 1985).

Kirk (1936) makes a similar distinction, though using different terms. He introduces a model of three separate but inter-related types of environment: *phenomenal* environment, *personal* environment, and *contextual* environment, (fig1.1). The *phenomenal* environment is " the environment of human, non-human, and inanimate objects. It consists of: 1) the *human* environment, where people are considered as objects. 2) the *physical* environment containing all other objects. The *personal* environment consists of: 1) the individual's images of the world i.e. the *phenomenal* environment; and 2) the *experiential* environment which is the set of beliefs, attitudes, values, personality, and preference that influences the way the individual perceives the phenomenal environment. The *contextual* environment was added to Kirk's work by Porteous (1977), and consists of: 1) the individual's culture and sub culture; 2) the individual's social class; and 3) the stage in the life cycle the individual is in. Porteous emphasises the importance of the contextual environment because of its influence on the apperception stage which takes place after perception

and before cognition, and its influence upon the individual's action which is based upon his images of the phenomenal environment. He says, "Beliefs, attitudes, preferences, and other personality attributes derive from the individual alone, but are largely coloured by his experience as a member of a family, ethnic group, social class, culture, national and group life style" (Cited in Lang 1987,p 77).

Sonnefeld (1977) defines the environment as a 'hierarchy' where the individual is at the centre, 'surrounded' by *behavioural* environment, *perceptual* environment, *operational* environment, and *geographical* environment, (fig 1.2). The geographical environment forms the entire universe external to the individual. Part of the geographical environment is the operational environment, which consists of those portions impinges upon the individual regardless of his awareness. The operational environment contains the perceptual environment including portions of the operational environment which the individual is totally aware of because of present sensations or past experience. The core of the nested hierarchy is behavioural environment which is the part of perceptual environment that elicits a behavioural response towards it, (Porteous, 1977).

Gibson (1966) developed a model which differentiates between three environment components : *terrestrial* or *geographical* environment, *animate* environment, and *cultural* environment. *Terrestrial* environment refers to the nature of earth and its properties at any point. It consists of solid, liquid, and gaseous constituents. 'The terrestrial environment is, thus, the source of many human experiences : radiance, ambience, light, heat, sound, odours, and mechanical contacts', (Lang 1987). The *animate* environment consists of human and non human species. Humans are the source of many stimulation such as visual, sonic, chemical, thermal, and mechanical. Humans generated social stimulation results in social interaction hosted by a social system. The *cultural* environment develops out of natural opportunities, human interest, and competence. Beliefs and attitudes are part of the cultural environment, (Lang, 1987, p.79). Lang relates the differences of individual behaviour in one culture to the fact that not all members of the same

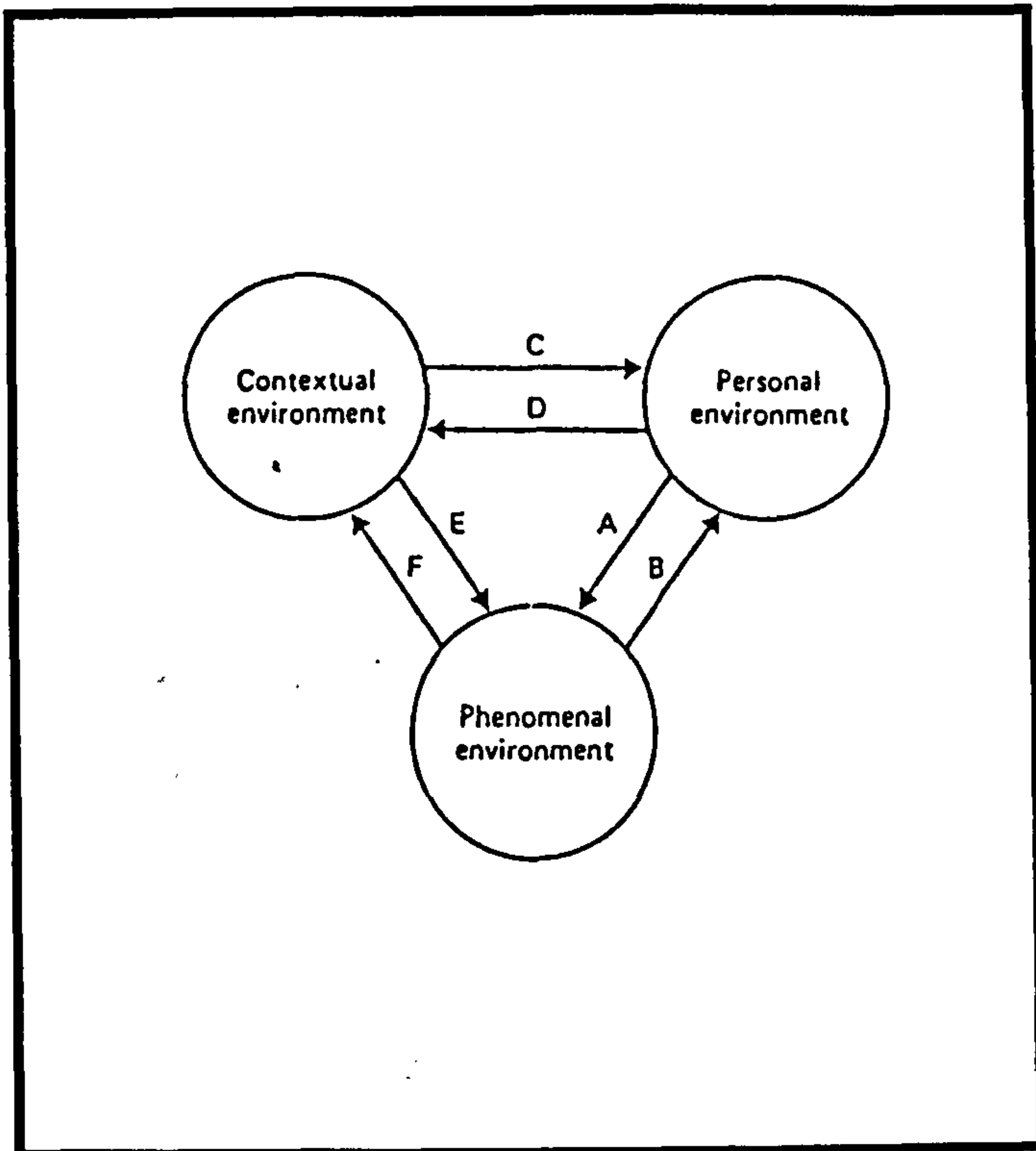


figure 1.1 Kirk's environmental interrelationships source: Porteous (1977).

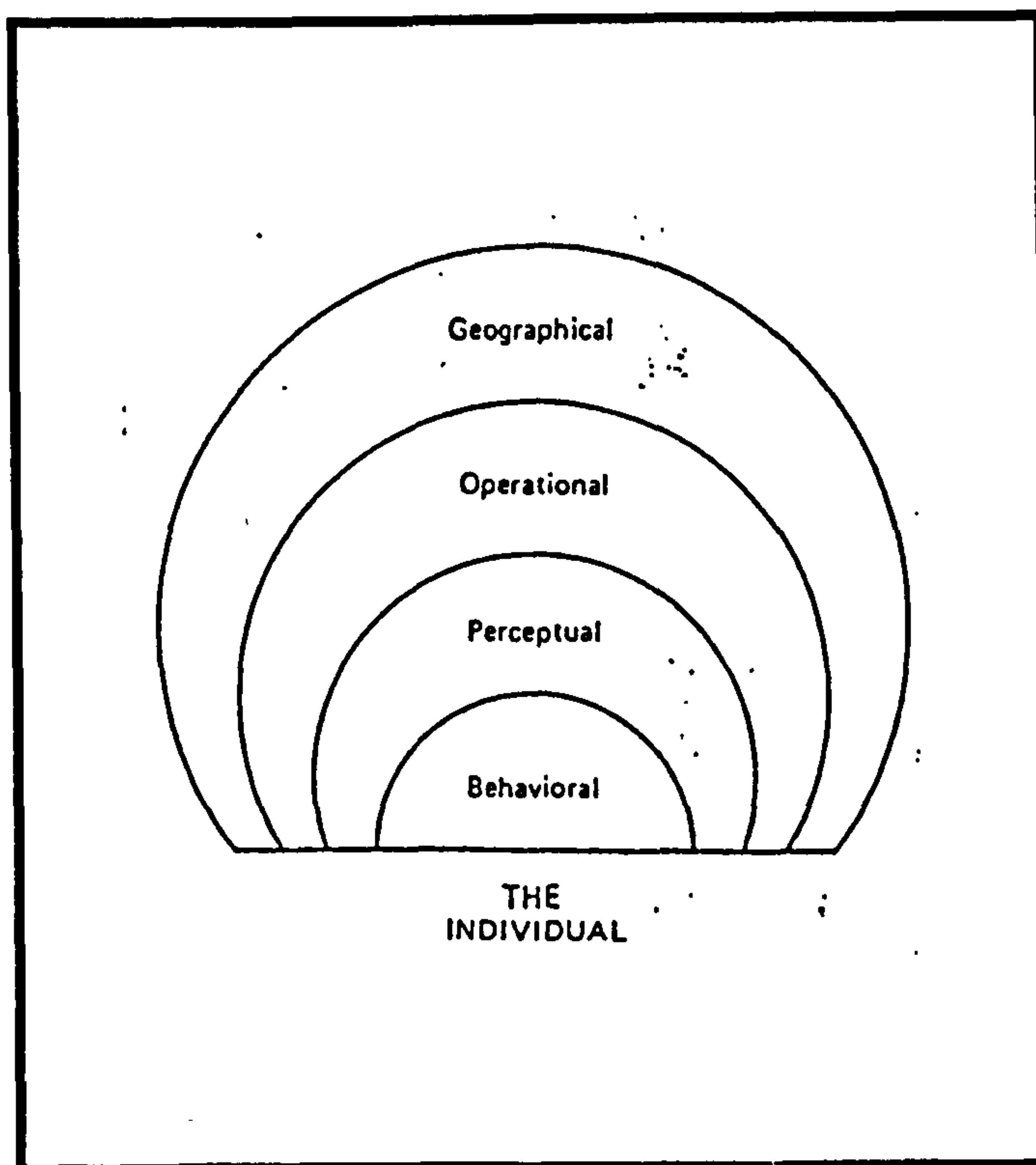


figure 1.2 Sonnefeld's nested hierarchy of environments. 6 source: Porteous (1977).

culture identity the same meaning in the environment, or "not all opportunities for action are perceived by an individual, nor all the opportunities that are perceived are acted on". Gibson refers to this as the affordance of the environment. The 'affordance' are those properties of the environment that enable it to be used in a particular way by a particular species or an individual member of that species. The built environment is the set of adaptations people have made to their terrestrial and cultural environments which reflects their beliefs and attitudes.

Rapoport (1982), sees the environment as 'a series of relationships between things and things, things and peoples, people and people', and which consists of complex interrelations among four elements: *space, time, meaning, and communication*. He emphasises that these relations are not a random assembly, rather an orderly one which has a pattern and structure. The relationship is guided by schemata that act as a template. For him, designing the environment is the attempt to organise its four elements.

1.2 MAN, ENVIRONMENT, AND BEHAVIOUR

Psychology is central discipline to the study of behavioural phenomena, and thus, a crucial discipline for understanding human behaviour. The philosophical interpretation of human behaviour is governed by the definition of the word 'psychology' itself. Altman and Rogoff (1987) gave a comprehensive analysis of what they named "the world view of psychology". Examining the writing of Dewey and Bentley (1949) and Pepper (1942, 1967), they distinguished between four world trends toward psychological studies. These are : *trait, interactional, organismic, and transactional*, (table 1.1). For the *trait approach* psychology is "the study of the individual mind, or the mental and psychological processes". This approach assumes that "the function of physical and social phenomena is governed by internal essences, self powers, forces, or intrinsic qualities that are inherent in objects, organisms, or phenomena", (Altman 1987, p.8). The *interactional* approach sees psychology as "the study of the prediction and control of behaviour and psychological process". For this

Philosophical Approaches to Psychological Phenomena			
Dewey and Bentley	Pepper	Altman and Rogoff	Definition of Psychology
Self-action	Formism	Trait	The study of the individual, mind, or mental and psychological processes
Interaction	Mechanism	Interactional	The study of the prediction and control of behavior and psychological processes
	Organicism	Organismic	The study of dynamic and holistic psychological systems in which person and environment components exhibit complex, reciprocal, and mutual relationships and influences
Transaction	Contextualism Selectivism	Transactional	The study of the changing relations among psychological and environmental aspects of holistic unities

Table 1.1 *The philosophical approach to psychological phenomenon*
source: Altman 1987

General Comparison of Trait, Interactional, Organismic, and Transactional World Views					
	Unit of Analysis	Time and Change	Selected Goals and Philosophy of Science		
			Causation	Observers	Other
Trait	Person, psychological qualities of persons.	Usually assume stability; change infrequent in present operation; change often occurs according to preestablished teleological mechanisms and developmental stages.	Emphasizes <i>material causes</i> , i.e., cause internal to phenomena.	Observers are separate, objective, and detached from phenomena; equivalent observations by different observers.	Focus on trait and seek universal laws of psychological functioning according to few principles associated with person qualities; study predictions and manifestations of trait in various psychological domains.
Interactional	Psychological qualities of person and social or physical environment treated as separate underlying entities, with interaction between parts.	Change results from interaction of separate person and environment entities; change sometimes occurs in accord with underlying regulatory mechanisms, e.g., homeostasis; time and change not intrinsic to phenomena.	Emphasizes <i>efficient causes</i> , i.e., antecedent-consequent relations, "push" ideas of causation.	Observers are separate, objective, and detached from phenomena; equivalent observations by different observers.	Focus on elements and relations between elements; seek laws of relations between variables and parts of system; understand system by prediction and control and by cumulating additive information about relations between elements.
Organismic	Holistic entities composed of separate person and environment components, elements or parts whose relations and interactions yield qualities of the whole that are "more than the sum of the parts."	Change results from interaction of person and environment entities. Change usually occurs in accord with underlying regulatory mechanisms, e.g., homeostasis and long-range directional teleological mechanisms, i.e., ideal developmental states. Change irrelevant once ideal state is reached; assumes that system stability is goal.	Emphasizes <i>final causes</i> , i.e., teleology, "pull" toward ideal state.	Observers are separate, objective, and detached from phenomena; equivalent observations by different observers.	Focus on principles that govern the whole; emphasize unity of knowledge, principles of holistic systems and hierarchy of subsystems; identify principles and laws of whole system.
Transactional	Holistic entities composed of "aspects," not separate parts or elements; aspects are mutually defining; temporal qualities are intrinsic features of wholes.	Stability/change are intrinsic and defining features of psychological phenomena; change occurs continuously; directions of change emergent and not preestablished.	Emphasizes <i>formal causes</i> , i.e., description and understanding of patterns, shapes, and form of phenomena.	Relative: Observers are aspects of phenomena; observers in different "locations" (physical and psychological) yield different information about phenomena.	Focus on event, i.e., confluence of people, space, and time; describe and understand patterning and form of events; openness to seeking general principles, but primary interest in accounting for event; pragmatic application of principles and laws as appropriate to situation; openness to emergent explanatory principles; prediction acceptable but not necessary.

Table 1.2 *General comparison of Trait, Interactional, Organismic, and Transactional world views.*
source: Altman 1987

approach the assumption is that "the physical and physiological elements exist independently of one another and possess certain intrinsic qualities, although their functioning may be affected by interaction with other elements", (p.9). The *organismic* process defines psychology as "the study of the dynamic and holistic psychological system in which person and environment components exhibit complex, reciprocal and mutual relationships and influences. Finally, the *transactional* approach's psychology is "the study of the changing relations among psychological and environmental aspect of holistic unites". Its approach assumes "an inseparability of contexts, temporal factors, and physical and psychological phenomena", (p.9).

Tolman (1935) suggested two levels of behaviour : *molecular* and *molar*. The *molecular level* is physiological, involving stimulus receptors, impulses conductor, and motor - responses - effector. Its environment is basically the organism body . The *molar level* which takes place in every day encounters with people and things is expressed in some form of either overt or covert behaviour. Overt behaviour, which is visible to an observer, is defined by Scott as " the externally apparent activity of the whole organism, and it is the result of external and internal stimuli", (Scott 1958). Covert behaviour takes place under the skin and is not visible to the observer. Porteous (1977), applying an 'information processing' view of human behaviour developed a ' logical behavioural framework' for the molar behaviour process, (fig 1.3). He suggested that the environment produces a ' stimulus', and the individual becomes selectively aware of this stimulus existence through his senses. He named this stage "the perception process". After perception comes the process of apperception by which a precept is interpreted in terms of previous experiences and then matched with images already held in a store house of cognitive information. When the precept is matched and understood, the perception becomes 'cognition' which is something known by the individual. Cognition may be self-generated, as in the case of the imagination. In response to the initial stimulus, two responses happen : an overt response - behaviour - and/or an effective covert response which is not shown in any overt form. In both cases, the images of the stimulus and the response to

it are stored in the cognitive warehouse and may be used in future similar situations, (Porteous, 1977).

Gibson (1966) regards the environment as potentially rich in affordance for human experience and behaviour, (fig 1.4). *Affordance* of the environment refers to the behavioural possibilities of the structure of that environment. The information about the environment is obtained through a *perceptual process* governed by *schemata* motivated by needs. Schemata are internal to the perceiver, modified by experience, and specific to what is perceived. They work as templates for action. The need provide the link between perception and cognition. *Perception* is the process of obtaining information from and about one's surroundings. *Cognition* deals with the acquisition, organisation, and storage of knowledge. *Needs* also guide emotional responses, i.e. affect-, and actions, i.e. spatial behaviour, which affects the schemata. Affect is governed by emotion and is concerned with likes and dislikes, involving an understanding of values and formation of attitudes. Spatial behaviour denotes the output manifested in an organism's action and response, (Lang 1973, 1987).

Moore (1985) organised human behaviour in expanding circles of influence from internal personal responses to external socio-cultural responses, (fig. 1.5). *Internal* responses take place inside the person. These include physical responses to *external* environmental stimuli like light, sound, heat, and mental responses, like vision and thinking. They consist of physiological and experiential psychological responses. The internal physiological responses focus on the five human senses and kinaesthetic - the sense of balance and movement, and the various states of physical health of the human organism. The internal psychological responses include issues of perception, cognition, meaning and symbolism, psychological stress, privacy, development and learning, and emotions. The external socio-cultural responses are the manifestation of internal experiences. They exist on three levels : the behaviour of the individual, the social interaction of small and large groups of people, and the culturally based responses of ethnic groups and societal populations.

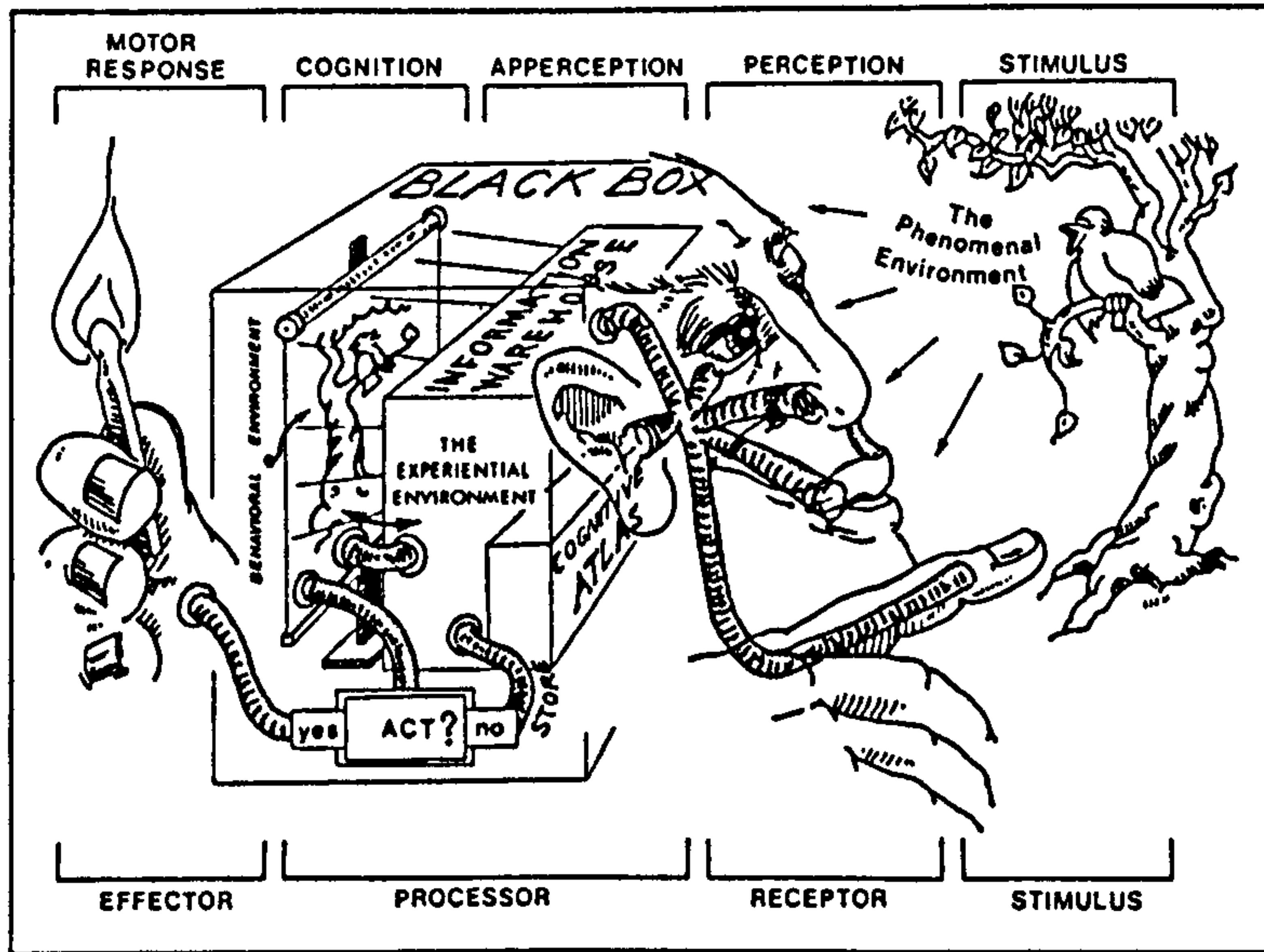
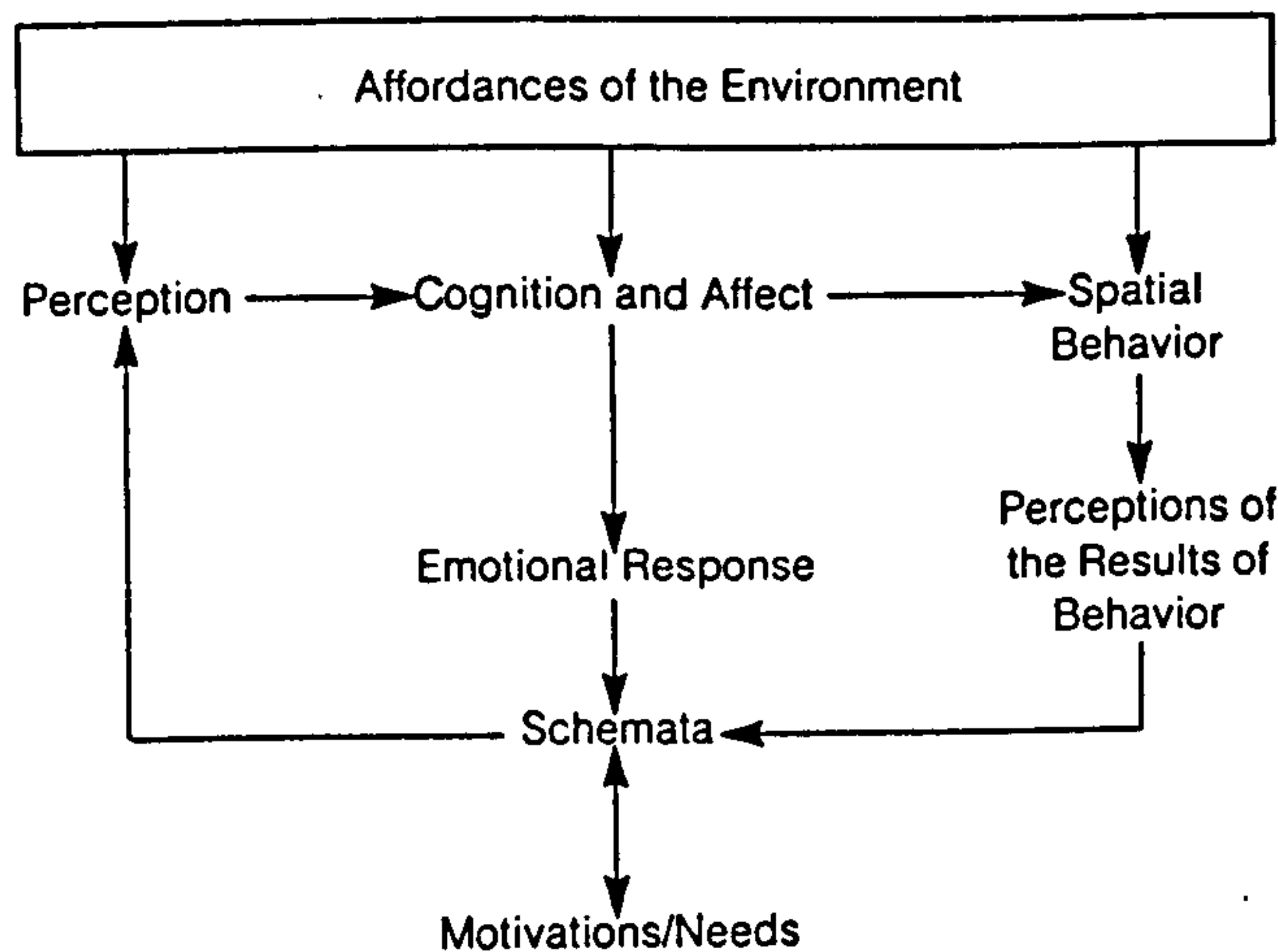


figure 1.3 Porteous's framework for cognizing the behaviour-environment interface. source: Porteous (1977).



The Fundamental Processes of Human Behavior.

figure 1.4 Gibson's fundamental processes of human behaviour. source: Lang (1987).

The individual behavioural responses to the environment comprise of visible and measurable behaviour, such as spatial movement, orientation and way finding, productivity, anthropometrics and ergonometics, personalization of space, personal space and territoriality, preference, choices, environmental attitudes, evaluation and assessments, privacy and crowding. External social group behaviour responses focus on group dynamics, proxemic, neighbouring, and organisational behaviour in relation to the physical environment. The external socio-cultural behaviour deals with cultural aspects that form the backdrop of human interaction with the environment, such as latent and manifest cultural norms, rules and attitudes that affect human behaviour individually or as a group, family structure, status, social and organisational hierarchy of roles, class structure, group identity, and cultural group behaviour. Moore sees these responses, internal and external, as corresponding to human needs, (Moore, et.al 1985).

Through the molecular and molar levels , overt or covert, the human fulfils his *basic needs* and the expression of this is behaviour. Thus behaviour is consciously or unconsciously a goal directed phenomenon to fulfil and satisfy human needs. To explain and categorise these needs a number of ' human need models' have been developed, by for example, Maslow (1934, 1954), Erikson (1950), Framm (1950), Whitting and Child (1953), and Leighton (1959), (Lang 1987). The intention of these models is to explain the different physiological and psychological, conscious or unconscious needs, from the most basic to the most sophisticated. Maslow's model is the one that has been used extensively by environmental designers to understand the hierarchy of human needs, (fig 1.6). Maslow offers a descending hierarchical model of six human needs. At the bottom, and most important, are the physiological needs such as hunger, thirst, etc.. Next comes the need to feel secure and safe, out of danger, followed by the need to belong and affiliate with others, to be accepted and loved. Esteem needs mean the desire to achieve, be competent, gain approval and recognition, cognitive needs that to know, understand, and explore, aesthetic needs that

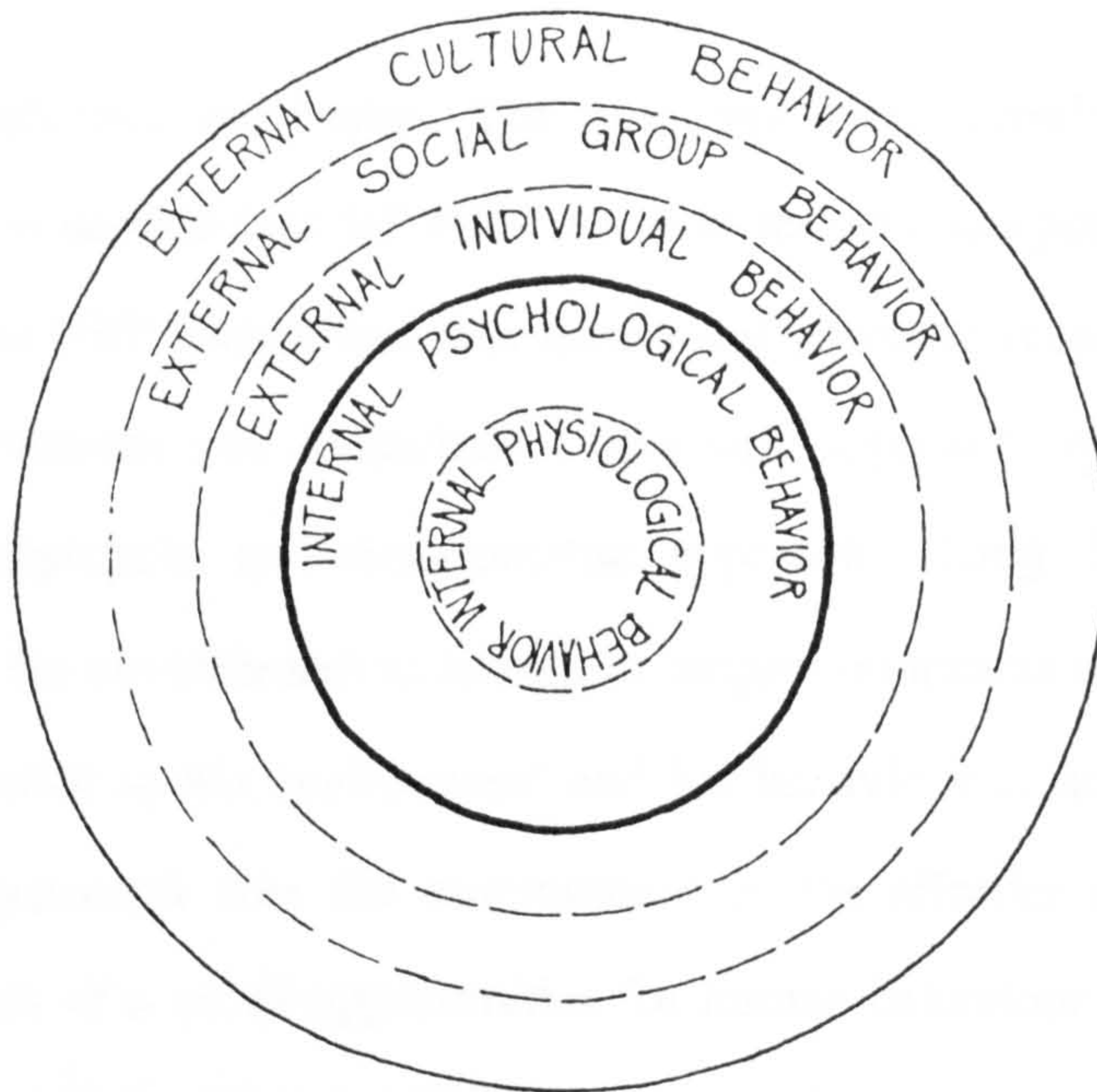


Figure 1.5 Moore's levels of behaviour in environmental design research.
source: Moore et.al (1985).

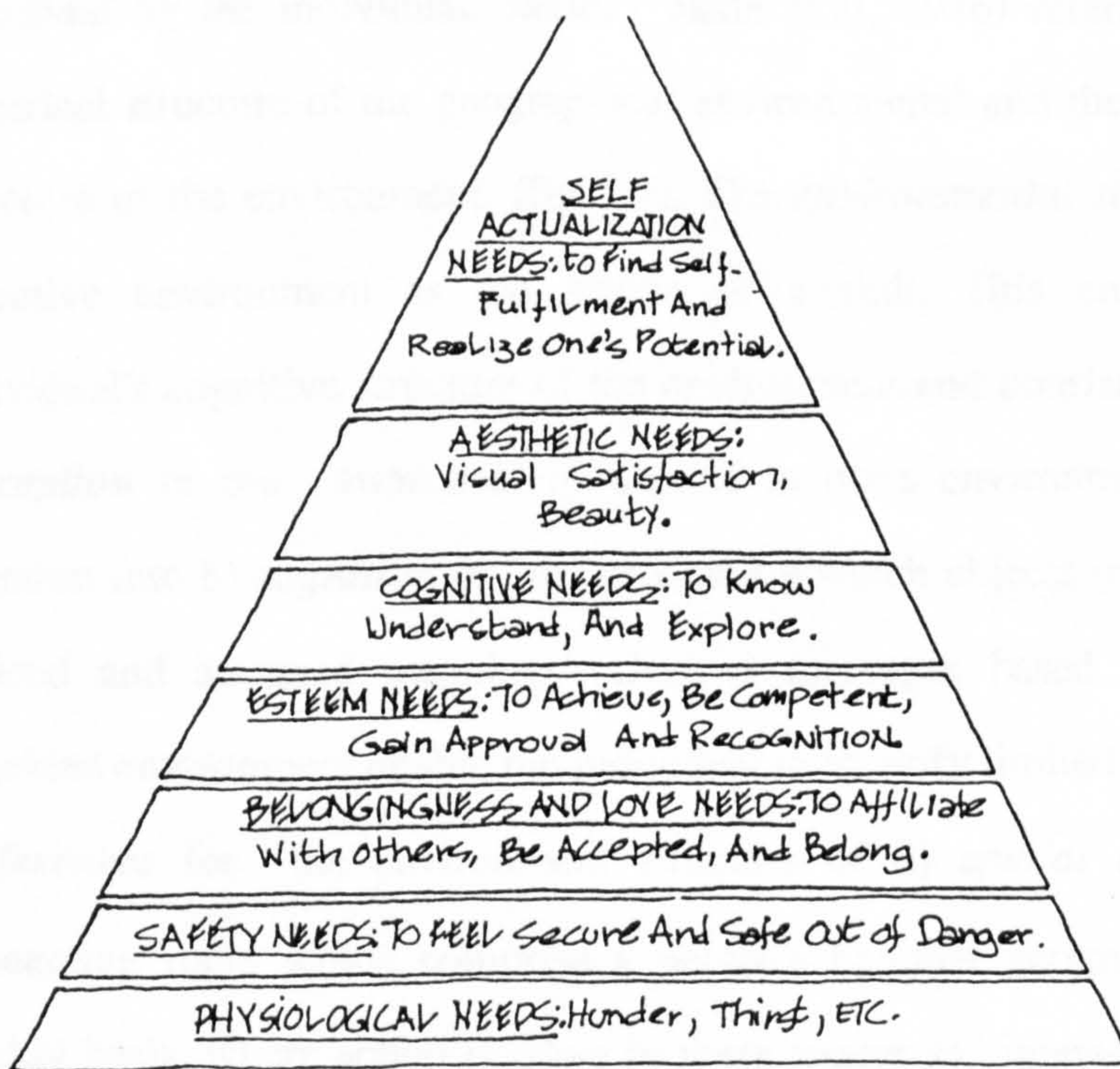


figure 1.6 Maslow's hierarchy of human needs.
source: Hilgard et.al (1975).

for visual satisfaction and beauty. The least important, according to Maslow, is the self actualisation need to find self fulfilment and realise one's potential.

Porteous (1977) identified four theoretical positions regarding the relationship between environment and behaviour : free-will approach, possibilistic approach, probabilistic approach, and deterministic approach, (Lang 1987). The *free-will approach* sees the environment as having no impact on human behaviour. The human is seen as superior to his environment and his behaviour is not dictated by it. The *probabilistic approach* sees the environment as the afforder of human behaviour, where it consists of a set of opportunities for human behaviour where action may or may not take place. The *possibilistic approach* suggests that people are not completely free to act on their own choice. The *deterministic approach* believes that people's action are controlled by heredity, and the environment is seen as a major determinant of behaviour, (Krupta 1985, Lang 1987).

1.3 SPATIAL BEHAVIOUR

As has been mentioned, the environment can be regarded as being of two kinds: the objective world surrounding the individual, and the subjective world perceived by the individual. Jakle, (Jakle et.al, 1976) refers to the former as the empirical structure of the geographical environmental and the latter as the cognitive structure of the environment, (fig 1.7). The *environmental structure* consists of the objective environment as the source of stimuli. This environment affects the individual's cognitive structure of the environment and consists of the individual's a) *perception* or the ' awareness of objects in one's environment', which directs his attention into b) *cognition* or ' the process by which objects in one's environment are noticed and assigned meanings'. Desired messages based on the perceived and cognized environment enable the individual to identify limited sets of c) *geographical preferences* for the environment structure of d) *spatial activity* or 'places and connecting roots which comprise a person's habitual geography on the daily and weekly basis, where action is taken in these spaces as ' interaction with and response

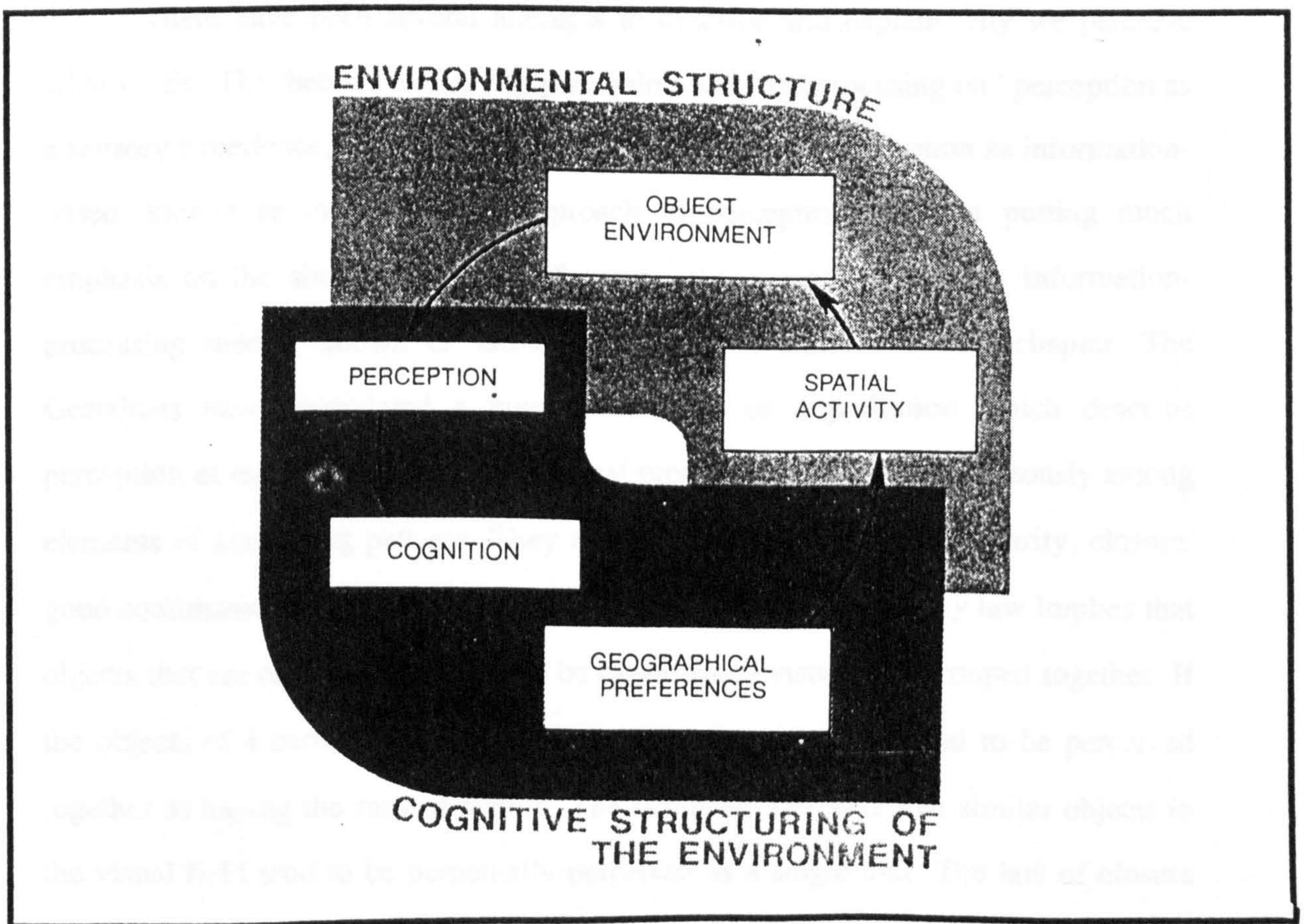


figure 1.7 Jakel's general model of human spatial behaviour.
 source: Jakel et.al (1976).

to the total spatial environment. These are spaces one knows through direct experience and indirect communication'. This process is defined by Jakle as spatial behaviour which implies "*people's cognition, choice, and action as related to the use of the place*", (Jakle 1978, p.299).

Lang, (Lang, et. al 1972, 1987), stresses that in order to understand man's behaviour in the environment one must know the three processes of perception, cognition, and spatial behaviour. For him *perception* is the process of obtaining or receiving input, *cognition* is the throughput function involving the process of thinking, remembering, and feeling, and spatial behaviour denotes *the output manifested in an organism's actions and responses*. He sees the other processes of motivation, affect, and development, as modifiers of the way in which people perceive, think about, and behave in the environment.

There have been several attempts to describe and explain why we perceive what we do. The theories explaining perception vary from focusing on ' perception as a sensory experience, an active and interrelated system, to perception as information-based, known as the ecological approach to perception. Without putting much emphasis on the similarities and differences, the sensory experience information-processing theory, known as Gestalt theory is of interest in this chapter. The Gestaltists have formulated a number of laws of organisation which describe perception as the result of an organisational process that occurs spontaneously among elements of simulating patterns. They are the laws of proximity, similarity, closure, good continuance, closeness, and symmetry, (fig 1.8). The proximity law implies that objects that are close together tend to be experienced visually as grouped together. If the objects of a certain pattern imply common direction, they tend to be perceived together as having the same direction. The similarity law says that similar objects in the visual field tend to be perpetually perceived as a single unit. The law of closure states that areas with a closed outline tend to be visualised as structured together and define complete figures even if parts of such figures are deleted. The good continuance law states that people tend to perceive continuous elements as a single

unit. The symmetry law shows that symmetrical patterns gather more easily than non-symmetrical ones to form a whole figure.

Studying human behaviour in relation to the built environment has been approached in two ways, ethological and behavioural. The ethological approach stresses the similarity between human and animal behaviour. Patterns of human behaviour are said to be innate although they may be moulded by culture. Hall's proxemic theory of personal space is an example of this approach. The behavioural approach, in contrast, emphasises the learning of patterns of behaviour through reinforcement, (Lang 1987).

Differences of spatial behaviour among individuals depend on their competence in dealing with the objective environment. The objective environment may signal different stimuli depending on its shape, size, texture, colour, illumination, etc. The individual as a perceiver of the stimuli may have physiological difficulties in perceiving these signals, such as blindness, or psychological difficulties in the perception, cognition, meaning, and symbolism of the real objective world because of experiential factors such as personality and attitudes. The social and cultural environment of the individual plays a major role in moulding their personal environment. Every individual belongs to a group(s) in which he may have a role to play and status to sustain, within a certain set of cultural norms and beliefs shared by the group, (Lang 1987).

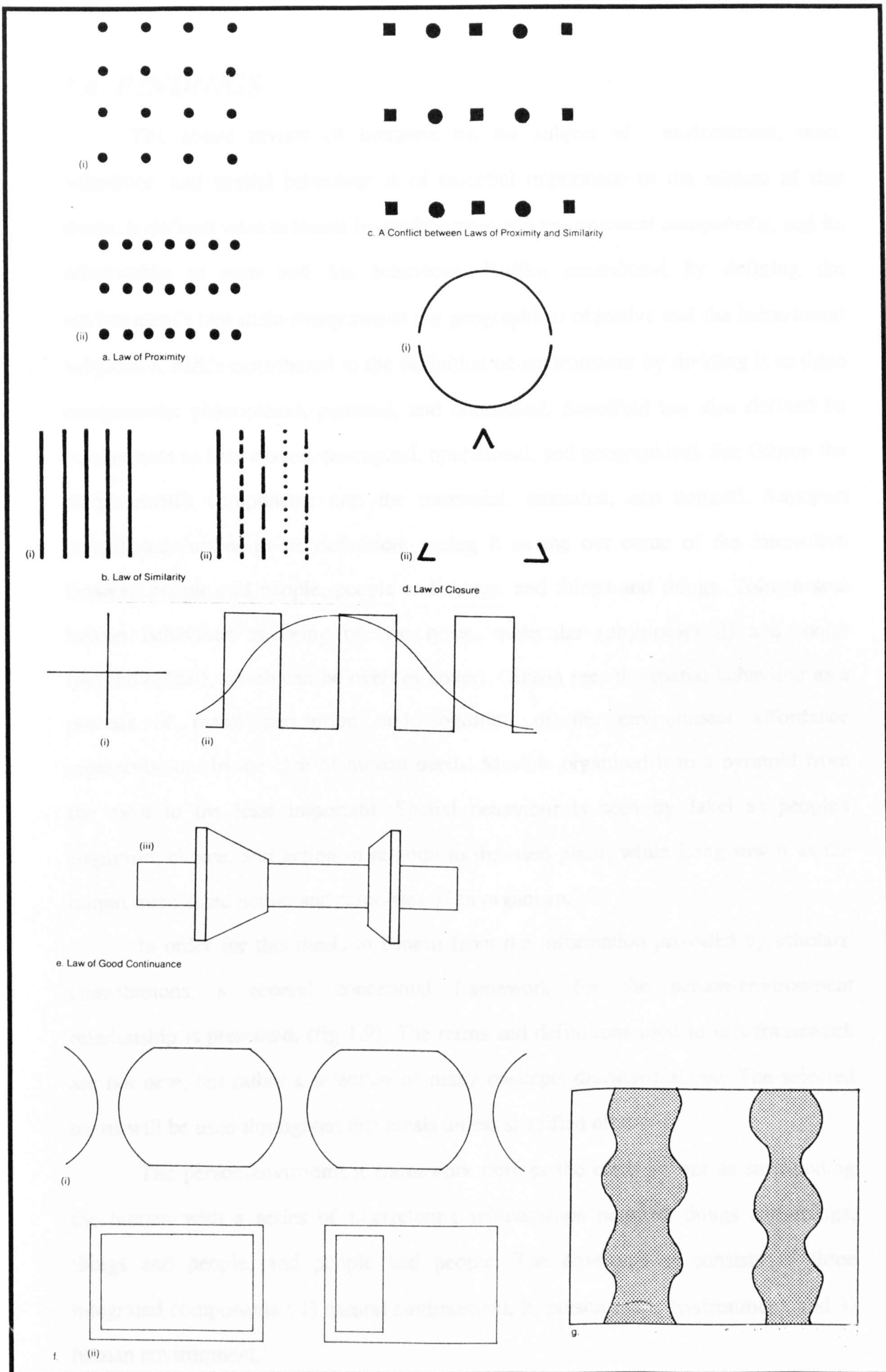


figure 1.8 The Gestalt law of visual organisation
 source: Lang (1987).

1.4 FINDINGS

The above review of literature on the subject of environment, man, behaviour, and spatial behaviour is of essential importance to the subject of this thesis. It defined what is meant by environment and environment components, and its relationship to man and his behaviour. Koffka contributed by defining the environment's two main components: the geographical objective and the behavioural subjective. Kirk's contributed to the definition of environment by dividing it to three components: phenomenal, personal, and contextual. Soneffeld has also defined its components as behavioural, perceptual, operational, and geographical. For Gibson the environment's components are: the terrestrial, animated, and cultural. Rapoport contributed further to its definition, seeing it as the out come of the interaction between people and people, people and things, and things and things. Tolman sees human behaviour as being of two types, molecular (physiological) and molar (psychological), which can be overt or covert. Gibson sees the spatial behaviour as a process of man's perception and cognition of the environment affordance representation. In the case of human needs, Maslow organised it to a pyramid from the most to the least important. Spatial behaviour is seen by Jakel as people's cognition, choice, and action in relation to the used place, while Lang saw it as the output manifested action and responses of an organism.

In order for this thesis to benefit from the information provided by scholars' contributions, a general conceptual framework for the person-environment relationship is presented, (fig 1.9). The terms and definitions used in this framework are not new, but rather a selection of many concepts discussed above. The selected terms will be used throughout this thesis unless specified otherwise.

The person-environment framework defines the environment as surrounding the human with a series of interrelating relationships between things and things, things and people, and people and people. The environment consists of three integrated components : 1) natural environment, 2) person-made environment, and 3) human environment.

The *natural environment* refers to all naturally existing things excluding humans. It is composed of species and elements in different conditions: solid, liquid, or gas. It is the source of radiance, ambience, light, heat, sound, and odours. The natural environment consists of two components : 1) non-modified elements, that is the environment without the interference of the human on other species, water, air, vegetation, land form, etc. 2) modified elements, where humans have deliberately or non-deliberately, positively or negatively, applied some modifications, such as landscape design. The definition of natural environment is similar to Kirk's phenomenal physical environment, Sonnefeld's geographical environment, and Gibson's terrestrial environment with the exclusion of humans.

The *person-made environment* refers to any physical object that humans have produced or designed. It includes the total materialistic culture of the humans such as the built environment, clothes, machines, economic goods, etc. This environment is referred to by Kirk as the artificial physical phenomenal environment, while Gibson sees it as the modification of the terrestrial environment by species in response to their cultural environment.

The *human environment* refers to human and human's non-materialistic subjective products. It consists of 1) the personal environment, 2) the social environment, and 3) the cultural environment. This environment produces behaviour which is derived from need satisfaction. The *personal environment* is the environment of the individual as a physiological and experiential psychological entity. The individual has competence depending on his/her physiological nature such as sex and age cycle, handicap, etc.. The personal experiential psychological nature is the field of perception, cognition, meaning, symbols, attitudes, personality, etc. The *social environment* is the relationship between individuals including grouping, group organisation and agents of socialisation, status, role, class, etc. The *cultural environment* is the non-materialistic products of a society's traditions, norms, language, religion, etc. The materialistic production of cultural objects, such as writings, clothes or paintings makes it a person-made environment.

A major influence on the human environment is behaviour and needs. *Human behaviour* is the dynamic interaction relationship between human and human, and human and things. It can be molecular or molar, covert or overt. Molecular behaviour is at the physiological level involving stimulus receptors. It can be covert as the case of hunger and thirst, or overt as the case of perspiration, facial expressions, and skin colour change. The molar psychological level of behaviour takes place in every day encounters with people and things and can be expressed covertly or overtly. The covert behaviour involves perception, cognition, meaning, and symbolism. The overt behaviour includes social interaction, cultural norms, and spatial behaviour. Spatial behaviour includes privacy, crowding, territory, spatial movement, anthropometrics, and ergonomics. Personal, social, and cultural environments and human behaviour are goal directed to satisfy certain needs. These *needs* are part of the human environment and differ in importance from the highest to the lowest. These are : physiological needs (hunger, thirst), safety needs (to feel secure and safe of danger), belonging and love need (to affiliate with others, to be accepted, and beloved), esteem needs (to achieve, to gain approval, and recognition), cognitive needs (to know, understand, and explore), aesthetic needs (visual satisfaction, beauty), self actualisation needs (fulfilment and realising of one's potential).

Human environment is referred to by Kirk as the contextual and personal environment, by Sonnefeld as the operational environment, and by Gibson as the animate and cultural environment. Moore sees this environment as the internal personal and external socio-cultural relationship resulting in human behaviour.

The main contribution of the conceptual framework is the introduction of an intermediate box between the environment components referred to as "the balance area". This box allows the researcher to focus the attention on one of environment components in relationship to the other components, including the element that focused at itself. The balance area box is the area of integration between the environment actual, real and cognitive, natural and natural, natural and person-made, person-made and person-made, person-made and human, human and human, and

human and natural environments. This box is where one can find Gibson's schemata, Porteous's apperception, an area between Lang's positive - the way it is, and normative - the way it should be - theory. The centre of focus box will be used throughout this thesis in some of the chapters where needed.

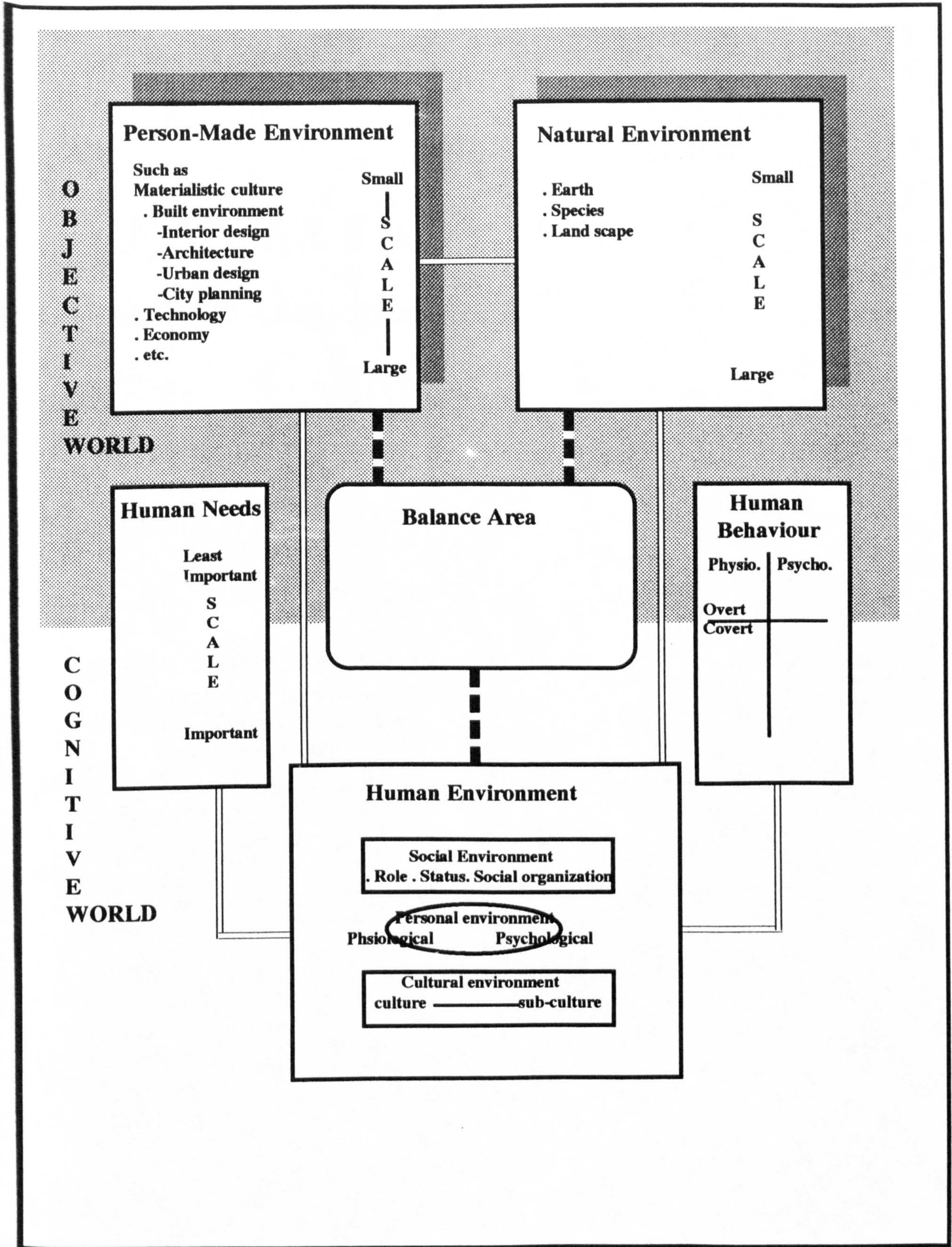


figure 1.9 A framework for environment components
 source: author.

CHAPTER TWO

TERRITORY AS SPACE DESIGN

2.1 SPACE CONCEPT

2.2 SPACE TYPES

2.3 SPACE IN ARCHITECTURE

2.4 SPACE DESIGN VOCABULARY

2.4.1 Space formation

2.4.2 Space organisation

2.4.3 Space depth

2.5 FINDINGS

CHAPTER TWO

TERRITORY AS SPACE DESIGN.

One of the problems with understanding the existing human territorial behaviour organising models is in their use of graphical diagrams. Designers have their own graphical language in which spatial organisation can be presented. It seems that there is a lack of proper communication between other sciences graphs and the designers interpretation of them. The aim of this chapter is to introduce some of the basic fundamentals of formal space language used in design presentation. This chapter will be referring only to the objective spatial concepts representation that have relevance to the subject of human territoriality such as spatial formation, transformation, organisation, and depth.

2.1 SPACE DEFINITION

Space has always fascinated man as the most elusive yet familiar phenomenon of man's experience. Space is many things, but in all attempts to make some statement about space descriptions and continuum are used. Man experiences, space, can detect endless changes of space and yet he can never be sure if it exists of its own right, independent from him.

Philosophers as well as scientists are concerned with such questions and indeed the objectivity of space and its separation from the conscious is perhaps one of the central issues in trying to understand the concept of space, (Jammer 1969, Hawkins, 1964). Norberg-Schulz (1971) summarised this dilemma of the space concept by introducing the concept of space through history. He noticed that space was brought to conscious by Greek philosophers, where the concept of space was made an object of reflection. Parmenids idea of space is that it is unmanageable resulting in his belief that space is non-existent. Leucipose even though arguing that space had no body existence of its own, still saw it as a reality. Plato's concept of space is explained in his Timaeus, where he regards space as "the mother and receptacle of all created and visible and in any way sensible things." He continues by

claiming that space is "the universal nature which receives all bodies -and which that must always be called the same; for while receiving all things she never departs at all from her own nature and never in any way or time assumes a form like that of any things which enter into her. She is the natural recipient of all impressions and is stirred and informed by them and appears different from time to time but reasons of them,(cited in Arinheim 1977, p.9). For him space is the sum of all spaces, a dynamic field with directions and qualitative properties. Euclid introduced his geometry which gave a new definition of space as infinite and homogeneous by saying that "all nature is based on two things: there are bodies, and there is emptiness in which these bodies have their places, in which they move"(Norberg-Schulz 1971, p.10). It was not until the introduction of modern physics that Euclidean space was challenged.

Modern physics is always said to have started with Galilee and Newton. Newton's space, similar to his definition of time, was absolute. All events were considered by him to have a distinct and definite position in space, and to occur at a particular moment in time. Later, when Einstein developed the theory of relativity, he dramatically changed man's concept of space. He demonstrated the inseparability of space and time, adding the fourth dimension of time to the three dimensions of space. Einstein remarked about the concept of space that " it seems that this was preceded by the psychological simple concept of place. Place is first of all a small portion of the earth's surface identified by a name" (cited in Malmerg 1980,p3). Consequently space became understood in two ways: space as concrete physical absolute and static entity (Euclidean space), and space as an abstract mathematical concept invented and developed by man relative to a moving point of reference (non Euclidean space), (Norberg-Schulz 1971).

The above review emphasises the existence and reality of space. Space is a self-contained entity, infinite or finite, absolute or relative, an empty vehicle ready and having the capacity to be filled with things. " If we regard space as absolute it becomes a thing in itself with an existence independent of matter. It then possesses a

structure which we can use to pigeon-hole or to individuate phenomena. The view of relative space proposes that it be understood as a relationship between objects which exist only because objects exist and relate to each other... (or) as being contained in objects in the sense that an object can be said to exist only insofar as it contains and represents within itself relationships to other objects", (Harvey 1973,p.13).

2.2 SPACE TYPES

Man creates, perceives, experiences, and makes meaning of all spaces. In order to differentiate between different types of space, several definitions have been introduced. Cassirer (1944) differentiates between three basic categories of spatial experiences. He named the first '*organic space*' referring to the kind of spatial experiences which appear to be genetically transmitted and biologically determined. The second is the '*perceptual space*' which involves the neurological synthesis of all kinds of sense experience, optical, tactual, acoustic, and kinaesthetic. The third kind of spatial experiences Cassirer calls '*symbolic space*', where space is experienced through the interpretation of symbolic representations which have no spatial dimension. Harvey explained this by saying " I can conjure up an impression of a triangle without seeing one simply by looking at the word triangle. I can gain experiences of spatial form by learning mathematics and in particular, of course, geometry. Geometry provides a convenient symbolic language for discussing and learning about spatial form, but it is not the spatial form itself", (Harvey 1973,p.28). Harvey also emphasises that these levels of spatial experience are not independent of each other, and warns that problems arise in the process of transferring experiences gained at one level to a model of experiences operating at another level.

Ann Buttimer(1972,1980) in an attempt to analyse 'social space and the planning of residential areas' distinguishes between five levels of spaces: "1) *social psychological* level in investigating persons position within society -that is sociological space. 2) a *behavioural* level investigating activity and circulation patterns -that is interaction space. 3) *symbolic* level investigating images, cognition,

and mental maps. 4) an *effective* level investigating pattern of identification with territory. and 5) a purely *morphological* level in which population characteristics are factor analysed to yield homogeneous social areas", (Buttimer 1980, pp.25-26).

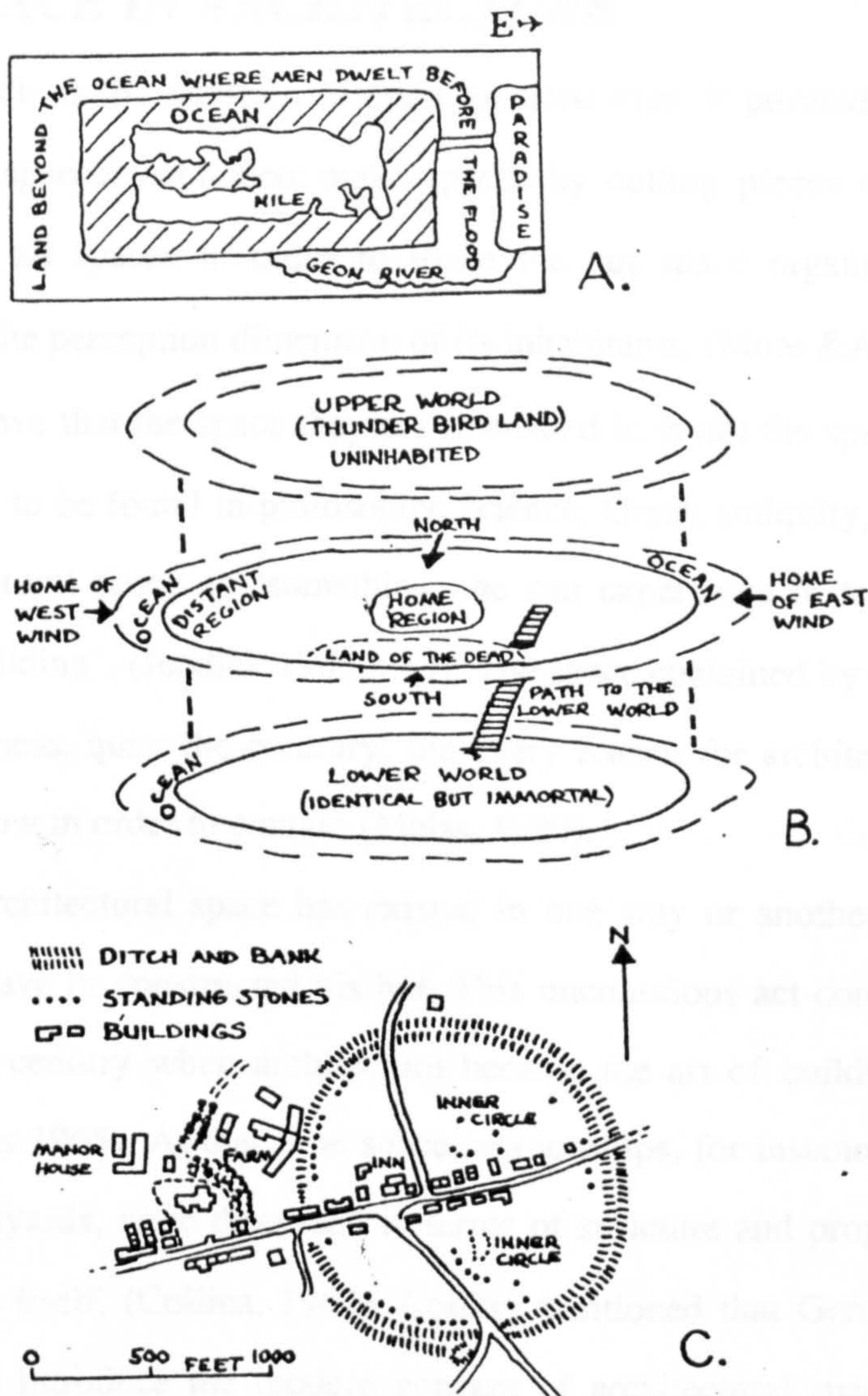
Rapoport (1982) emphasises that space is more than three dimensional physical space and, therefore, defined space as "the three dimensional extension of the world around us, the intervals, distances, and relationships between people and people, people and things, things and things"(p.179). He distinguishes between different kind of spaces. Between *human and non-human* space -the womb or interior of an atomic pile; *designed and non-designed* space -designed means ordered according to some roles and reflecting some ideal environment; *abstract or sacred* space - abstract geometric space of the US Midwest and the sacred space of high culture cities such as China and India and others; *symbolic* space where the concerned people can understand the symbols of space; *behavioural* space or action space - subjective or objective, which are related to movement in space; *social* space which is a behavioural space actually used by a social group and reflecting their behavioural pattern and perception; *cultural* space defined by various group in terms of varying categories; and *ethological* space - home range, core area, territory. Like Harvey, Rapoport also warns about the relationship between different kinds of different spaces. He says that " The behavioural space of different groups (age, sex, ethnic or racial) may be very different from the total urban space shown on a map.... this is equivalent to suggesting that within the physical or geometrical environment there is an operational environment within which people work and which affects them. Within that is the perceptual environment of which people are conscious directly and to which they give symbolic meaning, within the perceptual environment is the behavioural environment of which people are not only aware but which also elicits some behavioural response" (Rapoport 1982,p.13).

Norberg-Schulz (1971) classified five kinds of spaces: 1) the *pragmatic* space of physical action which integrates man with his environment; 2) the *perceptual* space of immediate orientation which is essential to man's identity as a person; 3) the

existential space which forms man's stable images to social and cultural totality; 4) the *cognitive* space of the physical world which enables man to think about space; and 5) the *abstract* space of pure logical relations which offers the tool to describe the other kinds of space. Schulz relates space creation to the expressions of the structure of the world and refers to this space as expressive space or architectural space.

Ralph (1979) gave an overall classification of space types, dividing space into six categories, (fig 2.1),:1) *pragmatic or primitive* space, the space of instinctive behaviour and unselfconscious action in which we always act and move without reflection. 2) *perceptual* space, the space which proceeds from an organic involvement to sophisticated abstraction and self-consciousness, or the space of action centred on immediate needs and practice. 3) *existential* space or lived space, which is the inner structure of space as it appears to us in our concrete experiences of the world as members of a cultural group. This space contains a) *sacred* space of rathic religious experience, continuously differentiated and replete with symbols, sacred centres, and meaningful objects. b) *geographical* space or the reflection of man's basic awareness of the world, his experiences and intentional links with his environment, the geographical space varies in scale from the smallest to the largest, 4) *architectural* space and *planning* space which involves deliberate attempts to create space, 5) *cognitive* space which signifies the abstract construct of space derived from the identification of space as an object of reflection and the attempt to develop theories about it, 6) *abstract* space or the space of logical relationship that allows us to describe space without necessarily founding those descriptions in empirical observation.

The above review adds another dimension to the definition of space. The philosophical question of what is space is replaced by the question of how different humans practice, create, and make use and meaning of distinctive conceptualisation's of space, (Harevy 1973). Individuals through their perception and cognition detect and experience spaces and fill them with meanings and symbols only understandable to themselves and groups similar to them.



Examples of an intermixing of different forms of space.

- (A) The world according to the Christian topographer Cosmas. In his scheme are combined primitive notions of cognitive space and elements of sacred space.
- (B) Cosmographic notions of the Salteaux Indians (based on an account by Hallowell 1955). This combines existential space and sacred space with ideas of cognitive and perhaps elements of pragmatic space.
- (C) The village of Avebury in Wiltshire, England, partly sited within a neolithic stone circle. Here are 'dead' sacred space and the unselfconsciously created space of the village, both expressed in the cognitive space of a map.

figure 2.1 Ralph's examples of an intermixing of different forms of space.
source: Ralph (1973)

2.3 SPACE IN ARCHITECTURE

As much as the question of space puzzled man, it puzzled architects, as the maker of the spaces. Architects make spaces by cutting pieces of space from the continuum of all spaces in order to make the cut space organizable as domain, responsive to the perception dimension of its inhabitants, (More & Aleen 1976). Some architects believe that the space they are interested in is not the space in all different manifestations to be found in philosophy, science, Greek antiquity, mathematics, but rather architectural space as "something one can experience in terms of the object itself, i.e. a building", (Jeodick 1985,p.10). The space contained by volume or objects is not nothingness, quite the contrary: the every reason for architect achieving is to create the hollow in order to contain (Meiss, 1990).

The Architectural space has existed in one way or another since early man modified his cave or constructed his hut. This unconscious act continued through to the eighteenth century when architecture became the art of building structures not spaces, (Collins 1965). At that time space relationships, for instance the sequence of rooms or courtyards, were discussed in terms of structure and proportion but not in terms of space itself, (Collins, 1965). Collins mentioned that German art historians are the first to introduce the modern concept of architectural space as we know it now. He related this to the linguistic similarity between the word 'space' and the word 'room' in the German language. He considered Hegel as the originator of the concept of self-conscious space because of his book 'Philosophy of Art' continuously uses of the word 'space'. Hegel used the word space when he referred to the buildings as "limiting and enclosing a define space", or describing the Gothic church as "the concentration of essential soul-life which thus encloses itself in spatial relations", (p.286). Heinrich Wolfflin, a German Art historian, has developed the concept of space as a vehicle of art criticism. Collins identifies him as the father of the space concept in the western world because of Wolfflin's mastery of the English language allowed the circulation of his thoughts through the English speaking countries.

Siegfried Giedion (1963) reviewed space and time in architecture, and identified three major manifestations of architectural space. The first is the space created by an *interplay between volumes*. He associated it with the buildings of the Greek and Egyptian civilisation, where space is defined largely in terms of relationships between buildings. The second is the *hollowed-out interior* space, seen mostly in the buildings dating from the time of the Pantheon to the late eighteenth century. This space was apparent not only in temple and church interiors but also in external features such as Renaissance plazas. The third form is the treatment of space from several perspectives simultaneously, involving *free manipulation* of relationships between the inside and the outside. This form is the main characteristic of much of contemporary architecture.

In modern architectural space was integrated in the overall design principles and architectural characteristics. Schirmbeck (1987) has made an attempt to analyse the work of some modern well-known architects. He classified design principles and architectural characteristics into three types: rational, symbolic, and psychological, (fig 2.2). *Rational principles* describe "functions that have a rational objective". The principles allocated to this category are rational or follow a certain logic. "The articulation of fabric of the building, the manner of the allocation of surfaces and spaces, the geometric organisation of surfaces and spaces, the structural system, the proportions of the dimension of the space..", (p.148). *Symbolic principles* are applied where "an artistic truth, a perceptual force" are given the most attention and design is directed toward "proportions, rhythm, dimensions, ornaments, colour, illumination, and connection between spaces", (p.148). *Psychological principles* are a combination of rational and symbolic principles, which logically leads to a consideration of psychological effects. Psychological principles are the result of the social demands made on architecture. Such principles give attention to space creation in accordance with consideration of users participation. For example, the location of public footpaths within buildings is expected to promote social contacts, because of the users intentions to create leisure space for personal creativity and stimulation for personal

fantasies. Schirmbeck analysis of the work of some of the well-known architects has shown "that in the period from 1945 to 1960, architecture was frequently influenced by rational consideration, and that only in the immediate past have a symbolic and/or psychological aspect been given special attention", (p.149).

Thiis-Evensen (1987) has defined three major periods comprising the modern tradition, (fig 2.3). He sees these periods as Neo-classicism (1910's-20's), Functionalism (1920's-30's), and Post-Modernism (1970's-80's), fig (2.3, a, b, and c). For the space 'geometric volume' presentations he noticed that Neo-classicism sought *defined space*, fig (2.3, 3a), Functionalism *open space* fig (2.3, 3b), and Post-Modernism *complex space*, fig (2.3, 3c). He relates that to the dissimilar interpretation of existential expression of geometric volumes in terms of motion, weight, and substance. In his view Neo-classicism aimed for symmetry, additive form and heaviness; Functionalism aimed for asymmetry, overlapping and lightness; while Post-Modernism aims for all of these expressions simultaneously, (Thiis-Evensen 1987).

The above discussion shows that architects are interested in more than one kind of space. German Art historians were the first to draw the attention to the self-conscious space as known today. Giedion defined space as an interplay between volumes, hollowed-out spaces, and manipulation of the relationship between the inside and the outside. Schirmbeck considered that these spaces were rational in design principles and continued until the sixties, while today's design principles are symbolic or psychological. The next section will discuss the design language of geometrical space, mainly: formation, organisation, and depth.

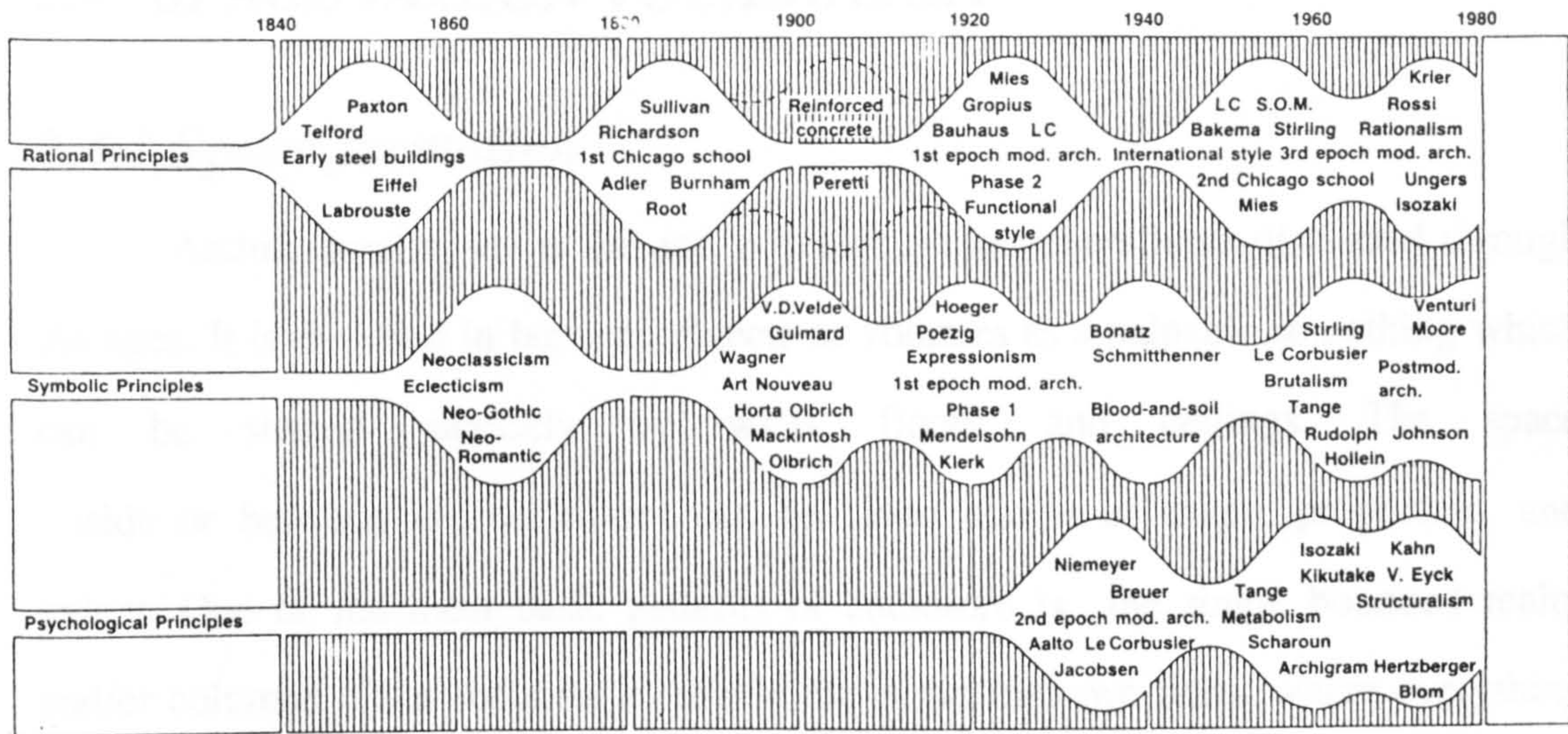


Figure 2.2 Schirmbeck's principles and architectural trends. source: Schirmbeck (1987).

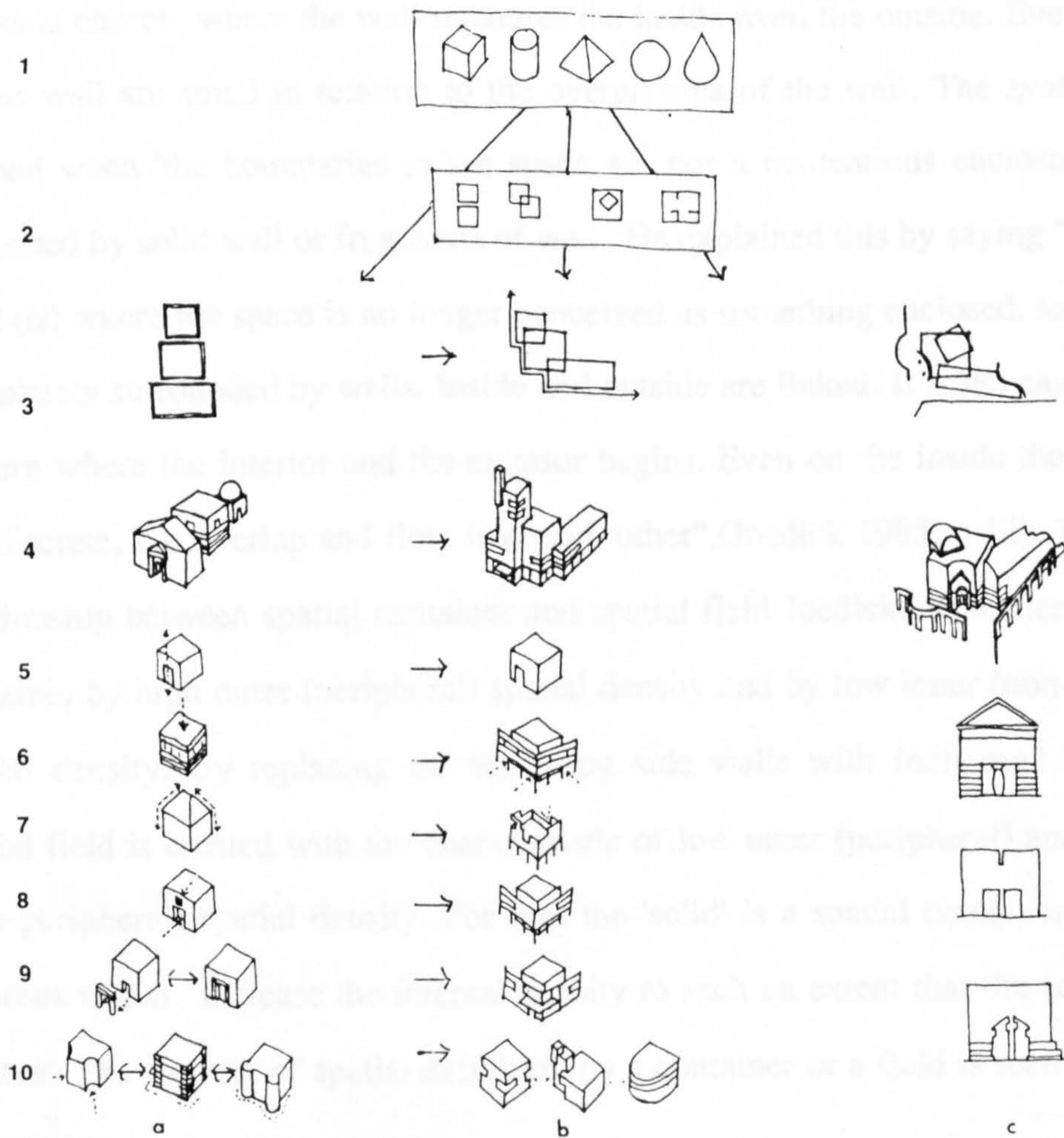


Figure 2.3 This-Evensen's major periods comprising the modern traditional vocabulary source: This-Evensen (1987).

2.4 SPACE DESIGN VOCABULARY

2.4.1 Space formation

Architectural space is the entity- which philosophers have discussed through the ages. It is enclosed in between objects or volumes as a palpable something which can be shaped precisely by walls, floors, and ceilings. The space inside or between the enclosures can be given clarity of shape, proportion, and extent. One of the most basic patterns of enclosure is the single bounded realm and/or columns. These boundaries divide the world into two parts, where everything is either inside or outside,(Moore, et. all 1990).

Joedick (1985) distinguished between two forms of space enclosures, or what he calls ' spatial treatment. He named the first "spatial container" and the second "spatial field", (fig 2.4). *Spatial container* is where the space is "an enclosed continuum, contained within four walls, a floor, and a ceiling" as in the example of a Classical church, where the wall separates the inside from the outside. Even openings in this wall are small in relation to the overall area of the wall. The *spatial field* is defined when 'the boundaries to the space are not a contentious enclosure, but are suggested by solid wall or fragments of wall'. He explained this by saying " the spatial field (is) where the space is no longer conceived as something enclosed, as something completely surrounded by walls. Inside and outside are linked. It is not easy at first to discern where the interior and the exterior begins. Even on the inside the spaces are not discrete, but overlap and flow into each other", (Joedick 1985, p.12). To state the relationship between spatial container and spatial field Joedicke characterised spatial container by high outer (peripheral) spatial density and by low inner (non-peripheral) spatial density. By replacing the enclosing side walls with individual columns, a spatial field is created with the characteristic of low outer (peripheral) and low inner (non-peripheral) spatial density. For him the 'solid' is a spatial container filled with columns which ' increase the internal density to such an extent that the solid body is created'. The concept of spatial definition by a container or a field is seen by Jeodeck

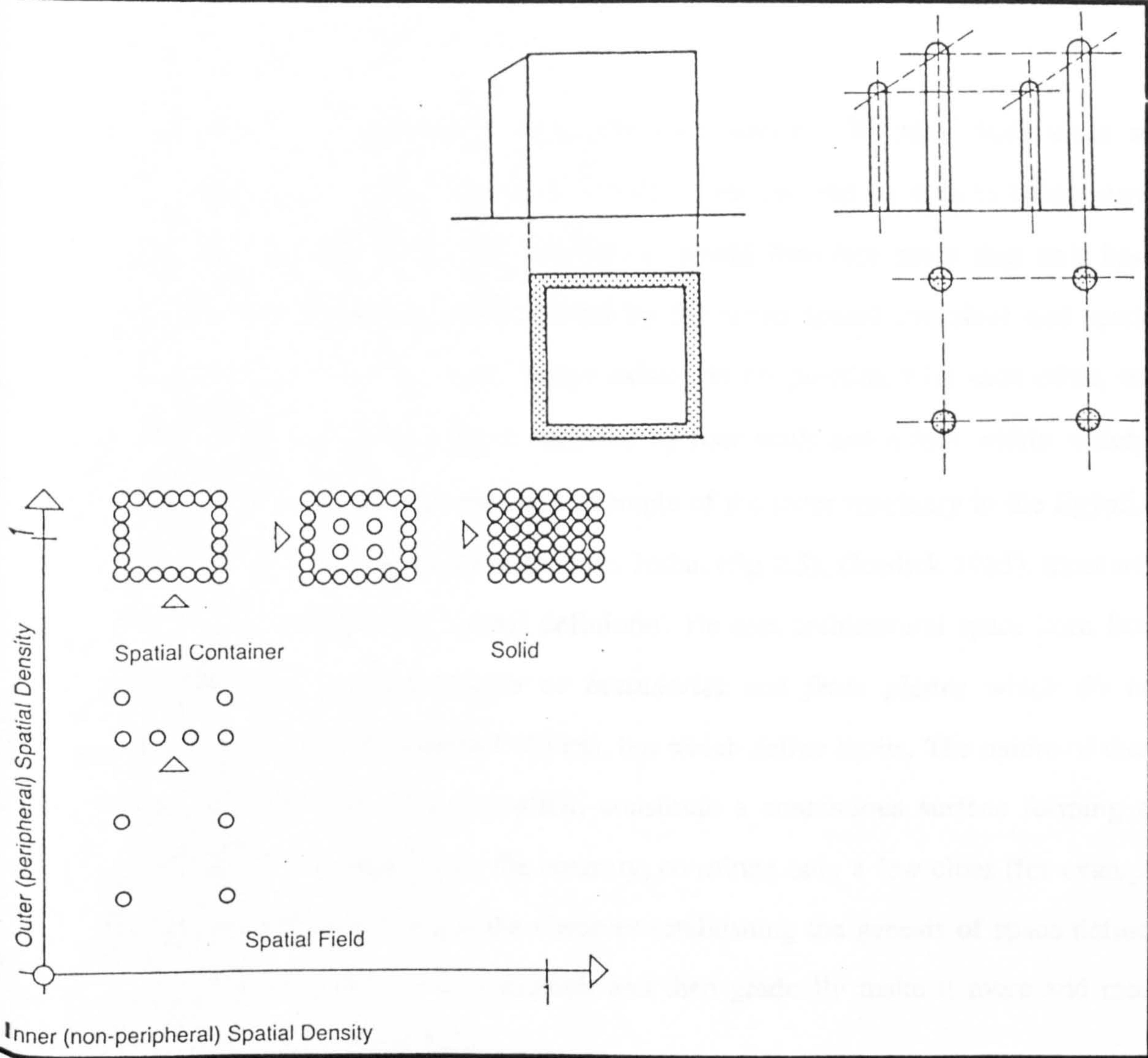


Figure 2.4 Prototype of spatial container and spatial field and solids relationship. source: Joedick (1985).

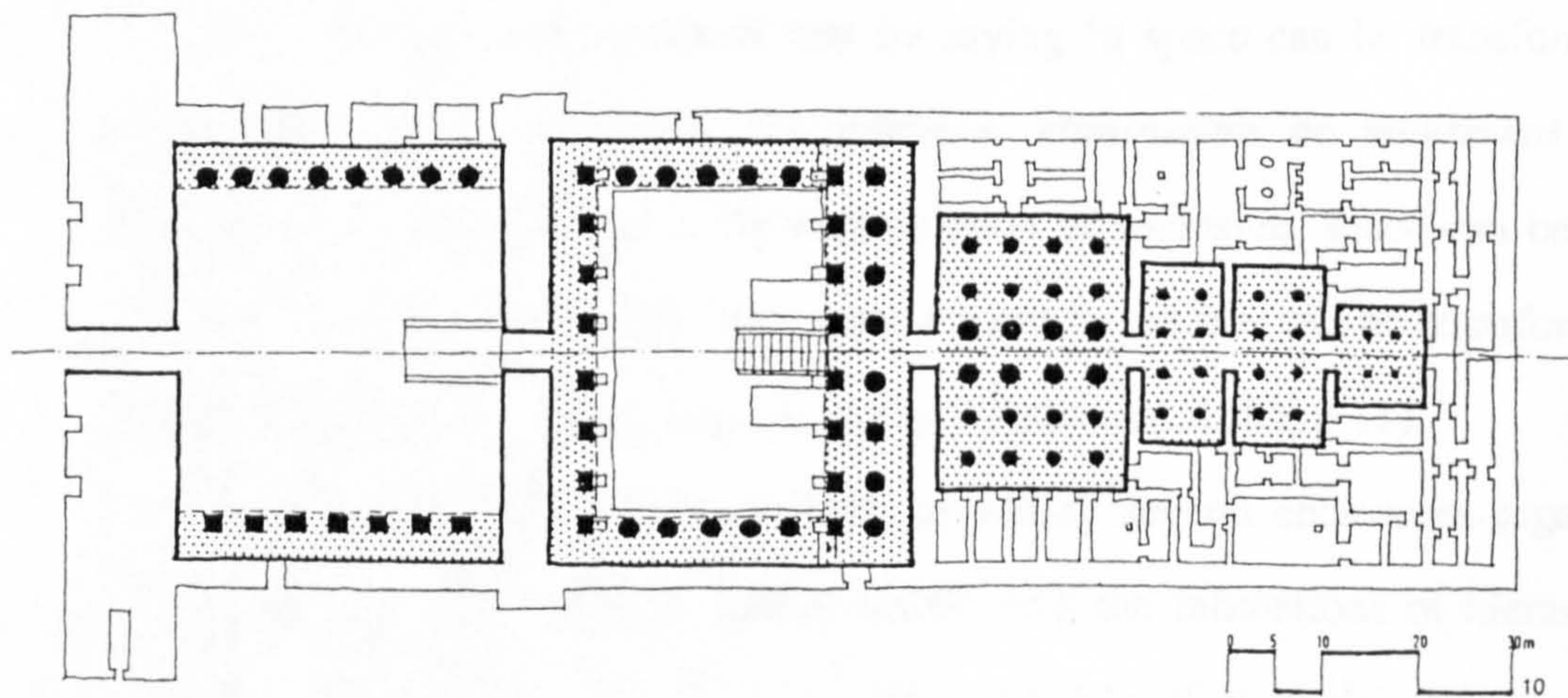


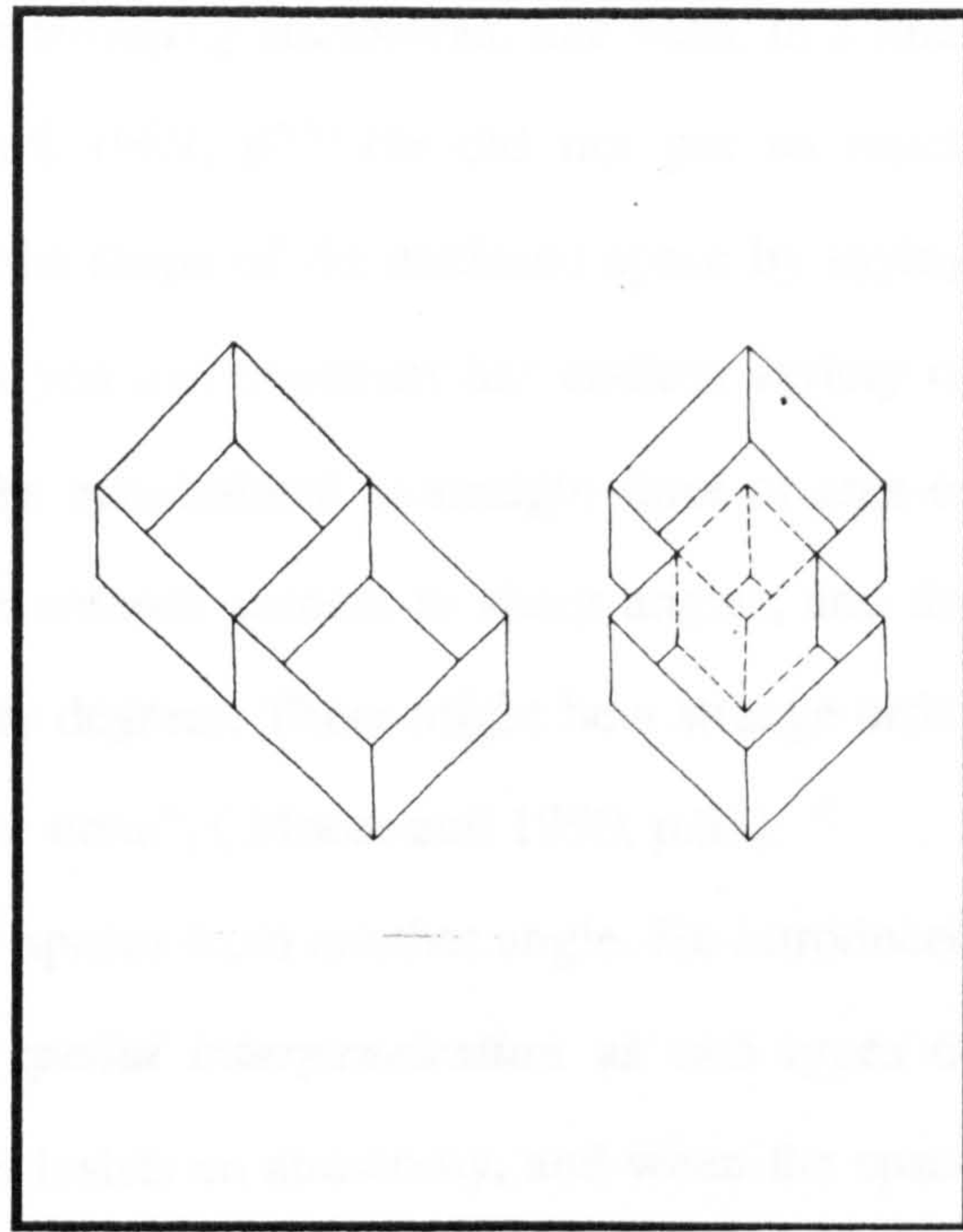
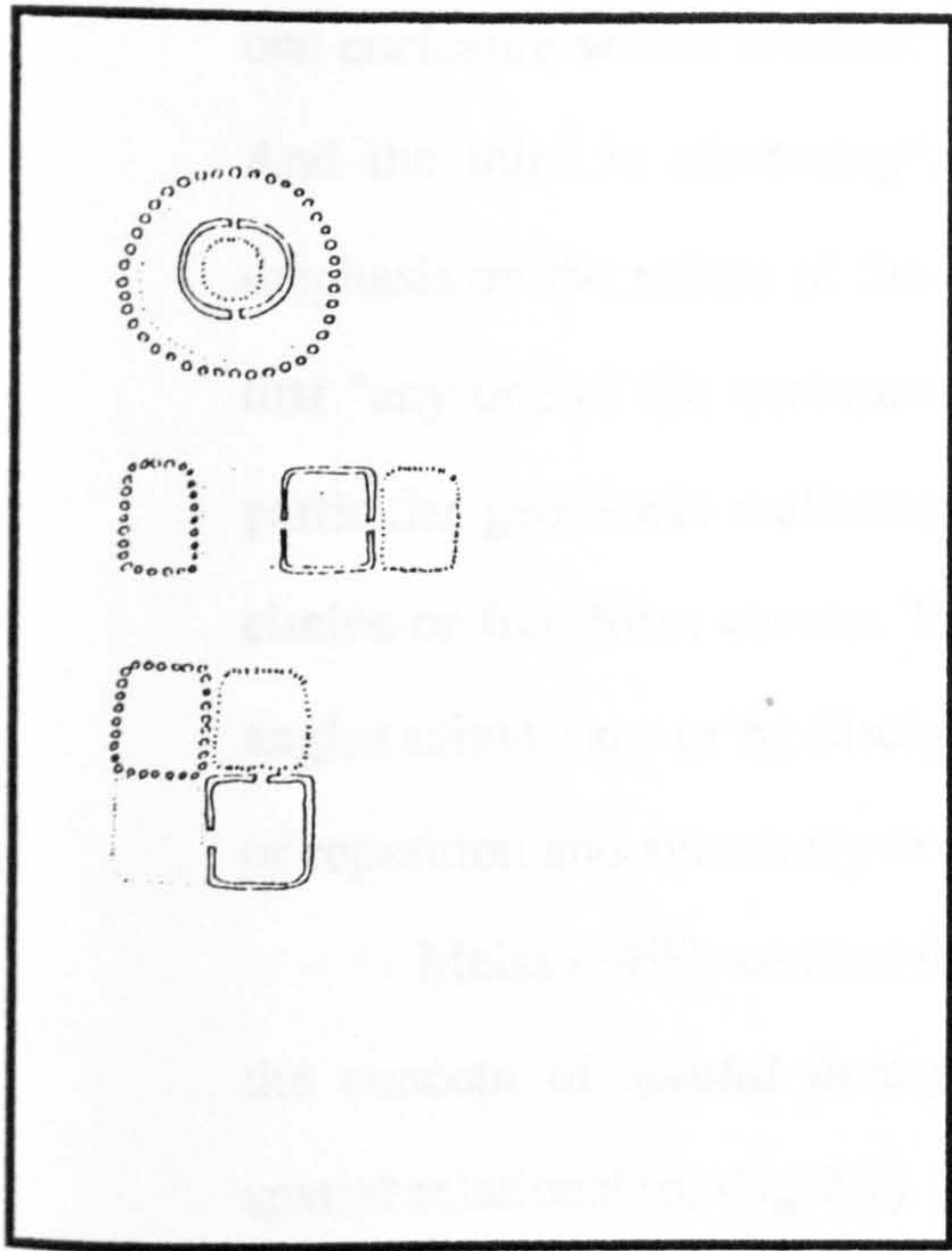
Figure 2.5 Space and space enclosure in Ramses II temple.

as an important factor in defining architecture elements. He says "both terms are abstract entities, but they correspond to built forms that can be seen to have existed from the beginning of building history. It would therefore seem that two basic elements of architecture can be defined by the terms spatial container and spatial field. Both types of space have always existed in conjunction with each other, one form of which would be a space enclosed by four walls and a roof within which a spatial field is inserted". He gave the example of the inner sanctuary in the Egyptian temple complex of Ramses III in Madinet Habu, (fig 2.5), (Joedick 1985). Similarly, Meiss (1990) talked about 'spatial definition'. He sees architectural space born from the relationship between *objects or boundaries* and *from planes* which do not themselves have the character of objects, but which define limits. The nature of these limits "may be more or less explicit, constitute a contentious surface forming an uninterrupted boundary, or, on the contrary, constitute only a few clues (for example four columns) between which the observer establishing the genesis of space defined by cues which at first leave it implicit and then gradually make it more and more explicit", (Meiss 1990, p.102).

2.4.2 Space organisation

Architectural space defined by a container, field, or a plain is subject to changes such as growth or inclining. These changes are referred to by Habraken as '*site transformation*'. He explained that by saying "a space can be transformed by transformation of its enclosure, *the addition, elimination or movement* of the elements that indicate the space. By manipulation of enclosure, space can be *added, eliminated or moved* in the site. Any arrangement in the site can be transformed by *addition, elimination or movement* of spaces", (Habraken, 1982, p.11).

Moore analyse for the possibility of adding several enclosures together. A second enclosure may either be *added inside*, with the intimations of hierarchy, or *alongside* with the intimations of equivalence (fig 2.6). If more than two enclosures are added to each other, Moore claims that one will discover that only



2.6 Nesting, stringing, and clustering of enclosures
source: Moore et.al (1991).

figure 2.7 Spatial juxtaposition and interpenetration
source: Meiss (1990).

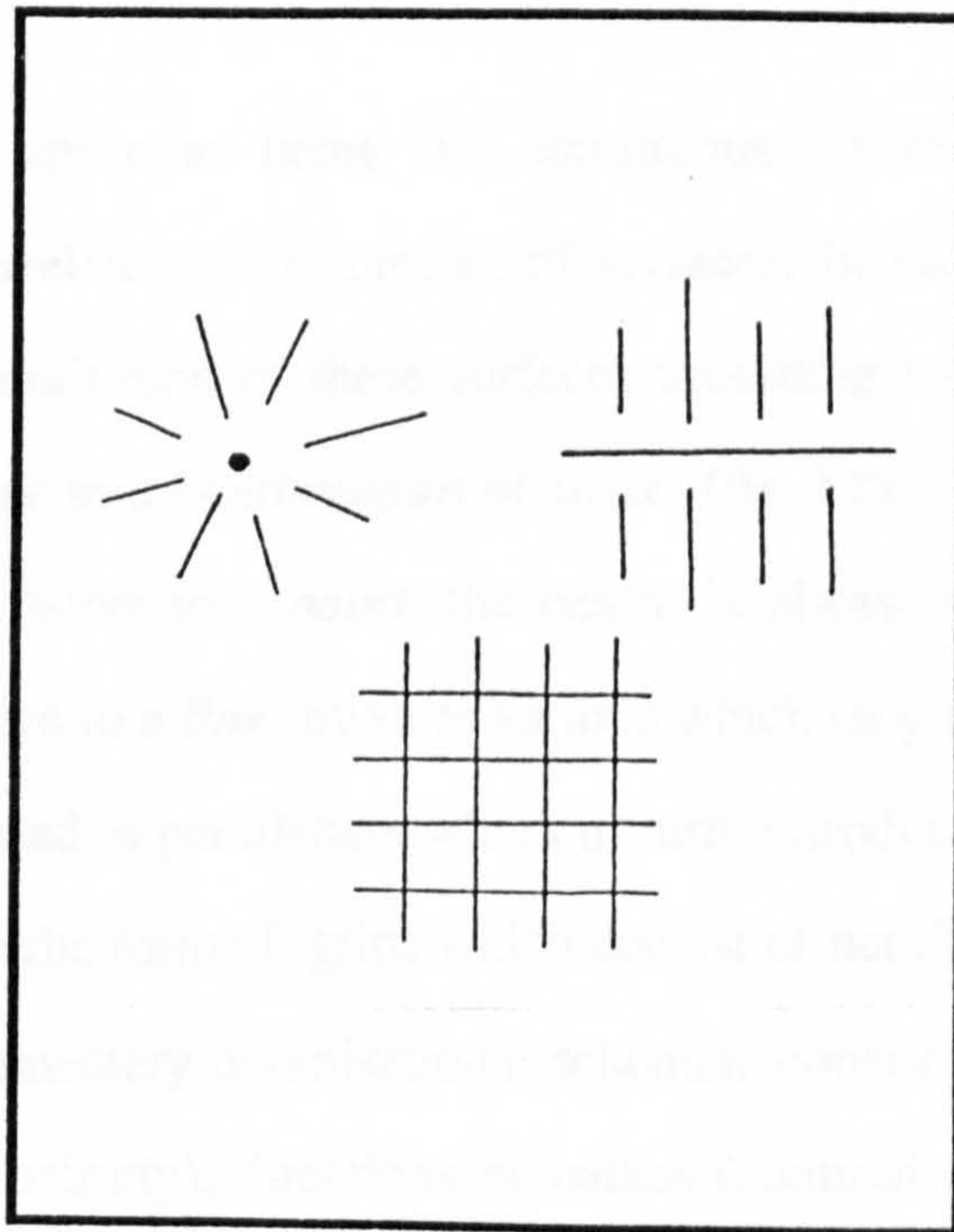


figure 2.8 The elementary organisation of space: point, line, and net.
source: Norberg-Schulz (1971)

three 'fundamental principles' are manifested in the multiplicity: ".the first is *nesting* one enclosure within another. The second is *stringing* enclosures, like beds, in a line. And the third is *clustering*", (Moore, et.all 1989, p33).He did not put so much emphasis on the nature of the enclosure or the shape of the enclosed space by saying that "any one of the enclosure patterns that you can construct has endless variety of particular geometric realisations. It might be materialised in straight lines or arcs of circles or free form curves. There might be smooth corners or sharp angles, and the angles might vary or be disciplined to ninety degrees. There might be a strange order of repetition and symmetry or there might be none", (Moore etal 1990, p.33).

Meiss (1990) tackled the addition of spaces from another angle. He introduced the concept of *spatial juxtaposition* and *spatial interpenetration* as two types of spatial relationship, (fig 2.7). *Juxtaposition* insists on autonomy, and when the space does not consigned with the envelop of the building implies the existence of other similar spaces the series by addition or division", (Meiss 1990. p109). *Spatial interpenetration* creates continuity from one space to the other from the moment when an important element of division, such as a wall, ceiling, or floor, appears to belong to two or more spaces", (p.110).

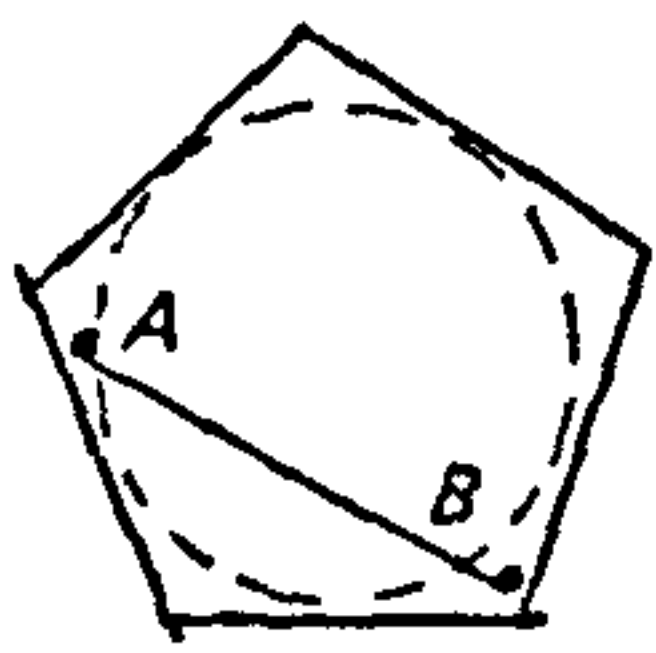
Norberg-Schulz (1971) describes space as being the continuous inherent movement of a single surface or the interrelation of a number of surfaces. In each case he defines space in terms of the organisation of these surfaces according to a *point*, to a *line*, to a *co-ordinate system*, or to a *combination* of these, (fig 2.8). He mentions that if surfaces are organised relative to a *point*, the centre is always of special importance. The organisation relative to a *line* involves an axis which may be of any configuration. Axial organisations lead to parallelism which in turn, introduces the *co-ordinate* system. The later comes in the form of grids which consist of net like reticulations. Norbrg-Schulz said " the elementary organisational schemata consist in the establishment of centres or places (proximity), directions or bathes (continuity), and areas or domains (enclosures)", (Norberg-Schulz 1971, p.18).

2.4.3 *Space depth*

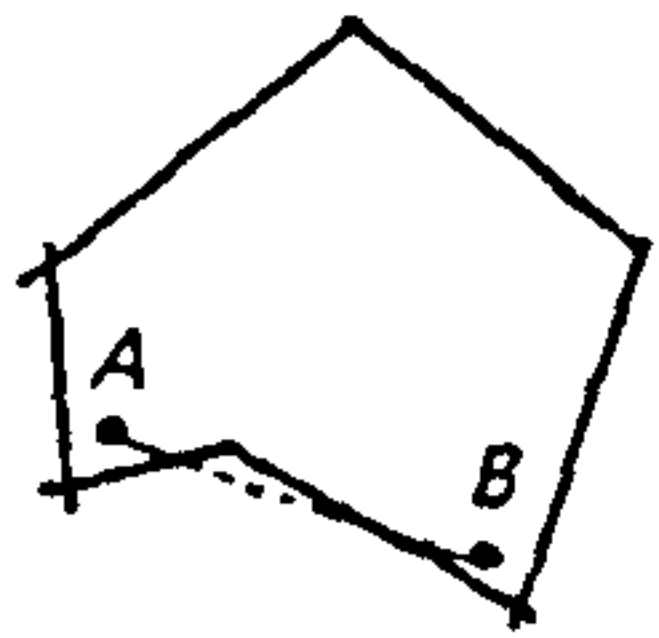
The architectural space defined by enclosure, container or field, or by levelling of a plain follows a certain organisation, described as nesting, stringing, or clustering. Different spatial organisation places the space in a different spatial depth.

Hillier and Hanson (1984), argue that the ordering of settlements and buildings, especially urban buildings, lies at the heart of what is wrong with the built environment today. They showed that there is a spatial logic of arrangement in the layout of settlements and buildings which they analysed and presented as a syntax space model. From the space syntax model and theory the concept of space depth is of a major importance to the subject of this thesis.

In the Hillier and Hanson analysis, the basic spatial element is the cell or convex space. *Convex space* is where "no line drawn between any points in the space goes outside the space", (p.98), (fig. 2.9). From the convex space one can build a '*gamma map*' "where every interior of a cell or subdivision of a cell can be conceptualised as a point and represented as a circle...the spaces outside the cell considered as a point and represented as a circle with a cross", (p.148), (fig 2.10). Each gamma map cell circle has *permeability* and *depth*. *Permeability* of the cell is the number of entrances to the cell and presented as a line. Cells can be unpermeable when they have one entrance represented in one line to the cell circle, or bipermeable when they have more than one entrance represented in more than one line to the cell circle. The gamma map circles represent spaces that "can be deep from other spaces if it is necessary to pass through intervening spaces to arrive to them". Hillier and Hanson used gamma maps to show the syntactic property of the space which "will either be distributed with respect to other spaces (have more than one way to it) or non distributed (only one way), and it will be either symmetric with respect to other spaces (having the same relation to them as they do to it) or asymmetric (not having the same relation, in the sense of one controlling the way to another with respect to a third", (p.108). To simplify the gamma map concept Hillier and Hanson identified four structures, (fig 2.10). The syntactic properties of the structures are : (b)

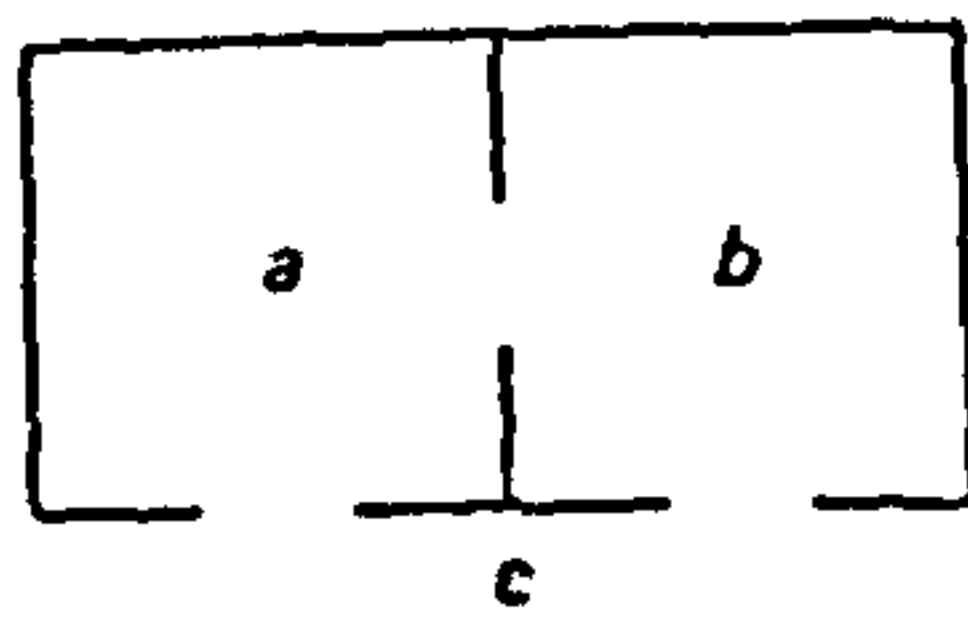
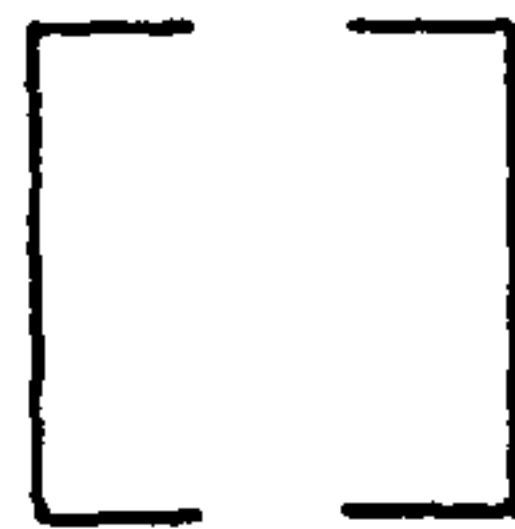
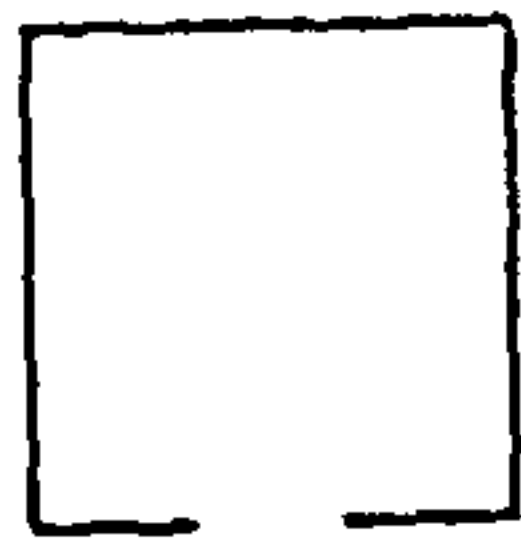


(a)

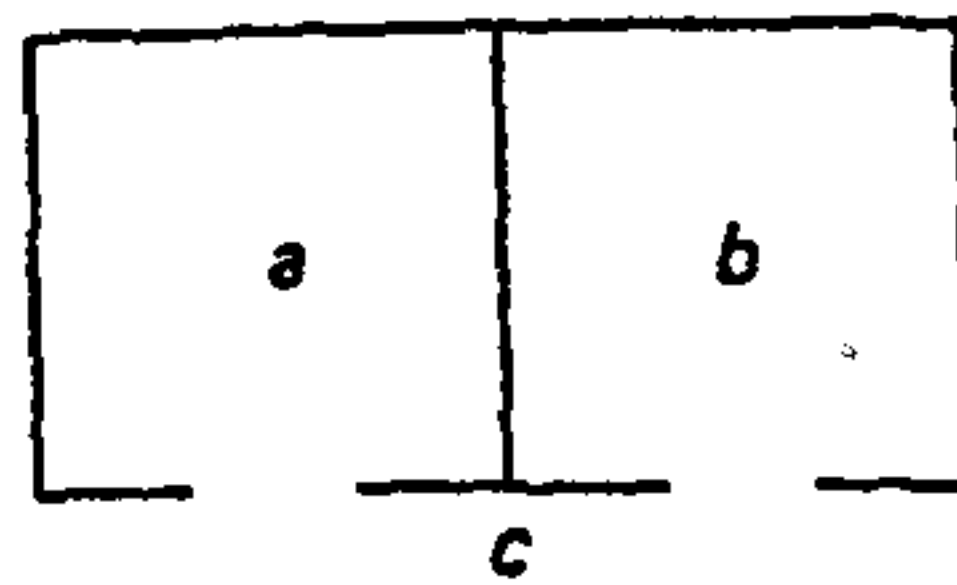
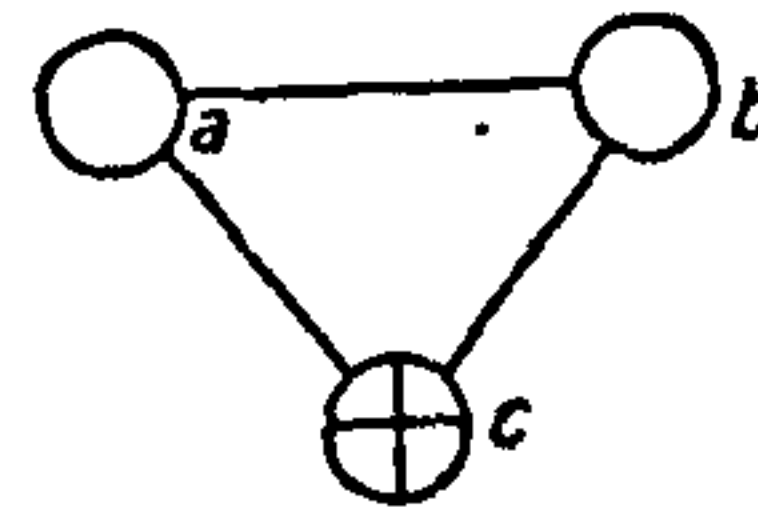


(b)

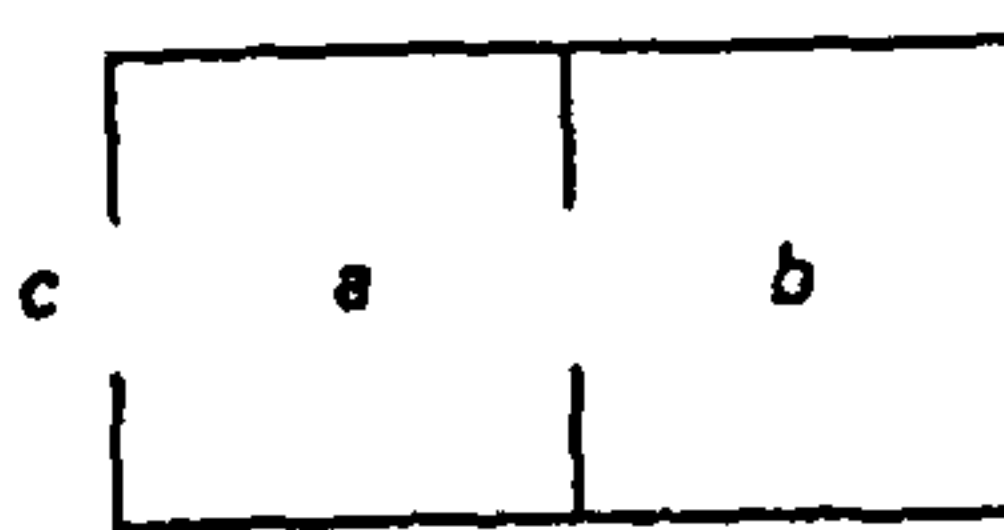
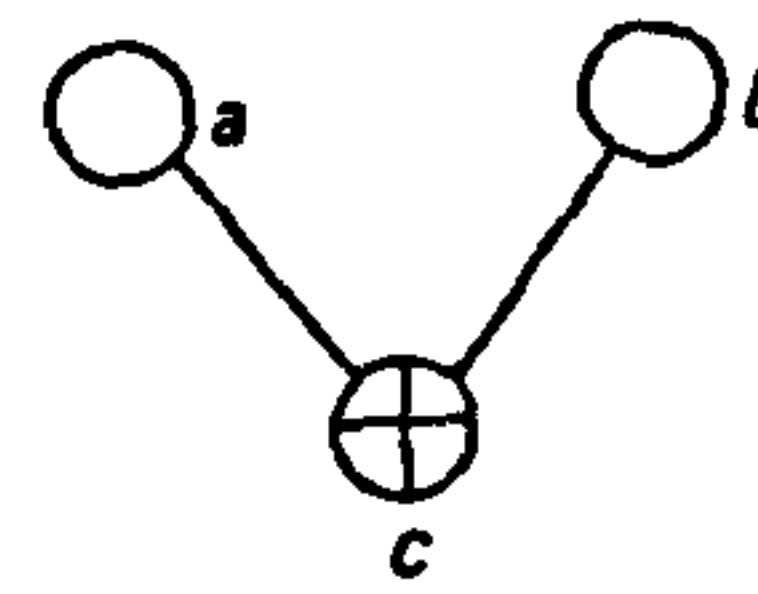
(a) Convex space:
no line drawn between any
two points in the space goes
outside the space.
(b) Concave space: a line
drawn from A to B goes
outside the space.



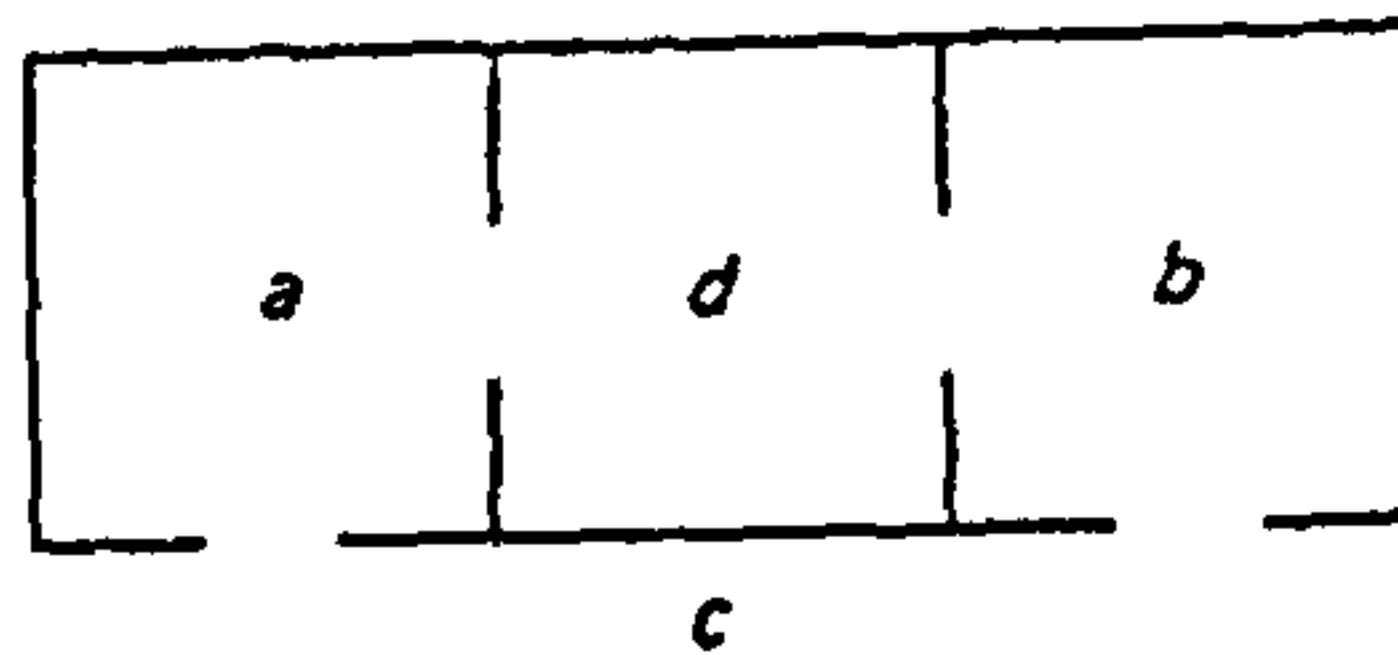
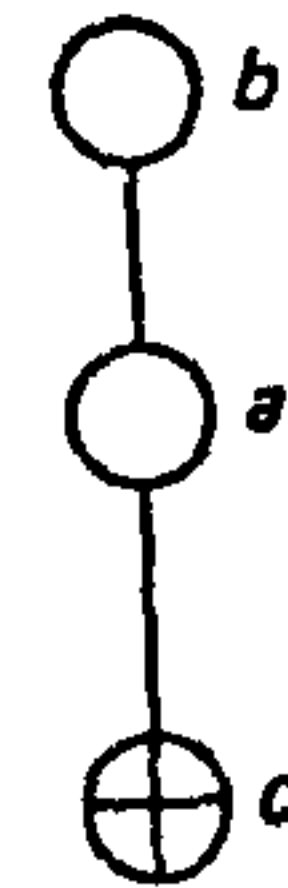
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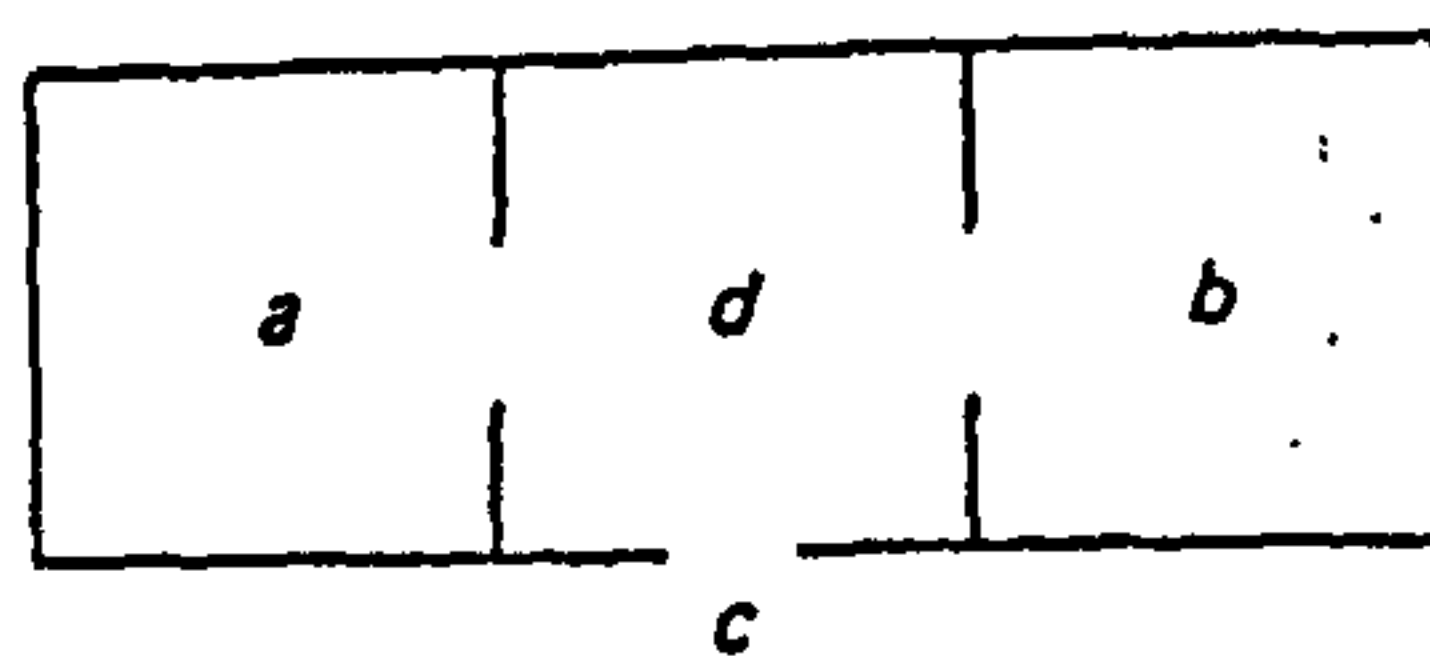
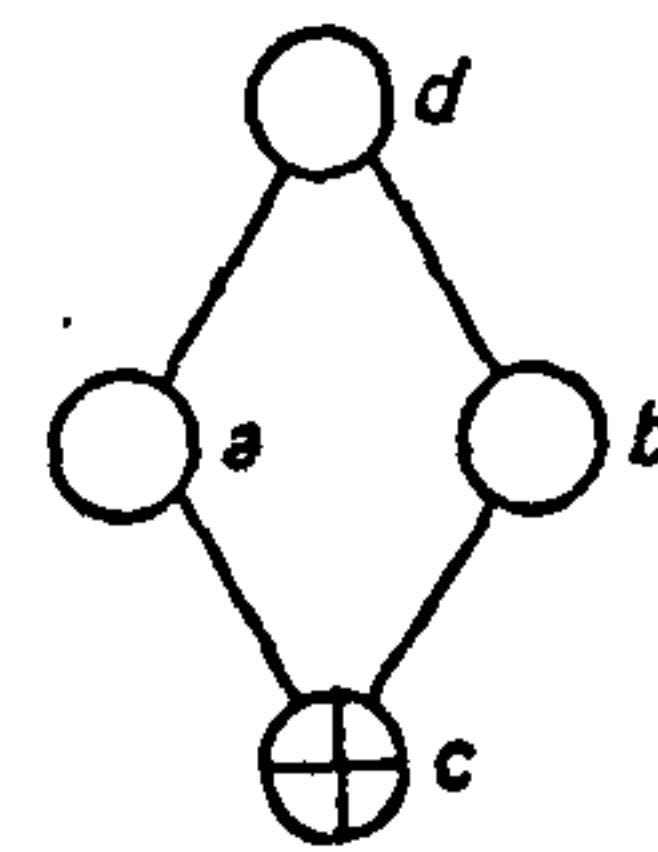
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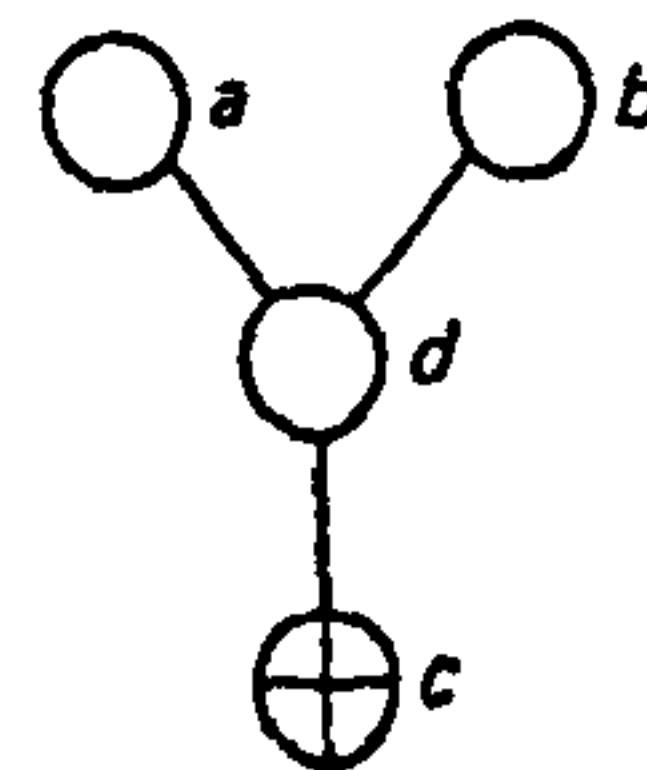


figure 2.9 Hillier's convex space and gamma map.
source: Hillier and Hanson (1985).

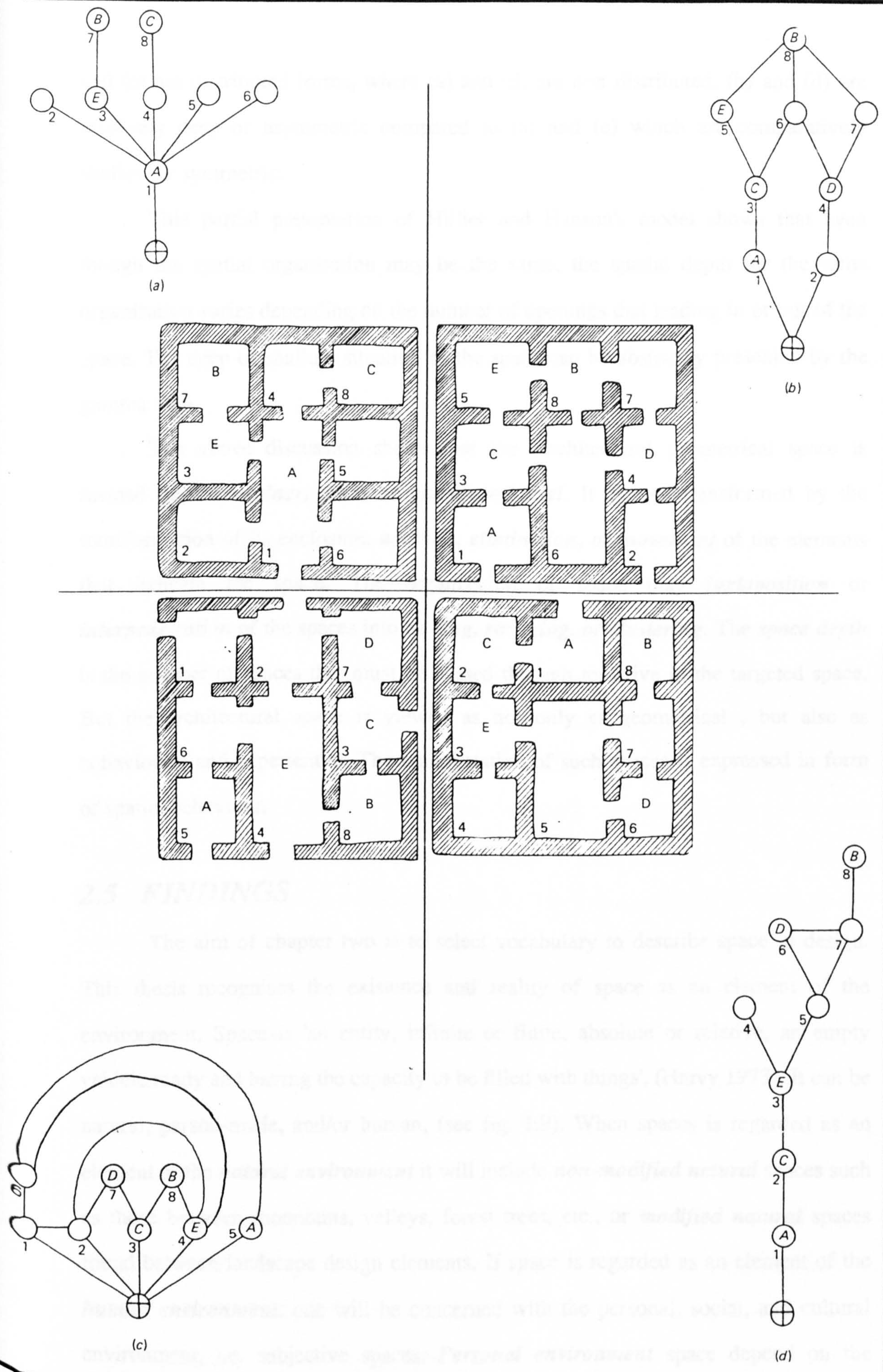


Figure 2.10 Four theoretical buildings and their justified permeability maps. source: Hillier and Hanson (1985).

and (c) are distributed forms, where (a) and (d) are non distributed. (b) and (d) are relatively deep or asymmetric compared to (a) and (c) which are comparatively shallow or symmetric.

This partial presentation of Hillier and Hanson's model shows that even though the spatial organisation may be the same, the spatial depth for the same organisation varies depending on the number of openings that leading in or out of the space. The deep or shallow situation of the space can be abstractly presented by the gamma map.

The above discussion shows that the Architectural geometrical space is formed by a *container, field, or change of level*. It can be transformed by the transformation of its enclosure, *addition, elimination, or movement* of the elements that indicate the space. The organisation of space may *juxtaposition* or *interpenetration* of the spaces into *nesting, stringing, or clustering*. The *space depth* is the number of spaces that must be passed through to arrive in the targeted space. But the architectural space is viewed as not only as geometrical , but also as behavioural and experiential. The manifestation of such spaces is expressed in form of spatial behaviour.

2.5 FINDINGS

The aim of chapter two is to select vocabulary to describe space in design. This thesis recognises the existence and reality of space as an element of the environment. Space is 'an entity, infinite or finite, absolute or relative, an empty vehicle ready and having the capacity to be filled with things', (Harvy 1973). It can be natural, person-made, and/or human, (see fig. 1.9). When spaces is regarded as an element of the *natural environment* it will include *non-modified natural* spaces such as those between mountains, valleys, forest trees, etc., or *modified natural* spaces found between landscape design elements. If space is regarded as an element of the *human environment*, one will be concerned with the personal, social, and cultural environment, i.e. subjective spaces. *Personal environment* space depend on the

individual's physiological and psychological capability, where space perception, cognition, meanings, and symbols contribute highly to the creation of such a subjective space. Social and cultural environment spaces occur when individuals of the same society or culture conceptualise the same space simultaneously. Driven by needs, human behaviour can be seen as the interaction between humans and the subjective or objective space. The human behaviour towards a space, physiologically or psychologically motivated, can be covert, when it is not visible, or overt, when it is manifested as spatial behaviour, such as spatial movement, orientation, personalization, privacy, or establishing territory. In these spaces humans respond to different needs varying from physiological to psychological.

The space relationship to person-made environment particularly the built environment is given more attention in this chapter. The relationship between space and the built environment architectural and urban design space is introduced through formation and transformation, organisation, and depth spatial concepts.

The single unit of the space is considered as Hillier and Hanson's *convex space* cell, where 'no line drawn between any points inside space goes outside the space', (Hillier 1984). The cell space can be identified architecturally by a space *container, a space field, or a change of level*. The space container is 'an enclosed continuum, contained by a continuous wall, a floor, and a ceiling. The space field is when the space is contained between separate objects such as columns. In the spatial field case the space 'is no longer conceived as something enclosed, as something completely surrounded by walls, but rather the inside is linked with the outside, (Jeodick 1985). The space resulting from change of levels is when the floor is raised to identify spaces with complete integration between them, as in the case of a platform.

The formal formation of architectural space, indicated by a container, a field, or a level, is subject to *transformations*. 'A space can be transformed by transformation of its enclosure; the *addition, elimination or movement* of the elements that indicate the space, (Habraken 1982). By manipulation of enclosures,

space can be added, eliminated, or moved in the site, (fig 2.11). 'When the transformation is the result of addition we speak of *growth*,' (fig 2.11,a). 'Where it is the result of elimination we may speak of *attrition*,' (fig 2.11,b). The growth and attrition of a space means the attrition, (fig 2.11,a') and growth, (fig 2.11,b') of another space. This dynamic interchange of spaces is clear in the case of growth such as the enlargement of a room size, and rare as in the case of attrition when a room is made smaller. An intermediate case is when the space and adjacent spaces experience growth and attrition simultaneously, (fig 2.11,ab). The transformation of a space also means *juxtaposition or interpenetration* of spaces. The architectural space indicated by a *container, field, or level*, can experience transformation, growth or attrition, inside or alongside, juxtaposition or interpenetration. If we organise more than two spaces in relation to each other, only one of the three cases can be achieved : *nesting, stringing, or clustering*, (fig 2.12).

Spatial depth refers to the number of spaces that must be passed through to arrive in the targeted space (Hillier 1984). The depth of a space is dependent on two factors : a) number of *openings* leading in or out the space, b) the number of *spaces* needed to pass through vertically or horizontally to reach the targeted space. The space depth is presented graphically using Hillier and Hanson's *gamma map*. In the gamma map every space - vertical or horizontal - is indicated as a circle with a cross in the case of outside, and every opening(s) is indicated by a line(s). *Spatial depth organisation* can be *nested, stringed, or clustered*, (fig 2.14). *Nested* spatial depth is when spaces are one space in different depths as in letter (I), *clustered* spatial depth is when spaces are with more than one space in each depth as in letter (V), while *stringed* depth exists when different spaces are in one depth as in the sign (--). In order not to confuse the concept of spatial organisation, nesting, stringing, and clustering with spatial depth organisation, the spatial depth will be referred to by the three *shapes* (I ,V, and --). It is important to emphasise that one spatial organisation does not mean a fixed spatial depth, except in the case of nested spatial organisation. In the case of stringing and clustering organisations the depth of the organised spaces

varies between (I), (V), and (--) shape depending not only on the spatial organisation, but also on the number of openings and levelling of each organisation space configurations.

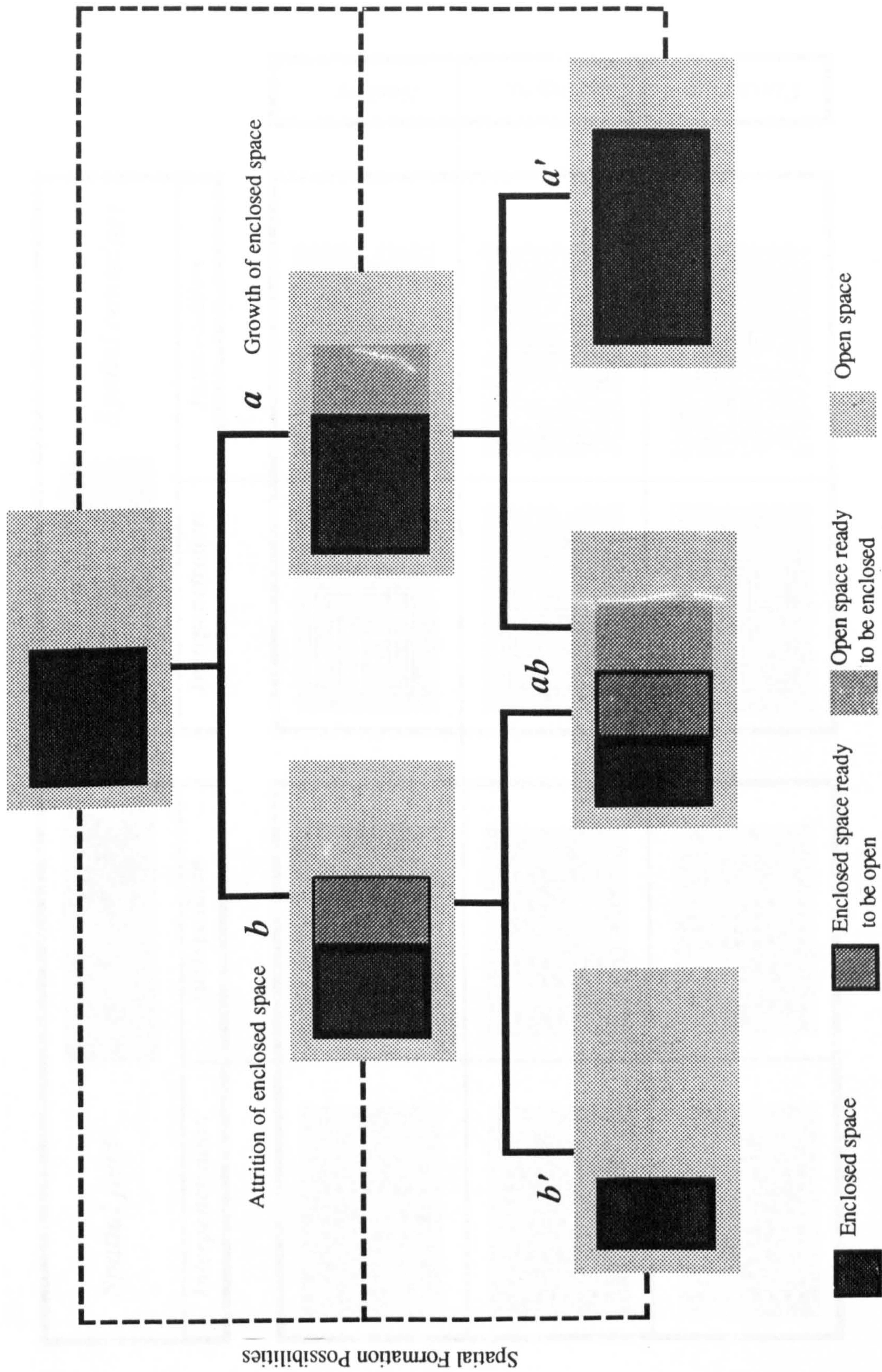


figure 2.11 Spatial formation: growth, attrition, and elimination.
source: author

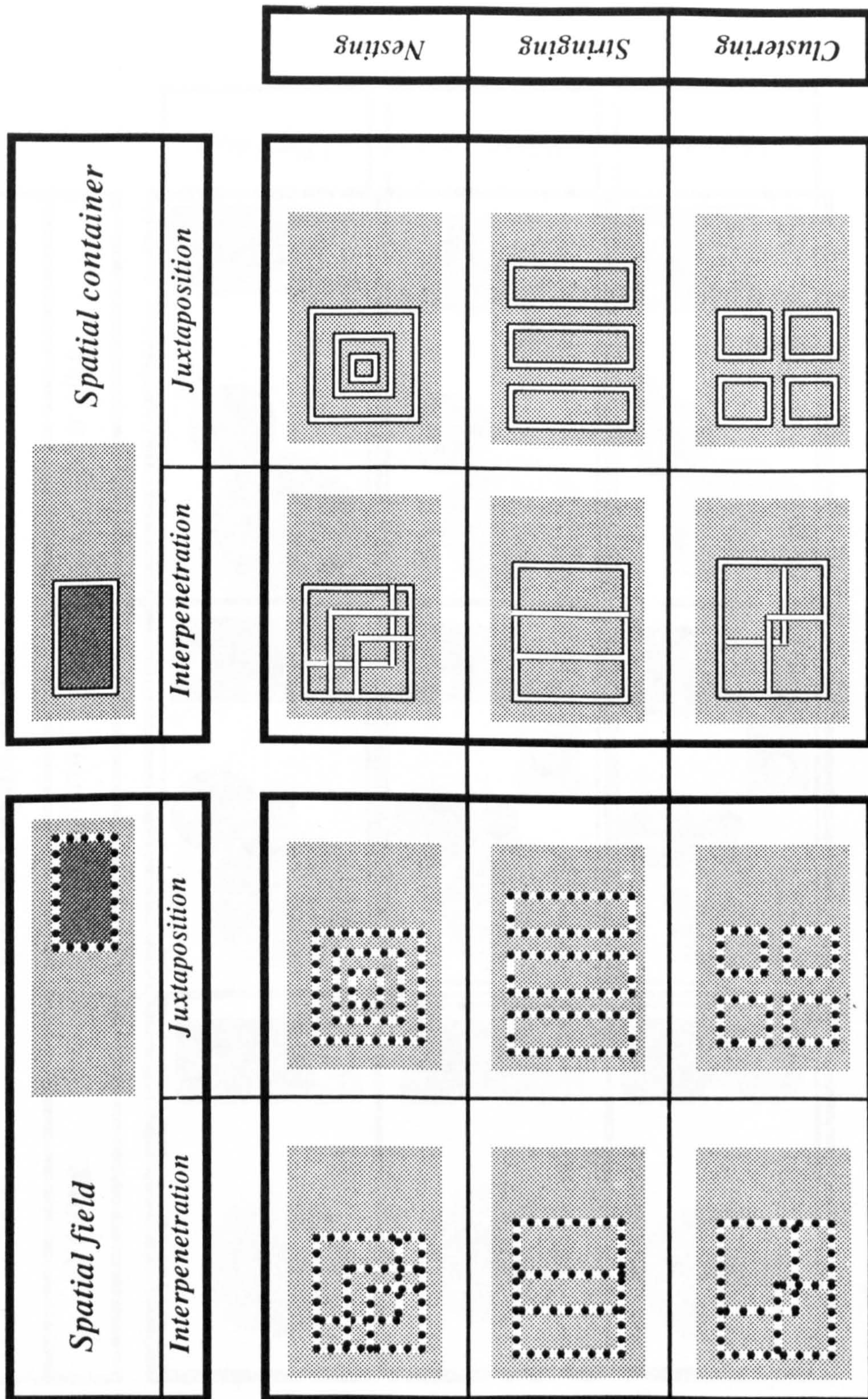


figure 2.12 Spatial formation and organisation: container and field; juxtaposition and interpenetration; nesting, stringing, and clustering. source: author.

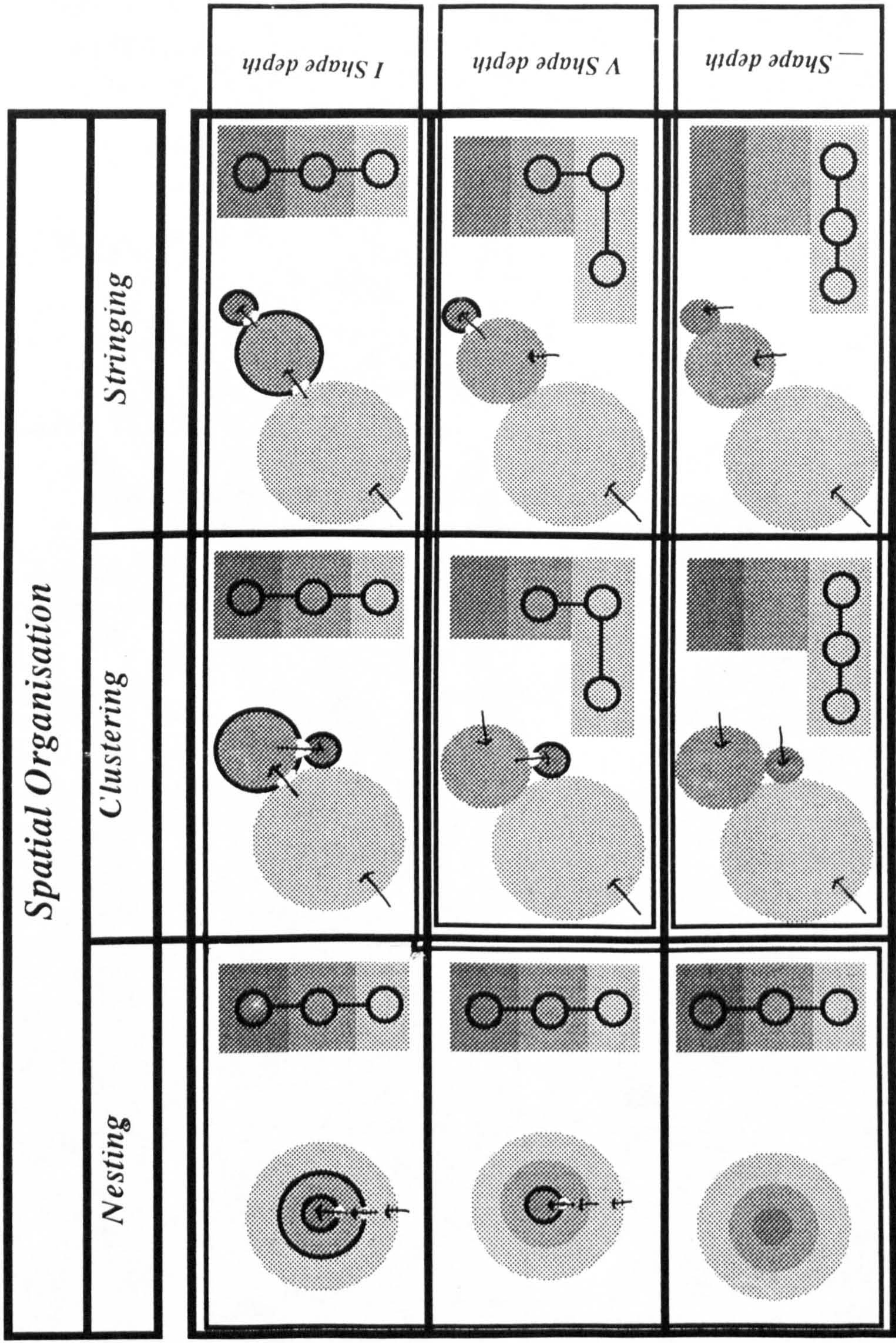


figure 2.14 Spatial depth and spatial organisation relationship.
source: author.

CHAPTER THREE

PROXIMICS THEORY: PRIVACY, PERSONAL SPACE, AND TERRITORIALITY

3.1 PRIVACY

3.2 PERSONAL SPACE

3.3 HUMAN TERRITORIALITY

3.3.1 Definition

3.3.2 Function and characteristics of human territoriality

3.3.3 Organisational models of human territorial behaviour

3.4 URBAN MAN TERRITORIALITY

3.5 FINDINGS

CHAPTER THREE

PROXEMICS THEORY; PRIVACY, PERSONAL SPACE, AND TERRITORIALITY.

The study of human spatial behaviour has its roots in a number of disciplines. The earliest work was based primarily in the studies of ethologists such as Calhoun (1962), Lorenz (1955), and Tinbergen (1952). These works have drawn the attention to territorial behaviour and distance regulation of animals and birds. Aiello (1987), mentioned that Hediger (1950), an ethologist, his works has greatly influenced human spatial behaviour studies. Particularly influential are his descriptions of a number of distances used by animals mainly flight distances, critical distance, personal distance, and social distances, (Aiello 1987). Human spatial behaviour researchers such as Hall and Sommer have been influenced by the early contributions of ethologists. Hall (1963) has extensively studied human spatial behaviour and coined the term *proxemics* to refer to "the study of how man unconsciously structures micro space- the distance between men in the conduct of daily transactions, the organisation of the space in his house and buildings, and ultimately, the layout of his towns". (Hall 1963, p.1003). He sees the *proxemics framework* as " the interrelated observations and theories of man's use of space as a specialised elaboration of culture (Hall 1966, p.1); and "the study of man's transactions as he perceives and uses intimate, personal, social and public space in various setting while following out-of- awareness dictates of cultural paradigms (Hall 1974, p.2). His comprehensive approach to human use of space emphasises how people make active use of and manipulate the physical environment in order to achieve preferred degrees of closeness and attain desired levels of involvement during interaction. To explain this a close look is given to proxemic theory's three manifestations: privacy, personal space, and human territoriality

3.1 PRIVACY

Privacy has been defined in many ways. Rapoport (1977) sees *privacy* as "the ability to control interaction, to have options, devices, and mechanisms to prevent unwanted interaction and to achieve desired interaction". Ittilson defines *privacy* as a means of "obtaining freedom of choice or options to achieve goals in order to control what, and to whom, information is communicated about oneself", (Ittilson.et.all,1970). Altman (1980), considered privacy as a concept operating as a central construct of the behavioural mechanism around which makes other processes of spatial behaviour such as personal space and territory possible. Therefore, he defines *privacy* as "selective control of access to self or to one's group", (Altman 1980, p.75). He emphasises the openness, control, choice, and dynamic aspects of privacy as a dialectic boundary control process and not a one way excluding process, and introduced a model of the relationship between privacy, personal space, and territory, fig(3.1). *Privacy regulation*, according to Altman, involves a coherent unity of environmental mechanism, verbal behaviour, non verbal behaviour, environmentally oriented behaviour, and cultural practice. Depending on the situation, these mechanisms are used separately or in congress, and change over time.

There are several kinds of privacy. Westin (1970) distinguishes between four types : solitude, intimacy, anonymity, and reserve. The *solitude* type for privacy is the state of being free from observation by others; *intimacy* signifies being with another person or a small group, but separated from the outside world; *anonymity* is the state of being unknown even in a crowd; while *reserve* type exists when one employs psychological barriers to control unwanted intrusion.

The *function of privacy*, as seen by Westin (1981), is to protect the need for personal autonomy, to provide emotional release, and to offer limited and protected communication, (Hester, 1984). Proshansky (1970) stresses the *function* of increasing freedom of choice and options which enable the individual or group to have control over their activities, while Altman sees *privacy function* as "a social system" and

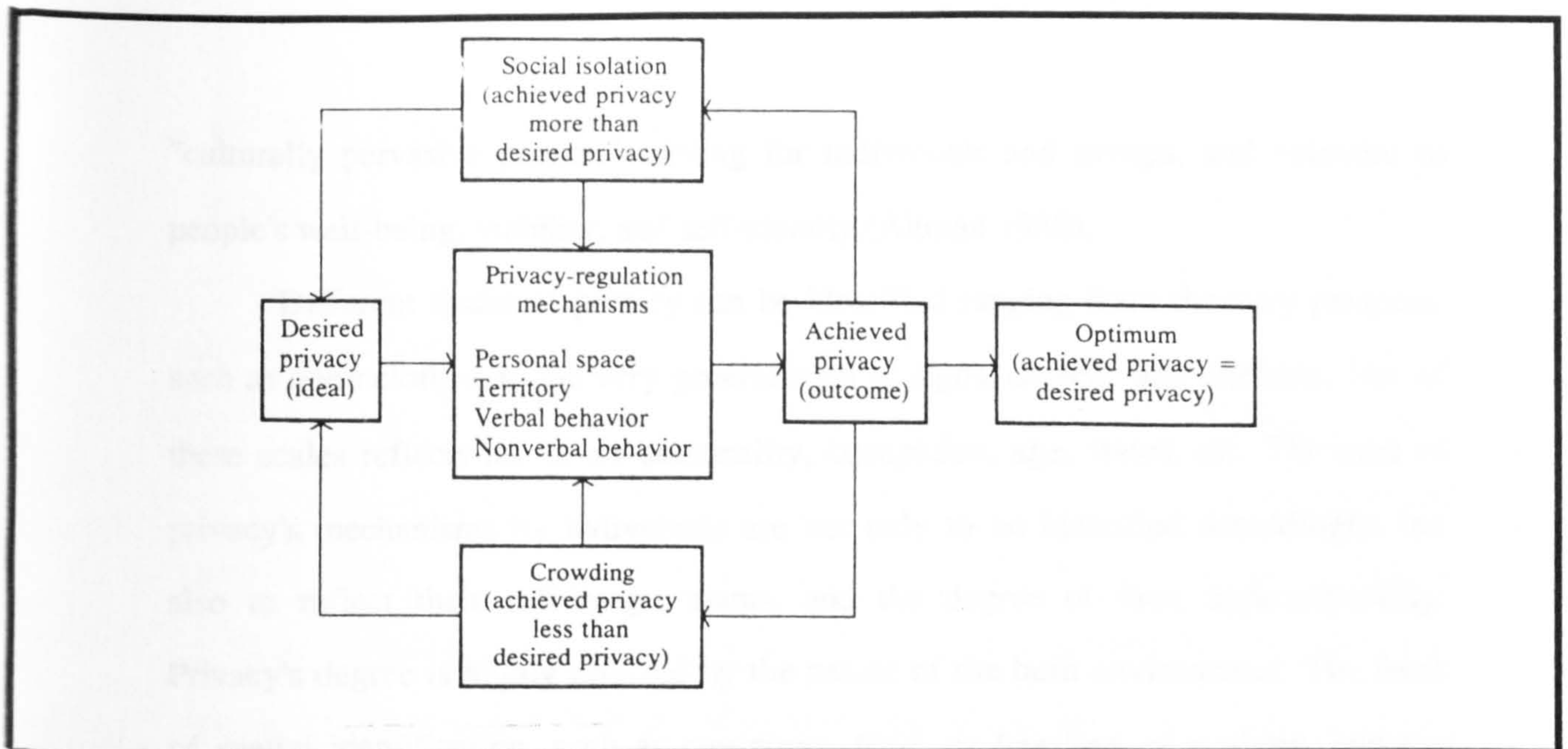


figure 3.1 Altman's overview of relations among privacy, personal space, territory, and crowding.

source: Altman (1986)

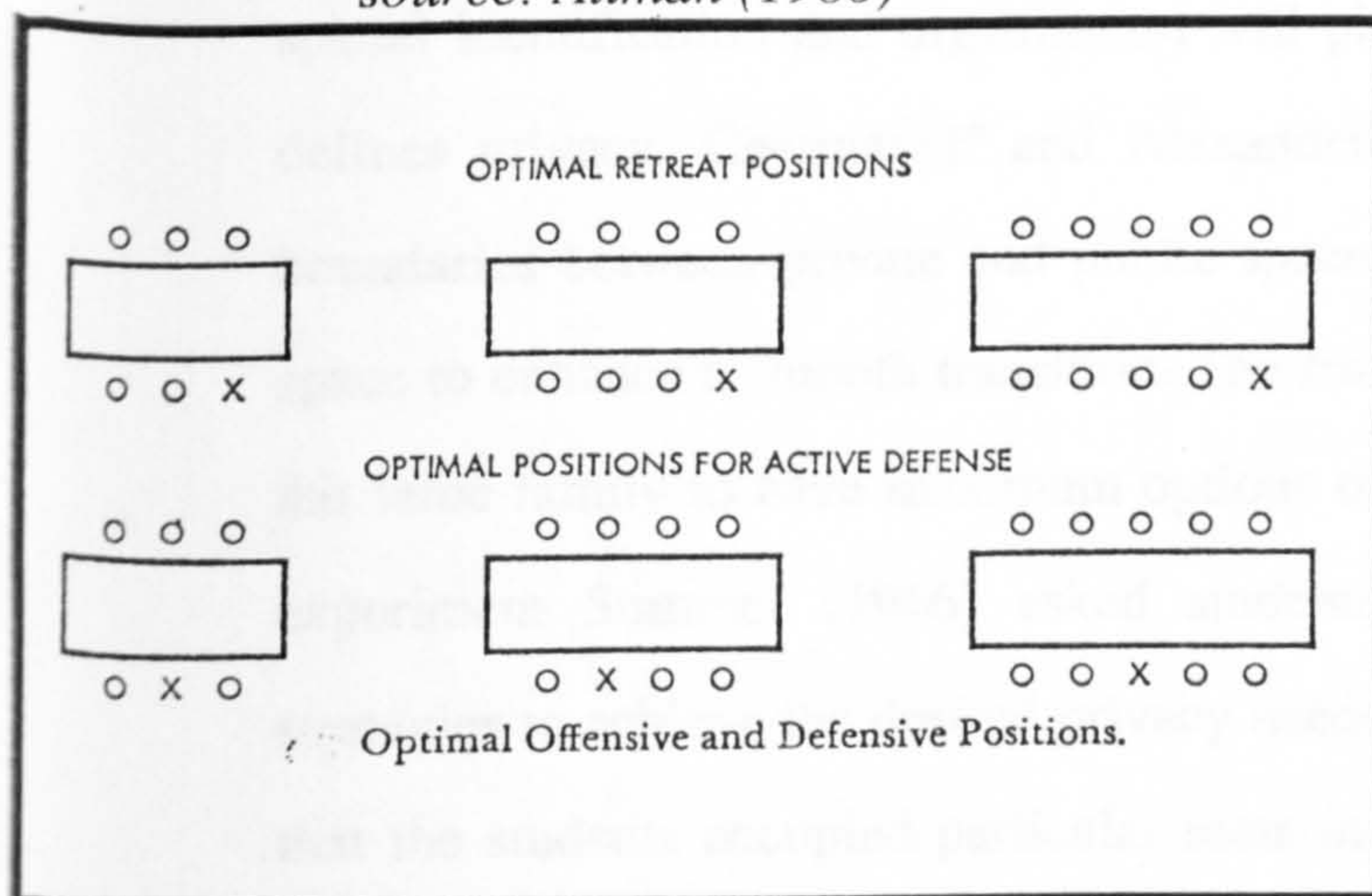


figure 3.2 Sommer's experiment on optimum offensive and defensive positions in student setting.

source: Sommer (1966)

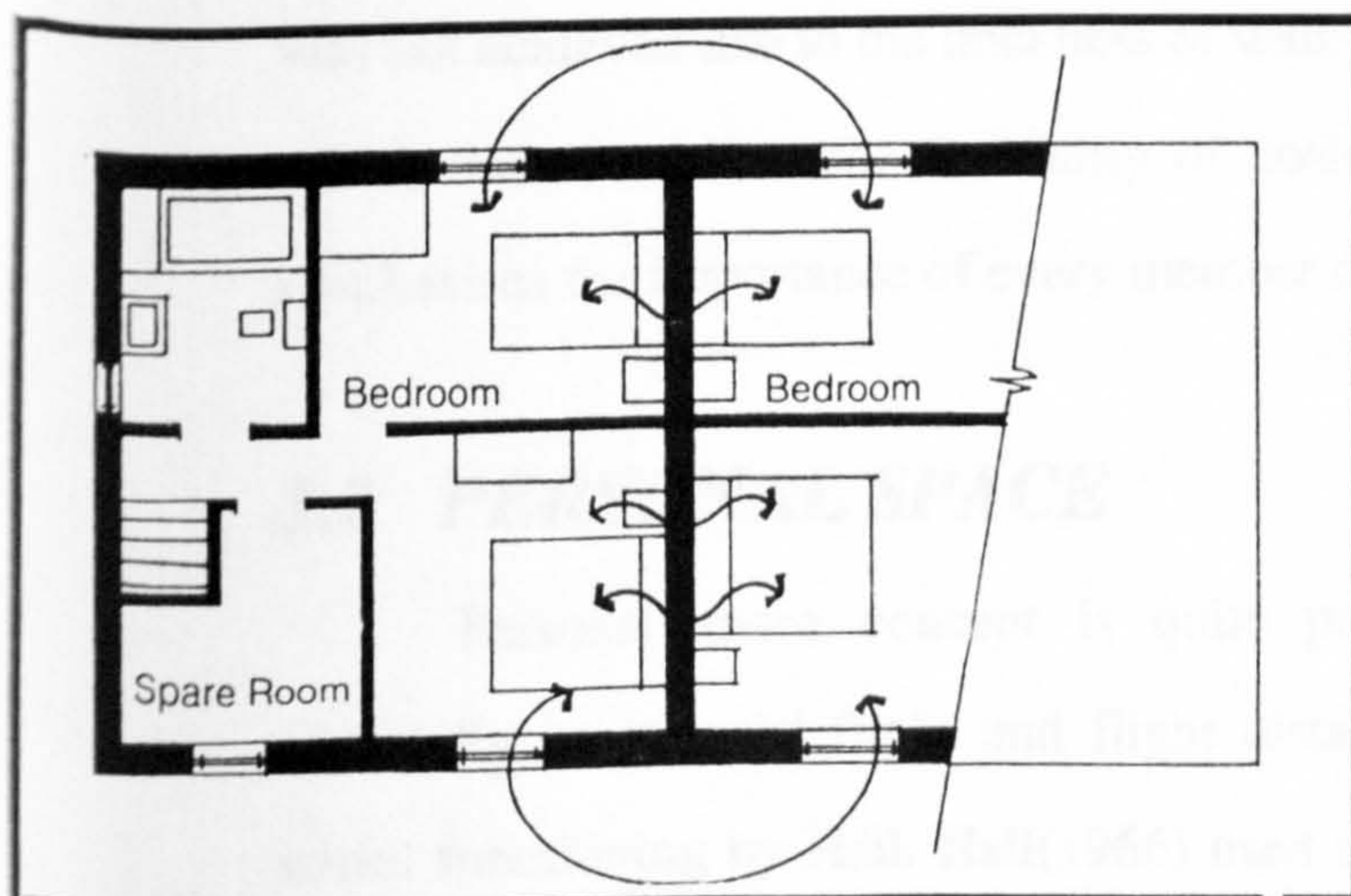


figure 3.3 The infringement of privacy requirements.

source: Lang (1987)

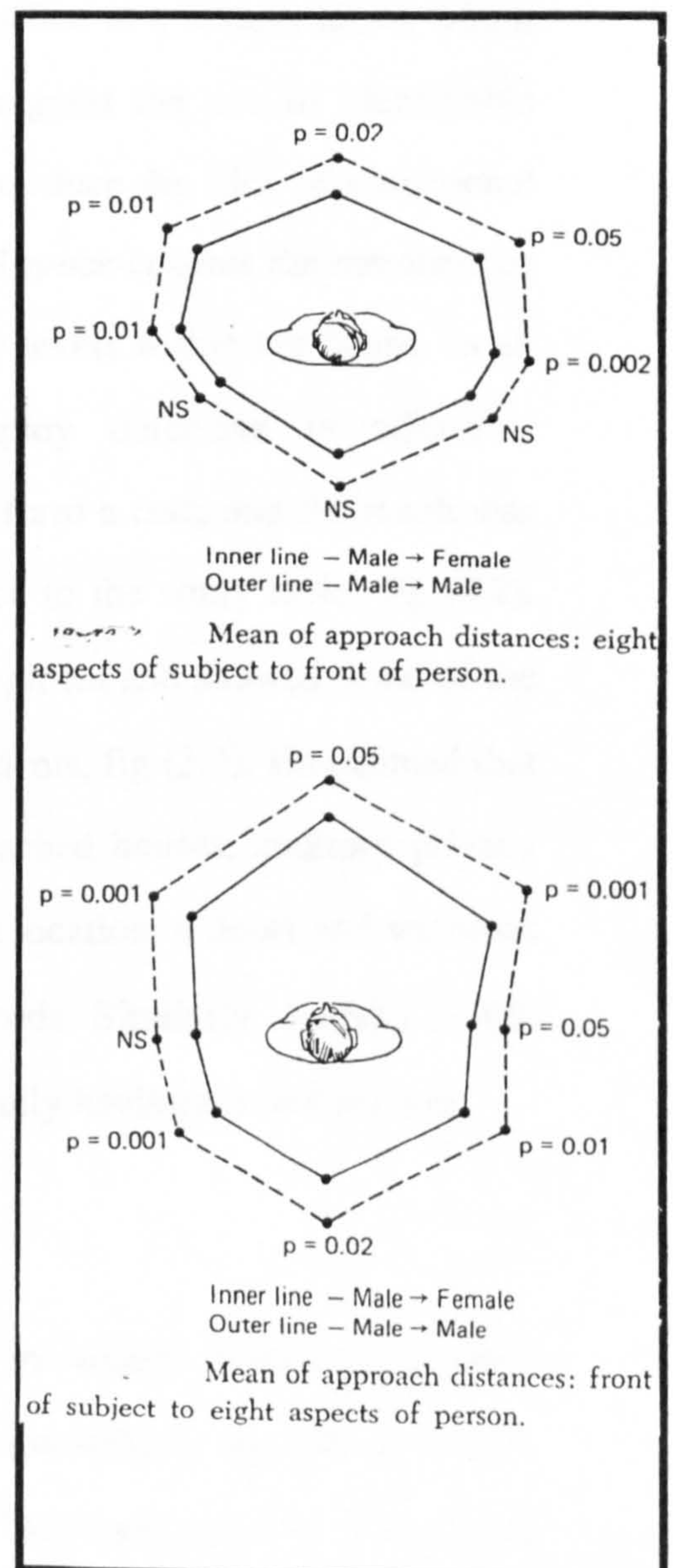


figure 3.4 Rating of personal space distance.

source: Horowitz et.al (1967)

"culturally pervasive process" serving for individuals and groups, and essential to people's well-being, viability, and self-identity,(Altman 1980).

Different *scales* of privacy can be identified ranging from the very personal, such as one's clothes, to the very general such as signs, objects, and artefacts. Use of these scales reflects the user's personality, occupation, age, status, etc. The uses of privacy's mechanisms by individuals are not only to be identified accordingly, but also to reflect their self-image, status, and the degree of their approachability. Privacy's degree is highly affected by the nature of the built environment. The form of spatial identification, such as *container, field, or levelling of a plane*, and the spatial organisation, such as *nesting, stringing, or clustering* are significant because spatial identification and organisation will place the space at a certain *depth* which defines privacy. Chermayeff and Alexander(1963) suggest the use of identifiable boundaries between private and public spaces and introduce the idea of transitional space to enhance a smooth transition. The *transitional space* enables the members of the same family to have maximum options of privacy levels within the house. In an experiment Sommer (1966) asked students to employ 'defensive' or offensive' strategies to achieve the desired privacy needed to perform a task; and the result was that the students occupied particular seats in reference to the study table, fig (3.2). Leo Kuper (1953) analysed an English housing development and showed some of the difficulties in attaining the desired privacy among residents, fig (3.3). He claimed that while visual privacy was attained within the semidetached houses, auditory privacy was not achieved due to the thickness of walls, and the location of doors and windows which does not allow the flexibility of position of beds. Similarly, Jourard (1966) emphasises the importance of every member of the family having his or her room.

3.2 PERSONAL SPACE

Personal space concept is quite prevalent in animal behaviour studies, especially in animals' flight and flight distance. It was initially applied to human social functioning by Hall. Hall(1966) used the term '*personal space*' to refer to the

invisible bubble around the individual's body into which others, unless permitted, may not come; and if violated, a feeling of discomfort and anxiety results,(Sommer, 1969). Sommer defines *personal space* as "an area with an invisible boundary surrounding the person's body into which intruders may not come", (p.26). Goffman (1971) sees the *personal space* as " the space surrounding an individual which if encroached upon may lead him to show displeasure and sometimes to withdraw" (Altman 1977). Altman asserts that in any definition of personal space the concept is invisible boundary, attached to the individual, carried with him, and that a sense of discomfort, anxiety, and stress is felt when this space is violated.

Elsharkawy (1979) gave an overall review of the function of personal space and mentioned that its maintenance is necessary for the feeling of self-identity and one's physical health. It maintains an optimum level of interaction between individuals, and it regulates interpersonal interaction for the purpose of achieving a desired level of privacy,(Elsharkawy 1979).

Personal space studies are mostly conducted by simulated laboratory techniques. Horowitz's (1970) experiments show that personal space zone is larger toward the front of the individual, somewhat reduced behind, and even smaller to the sides. It also varied depending on the sex of the approaching and the approached person, for instance the personal space zone is smaller in the case of male approaching female than in the case of male approaching male, fig (3.4).

Hall (1966) emphasises that distance itself is not important, rather the existence of the concept of personal space communication cues at various distances. Hall's contribution to the personal space concept is the introduction of a useful framework with which to analyse the individuals' spatial zones in different cultural and social settings. He referred to this as "the science of proxemics". Hall noticed a different personal space among students from different cultures such as North Americans, Latin Americans, Japanese, German, and Arabs. For middle class white North Americans he proposed the existence of four spatial zones of interaction : the *intimate zone* (0-8 inches) which is usually adopted by people in close personal

relationships, typically in private situations; the *personal zone* (1.5-4 feet) is the normal spacing that people maintain in day to day interaction; the *social zone* (4-12 feet) is commonly used in public and is the distance of ordinary business and impersonal contacts between people; and the *public zone* (12-25 feet and beyond) is the distance usually reserved for high-status people and/or public and formal settings, (Altman 1980, Hester 1984). Altman asserts Hall's conclusions and indicates that research data comparing spacing of ethnic groups in North America are complex and do not allow a clear interpretation of the role of cultural factors in personal spacing, but variables such as age, sex, and socio-economic status are seen to be more important than ethnicity.

3.3 THE HUMAN TERRITORY:

Territory is a term borrowed from ethology referring in general to the act of defining an area against other specified members of the same or other species. Ethologists, such as Howard 1920, and Nice 1941 were the first to record territorial animal behaviour. The human territory concept is present in our daily life and language. A child quickly learns the word 'mine', members of neighbourhood gangs refer to the street as their 'turf', home owners put signs, fences, and shrubs around their yards, tennis courts have signs saying 'members only, outsiders not permitted', a nation carefully demarcates its boundaries, and a student places his books or jacket on a table in the library or cafeteria to save a seat, (Altman 1980). Hall (1959,1966), and Dubos (1965) were among the first in introducing the concept of human territory. Hall placed human territory in a prominent place among other primary message systems of human communication, while Dubos drew attention to the biological nature of man's demands for territory and claimed that territory expression is culturally conditioned, (Altman 1980).

3.3.1 Territory definitions

Brown (1987) gave a comprehensive review of human territory and divides territory definitions into two sections: definitions that emphasise *occupation and defence*, and definitions that emphasise *organisational attachment* function, (table 3.1). She based the grouping of the first section upon the characteristics of biological approach, directing attention to demarcation, control, and defence of space. The second section of definitions are concerned with the organisational benefits of territoriality, (Brown 1987). Altman (1977,1980) noticed that the various territory definitions suggest some common properties of territoriality :*ownership* or control over access to places; *variation* in scale from small to large; service for various functions including social and biological needs; *time duration*; *personalization* or marking; and possible *defence* against intrusion by outsiders.

3.3.2 Function and characteristics of human territory

Human territory theories confirm that territoriality provides the human individual, as well as groups, with the function of *identity, stimulation, security, and frame of orientation*, (Porteous 1975, Elsharkawy 1979, Altman 1980, Brown1987, Lang 1987). For El-Sharkawy *identity* is the need to know who one is and what role one plays in society. *Stimulation* refers to issues concerned with self fulfilment and self actualisation. *Security* function of territory is being free from censure, to be free from outside attack, and to have self confidence. *Frame of reference* emphasises the involvement of maintenance of one's relationship with others and the surrounding environment, (Elsharkawy 1979, Lang 1987). Altman identified the function of human territory as including self/others boundary regulation, personal identity management, and regulation of social systems, (Altman 1987). Altman believes that successful territorial regulation should serve these functions for the reasons that : a) it clarifies social interactions by defining who gets access to what and at what time. By defining the temporal and spatial boundaries of ownership, conflicts over ownership or use of areas may be avoided; b) it serves as psychologically centred function by

Definitions of Territoriality

Definitions that Emphasize Occupation and Defense

- Altman & Haythorn (1967), Altman, Taylor, and Wheeler (1971), and Sundstrom and Altman (1974): "Territoriality involves the mutually exclusive use of areas and objects by persons and groups" (Altman, 1975, p. 106).
- Ardrey (1966): "A territory is an area of space—water, earth, or air—that an animal or group defends as an exclusive preserve primarily against members of their own species" (p. 3).
- Eibl-Eibesfeldt (1970): "I propose that any space-associated intolerance be called territoriality, where a 'territory owner' is that animal before which another conspecific must retreat" (p. 309).
- Davies (1978): "Whenever individual animals or groups are spaced out more than would be expected from a random occupation of suitable habitats" (p. 317).
- Dyson-Hudson & Smith (1978): "We define a territory as an area occupied more or less exclusively by an individual or group by means of repulsion through overt defense or some form of communication" (p. 22).
- Goffman (1963): "Territories are areas controlled on the basis of ownership and exclusiveness of use."
- Hall (1959): "The act of laying claim to and defending a territory is called territoriality" (p. 146).
- Sommer (1969), Sommer & Becker (1969), Becker (1973), and Becker and Mayo (1971): "Territories are geographical areas that are personalized or marked in some way and that are defended from encroachment."
- Van den Berghe (1974): "*Territoriality* means the defense of a relatively fixed space against occupation and/or use by conspecifics."

Definitions that Emphasize Organizational or Attachment Functions

- Altman (1975): "Territorial behavior is a self-other boundary regulation mechanism that involves personalization of or marking of a place or object and communication that it is 'owned' by a person or group. Personalization and ownership are designed to regulate social interaction and to help satisfy various social and physical motives. Defense responses may sometimes occur when territorial boundaries are violated" (p. 107).
- Austin & Bates (1974): "Possession of valued objects and of space" (p. 448).
- Bakker & Bakker-Rabdau (1973): "Territoriality . . . will indicate *the inclination toward ownership*. . . . Territory will refer to the object of ownership, be it a stretch of land, a particular object, an idea, or anything else that holds an individual's fancy to such a degree that he seeks to own it" (p. 3).
- Brower (1980): "The relationship between an individual or group and a particular setting, that is characterized by a feeling of possessiveness, and by attempts to control the appearance and use of the space" (p. 180).
- Edney (1976): "Territoriality in humans is largely a passive affair. . . defined by the criterion of continuous association of person or persons with specific place. . . . (It) is an important organizer in human life and behavior" (p. 33).
- Malmberg (1980): "Human behavioural territoriality is primarily a phenomenon of ethological ecology with an instinctive nucleus, manifested as more or less exclusive spaces, to which individuals or groups of human beings are bound emotionally and which, for the possible avoidance of others, are distinguished by means of limits, marks, or other kinds of structuring with adherent display, movements, or aggressiveness (pp. 10-11).
- Pastalan (1970): "A territory is a delimited space that a person or group uses and defends as an exclusive preserve. It involves psychological identification with a place, symbolized by attitudes of possessiveness and arrangements of objects in the area."
- Sack (1983): "By human territoriality I mean the attempt to affect, influence, or control actions and interactions (of people, things, and relationships) by asserting and attempting to enforce control over a geographic area" (p. 55).

Table 3.1 *The definitions of territoriality*
source: Brown 1987

contributing to development and maintenance of sense of identity and uniqueness for the person or group. The availability of individual members of a social system may be enhanced by effective territorial control, (Altman et. all 1971, Sandstom & Altman 1974, Vinsel, Brown, Altman, and Foss 1980, Altman 1980).

Brown (1987) identified the characteristics of human territoriality as *occupancy duration, centrality, marking and markers, and intrusion*. Occupancy duration is the amount of time spent in a certain territory such as long periods, short periods, permanent or temporal. The longer the time spent in a certain territory the stronger the association with, the belonging to, or the feeling of owning or possessing it. Occupancy duration also contributes to making the territory 'central' to its users. The longer the object or a space is used the more psychological centrality it gains. Elsharkawy (1979) assessed that territoriality is characterised by : *ownership or possession, personalization, defence, and time duration*. He emphasises that *ownership or possession* is not always permanent, and can be gained through the strong association with, the belonging to, or the length of usage of an object or a place. *Personalization* can be physical or symbolic, varying from a simple nameplate to sophisticated stylistic fence and gates so that others can easily recognise territory as belonging to a specific owner. It is an expression of possession and status and it is a mean of defence. *Defence* of a territory can be physical, verbal, and/or symbolic and correlated with ownership and personalization. *Time duration* or the time spent in a place affects the degree of possession, defence and personalization by either heightening or weakening it, (Elsharkawy 1979).

3.3.3 Organising models of human territorial behaviour

Stea (1965) has presented a model identifying four components of territorial behaviour (fig.3.5). *Personal space* is the bubble surrounding the individual. The *territorial unit* refers to spaces needed by the individual to carry out an activity. The *territorial cluster* includes the people's personal spaces and the territorial units visited

by individuals; and the *territorial complex* which is a loose aggregation of clusters (Stea 1976, Porteous 1977).

Lyman & Scott (1967) also suggested a model of four components, (fig 3.6). *Body territory* refers to the private inviolate bubble of space around the individual's body. *Interactional territories* are the spaces that 'permit social gathering on a formal basis with rules of entry and exit and clear marked boundaries. *Home territory* refers to the public areas which are taken over by groups or individuals such as a park bench or a gang turf. The *public territories* refers to the spaces that provide freedom of access but not freedom of action, (Porteous 1977).

Roos (1968) territorial model has four components, (fig 3.7). *Range territory* is the total area traversed by the animal; *territory* is the area defended, *core area* is the area preponderantly occupied, while *home* is the area slept in, (Porteous 1977).

Altman (1975) distinguishes three major types of territorial spaces. *Primary territories* are the spaces 'owned and used exclusively by individuals or groups, clearly identified as theirs by others, and controlled on a relatively permanent basis and central to the day to day lives of the occupants, (Altman 1975). *Secondary territories* are less exclusive, less psychologically central, and less under the control of their occupants than primary territories, (Altman 1980). *Public territories* are the spaces which 'almost any one has the right to use.... on a temporary short-term basis as long as he or she observe certain minimal social rules such as parks, public benches, seats on a bus or train, restaurant tables, and seats in a theatre, (Altman 1980).

Porteous (1977) introduced a territorial model of three spatial levels, nesting one within another, (fig 3.9). *Microspace* is 'space necessary for the organism to exist free of physical or psychic pain'. The minimum microspace is the personal space which may have a collective manifestation such as when a small group occupying a restricted space collectively and actively discourage the invasion of intruders. The *mesospace* refers to 'large areas usually semi-permanent which are actively defended by their occupants. He explained this space by saying " Mesospace unit may be static,

but can be moved. They may be individual or related to small primary group (nest, house, and yard) or collective (the neighbourhood). In either case the area operates as the home base for the individual or group, the area in which much time is spent in feeding, grooming, resting, reproducing, and sleeping behaviour", (Porteous 1977p.29). The *macrospace* refers to the home range which is the total area traversed. He sees this space as not a discrete unit of space completely occupied and defended by individual or group, but rather as an undefended public area within which various individuals wander and desegregate according to need. The individual's occupancy of the area is restricted to a series of paths and nodes. Porteous criticised Altman's model and said:

Although this is a useful distinction, the definitions of secondary territories, neither public nor private but having qualities of both, is somewhat difficult. In reality there is continuum, with several subtle levels of gradation, between exclusively private territories and public spaces wholly open to everyone. Moreover, Altman excluded the individual's body-space from his definition of human territoriality., (Porteous 1975, p.26)

Rapoport (1979) introduced a model composed of five elements, (fig 3.9). *Home range* refers to "a set of settings or locales and their linking paths", where every individual or group has a typical shape and extent of home range depending on their culture, age sex, and class. *The core area(s)* are "those areas within the home range which are the most commonly inhabited and used -possibly daily- and best known". An example of this category are the areas around the dwelling, local shops, and employment or regular recreation. Similar to home range, core areas also vary with culture, sex and age and change over time. *Territory* is "a particular areas which owned and defended -with either physically or through rules and symbols which identify an area as belonging to an individual or group, and one important way in which people territorialise is through personalization". *Jurisdiction* defined as "ownership or control of territory for a limited time and by some agreed-upon rules. An example is passing over a turf when a supermarket is open. The *personal distance* or personal

space is "the spacing among individuals in face-to-face interaction, the bubble of space surrounding individuals which has been studied", (Rapoport 1981, p.278).

El-Sharkawy (1979) gave an overall evaluation to the previous models in order to introduce a new organisation model of human territorial behaviour. He mentioned that all the models, except Altman's, explicitly includes personal space in the hierarchy of territorial behaviour levels. He agrees with Porteous's criticism of Altman's model, and noted that Porteous's model itself has overlooked some of the basis of territorial components. He said

" Unlike Altman's model with its social orientation, Porteous model emphasizing the 'spatial temporal' frame of reference of territorial behaviour. Accordingly, his classification can be utilized in studying any of the spatial behaviour concepts. Though not explicit, his basis of distinction between categories are only duration of occupancy and defence. Like Altman, he overlooks the other basis. He expands the understanding of personal space by including other spaces beyond the portable bubble in the category of 'microspace'. His 'mesospace' category still encompasses large range of spaces, therefore, it faces the same problem Altman's secondary territories face" (Elsharkawy 1979, p.127).

For Rapoport's model, Elsharkawy believes that Rapoport classification does not rely on territorial characteristics except for the third category 'territory' and that the distinction is based on ownership, defence, and personalization. He noted Rapoport's models for its separation of 'jurisdiction' territory and its treatment as a category by itself as a help for clarifying the confusion always associated by including it with in the category of public territories. Elsharkawy, then, introduces new organising model of human territorial behaviour with four components, (fig 3.10). *Attached territory* refers to the space which is attached to the body or personal space. *Central territories* are places which can be labelled private, essential, and central for man's existence. an example of these territories are home, students rooms, and work space. *Supporting territories* refers to places which are not very central but often used by individuals or group for different activities and proposes. These spaces includes two categories on the basis of the privacy level they provide: semi-private and semi public. The semi private category are the spaces which are relatively owned by either association and/or frequent use where its users develop a sense of possession such as in the case of a residents lounge in a dormitory or swimming pool for an

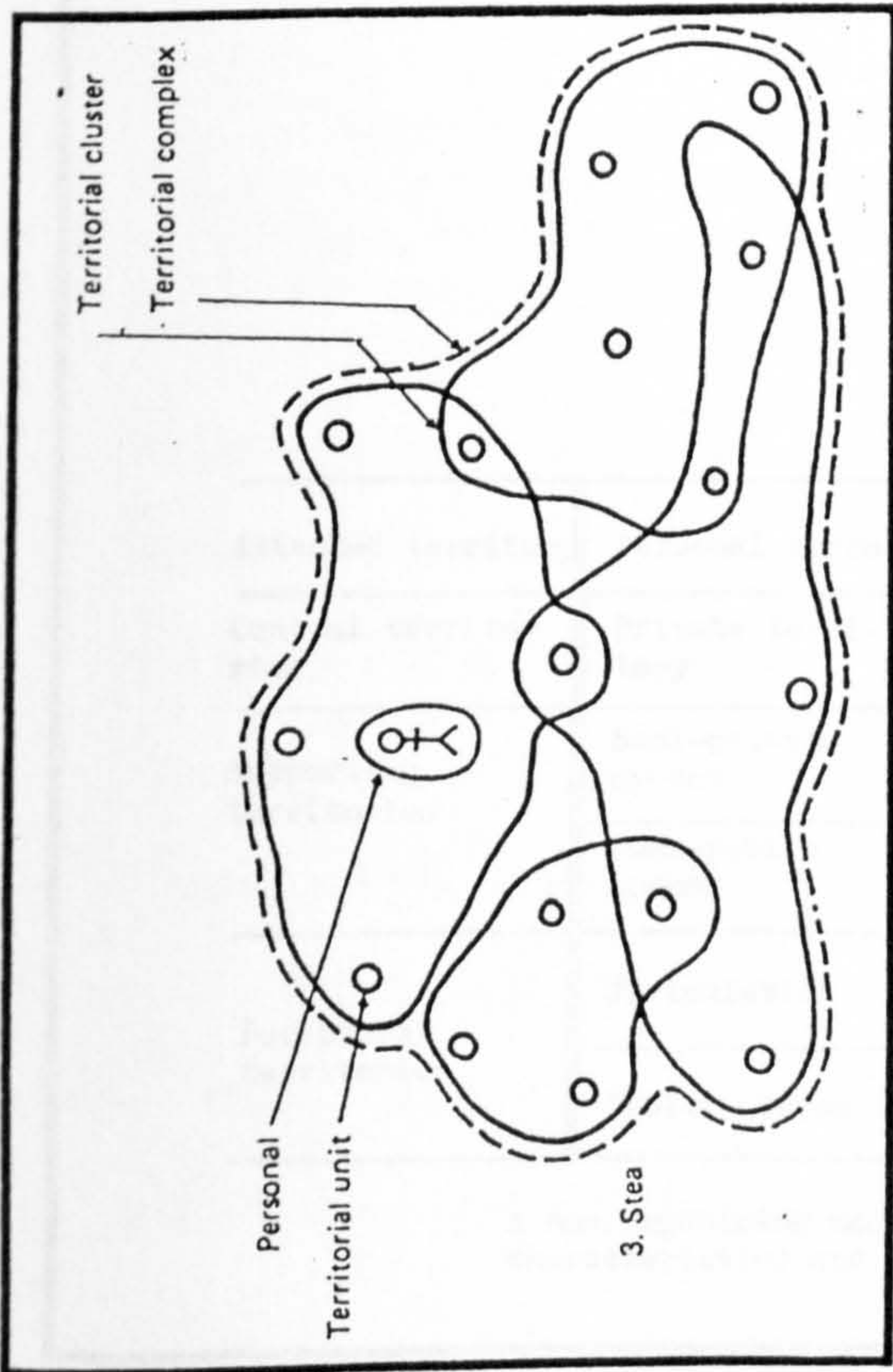


figure 3.5 Stea's organisational model of human territory
source: Porteous (1977)

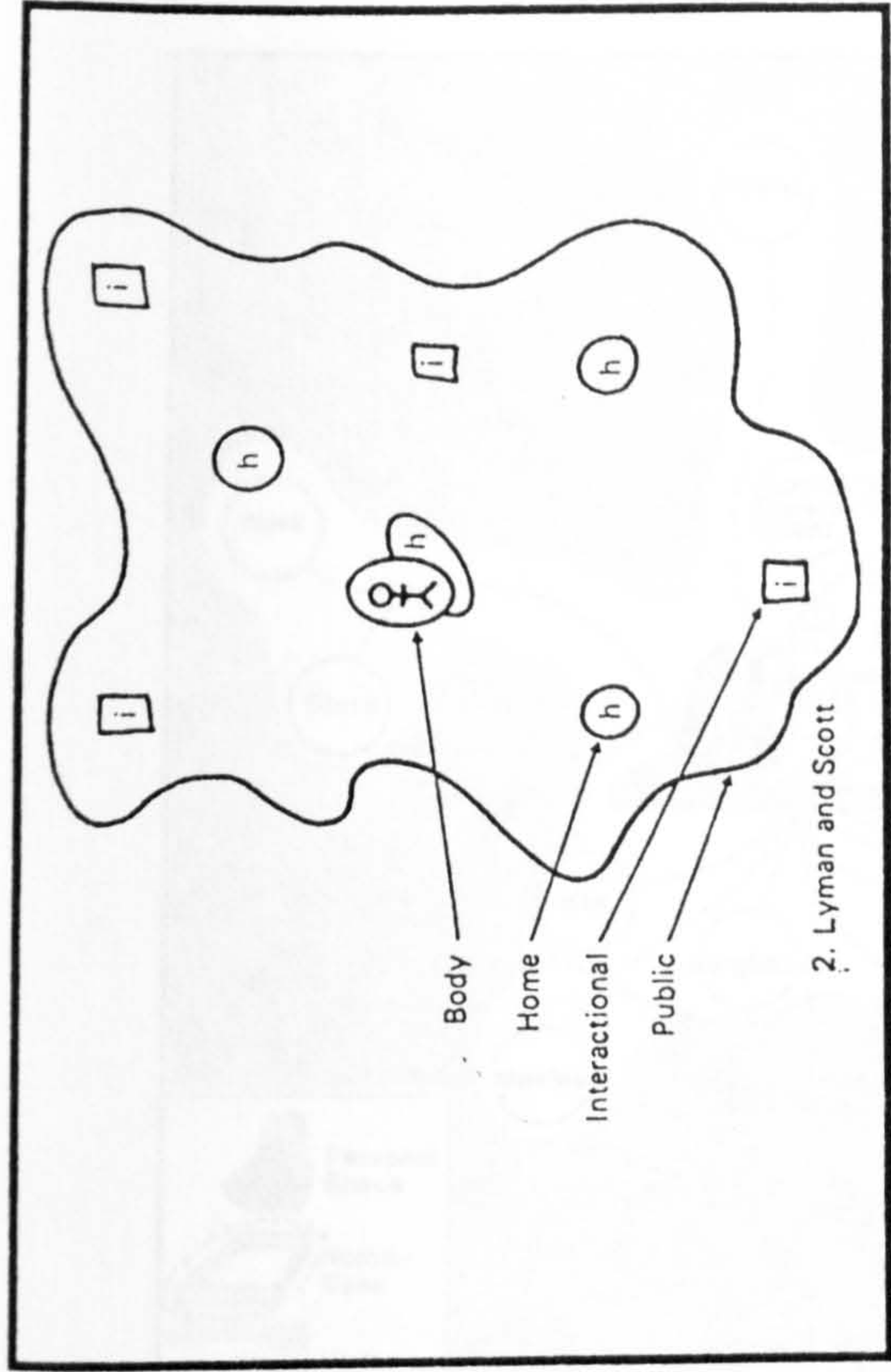


figure 3.6 Layman & Scott organisational model of human territory.
source: Porteous (1977)

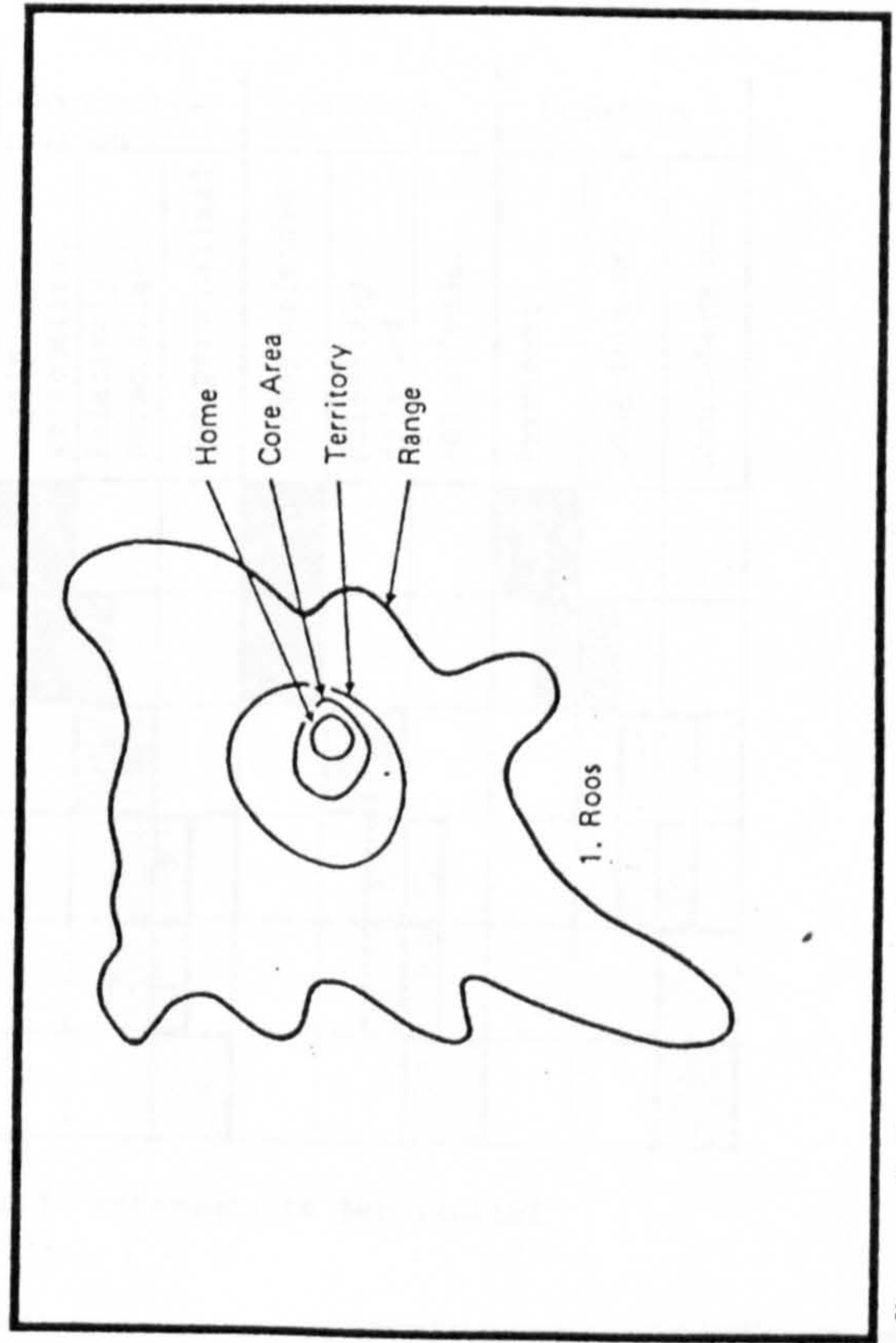


figure 3.7 Roos's organisational model of human territory.
source: Porteous (1977).

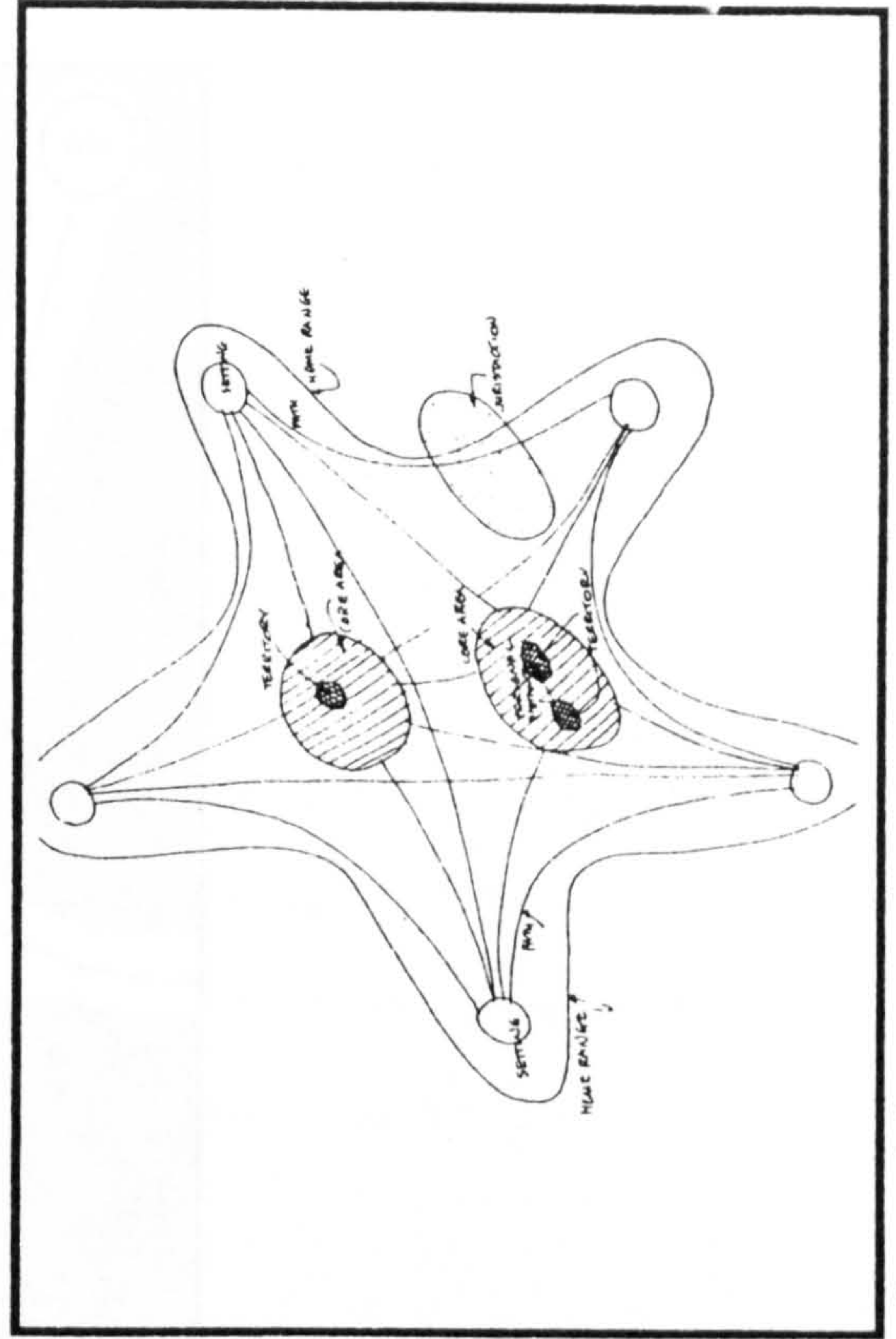


figure 3.8 Rapoport's organisational model for human territory.
source: Rapoport (1984)

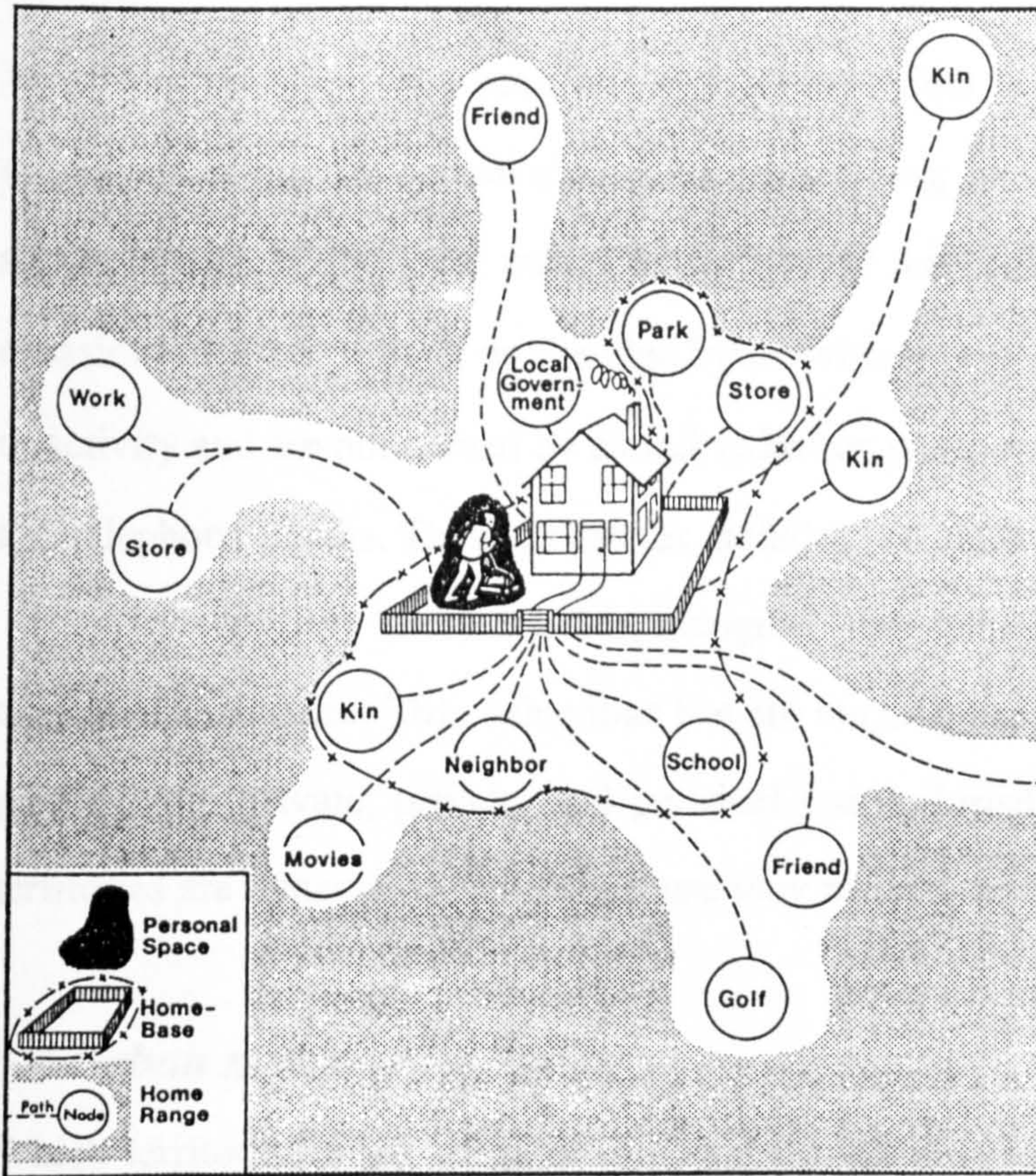


figure 3.9 Porteous's diagram of human territory. source: Poteous (1977).

		Possession			Personalization			Defense			Duration		
		Permanently owned	Relatively owned	Not owned	Highly personalized	Relatively personalized	Not personalized	Highly defended	Relatively defended	Not defended	Permanent	Long-term use	Short-term use
Attached territory	Personal space	█			█			█			█		
Central territories	Private territory		█			█		█				█	
Supporting territories	Semi-private spaces		█			█			█			█	
	Semi-public spaces		█			█			█			█	
Peripheral territories	Jurisdiction		█			█			█			█	
	Public spaces			█		█			█			█	

A new organizing model of territories in reference to territorial characteristics and the type of spaces.

figure 3.10 El-Sharkawy territory type definition. source: El-Sharkawy (1979).

apartment complex. The semi public category refers to spaces which are generally not owned but under certain circumstances a strong sense of belonging can develop such as in case of the local pub. *The peripheral territories* are the places which are occasionally used, visited, or attended by individual or groups for a particular purpose or activity and are not owned by an individual or group such as parks, benches, buses, and telephone booths. These territories includes jurisdiction and public.

In summary these models recognise the existence and reality of human territorial behaviour. This behaviour has six major types: public, jurisdictional, semi public, semi private, private, and personal space. Jurisdictional and personal space territories are dynamic in nature because they require the human existence.

3.4 Urban man territoriality

Which territorial organisation model can be applicable to the urban man in the city? To answer this question one has to know what does the city provide, and the type of culture of its dwellers.

The city has been defined in many ways. Walmsely (1988) gave a general definition and said:

Cities evoke mixed feelings. Some people regard them as the epitome of all that is good in society. According to this view cities are seen as providing a wide variety of lifestyles, a great range of choices for both work and play, and a stimulating atmosphere...It may well be that cities, in concentrate social problems to the point where these problems are more noticeable than they would otherwise have been, (Walmsley 1988, p.1)

Regardless of the city dwellers different cultural style, one can find a common line between these cultures. This common line is providence of the city's' wide variety of life styles and the great range of available choices, which are supported by the city economy and advanced technology. In return the urban man culture is of variety, choice, and easy communication resulting in making the urban man mobile.

For the city territory types, among the reviewed models the scholars identified six distinctive territory types: personal space, private, semi private, semi public, public, and jurisdictional territories. These types spatial organisation can be nested,

clustered, or stringed depending upon both the nature of the residents human environment, and the nature of the man-made environment especially the built environment. But the city does provide a fourth type of spatial organisation which has no organisation chaotic. The chaotic organisation means the disbursement of the various territory types in the city with no direct relationship between them. For example the dweller's home or office is a private territory, his leisure centre is the semi private, his city parks and streets are the public. To travel from one space to the other, the urban man relays in deferent mechanism such as travelling in a group or using the car. Lofland (1973) described these two mechanism and said:

The automobile has particularly interesting and significant characteristic: it allows passengers to move through the public sectors of the city encased in a cocoon of private space. It makes it possible for one to encounter the city at the same time one is avoiding it. And it makes possible a linking of widely dispersed urban spaces to such a degree that for all practical purposes, they are spatially contiguous.

..if one cannot stay within the protective privacy of the home territory or village, the solution is to take the privacy along with one. This can be accomplished by the simple expedient of 'travelling in packs'. It would seem that in the city, as in much of life, there is safety in numbers, (Lofland 1973, pp. 136-7).

3.5 Findings

In this chapter, human territory definition, function, characteristics, and types and its organisational models are introduced. It shows clearly the wide and rich terminology that scholars has contributed to it. For the organisational models, regardless of the scholars attempt to group territory types in three, four, or five categorise, the scholars overall models showed six distinctive territory types: personal space, private, semi private, semi public, public, and jurisdictional. Their models graphical presentation organised these territories spatially in nested, stringed, clustered, or combination of these three spatial organisations. Knowing that the urban man territory is multi-cultural and with a great variety of choices, the task of choosing a model that matches the urban man culture will be the subject of next chapter.

CHAPTER FOUR

TERRITORY IS RECONSIDERED

4.1 TERRITORY SPACES

4.2 TERRITORIAL BEHAVIOUR PHASES

Allocation

Attainment

Maintenance

Abandonment

4.3 TERRITORIAL BEHAVIOUR PHASES CYCLES

4.4 EXISTING TERRITORY STUDIES

4.4.1 The first group: Models with diagrams

4.4.2 The second group: Models without diagrams

CHAPTER FOUR

TERRITORY IS RECONSIDERED:

This chapter aims towards a new look at human territorial behaviour. Depending on the literature review of the existing theoretical body of knowledge, the thesis will contribute to the human territoriality phenomenon by re-defining territory *spaces, territorial behaviour phases, and cycles*. This contribution will be tested theoretically against the existing literature, and practically through the two case studies presented in part three, chapter nine and ten.

4.1 TERRITORY SPACES

Human territoriality can be defined as the interaction between the territory spaces - *formal space and cognitive space* - and territorial behaviour.

Formal space is the actual space defined by natural environment land scape elements such as trees, rocks, mountains, etc., or by person made built environment elements such as columns, walls, ceilings, and floors in architectural, scale or buildings as objects in urban design scale (see chapter one, fig 1.9). The elements of formal space definitions can be in the form of a *container, field, or levelling of a plane*, (see chapter two fig 2.12,13). More than one formal space can be joined together in *juxtaposition or interpenetration in nesting, stringing, or clustering* spatial organisation. Each organisation will place the spaces at a certain *depth*, or the number of spaces passed through to arrive to the targeted space. *Spatial depth* can be in the shape of (I,V,^,or --) depending on the number of openings leading in or out of the space, the number of spaces passed through, and the type of spatial organisation, (see fig2.14). Territory formal spaces are directly or indirectly affected by the human environment. The individual, as a physiological and psychological entity, has a personal environment which is influenced by the individual's social and cultural environment. Formal space is implicitly or explicitly neglected in the studies of human territoriality. This may be related to the behavioural nature of these studies, or to the taken for granted nature of formal space in design. Formally, the formal

concept of *privacy* can be defined as the manipulation and transformation of the spatial formation and organisation in order to achieve certain spatial depth. While formal human *territory* is the space designated for spatial formation, transformation, and depth achievement.

Human territory *cognitive* space can be defined as the space in the head. It is an image of the formal spaces that previously existed i.e. memory, that do exist i.e. perception, or might exist i.e. innovations. The human ability to learn, analyse, evaluate, and choose is a major distinction between human and non human territoriality. Cognitive space is shaped by the human environment. The individual has a personal environment which influences his attitudes, beliefs, preferences, personality, etc. The individual is also a member of a social group or groups which constitute his social environment. Most groups have a cultural environment. The social and cultural environments are filters through which individual cognize the perceived formal spaces. Territory cognitive space received major attention in most of the studies of human territoriality. Its definition, characteristics, function, meaning, and types are tackled by ethologists, sociologists, and psychologists. Stea(1965), Lyman & Scott (1967), Roos (1968), Porteous (1977), Altman (1975, 80), Rapoport (1979), Brown (1987), and many others attempted to analyse the why, when, and what of human territory cognitive spaces. Unfortunately, little attention has been given to the HOW of human territoriality or territoriality formal spaces. An exception to that are the attempts to explain the implications of cognitive spaces on formal spaces.

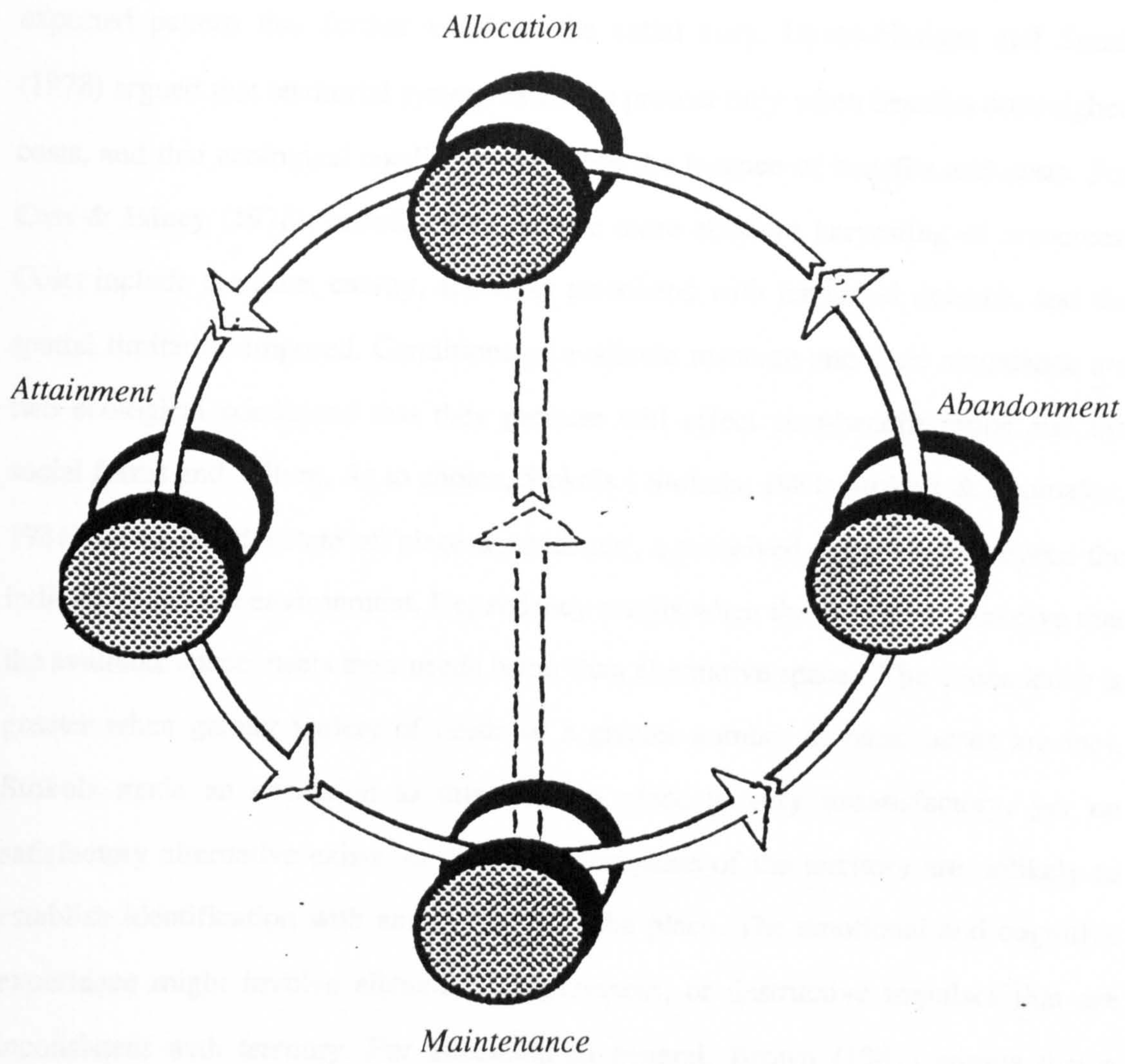
Human territorial behaviour consists of people's cognition, choices, responses, and actions toward formal spaces. In other words, it is the amalgam of formal and cognitive spaces showed mostly in human covert territorial behaviour. In order to understand territorial behaviour as a relationship between the territory formal and cognitive spaces, four phases of human territorial behaviour are introduced. The phases are *allocation, attainment, maintenance, and abandonment*, (fig 4.1). These phases are aimed to amalgam the formal and cognitive spaces in one form. It is an

attempt to bring the formal and cognitive spaces together by formalising the cognitive spaces and cognizing the formal spaces of human territoriality.

4.2 TERRITORIAL BEHAVIOUR PHASES

Allocation is the phase of territoriality composed of acknowledgement, expectation, and searching. It starts with the individual perceiving a discrepancy between the present state of territory formal spaces and some desired state, either known or presumed to exist in the cognitive space. This phase is goal-oriented to meet human needs. It depends upon the individual human, natural, and person-made environment, and is constrained by the individual's competence, choice, available resources, and cost and reward in terms of money, time, and energy. For example buying a piece of land or a new home starts with the individual perceiving a discrepancy between the present home in terms of size, shape, style, location, etc., and some desired state either known to exist, such as an old family home, a friend's home, an advertisement in the newspaper, or presumed to exist through human imagination. The goal of buying a new home is to meet some needs such as the growth of the family's size or role, change of job location, or the dissatisfaction with the existing home in general. The choice of the new home may be limited by availability of homes for sale, the available money, the limitation of time for moving or spent on searching for new homes, or energy measured in time and money. For the urban design scale, the neighbourhood allocation phase is similar, even though different in scale. Human intellectual act, not only in allocating the territory but also in predicting the circumstances behind the allocation, is a major distinction between human and animal territory.

Studies in spatial learning (Piaget and Inhelder 1967, Beck 1967, Rand 1972), mental maps (Rotwin 1969, stea 1969, Appelyard 1970), images of the city (Lynch 1960, Lee 1963, 1964), are all of importance in the territory allocation phase. Jakel (Jakel et.all 1973) asserts that the individual searches spaces to fill in his mental map, therefore space searching is the attempt to validate expectations about a place. The



Formal space

Cognitive space

figure 4.1 Human territorial behaviour phases: allocation, attainment, maintenance, and abandonment.
 source: author.

individual first conducts a 'space covering' search systematically scanning the environment for meaningful cues, and secondly conducts a 'space organising' search as the more specific probing of the environment is pointed toward uncovering an expected pattern that further validates the ential cues. Dyson-Hudson and Smith (1978) argued that territorial system would be present only when benefits outweighed costs, and that ecological conditions influence the balance of benefits and costs. For Cass & Edney (1978), benefits may include more efficient harvesting of resources. Costs include the time, energy, and risks associated with territorial defence, and the spatial limitation imposed. Conditions of available resource and their abundance are two ecological conditions that they propose will affect cost-benefit ratios and the social forms and culture. As to choice, Stokols (Stokols, 1981; Stokols & Shumaker, 1981), describes the state of 'place dependence', a perceived association between the individual and the environment. Dependency results when the occupants perceive that the available space meets their needs better than alternative spaces. The dependency is greater when greater variety of needs or a greater number of basic needs are met. Stokols made an exception to this when a place is very unsatisfactory, yet no satisfactory alternative exists. In this case, occupants of the territory are unlikely to establish identification with and concern for the place. The emotional and cognitive experience might involve alienation, helplessness, or destructive impulses that are inconsistent with territory. For allocation in general, Brown (1987) admits that a cognitive and effective transformation process is a "prerequisite" to a place becoming a territory. She does not see legal ownership of a piece of investment property as constituting territorial ownership if the territorial cognition's and feelings do not accompany the ownership. It only exists if the owner develops a feeling of ownership, attachment, or identification, (Brown 1987).

Attainment is the phase preceded by allocation. This phase implies the territorial behaviour of formally and symbolically gaining and personalization of the territory formal and cognitive spaces. The formal gaining of spaces includes formation (*container, field, or levelling of plane*), and organisation(*juxtaposition or*

interpenetration of nesting, stringing, or clustering), (see fig 2.13). The personalization of formal spaces includes the gaining of the space and personal touches, such as decoration, that are added to it. The cognitive space attainment includes the distinction between spaces (i.e. private, semi private, semi public, and public) and organisation of the distinguished spaces such as in the case of formal space. Each individual develops his own style of cognitive space organisation according to his/her own particular history of space attainment. In this phase aggressive behaviour may occur, as in the case of attaining someone else's territory, or in the case of others attempting to attain one's territory. A hallmark of this phase is ritual conduct. For example, after the allocation of a piece of land or a home, one has to define his home by boundary markers, a legal title through buying and determine what is his and his family's (i.e. private), what is for his family and neighbours (i.e. semi private), and what is his family's, his neighbours and others (i.e. semi public or public). A party 'ritual' is held and relatives, friends, and neighbours are invited.

Studies in behaviour setting (Barker 1968, LeCompte 1974, Wicker 1979), and activity systems (Michelson 1975, Brodin & Zeisel 1981) are important for the attainment phase. Sommer and Becker (1969) found that certain architectural organisations, or 'features', appear to encourage the development of territoriality in public spaces. Students are more likely to make territorial claims for library tables that are close to a wall, facing away from distraction of the main entrance and toward the rear of the room. In personalization of formal spaces, Newman (1975) suggests that clear boundaries between private and public areas encourage the fostering of territoriality. Brown (1983) found that houses organised along a cul-de-sac are less vulnerable to burglary compared to those along a through street. In other words, she compared clustering vs. stringing in houses spatial organisation. Holman (1976) suggests that the form of outdoor space can affect neighbouring activities. Brown (1987), asserts that personalization enters into territorial functioning in three ways : firstly, onlookers may form impressions of occupants based upon the personalization; secondly, territorial personalization allows the territory owner to foster certain

impressions that may or may not be accurate; thirdly, the very act of personalizing may create or intensify the bond of attachment between owner and territory. Lyman and Scott (1967) mentioned that territorial defence against encroachment can take the form of insulation or linguistic collision. Insulation is the erection of barriers to indicate that interaction is unwelcome, and might include wearing uniforms or sun glasses to convey impenetrability symbolically. In linguistic collision territory owners flaunt their territorial identities so clearly that any outsider will be made to feel unable to take over the territory program.

Maintenance is the phase preceded by allocation and attainment. This phase implies the act of improving, balancing, and declining of the territory cognitive or/and formal spaces in order to achieve a match between them. The maintenance of cognitive space implies the 'management' of attained cognitive spaces in identifying the role of each participant in these spaces through a social learning process. Maintenance of formal space implies transformation of formal spaces, such as re-formation and re-organisation of spaces by addition, attrition, or movement of space identifiers, see fig (2.11). In the case of *improvement maintenance* the cognitive or/and formal space is upgraded so as to achieve a match. In this case the rewards exceed the cost. In the case of *balancing maintenance* the cognitive and formal space match, and the reward is equal to the cost. In *declining maintenance* the cognitive or/and formal space are downgraded to match one another, and the reward is less than the cost. In this phase territory defence is demonstrated as an act of maintaining the territory behaviour phases in order not to abandon the territory. For example, the attained house may not be to one's standards i.e. the cognitive space, and an improvement of the house must be made, such as adding a new room, opening a new window or door, changing the furniture, painting, new garden design, and so on. This act signifies maintenance improvement of the formal space to match the cognitive space. An assigning to every member of the house a role in occupying and keeping the house looking good constitutes cognitive space management. When the condition of formal space and the management of the house by members is said to be

satisfactory, the house is said to be in the state of *balance maintenance*. But if the conditions of the house is lower than one's standards and the intention is not to improve it because 'it is not worth it', this is *declining maintenance*. In this case, cognitive space is downgraded to match formal space. The same can be said when an individual is living in a house above his standards and the attempt is to downgrade the house to meet his standards, then formal space is downgraded to meet cognitive space. For territorial defence, territory might be defended in the case of others contaminating the maintenance phase.

The maintenance phase of territory cognitive and formal spaces is the main focus of many existing studies of territoriality. Writers, implicitly or explicitly, discuss the maintenance phase of both formal and cognitive spaces in relation to other phases. With regard to flexibility of transformation, Hall (1966) differentiates among three types of spatial features: fixed feature space is associated with the arrangement of environments such as cities, towns, buildings, houses, and rooms; semi fixed features space encompasses movable furniture, for instance tables and chairs; and informal space refers to the distance maintained in encounters with others, or proximics. Brown (1987) refers to the maintenance phase as the claim and regulation of territory spaces. She found that the student's choice of personalization in the freshman year is related to the student's likelihood of remaining in school. A distinction is made between themes of those who dropped out for reasons other than academic failure, and those who chose to remain. The first theme is the diversity of interests displayed via the decoration was much narrower in scope for future dropouts. Whereas a stay-in might display interests in sports, abstract art, statement of values, personal relationships, and theatre, a dropout would display fewer of such decorative categories. A second theme was found in the pattern of commitments displayed. Stay-ins appeared to be committing themselves to the university environment by displaying such things as university club badges, maps of the campus and the local area, and mementoes of local events such as concerts. The dropouts appeared to have maintained their commitments to hometown people and places.

Their decoration included items such as letters from younger siblings, dried prom flowers, and posters of hometown attractions, (Vinsel, etal 1980). In the allocation and maintenance relationship Sommer (1967, 1969) noticed that when students want to establish a territory that would allow them to avoid distraction by others, they chose end chairs at six person table, or space near the wall or facing away from the door. Offensive claimants, i.e. those who desire a territory to themselves, tend to select the middle seat of a six person table, a seat facing the door, and centre or aisle seats. The cognitive space management helps group members in solving the problems of sharing one formal space by carving out individual territories within the group territory. This territorial management has been found to take place within families (Laufer & Wolfe, 1977; Sebba & Churchman, 1983) and between individuals who share rooms (Altman & Haythorn, 1975; Rosenblatt & Budd, 1975). Altman's privacy regulation concept pointed out that norms, rules, and personal spacing are sources of "management within a territory", (Altman 1980). Other management mechanisms might include dominance hierarchies, turn taking norms, scheduling (Rapoport 1975), or developing an interpersonally reserved style (Westin 1970).

Abandonment is the phase when territory formal and cognitive spaces are surrendered for the right of another territory. This phase can occur by choice or by force, depending on the territory *allocation, attainment, and maintenance* phases. Territory abandonment by choice, as in the case of selling the family home, may be accompanied by sorrow because of spatial attachment to the territory, even if the new territory is better than the abandoned one. Territory abandonment by force is always accompanied by high defence to preserve the territory in the maintenance phase. Sorrow is expressed when the act of preserving the maintenance phase is defeated, and may result in self-damage of the formal spaces of territory. An example of abandonment by force is selling of a family house by the bankers to pay the mortgage. Another example is the Iraqi regime behaviour when forced to abandoned Kuwait city.

4.3 TERRITORIAL BEHAVIOUR PHASES CYCLE

Territoriality, *allocation, attainment, maintenance, and abandonment* phases occur in a time pattern of past, present and future. This time pattern can be seen as linear, circular and/or spiral, (fig 4.2). The phase cycle has a frequency of speed short, medium, and long and space match of primary and secondary. The frequency of territoriality phases cycle can happen through a short, medium or long time period. For example, territorial behaviour phases of using a public phone booth may take few minutes, while having dinner in a restaurant may take a few hours, and in the case of home territorial phase cycle may take years. Usually, the long territoriality cycles are composed of a sum of short period cycles. For example one's abandonment of his home when going to work is attained back in the evening by symbolically using the verse "honey I am home".

The spaces of territory are formal and cognitive, and the match between them can be *primary or secondary*. In fig 4.2 the territoriality phases in relation to formal and cognitive spaces, are shown in circular primary cycle, while fig 4.3 shows the secondary cycle. The *primary cycle* of territoriality phases is when allocation, attainment, and maintenance of the formal and cognitive space occur within the boundary of existing territory in order not to abandon it. The match between the formal and cognitive spaces is a factor in enhancing the satisfaction with the existing territory. For example, when one allocates a home, attains it, maintains it, and keeps maintaining it in order not to abandon it, then this home territory is said to be in primary cycle. But if this individual has no choice other than staying in this particular home, or intending to move to another home, then it can be said that the cognitive space is not in match with the formal space, or the territory is in the secondary cycle. Therefore, the *secondary cycle* occurs when the territory cognitive and/or formal spaces are not in the boundary of the existing territory. Most of the problems of territoriality's is the existence of secondary territory cycles. This is due to the mismatch between the formal and cognitive spaces of the phases of allocation, attainment, and maintenance.

Brown (1987) refers to the mismatch between the territory formal and cognitive spaces as "dysfunctional territoriality". She relates territory dysfunction to territory stability, user's identity, and time commitment. As to territory stability, she says "Some temporal features of territories are flexible, in that window shades may be pulled and doors opened and closed or books placed on library tables to indicate a desire for openness. But many more features of the territory are less changeable—housing styles are difficult and costly to alter, neighbourhood traffic flows are stable, and walls are a constant thickness", (Brown 1987 p.524). She relates the dysfunctional territorial stability to the owner's change of identity e.g. divorce-, and the changes in social values. For the territory owners personal identity, as in the public housing projects where "territories then may be dysfunctional when the owner cannot disguise damaging information about his or her financial circumstances or other undesired characteristics", (p.525). In regard to dysfunctional territorial commitments, a limited time and energy can be invested in territories when the social ties are very demanding. "Thus commitments to different types of territories may have a synergistic effect when the demands across territories are congruent; different territorial commitments may become stressful when the demands across territories are incongruent", (p.525). In other words, the secondary cycle of territory occurs when there is a mismatch between the cognitive spaces and formal space in the phases of territoriality allocation, attainment, maintenance, or abandonment. Territoriality secondary cycle is a dysfunctional territoriality.

In summary territoriality phases cycle has a frequency and space match. Phases of a cycle can last a short, medium, or long period of time. The long phase cycle is composed of a sum of shorter phases. The space match cycle can be primary or secondary. *Primary cycle* is when the *allocation, attainment, maintenance* of a territory is within the boundary of one territory in order not to *abandon* it. The *secondary cycle* occurs when the *cognitive* or *formal* space phases are not within the boundaries of one space.

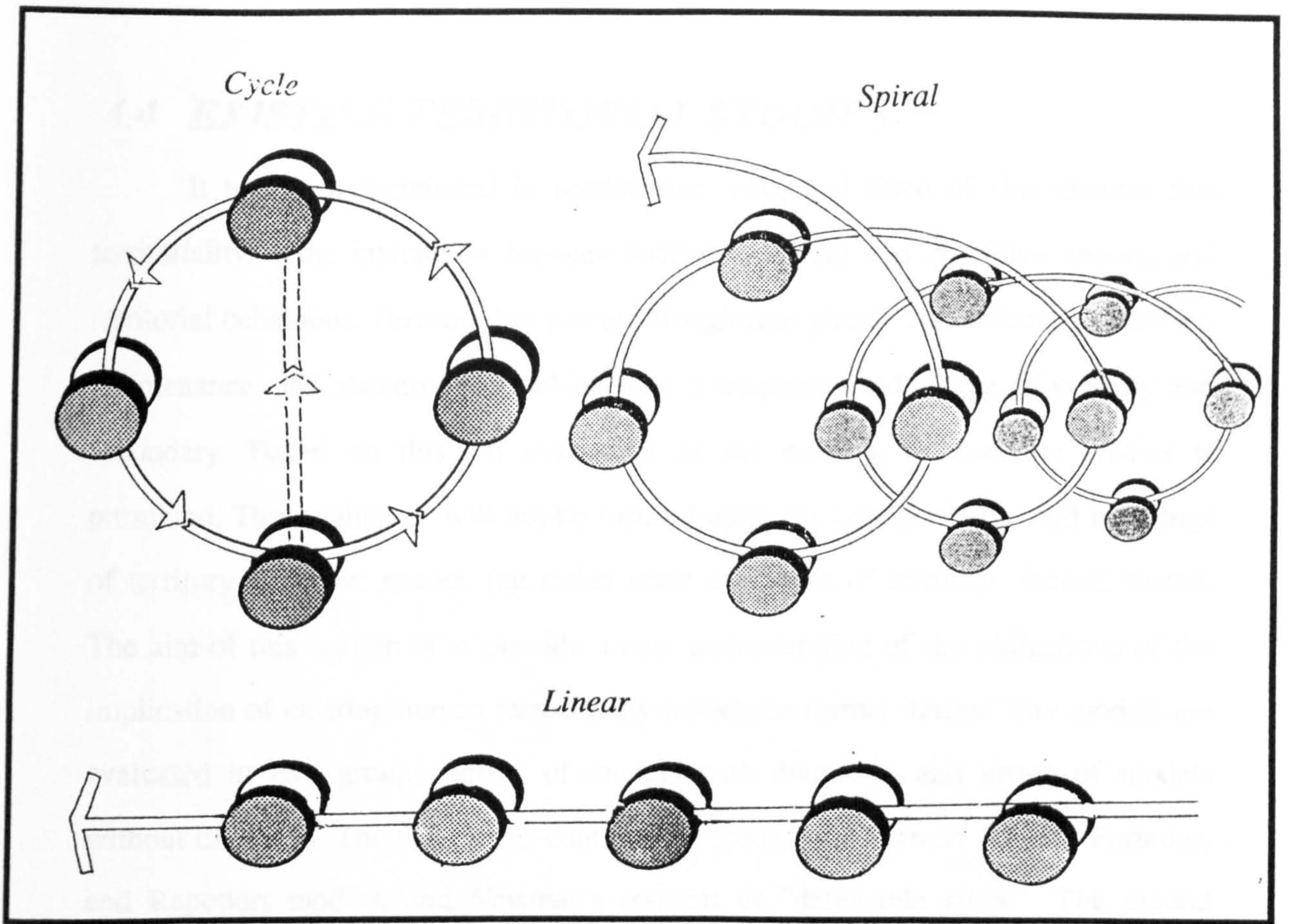


figure 4.2 Human territorial behaviour cycle: linear, circular, and spiral.
source: author.

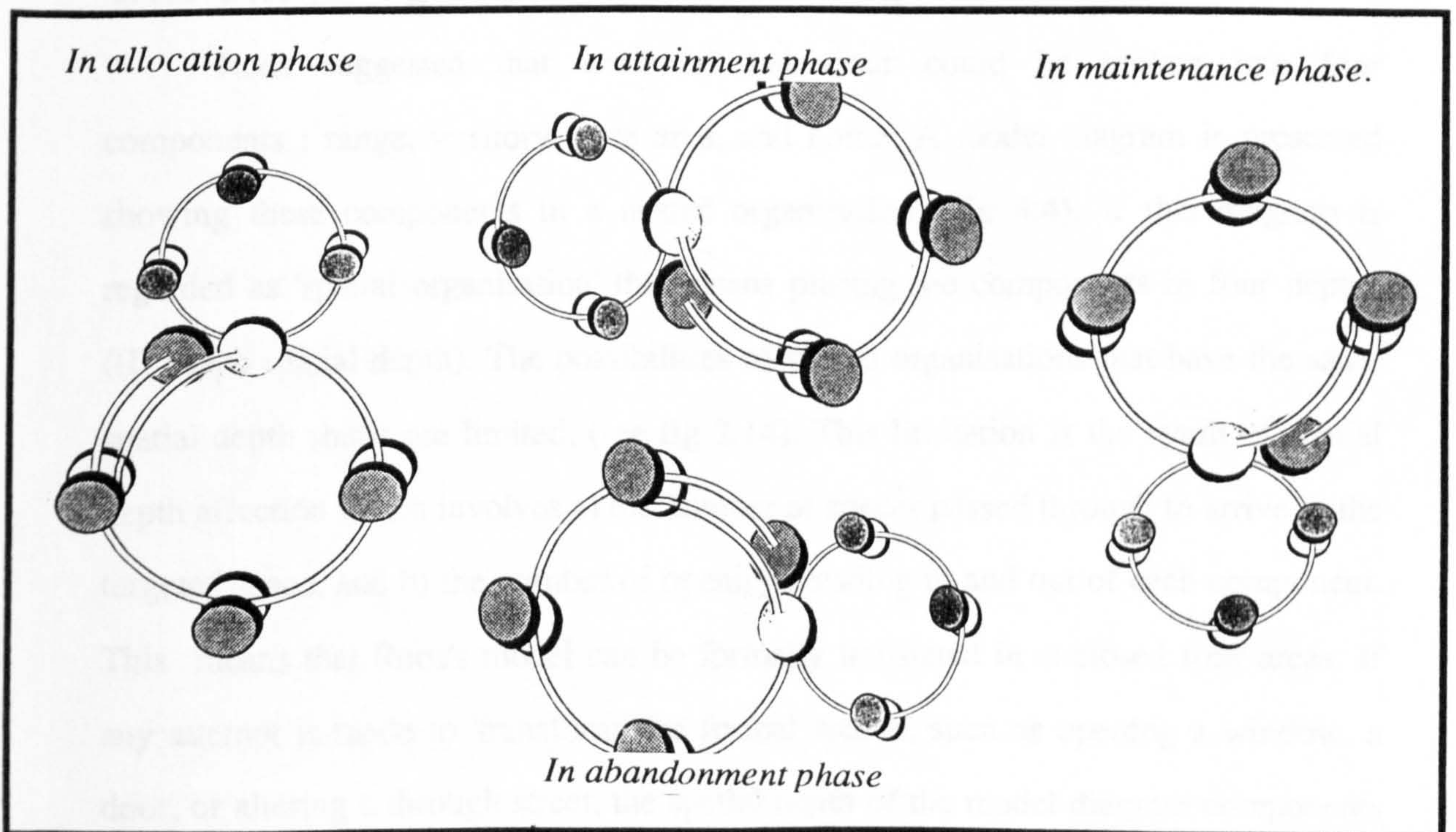


figure 4.3 Human territorial behaviour primary and secondary cycles.
source: author.

4.4 EXISTING TERRITORIAL STUDIES

It has been mentioned in section one, two, and three of this chapter that territoriality is the interaction between territory's formal and cognitive spaces, and territorial behaviour. Territoriality passes through four phases : allocation, attainment, maintenance, and abandonment, which have a frequency and a type of primary and secondary. Based on this, an evaluation of the existing territoriality studies is presented. This evaluation will not be focused upon the why's, when's, and meanings of territory cognitive spaces, but rather upon the how's of territory formal spaces. The aim of this section is to provide a new understanding of the obligations of the implication of existing human territoriality models in formal design. The models are evaluated in two groups: group of models with diagrams, and group of models without diagrams. The first group contains the Roos, Stea, Lyman & Scott, Porteous, and Rapoport models, and Newman's concept of "defensible space". The second group includes Altman and Elsharkawy models, and Hilliar's article "Against enclosure".

4.4.1 The first group: Models with diagrams

Roos suggested that territorial behaviour could be broken into four components : range, territory, core area, and home. A model diagram is presented showing these components in a nested organisation, (fig 4.4). If this diagram is regarded as 'spatial organisation' this means placing the components in four depths ((I) shape spatial depth). The possibilities of spatial organisations that have the same spatial depth shape are limited, (see fig 2.14). This limitation is the result of spatial depth affection which involves a) the number of spaces passed through to arrive to the targeted space, and b) the number of openings leading in and out of each component. This means that Roos's model can be formally translated in enclosed four areas. If any attempt is made to 'transform' the formal spaces, such as opening a window, a door, or altering a through street, the spatial depth of the model diagram components is changed , and therefore the model organisation is changed from nesting to maybe

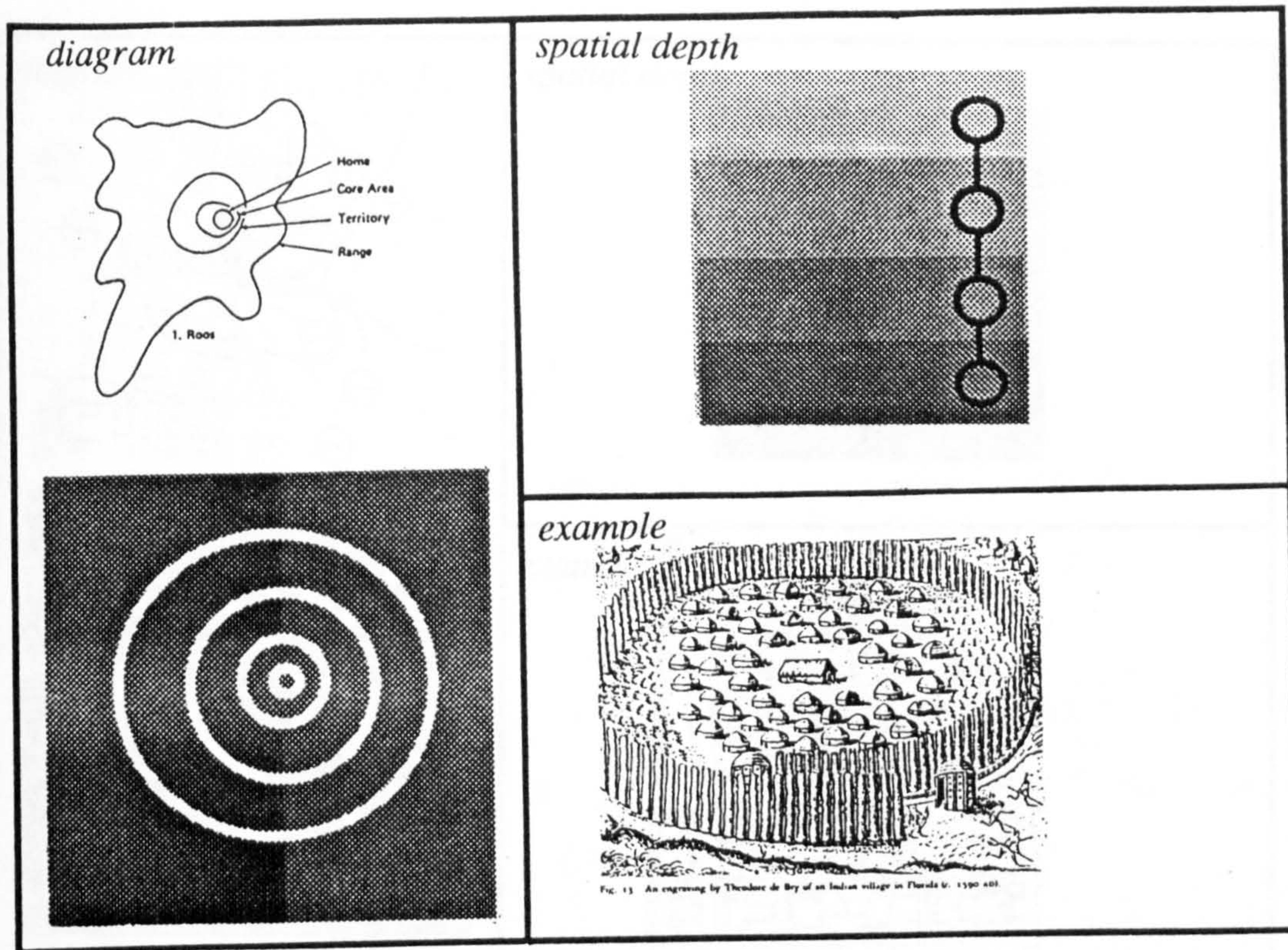


figure 4.4 Roos's human territory diagram analysis.
source: author

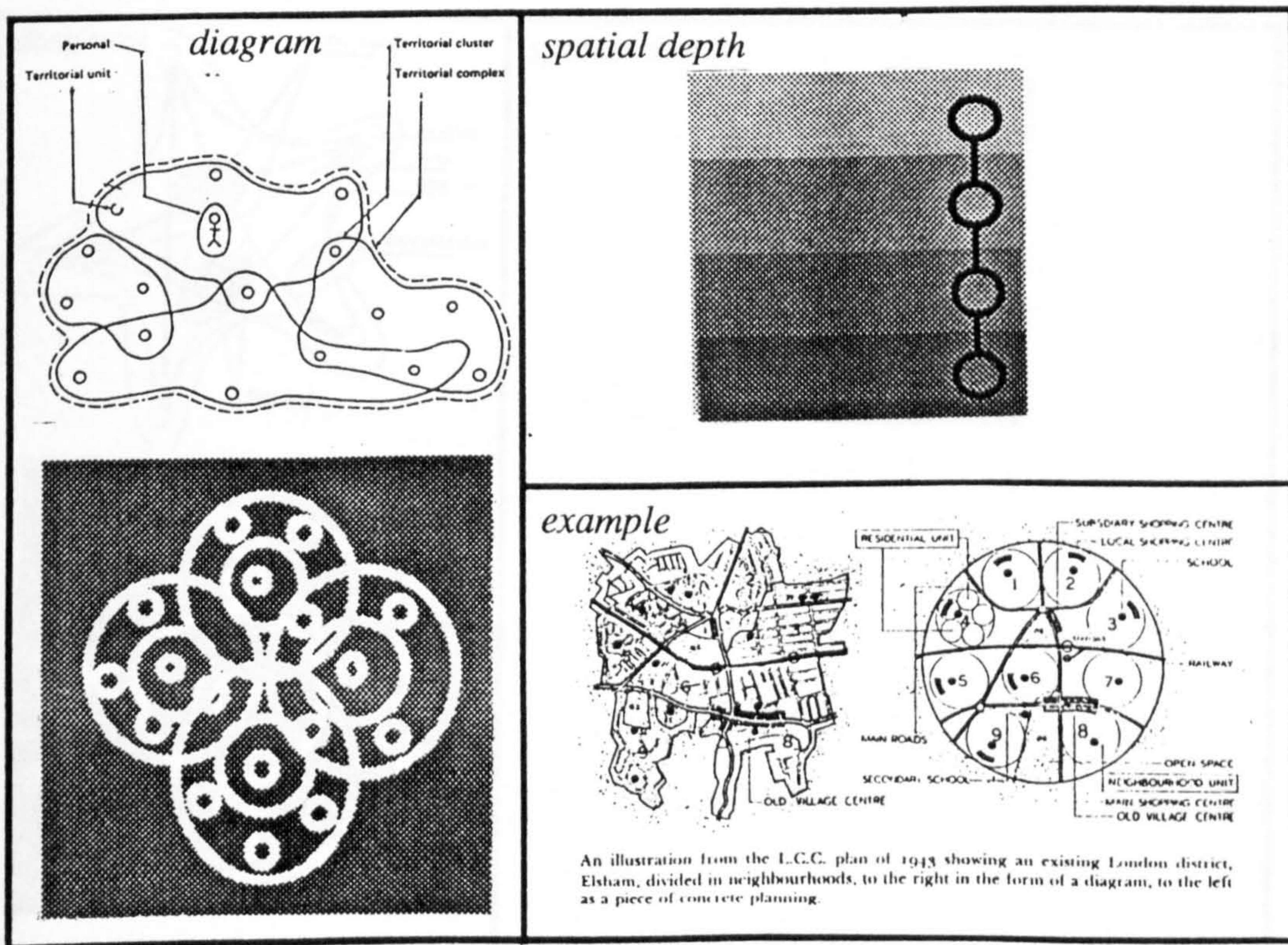


figure 4.5 Stea's human territory diagram analysis.
source: author.

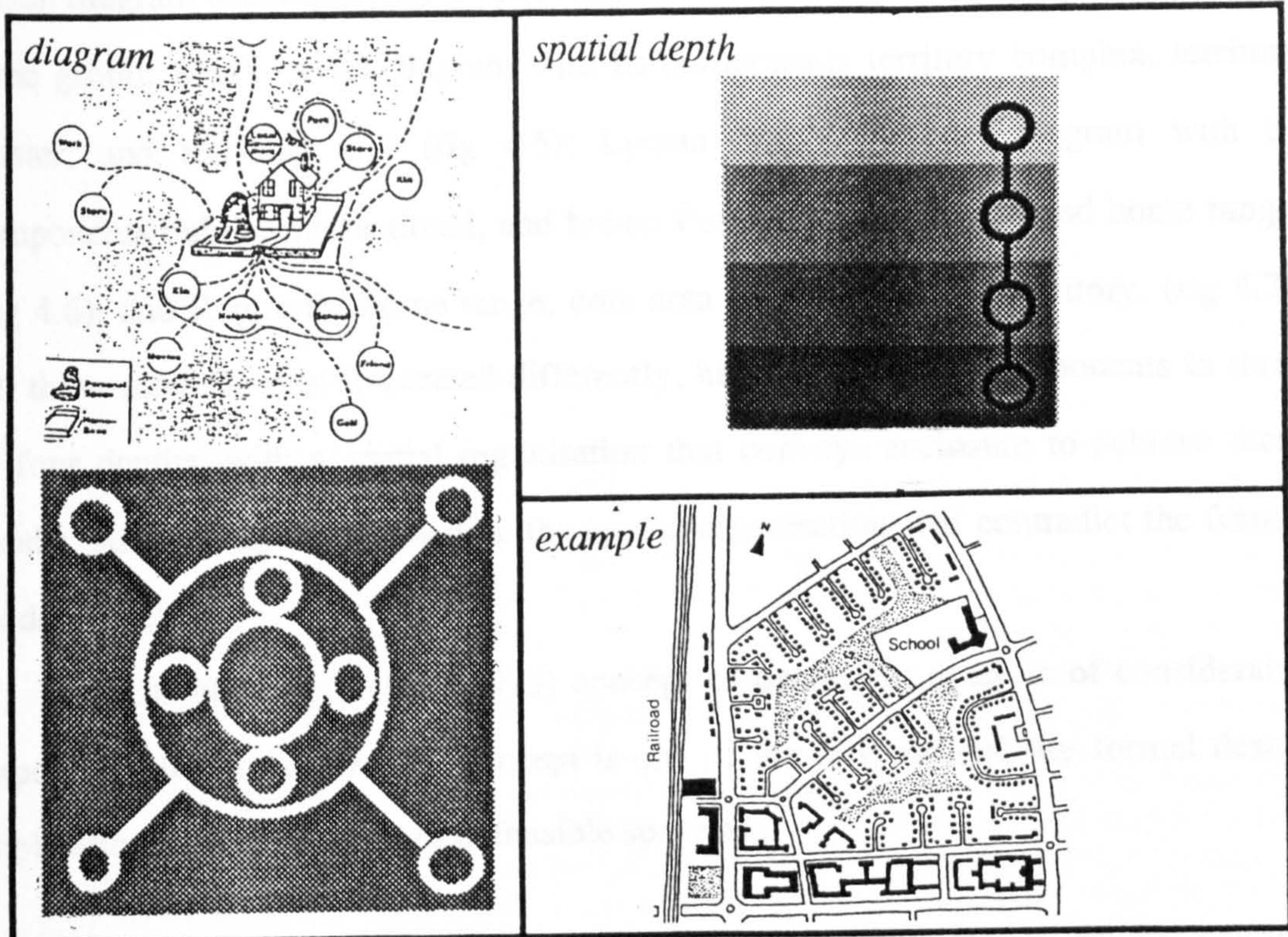


figure 4.6 Porteous's human territory diagram analysis.
source: author.

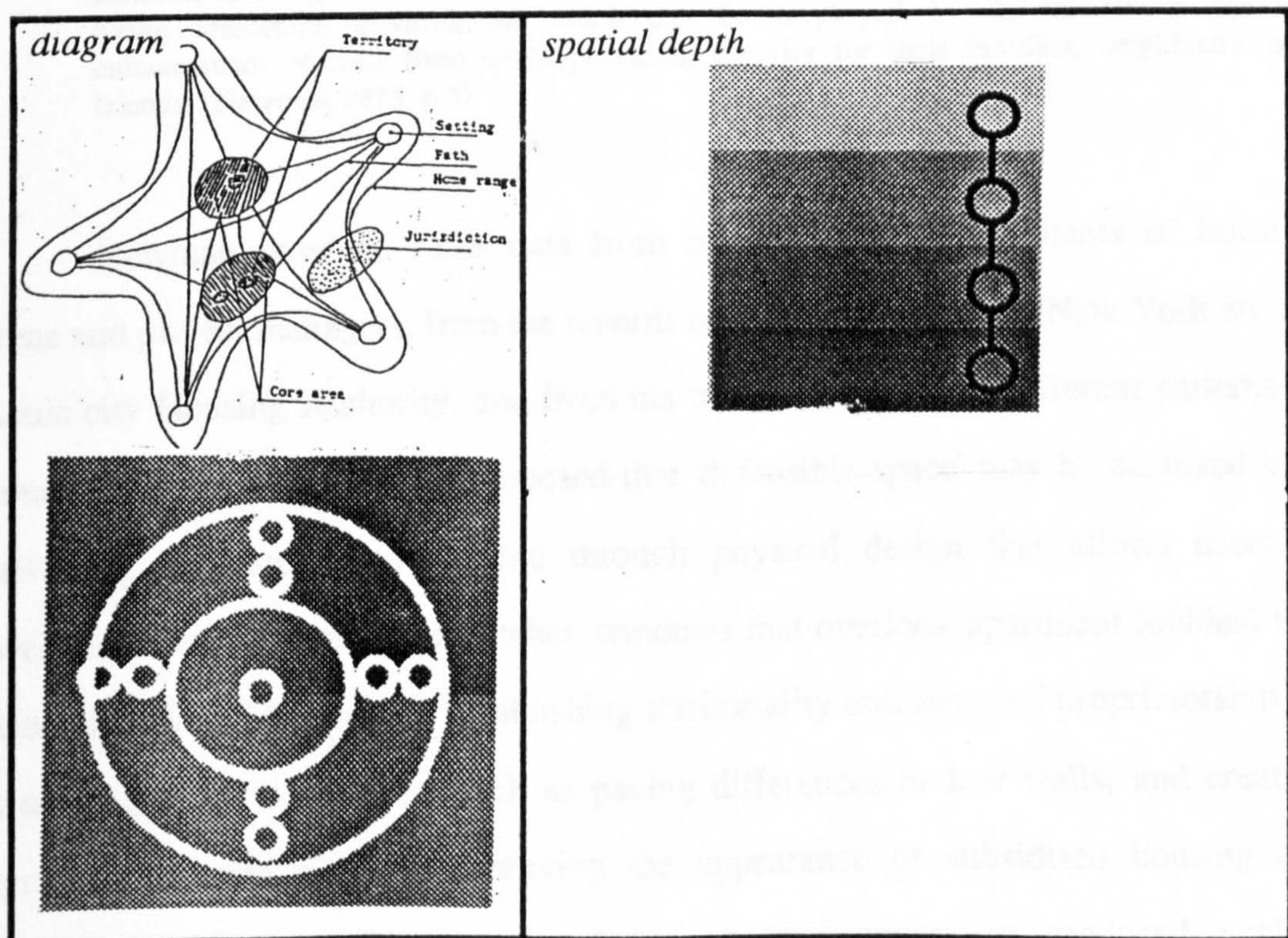


figure 4.7 Rapoport's human territory diagram analysis.
source: author.

stringing or clustering. Roos's model's strength is challenged by a simple formal sketch diagram accompanying it. The same can be said about the other models in the same group; Stea's model diagram with its components territory complex, territory cluster, and territory unit (fig 4.5); Lyman & Scott's model diagram with its components public, interactional, and home; Porteous's: home base and home range, (fig 4.6); and Rapoport's: home range, core area and settings, and territory, (fig 4.7). All these models, even illustrated differently, have placed their components in three or four depths, with a spatial organisation that conveys enclosure to achieve these depths. Any attempt to manoeuvre the spatial organisation will contradict the formal model sketches.

Oscar Newman's (1973,1975) concept of defensible space is of considerable importance to this study. The concept is one of the few territoriality formal design implications. Newman defines defensible space as :

Defensible space is a surrogate term for the range of mechanisms- real and symbolic barriers, strongly defined area of influence, and improved opportunities for surveillance- that combine to bring an environment under the control of its residents. A defensible space is a living residential environment which can be employed by its inhabitants for the enhancement of their lives while providing security for their families, neighbours, and friends, (Newman 1973, p.3).

Newman provides some data from interviews with inhabitants of housing areas and project managers, from the records of crime types kept by New York and St. Louis city Housing Authority, and from his own observation of different patterns of housing layouts, (fig 4.8). He proposed that 'defensible space' may be achieved by : providing for natural surveillance through physical design that allows users to overlook common spaces (i.e. kitchen windows that overlook apartment lobbies) and hence be aware of intruders; establishing territoriality and sense of proprietorship by providing symbolic markers such as paving differences or low walls; and creating symbolic identification by improving the appearance of subsidised housing and instilling pride in residents. In regard to territoriality he produced explicit

architectural guide-lines for different spaces incorporating natural surveillance, territoriality and symbolic identification. He said :

The essential ingredient of our proposal is territorial definition coupled with improvements to the capacity of the territorial occupants to survey their newly defined realm. Territorial definition may appear to be the antithesis of the open society, and surveillance a future restriction on its freedom. Territory and surveillance have after all traditionally been understood as the device of the propertied classes and their agents or police authority. We, however, are advocating territorial definition and the creation of surveillance opportunities to allow the citizen of the open society to achieve control of his environment for the activities he wishes to pursue within it- to make him instrumental in curtailing others from destroying his habitat, whether the others are criminals or a reactionary authority. (p.204).

If territorial definition, as advocated in the "defensible space" program, proves to reinforce certain groups in taking over and controlling previous public space adjacent to their dwelling units, are we not, through these actions, removing much territory in the form of parks and open space from the public domain? Are we not by this exclusion placing further restriction on the already narrowing and limited resources of our cities? Some of our findings suggest that just the opposite may be true. Studies of the use of ground of housing projects in many different cities- New York, Cleveland, San Francisco indicate that the grounds of projects which were intentionally left open for public use (as a contribution to the open-space needs of the surrounding city) end up unused and neglected, by housing residents as well as members of the surrounding community. Each group, by experience, had found their activities easily disrupted by other groups and found their claim to the use of the space for recreation difficult to enforce. By contrast, recreation space location within the interior of a housing project, clearly defined by surrounding dwellings, was found to be used more frequently by both groups. Project residents had clearly laid claim to these play spaces and set up an unwritten, but understood, set of rules for their use. These rules were enforced by parents and other children. Project residents had first claim to this use followed by surrounding neighbourhood children, who came both spontaneous and by invitation. Disputes almost always resulted in the expulsion of the visitors. Since visiting children really had nowhere else to go or to retreat to, the proprietary rights of project children soon became understood and accepted, and further conflict was avoided by mutual desire, whenever possible, (Newman 1973, p.205).

It was not surprising to find a great body of literature either in favour of or criticising the concept of defensible space. One can relate this to the formal nature of the concept application. Sociologists, psychologists, and designers have put their hands on territoriality formal space applications. Early critics argued that Newman happened to pick settings that supported his concept and that nearby apartment complexes would not have done so. They argued that there exist complexes with high crime rates that embody the defensible space concept and complexes with low crime rates that were not defensible in design (Hillier 1973, 1988; Patterson 1977). Kohn et al.(Kohn, Frank, & Fox 1975), studied modifications Newman made at two public town house developments in New York City : Closten Point and Markham. They

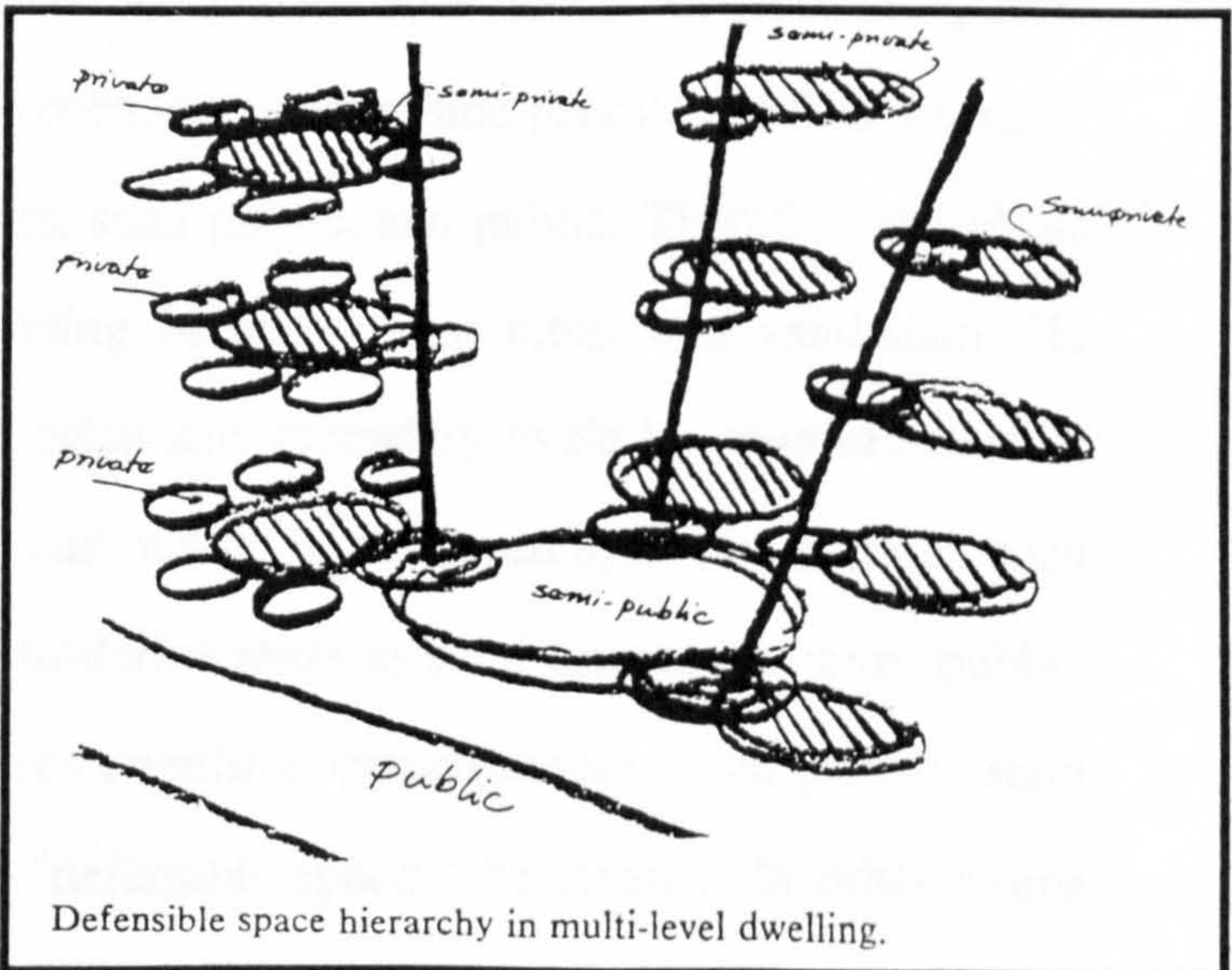
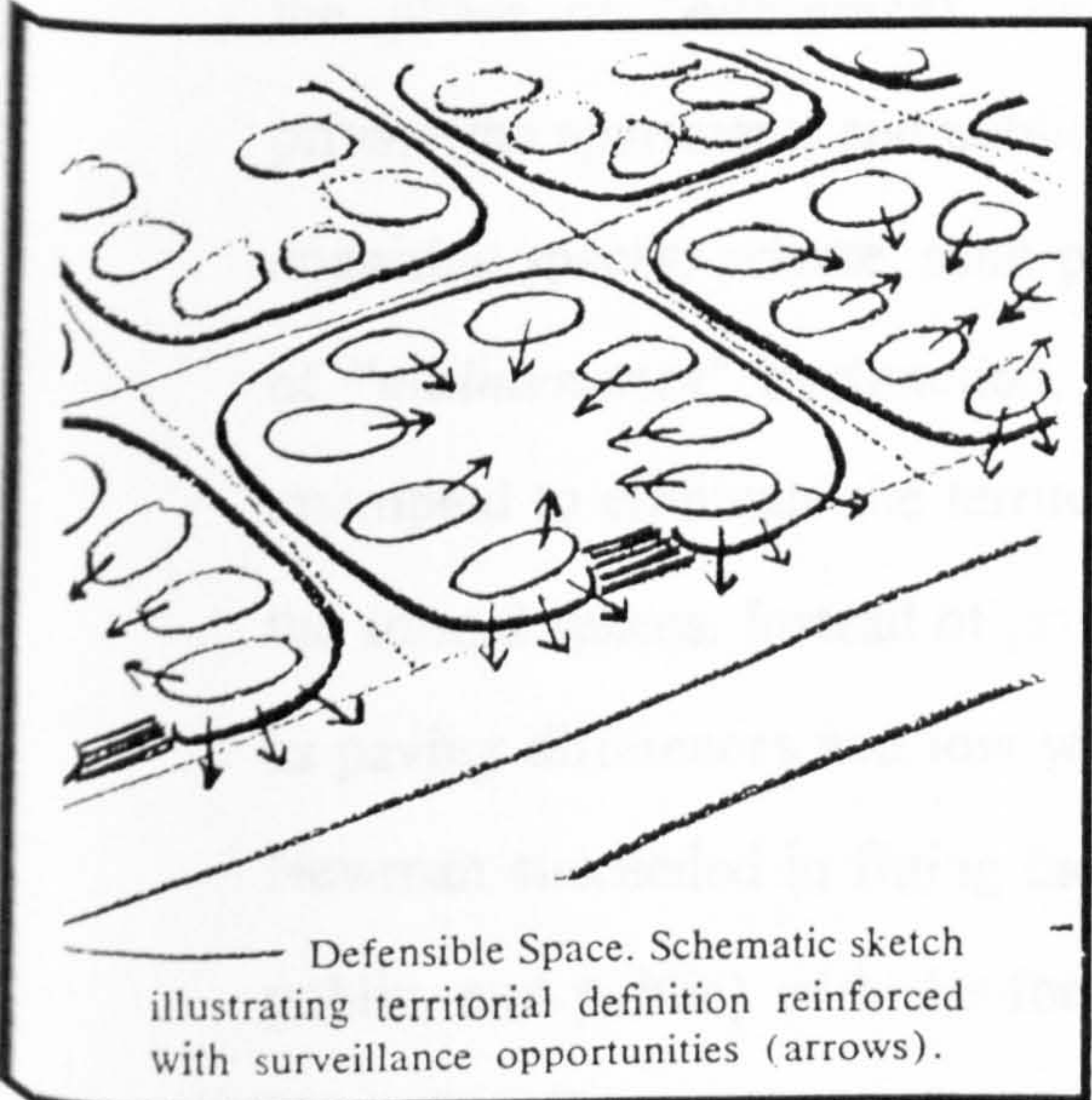
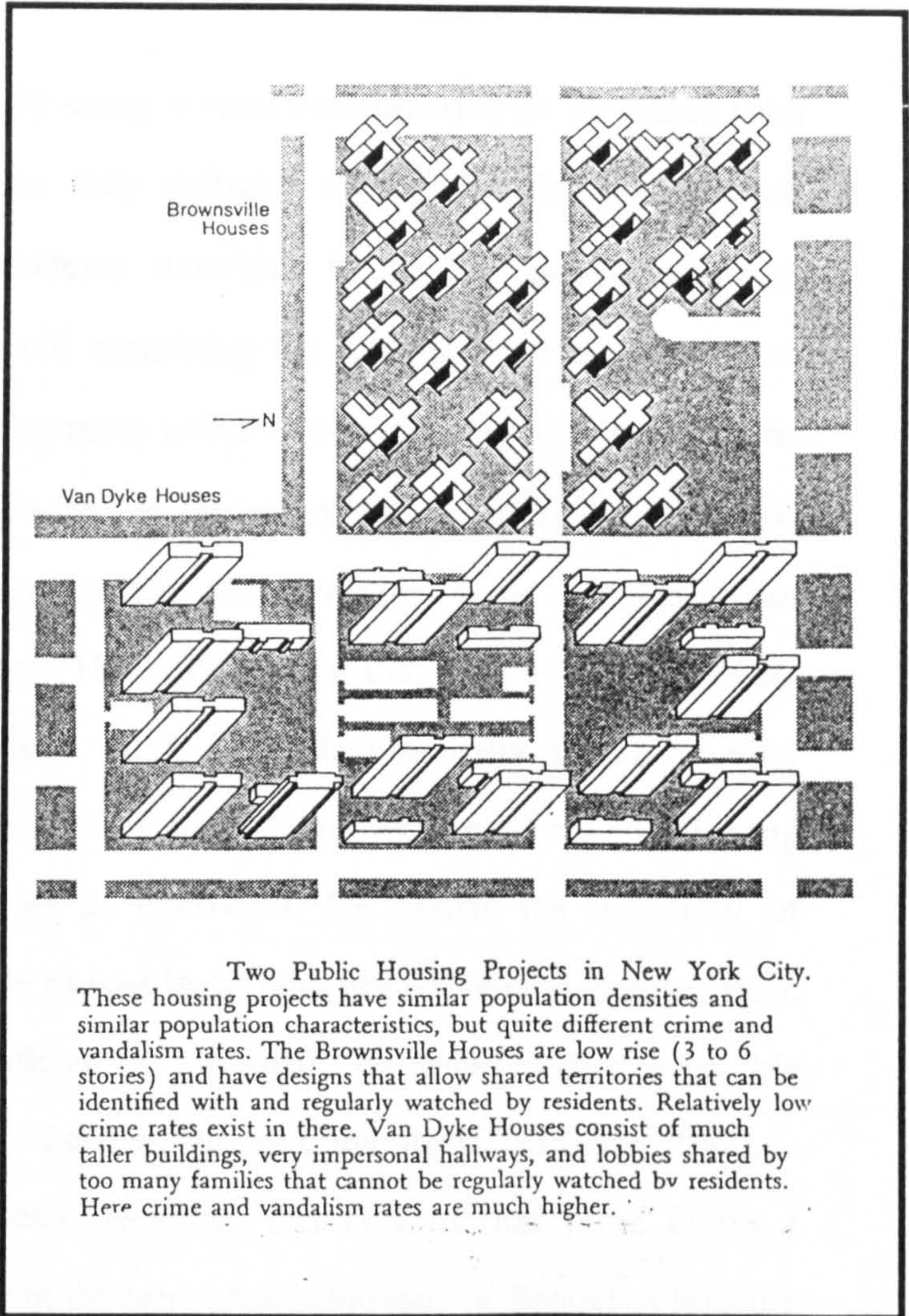
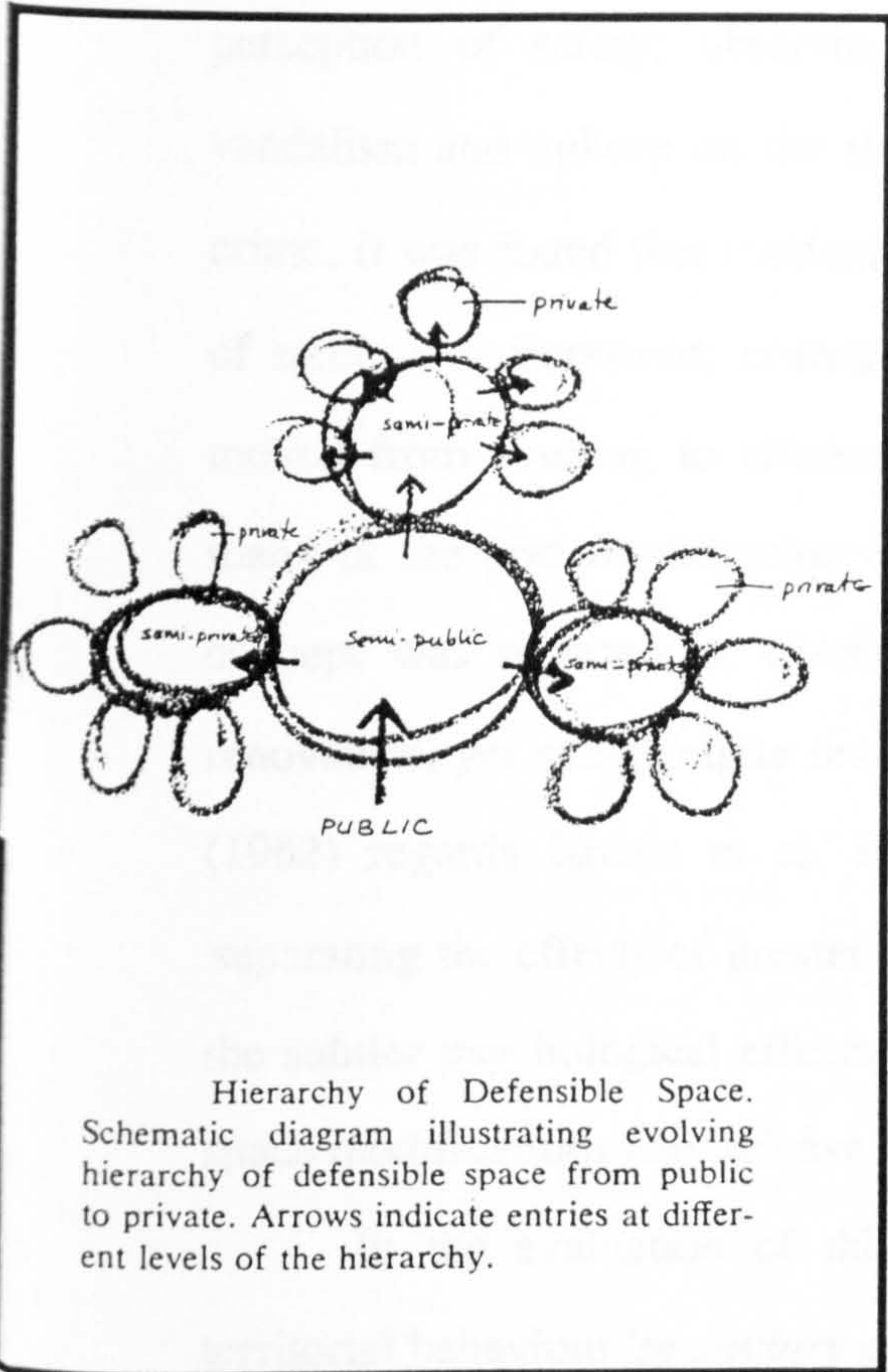


Figure 4.8 Newmans' defensible space concept source: Newman 1972

assessed these design modifications by using several before-and-after measures such as monitoring residents to determine their attitudes toward the design and their perception of safety; observing residents' activities in public spaces; assessing vandalism and upkeep on the sites; and examining the records showing location of crime. It was found that residents were more active in outside spaces; the perception of safety was improved; crimes decreased in frequency and the peak crime period moved from evening to afternoon, suggesting that juveniles were responsible for many of the post modification crimes. The only finding that contradicts Newman's concept was reported at Closten Point where vandalism actually increased after renovation, yet some fragile features such as street lights were not broken. Zimring (1982) regards Kohen et al. findings as equivocal. He assists the difficulty of 'separating the effects of greater pride caused by a more attractive environment from the subtler psychological effects predicted by Newman'. He believes that defensible space modifications may relieve fear of crime, but not crime itself, (Zimring 1982).

In the evaluation of this thesis, Newman has noticed that there exists a territorial behaviour '*secondary cycle*' in the territorial behaviour of Brooklyn housing projects. He related this to the mismatch of territory *formal* and *cognitive spaces* in the phase of "*attainment*". Residents have only two forms of formal spaces: private(the apartment) and public(the corridors, and outside parks), and four forms of cognitive spaces: private, semi private, semi public, and public. Therefore the phase of "*maintenance*" dysfunction, resulting in high crime rates, and vandalism. He attempted to eliminate the territorial behaviour secondary cycle by *re-attainment* of the formal spaces. Instead of private and public, he proposed symbolic markers such as paving differences and low walls to define areas as semi private and semi public. Newman succeeded in fitting the user's *cognitive spaces*(private, semi private, semi public, and public) with the formal "defensible spaces" he created. In other words Newman eliminated the Brooklyn public housing residents territorial behaviour *secondary cycle* by *re-attainment* of territory spaces. This results in a "*development maintenance*" which brought the territorial behaviour into the *primary cycle*. The

danger of defensible space concept occurs when the designer of human territoriality assumes that defensible space will always lead to primary cycle of territorial behaviour. This deterministic approach is taken by Newman himself when he says :

Fundamental to this study is the proposition that through the manipulation of building and spatial configurations, one can create areas for which people will adopt concern. This may suggest that if our data and design method were sufficiently sensitive it would be possible to predict and control a wide range of behaviour and social relationships through provision of particular architectural settings. While this may or may not be true, it is not the focus of our research.....(p.206).

We are concerned that some might read into our work the implication that architectural design can have a direct causal effect on social interactions. Architecture operates more in the area of "influence" than control. It can create a setting conducive to realizing the potential of mutual concern. It does not and can not manipulate people toward these feelings, but rather allows mutually benefiting attitudes to surface, (p.207).

Newman's defensible space concept must be a goal for designing human territoriality, but not the first step in designing it.

The designer who accepts the first group model sketches as a goal for territorial design is accepting the deterministic behavioural approach. Gans (1961) was skeptical about this approach, especially in friendship formation in neighbourhoods. He said:

Finding one's friends on the block is convenient, although propinquity may encourage so much social contact that no time is left for friends who live farther away. Also, propinquity may make life on the block difficult if the relationship should case to be friendly. Dispersal of friendship on a long residential areas may help people to know their community a little better, but unless they are already interested in gathering and using such knowledge, this is not likely to make differences to them, or the community. (in Proshansky et.all 1970, p.508).

Lang (1987) warned the designer of determinism and said :

It is highly questionable to claim that a design will have particular behavioural outcome without first taking into consideration the predispositions and the motivations of the population concerned. If there is no overt or latent desire for interaction between people, for example, the behaviour is unlikely to take place, whatever the layout of the environment might afford, unless there is an accompanying change in the social and administrative environment. Many designers have made very strong assumptions that the spaces they create will, in themselves, lead to change. (Lang 1987, p.102).

The designer who accepts this group model diagrams as a guidance in his formal design of urban design elements also assumes that the users: a) accept the models cognitive spaces components, b) accept the model's diagrams of spatial organisation - nesting or clustering with an (I) shape depth, c) the agreement between the users' society groups (i.e. individual, primary, and secondary) to management maintenance of these cognitive and formal spaces, and most important, d) the unwillingness of these group cultures to change territory formal and cognitive spaces. These assumptions will place the territoriality phases in primary cycle. But if any of these assumptions is not known this may lead to the creation of secondary cycle of territorial behaviour. To conclude, these models are very informative in the cognitive spaces of territory, but the moment they are accompanied with a model diagram, they limit their application to one culture. They can be used as a "balance maintenance phase" for the design but not as a "attainment phase" of human territory design. Human cultures, especially urban culture, is proven to be dynamic and interchanging.

4.4.2 The second group: Models without diagrams

This group includes Altman's and Elsharkawy model, and Hilliar's article "Against enclosure".

Altman introduced a model of territory consisting of three components : primary, secondary, and public. He avoided accompanying his model with any sort of sketch diagram showing the organisational relationship between these components. This is both the strength and weakness of Altman's model. The strength is that it understands the dynamic nature of human territoriality resulting in placement of these components in any *formal* organisation such as *nesting, stringing, or clustering*. It allows the user of this model to place the components of this model in one *depth*, two *depths*, or three *depths*. In other words it gives the user of the model the freedom to organise the *cognitive* spaces (primary, secondary, and public) in any spatial organisation (*nesting, stringing, or clustering*), and the placement of these components in one *depth*, two *depths*, or three *depths* (I,V,^,or --) shapes. It allows

the user/designer to read the palm of his own hand the way he likes. This is also the weakness of this model. The designer may organise his territoriality design on the basis of his own territoriality conception and not the users, and claim that Altman proved it. Altman did not intend his model to be used this way, but the conclusion of some applications of his models implies that he did. Brown (1983), under the supervision of Altman, studied territoriality, street form, and residential burglary. Brown based her study on five hypotheses 1: A combination of symbolic and actual barriers, traces, and detectability factors will show that non burglarised houses, when compared with burglarised ones, will have more salient indications of primary and secondary territorial qualities; 2: Residents of non burglarised houses will report a greater degree of territoriality attachment and identity than residents of burglarised houses; 3: Residents of non burglarised houses will report more sociable relations with neighbours than will residents of burglarised houses; 4: Houses on cul-de-sacs will be at a lower risk of burglary than houses on through streets; and 5: Residents of cul-de-sacs will report greater territorial attachment and greater degrees of neighbouring than residents of through streets. She reports her findings :

The final data set included the physical assessments of 73 burglarized houses (58 on through street, 15 on cul-de-sacs) and 87 non burglarized houses (57 on through street, 30 on cul-de-sacs). The physical assessment includes indicators of symbolic and actual barriers, traces, and detectability factors. These physical displays are presumed to communicate to potential intruders the territorial attachment, accessibility, occupancy, and surveillance potentials of an area..... Results largely support the hypotheses that non burglarized houses or houses on cul-de-sacs represent more defensible territories than their burglarized or through street counterparts. The more defensible territories appear to have stronger evidence of primary and secondary territoriality than the less defensible houses. A non burglarized house, compared to a burglarized one is more likely to have actual barriers protecting the property and symbolic barriers such as sidewalks making a symbolic separation between public and private spaces. Non burglarized houses also have more traces of the presence of residents such as parked cars or signs of yard work. Non burglarized houses are found on blocks with fewer public street signs and fewer houses. The detectability factor shows that the view from non burglarized houses encompasses a greater number of houses from adjacent blocks relative to the number of visible houses on the home block... Thus primary territorial qualities of nonburglarized houses are salient--the combination of symbolic and actual barriers serves to demarcate the territory and separate it from the public territory of the street. The evidence of public territory on a non burglarized block is slight--there are a limited number of neighbours and few public street signs. In addition, physical traces of the probable presence of residents were more frequently associated with non burglarized houses. The non burglarized houses appear to be occupied, used by residents rather than outsiders, and well separated from public territory of the street... The physical picture of a cul-de-sac house is quite similar to that of non burglarized house (indeed, cul-de-sac houses are less

likely to be burglarized). Cul-de-sac houses are symbolically separated from the street and neighbouring properties, by fence or sidewalk, and have little evidence of public use. They also have fewer houses per block and visual access to a large number of houses on adjacent blocks relative to the number of visible cul-de-sac houses.

Residents of cul-de-sacs are also quite similar to residents of non burglarized houses in terms of orientation to the house and block. They have more pride in this primary territory of the house and are more integrated into the secondary territory of the block--they know a greater percentage of their neighbours, report a greater identification with the block and feel more secure about the block, (Brown 1983, pp.53-5).

Brown applied her study results into two suggestions : that more attention be given to the plight of the burglary victim. Secondly, the more careful tailoring of burglary prevention techniques to the needs of particular neighbourhoods . About the second application she reported :

The second application involves the use of the neighbouring data to suggests the most likely candidates for a successful Neighbourhood Watch Program..... Specifically, residents of non burglarized blocks are more likely to know their neighbours by sight, to borrow from them, to ask them for help in emergencies, and to ask them to watch the house, (p.64).

These findings suggest that a substantial amount of social cohesion with neighbours may be a prerequisite for a Neighbourhood Watch Program to succeed in the long run. Although non burglarized residents had a greater proportion of, or speaking acquaintance with fellow residents was more striking. Therefore, neighbours that have a minimal level of mutual regard may be those with large amount of natural protection against burglary, (p.65).

These applications, especially the second suggestion, 'fit' Altman model's dynamic nature. The problem is when designers take Brown's association of the clustering spatial organisation of housing territory formal space indeed cul-de-sac houses are less likely to be burglarized. She is implicitly praising the cul-de-sac as a secondary territory. Brown's suggestions, and not findings, resemble Kuper's thirty years ago. Kuper (1953) studied the cul-de-sac houses of Brydon Road Residential unit, Coventry. He stated that:

There is no simple mechanical determination by the physical environment. The extent to which the awareness of neighbours will develop into active social relationships depends on the characteristics of the residents, their attitudes to neighbouring, their status, aspirations, and their general compatibility. We will not be able to understand either the patterns of these social relationships nor the contribution of elements in the house design and the general setting arrangements, without an analysis of population characteristics, attitudes, and status aspiration. (in Proshansky et al. p.255).

The same argument mentioned about the 'first group models is applicable in Brown's findings but not in her suggestions.

The same evaluation can be applied to Elsharkawy model's attached, central, supporting, and peripheral territories spatial organisation.

Hilliers' (1985) article "Against enclosure" identifies the problem of urban individual territorial design . He noticed that designers are occupied by fragmentation, repetition, and enclosures of the urban design elements. He took the case of Bransbury North London, the Marquess estate and Andover in Islington, and showed that the most vulnerable areas for crime are the most segregated areas. He supported his argument by an empirical study of this neighbourhood crime numbers and locations. He reported his findings by saying :

Taking the three areas together, then, for a total of 2816 dwellings the 211 burgled dwellings have a mean integration of 0.780 while the unbursed are 0.759, i.e. burgled dwellings are markedly more segregated. This difference is clearly substantial although, for technical reasons (the three systems have not yet been assembled into single spatial data base, because of the size this system would need to be) it has not yet been possible to compute a significance test for it.

The results also cast quite fundamental doubts on the whole concept of 'defensible space', at least in so far as one of the main assumptions behind it is that the elimination of natural movement and encounter within housing estate will increase safety. Advocates of defensible space from Newman onwards seem to believe that the criminals seeking victims are part of the passing crowd, and that strangers are therefore in principle dangerous. Something like the opposite appears to be the case. The natural presence of people may be the primary means by which space is policed naturally. The more you eliminate this, then the more you create danger once a potential criminal has appeared on the scene. It is true that people behave more 'territorially' in segregated spaces. But this is associated with feeling more unsafe. No one feels the need to question strangers passing down a street. On the contrary, their natural presence increases the sense of security. It may also, it seems, increase actual security-although much more research is needed before these suggestive findings can be turned into unequivocal results.

He then provides general criteria for designing cities which emphasises:

First, the rules of thumb. We use the term 'line diagram' for the axial structure of a proposed scheme, and 'space diagram for the convex structure. The following can be proposed :

- If it is intended that the new or modified area should relate effectively to the surrounding area, make sure that the 'line diagram' of the sketch design links the heart of the scheme with the surrounding area in several directions with lines that permit both visibility and direct access. These key lines should not pass right through the scheme, but reach an important destination within the scheme with one line, before changing direction to another. These lines should take into account the dominant lines that already exist in the surrounding area, not by continuing them, but by redirecting them. In effect, this is the first stage in the design of an integrating core of the desired type.

- In developing the line diagram of the scheme, make sure that all lines are at most two lines deep both from the outside and from the integrating core, with no more than an occasional line three deeps deep.
- Make sure that any rings in the line diagram (i.e. choices of routes), including those that form rings with the surrounding area, are related to the integration core. If rings are too segregated, then it creates access without adequate use. Choice of routes is good, provided they are all adequately used.
- Make sure that all spaces in the diagram, however small or narrow, have building entrances opening directly onto them. If this is impracticable for small spaces, then avoid creating those small spaces. Avoid clustering too many entrances on too few spaces, and concentrate instead on trying to ensure that every part of the scheme is in touch with entrances. Particularly sensitive in this respect are the spaces leading into the scheme from outside. These should always be related directly to building entrances.
- Make sure that spaces in space in the diagram have links of visibility and direct access through the line diagram to the larger scale structure of the scheme. The 'isovist' (what can be seen and gone to directly from a space) of a space should be roughly proportional to its size.
- Make sure that the orientation of building facades and their entrances is such as to clarify the line and space structure of the scheme. For example lines of sight striking buildings at open angles will suggest further movement possibilities; and marking important moments in the spatial structure with key facades will aid intelligibility and memorability.
- Avoid over-enclosing spaces, except where this deliberately reflects the place of that space in the overall spatial syntax of the scheme.
- Avoid repetition and simple geometrical permutations as far as possible; local differences aid global intelligibility if they are handled well.
- Avoid over-hierarchization of space; a range of rather more integrating and rather more segregating spaces is enough to differentiate the parts of the system into busier and quieter zones, and will avoid creating space that is empty for most of the time.

Here, Hillier sees the problem of existing urban built environment territoriality. It is *formal space* enclosures which eventually will place the architectural units in three, four, or more *depths*. He seems to be not against territory components themselves but rather against placing them in *depths* by the designer's act of enclosing, segregation, and repetition. In other words, Hillier chose to play the safe game of *territoriality behaviour cycle*. He realises, or has no faith in, the dynamic interchanging territorial behaviour of -at least London - urban individual. Instead of designing segregated spaces which may be used as an offensive spaces, he prefers playing the *territoriality behaviour phases cycle* safely by not segregating spaces into step *depths*. He is against enclosure. However the same argument about Altman's model can be applied here. If London street culture is against enclosure, do the designer's have the right to repeat this culture elsewhere, say in Aberdeen Scotland? The answer to this question relies on the understanding of territoriality *spaces, behaviour phases, and cycles*.

CONCLUSION OF PART ONE

Human territorial behaviour is a complex phenomenon and of multi disciplines interests such as psychology, sociology, and design. Consequently territoriality inherited all the complexity of these disciplines. Its nature as person to environment spatial behaviour relationship, spatial design, and multi disciplines vocabulary are points in the argument. Environment components are holistic entities composed of separate person and environment components, elements or parts whose relations and interactions yield qualities of the whole that are more than the sum of parts, (Altman 1987). Territoriality as spatial behaviour is the individual interaction with his/her environment components (natural, person-made, and human environment) driven by his/her needs. Its manifestation is the covert spatial behaviour which is a major factor in shaping the built environment. Human territorial behaviour is the dynamic interaction relationship between human and human, and human and things. Built environment does not simply determine territorial behaviour, nor does it merely provide possibilities, but rather it makes certain choices more likely than others. It supports rather than prohibits. It can reinforce certain pre-existing models of territorial behaviour and can elicit and enable new forms, but it can not create territorial behaviour.

Through literature review the thesis has not only showed these points, but also attempted to contribute to human territory phenomenon in several ways:

- The thesis relaxed the complexity of human territoriality as person to environment spatial behaviour relationship by introducing a general framework for the relationship between environment components (natural, person-made, and human), human needs, and behaviour - mainly spatial behaviour, (fig 1.9).
- The thesis introduced the graphical language for human territory spatial design. It showed that among designers, the spatial formation, transformation, organisation, and depth are presented in a certain graphical language, (fig. 2.11,12, and13).
- The thesis bridged and filled the gaps between territory as spatial design and other disciplines territory definition, characteristics, function, and types and

organisation models, through the re-introduction of territoriality spaces (cognitive and formal), phases (allocation, attainment, maintenance, and abandonment), and cycles (primary and secondary).

These points, hopefully, have clarified the common confusion about human territorial behaviour in relationship to the built environment by specifying the territorial behaviour *phases* (allocation, attainment, maintenance, and abandonment) and the *cases* of the built environment spatial organisation (nesting, clustering, and stringing). The *phases* are common in all cultures, while the *cases* are specific for a particular culture in a particular time. The dynamic nature of the territory as a spatial behaviour needs a dynamic built environment to satisfy this nature seen as stages in the built environment to achieve the desired case. The existing studies of human territorial behaviour in the built environment have captured only one frame of the dynamic built environment stages development to achieve the desired case. In urban man territory, where the city is multi culture supported by today's growing economy and advanced technology, one can not only find all the four phases and stages to achieve the built environment cases of territory spatial organisation, but also the high availability of choice to the urban man.

It has to be emphasised that the writing of part one was done in parallel to part two (the Arab-Muslim built environment), where the literature review and findings were made simultaneously.

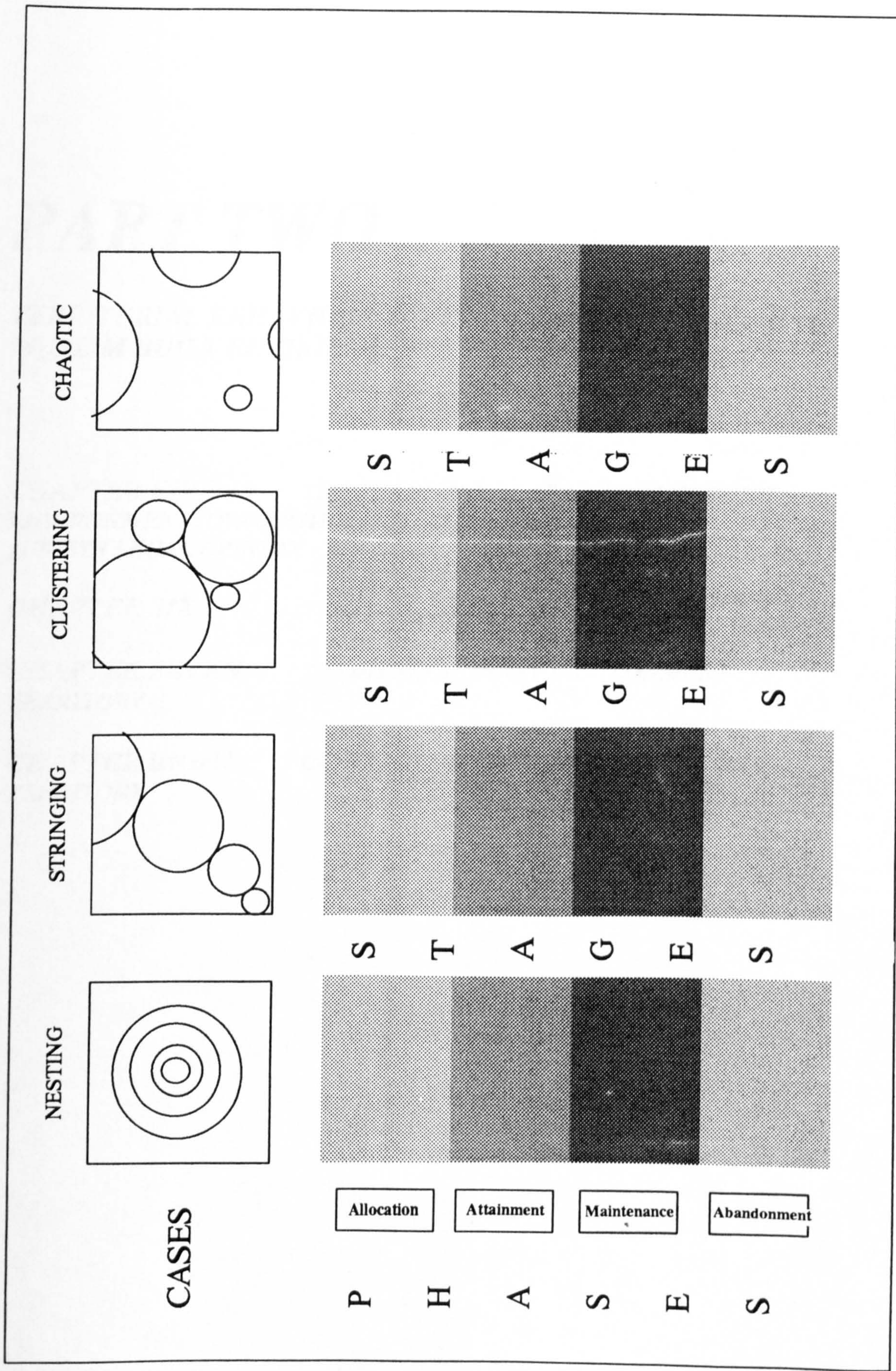


figure 4.9 Human territory spatial organisation cases, phases, and stages relationship.
source: author

PART TWO

TERRITORIAL BEHAVIOUR EFFECT ON SHAPING THE ARAB-MUSLIM BUILT ENVIRONMENT

CHAPTER FIVE THE TRADITIONAL ARAB-MUSLIM BUILT ENVIRONMENT: OWNERSHIP SYSTEM, EASEMENT RIGHTS, AND JURISTS LEGAL OPINION

CHAPTER SIX TERRITORIAL BEHAVIOUR TYPES

CHAPTER SEVEN TRADITIONAL BUILT ENVIRONMENT TERRITORY

CHAPTER EIGHT CONTEMPORARY BUILT ENVIRONMENT TERRITORY

Introduction

Why and how did the physical pattern of the Arab-Muslim cities become identical regardless of the geographical and climatic location? Why and how did cities built to highly ordered plans such as Nablus and Safaxis become transformed into irregular plans? Why and how is a street in Cairo identical to a street in Baghdad? Answering these questions have been the subject of investigation by many writers such as Lapidus, Abu-Lughd, Al-Hathloul, Akbar, and many others. The general theme of such investigations is that the Arab-Muslim urban pattern has come to be what it is because of its residents continuous encroachment upon the city's available public spaces, and jurists legal opinions vary because of their acceptance or unacceptance of this encroachment. Part two of this thesis is concerned with the past (traditional), present (contemporary), and the future of Arab-Muslim built environment formation and transformation from human territoriality point of view. From the various functions of human territoriality (possession and ownership, personalization, defence, and time duration), the thesis will give a great deal of attention to the function of possession and ownership. The reason for this is the availability of ownership system data and its documentation to the traditional built environment since the prophet Mohammed (p.b.u.h). This data was accumulated in the legislation (Fiqh) books, and can be compared with the contemporary ownership system in the Arab-Muslim world.



Figure 5.1 Arab Muslim town plan transformation, Safax, Tunis.



figure 5.2 Arab-Muslim town plan transformation: Nablus, Palestine
source: courtesy of Khalid Qamheah.

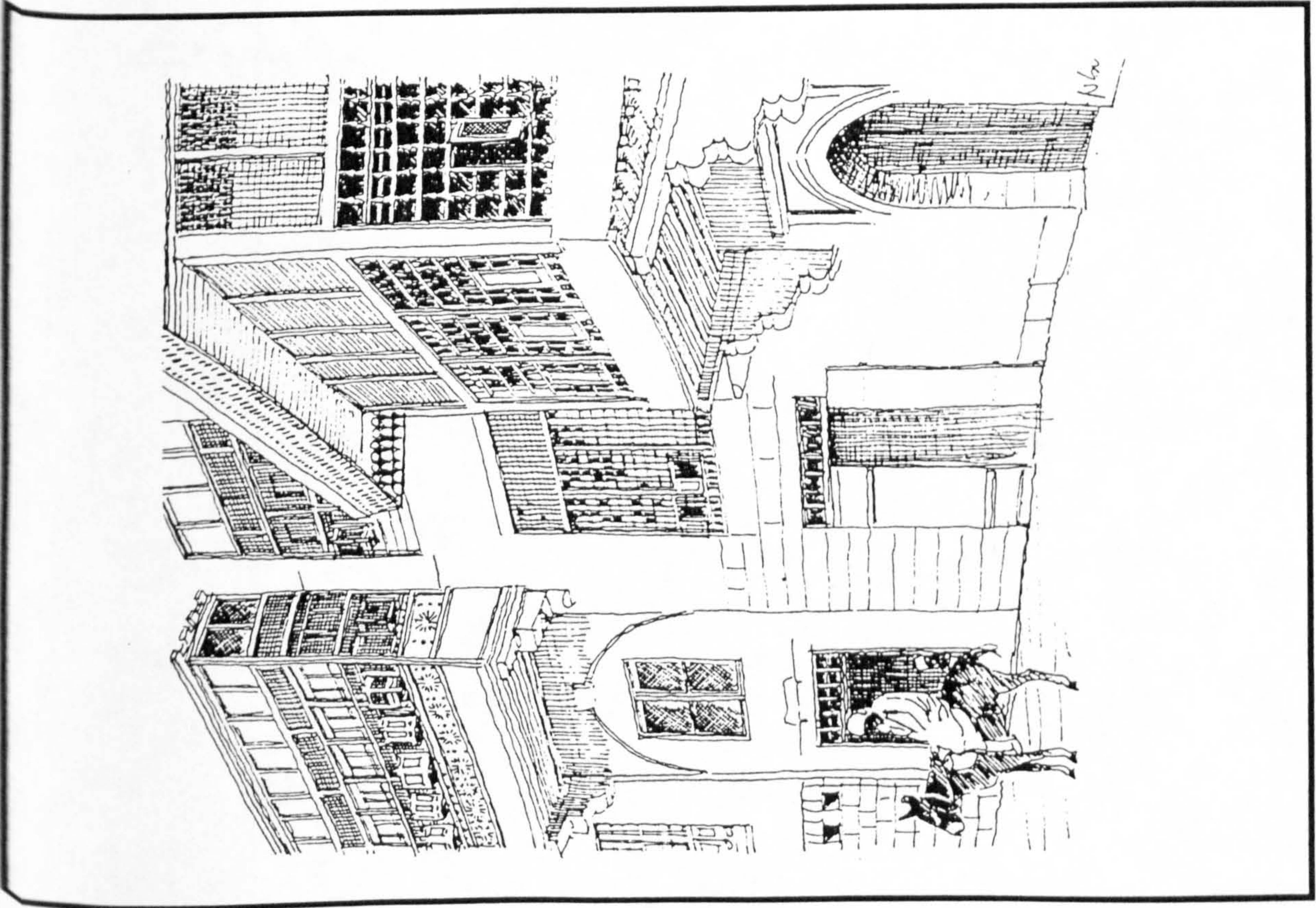


figure 5.3 Residential street in Cairo.

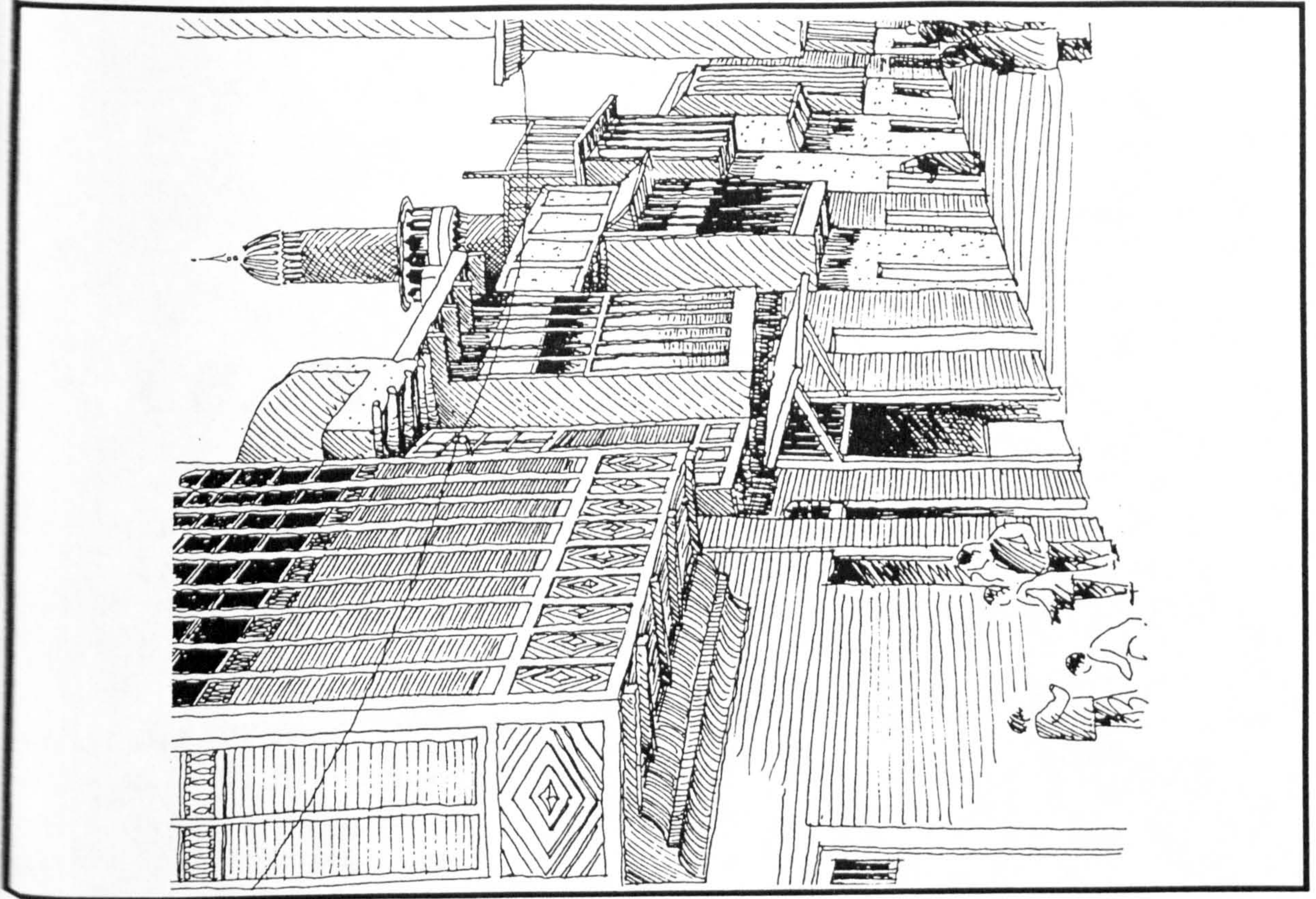


figure 5.4 Residential street in Baghdad.

CHAPTER FIVE

THE TRADITIONAL ARAB-MUSLIM BUILT ENVIRONMENT TERRITORIALITY OWNERSHIP SYSTEM, EASEMENT RIGHTS, AND JURISTS LEGAL OPINION

5.1 OWNERSHIP SYSTEM

5.1.1 Ownership concept

5.1.2 Ownership causes

5.1.3 Ownership types

5.1.4 Owners types

5.1.5 Ownership parameters

5.1.6 Ownership controllers.

5.2 Easement rights

5.2.1 Causes

5.2.2 Types

5.3 Jurists legal opinion

CHAPTER FIVE
TRADITIONAL ARAB-MUSLIM BUILT
ENVIRONMENTTERRITORY
OWNERSHIP SYSTEM, EASEMENT RIGHTS, AND JURISTS
LEGAL OPINIONS (FATAWA)

5.1 THE OWNERSHIP SYSTEM

Islam is the religion of every Muslim, every where, at any time. The Islamic divine law or 'Shari^h' has regulated the life of Muslims for a long time from the basic to the loftiest. Islamic Shari^h bases its legislation system on four sources : the Quran as the primary source, the Sunah or the tradition, words, and actions of the prophet Mohammad (peace be upon him), Qias or analogy, the intellectual deduction for analogous situations, and Ijma, or the general consent, which is a collective of Qiyas and Ijtihad. Shari^h denotes the literature that has been written by Muslim jurists through the centuries, whether it deals with contemporaneous issues of the time or in anticipation of the future ones arising from the four sources. The Shari^h intentions (Maqasid Al Shari^h) must be fulfilled in examining any situation. Alghazaly (d.505/1127) defined these intentions by saying :

The Shari^h intentions for the creatures are five : protection of the religion (Al ^{din}), being (Al nafs), intellect (Al aql), descendants (Al nasil), and belongings (Al amwal). Whatever guarantees the protection of the five basics is a benefit (Maslahah), what ever destroys it is a bad deed (Mafsadah), and its prevention is a benefit. The Shari^h intentions are known from the Quran, Sunnah, and Ijma^h. What ever benefit which is not to preserve an intention known from Quran, Sunnah, and Ijma^h, and was contradicting Shari^h is not considered (Batil). (Cite in Alba^{ly} 1985, p.154).

In this thesis, the understanding of the Muslim legal system of ownership and its parameters are of a major importance. Al-Ba^{ly} (1985) gave an overview of ownership in Islam. Shari^h has distinguishes between the concept of ownership, causes, types, owners, controllers, and its parameter, (fig 5.5). The figure illustrates the general outline of the ownership process among the main four schools of law: Hanafi, Malki, Shafi^{ci}, and Hanbali. It does not show the minor differences between these schools.

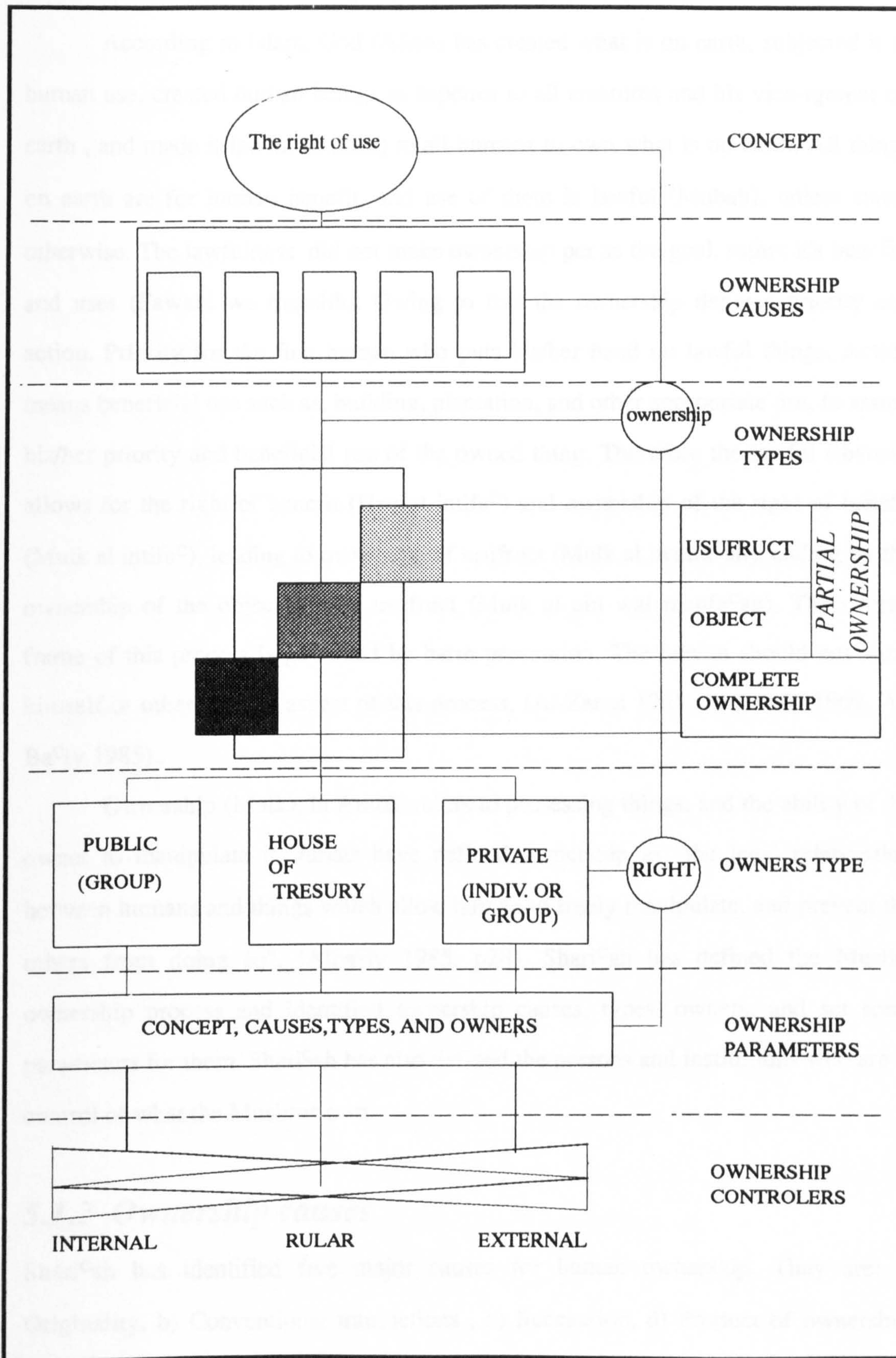


figure 5.5 Ownership system in Islamic Sharicah.
source: author.

5.1.1-Ownership concept

According to Islam, God (Allah) has created what is on earth, subjected it to human use, created human beings as superior to all creatures and his vice-rgerent on earth , and made it lawful (mubah) to all humans to own what is on earth. All things on earth are for human benefit, and use of them is lawful (Mubah), unless stated otherwise. The lawfulness did not make ownership per se the goal, rather it's benefits and uses (Fawaid wa masalih). Owing to this the ownership denotes priority and action. Priority for the first human who puts his/her hand on lawful things. Action means beneficial use such as, building, plantation, and other appropriate use, to assure his/her priority and beneficial use of the owned thing. Therefore the lawful (Ibahah) allows for the right of benefit (Haq al intifa^o) and ownership of the right of benefit (Mulk al intifa^o), leading to ownership of usufruct (Mulk al manfa^oah), ending by the ownership of the object and its usufruct (Mulk al ain wal manfa^oah). The overall frame of this process is governed by harm prevention. The human should not harm himself or others in any aspect of this process, (Al-Zarqa 1965, Al-Khafif 1969, Al-Ba^oly 1985)..

Ownership (Mulk), in Arabic refers to possessing things, and the ability of the owner to manipulate it. Jurists have defined ownership as "the legal relationship between humans and things which allow human to freely manipulate, and prevent the others from doing so", (Alba^oly 1985, p28). Shari^oah has defined the Muslim ownership process and identified ownership causes, types, owners, and set some parameters for them. Shari^oah has also defined the persons and institutions who are in control of what the Muslims own.

5.1.2 Ownership causes

Shari^oah has identified five major causes for human ownership. They are: a) Originality, b) Conventional transactions , c) Succession, d) Product of ownership, and e) Time duration, (Al-Zarqa V.1, pp 242-261).

a- Originality (Munshi al mulk): this refers to any original action to lawfully obtain ownership from earth. Lawfully means free from prior ownership of it, and there is no prevention from Shari^h to do so. This category includes hunting, wooding, mining, land revival (Ihia), and war plunder, including lands, (Abu Zahra 1963, p.123).

b- Conventional transactions (Naqil al mulk) refer to the causes that are not originally a cause of ownership, but to the transaction of an already existing ownership from one person to another. Example of this are deals and transactions in general, such as selling and buying(bai^h), gifts(hibah), will(wasiah), charity(zakah), pre-emption (shuf^h), endowment (Waqf), and allotment by rulers (Iqta^h).

c- succession (Khilafat al mulk): this refers to the succession of the owner to another owner due to the first owners death. Inheritance (Irth) is a clear example of this category, where Shari^h has provided for the sharing of inheritance among all family members.

d- Products of ownership (tawalud min mamluk) : this is when the owned objects are produced by the owners effort, such as in farming, or breeding, (al Zarqa 1965, p.265).

e- Time duration (Hiazah li mudah tawilah): for this category, jurists do not consider possessing something for a long period of time as a cause of ownership, but they consider the possessed object as a reason for ignoring others claims, especially when the possessor claims ownership. They define this period of time as ranging approximately between ten and thirty three years, and assert that the right of ownership is sustained when the possessor testifies that it is not his. Jurists also assert that the delay in claiming of ownership an already possessed object is not caused by absence or the threatening of oppression, (Abu Zahra 1963, p.160).

5.1.3 Ownership types

Shari^h has distinguished between four types of ownership. They are : the ownership of the object only (Mulk al ^hain), ownership of the usufruct only (Mulk al

manfa^h), the ownership of both the object and its usufruct (Mulk al ^hain wal manfa^h), and the borrowing ownership (Mulk al dain), (Abu Zahra 1963 pp. 56-57). Due to the nature of the first two types, jurists refer to them as partial ownership (mulk naqis), while the third one is referred to as the complete or comprehensive ownership (mulk tam). The first type, ownership of only the object, is not common and occurs for instance when a person leaves a will to another person to own the use of an object for a period of time, then after that his inheritors own the object and the use. During this period the inheritor owns the object only, but not the use. The second type is the ownership of use when one owns only the use of an object for a specific period of time and has the right to sell this use or share it with others. Examples of this type are leasing (Ijarah), borrowing (I^harah), endowment (waqf), and wills (wasiah). The third type is the ownership of the object and the usufruct, or complete ownership. It has the characteristics of: a) the ability of the owner to manipulate the object and the use in all the Shari^h lawful conventional transactions (such as selling, leasing, gift, and will), succession as in inheritance, and the fruit of its production; b) the benefit of the owned object is used unconditionally for a time or a situation within the Shari^h teachings; when damaged, the owner is not obliged to refund anyone, but his/her responsibility is a religious and moral one, which may lead to power of attorney (Hajr). The fourth type, borrowing ownership occurs when one owes another some money for a reason such as sale, a loan, or refund, (al Ba^hly 1985).

It must be emphasised that there is a difference between the right of benefit (Haq alintifa^h), the ownership of the right of benefit (Mulk al intifa^h), and the ownership of usufruct (Mulk al manfa^h). As mentioned above, the ownership concept the origin of ownership is Allah's lawful gift of the use of what is on earth. The lawful (Ibahah) allows for the right of benefit (Haq al intifa^h) and ownership of benefit (Mulk al intifa^h) leading to ownership of usufruct (Mulk al manfa^h) ending by the ownership of object and use (Mulk al ^hain wal manfa^h). Right of benefit (Haq al intifa^h) gives the individual as well as groups the right to benefit from the

object only by themselves and they do not have the right to transfer this right of benefit to any one else through conventional transactions, succession, or the production benefits. An example of this is the use of dead lands, and major streets for walking. The ownership of the right of benefit (Mulk al intifa^ḥ) is given to a specific individual or group, such as sitting in mosques and markets, where one has the right of benefit but not of leasing this right to another person. The ownership of usufruct (Mulk al manfa^ḥ) is the permission given to the individual for a specific period of time to have the right to benefit from the use of the object by himself through conventional transactions such as leasing (Ijarah), lending (I^ḥarah) or will (wasiah), and by the same token the individual, without causing damage to the object, has the right to make others benefit from this use through leasing or lending only. An example of this is when a person leases a home for a period of time during it the tenant has the right to re-lease it. The right of benefit (Haq al intifa^ḥ) and ownership of the right of benefit (Mulk al intifa^ḥ) could cause the ownership of usufruct (Mulk al manfa^ḥ), leading to the ownership of object and use (Mulk al ^ḥain wal manfa^ḥ), as in the case of publicly owned dead land revival (Ihia). Also the right of benefit could cause the complete ownership of the object and usufruct to be partial ownership of the object only, as in the case of easement rights (Irtifaq); (Al Khafif 1969 p45, Abu Zahra 1963 p.78, Al Ba^ḥly 1985).

5.1.4 Owners' types

There are three types of owners of ownership which Shari^ḥah has made a distinction between. The first is the private ownership (Mulkiyah khasah) for individual or group of individuals. The second is the House of Treasury ownership (Mulkiyah Bait al mal), while the third is the public ownership for all Muslims collectively (Mulkiyah ^ḥamah), (Al Khafif 1969 p.61). The private ownership can be obtained through ownership causes and types, and give the owners the priority for its use and freedom of its manipulation the way he or she pleases in the case of complete ownership, or for a specific period of time and without damaging the object as in the case of partial

usufruct ownership. The private owner can be an individual or a group of individuals. In the case of individual private ownership (*mulkiah mutamizah*), the thing is owned by a single individual, while when more than one individual shares the ownership (*mulkiah shai'ah*), the benefit of this ownership of object and/or use can be divided or regulated (*muhaiah*). The regulation of the benefit could be by dividing the benefit in space or time. The second owners' type is the House of treasury ownership, or the authority that is in charge of what the Muslims own but the owner is not identified or located. An example of this is charity money (*zakah*), one fifth of war plunders and mining (*Khums*), taxation of Muslims (*Kharaj*) and non Muslims (*jeziah*), lost and found objects, the inheritance of a person with no family, and private ownership donations and endowments. Charity (*zakah*) money is spent on proper charity causes, while the rest is spent on public good in general. The trustee of the House of Treasury is the ruler (*Wali al amr*) and his appointees (*Man yanub 'anh*). The third type is public ownership, which is what all Muslims own collectively without singling out any one of them. The things that owned collectively are either because of their huge amounts, like rivers, oceans, dead lands, or because of the great number of users such as urban major roads, and fringes of villages. Private ownership can also be donated to the public, such as mosques and public endowments in general. Jurists relied on the prophets saying " Muslims are partners on water, grassing land, fire, (and) salt" to consider the mining and earth mines as public ownership and can be enjoyed by all Muslims. The protected lands (*Hima*), where land revival and allotment is not allowed are also considered by jurists as public lands for all Muslims collectively. Public ownership guarantees the individual as well as the group the right of benefit (*haq al intifa'*), and the right of benefit ownership (*mulk al manfa'ah*) where the Shari'ah allows, (Al Baly 1985p.86-101).

5.1.5 Ownership parameters

Islamic Shari'ah sees human ownership as a vice-regent of Allah's ownership of everything, including the human being himself. The All Mighty made it lawful for

humans to own. Alzamakhshari said " The property you have in your hands is God's by virtue of him making and creating it. He supplied you with it and permitted you to reap its benefits, and made you his heirs and successor in disposing with it, but it is not really yours and you are only God's agent and representative" (cited in Al-Yamani 1985). Because of that humans must benefit from this allowance of ownership the way the real owner, Allah, wishes and pleases and avoid what does not please him, as he revealed in the holy Quran. Almadody (1983) said " If you vice-regerent someone into your orchard and you make him your heir, you must be sure about four aspects : firstly, that you are the real owner of the orchard and not the one you vice-regerented; secondly, your viceregerent must use what you own the way you tell him; thirdly, he must obey you and follow your commands in every meaning; fourthly, his duty is to fulfil your goals and not his own If you see a vice-regent that does not fulfil these four conditions, you might say that he over passed the vice-regent boundaries, and suspend the contract that meant by vice-regerent", (Almadody 1983, p. 28).

Islam respects private ownership, and puts no limits on what an individual can own. At the same time, government and public ownership are also recognised through the house of treasury and public ownership. Shari^h encourages the circulation and distribution of wealth among individuals. It provides the means and channels for that, such as inheritance of all members of the family, charity, gifts, etc. It also prohibits the hoarding of money for long periods of time. It provides many parameters for the ownership process and for the role of individuals and institutions in manipulating the ownership itself. Some of these parameters and roles concern: the concept and causes of ownership; the owner's authority in his/her ownership; and the relationship between the different types of owners and ownership, (Al Zarqa 1965, p 277).

Parameters of the meaning and causes of ownership. The Shari^h insists on an ownership that is not a means for exhibition, over spending, or harming one self or others. To insure this all Muslim individuals, groups, judges, and rulers appoint different roles in assuring the main purpose of ownership. Shari^h has defined the

concept of ownership and its purpose. There are some unlawful things that are prohibited (Muharrm) to own. The jurists categorised the prohibited to own into two categories :1) prohibited for the cause of its object (Muharrm li ^{Ca}ainih) such as dead bodies or dirty things. 2) prohibited for the right of the others in it (Muharrm li haq ghairih) which contains: a- prohibited for the lack of acceptance by the owner or pure oppression (dulm mahd) such as thefts and taking by violence; b- owning without the permission of the Shari^{Ca}h (^{Ca}ukud batilah), such as giving what one does not own, money interest on money, and gambling. **Regarding the owner's authority on his/her ownership, the individual may use his/her ownership the way he/she pleases during his/her life and after his/her death if he/she is not harming himself or others. Ibn Taymiah (d. 728/1328) said that "Humans have the option to spend their earnings only on what is useful to them in their religion or living. Other than that is considered as overspending, which Allah has prevented in Quran...", (Al Baly 1985)**

During a person's life the basis of any ownership is full acceptance by that person of the ownership, except in the case of inheritance where acceptance is not required. The prophet has said " The property of a Muslim person is not lawful without his [the owner] conciliative consent". But the ownership right of a person can be taken from him for the benefit of either an individual or groups. The benefit of an individual includes the pre-emption (Shuf^{Ca}h), power of attorney (Hajr), and the selling of shared undividable objects. The benefit of a group includes taking a home to build a mosque, or street widening with compensation. The owner can manipulate his ownership even after his death. The will (Wasiah),and endowment (Waqf) is an example of this case. The owner should avoid harming himself or others, which is not allowed in Shari^{Ca}h. The Quran said "Allah wants comfort and not difficulties upon you". The prophet has said " [there should be] no harm and no mutual infliction of harm upon the others". In any act to define the harm upon oneself or others, jurists distinguished between three factors: is the harm intended (Maqsud) vs. not intended, or as a side effect(Ghair maqsud); is the harm enormous (Fahish) vs. rare (Nader); and finally, is the harm sure to happen (Yaghlub wqu^{Ca}h) vs. doubtful (La yaghlub

wqu^{ah}). To define the harm intention the jurists evaluated the action initiator's return benefit and other available options. If the act has no return benefit, he/she is considered as a violator (Mu^{tadi}) and should be stopped. The same judgement is passed upon the action initiator who has more than one option of acting and chooses the one that harms himself or others. In the case where the action initiator has only one option which causes harm to others, the jurists evaluate the quantity of the harm. If harming others is rare, the action initiator may proceed in using his ownership, but if the harm is considerable he/she must be prevented. The inevitable harm is evaluated according to its actor's intention and the amount of the harm, while doubtful happening harm is not considered. If the individual uses his ownership to cause harm to himself, power of attorney (Hajr) is allowed to prevent him from doing so. When others are harmed, authority should intervene for harm assessment and prevention, (Al Ba^{ly} 1985, pp.135-137). **Parameters of the others' ownership and their rights** are more focused upon the issues that are commonly shared or integrated between the different types of ownership and owners. The jurists identified three typologies of relationships: Easement rights, neighbouring rights, and authority exceptional rights. Easement rights are the rights upon a property [eased upon] for the usufruct of another property [eased for] owned by different owners. The easement rights are demonstrated in water resources, water drainage, and passage ways. Neighbouring right is the relationship between neighbours who are neighbouring either side by side or on the top. Easement rights and the neighbouring rights will be elaborated in the next section of this chapter. The authority exceptional rights are the rights given to the rulers and their appointees to regulate the ownership process for the benefit of the whole Muslim community. These rights are explained in the next section dealing with controllers of ownership.

5.1.6 Controllers of ownership

There are two major controllers of the ownership process: internal and external. The internal controller(s) is the owner in the first place. The private, House

of Treasury, and public ownership owners should obey and respect the Shari'ah teachings in all respect. The ownership concept, causes, and types must be recognised through applying the Shari'ah parameters. The main rules governing the internal controllers are priority, action, benefit and harm prevention. The owners must own only the beneficial things determined by the Shari'ah. There should be no harm in doing so to the owner himself or those other than the owner.

The external controllers are the ruler (Wali al amr), the judge (Qadi) and his appointees (Muhtasib), and the knowledgeable peoples of the Muslim community (Ahl al 'ilm). These externals who are, at the same time, partly internal controllers must assist the practice of Islamic Shari'ah, especially during crises and disputes. Ibn Taymiah (d.728/1328) has said that " The purpose of all government in Islam is to ensure that the religion is all for Allah and his word is the highest, because Allah created creatures for that and emphasises it through his books and messengers. That matter is what the prophet and the believers fought to ensure.", (Alba'ly 1985). The ruler must prevent oppression and govern with justice in all matters, including the ownership process. Obedience to him is the duty of every Muslim if not in contradiction with Shari'ah. The rule of the ruler is to assure that the benefits (Masalih) and rights (Huquq) are preserved and distributed with equity with out harming any member of the Muslim community. In assuring the benefits of the Muslims he must be: sure about benefits which do not contradict another more important one; sure that all Muslims are benefiting and not only few individuals; sure that these benefits are within the Shari'ah teachings. In order not to harm any member of the Muslim community the ownership process can be controlled by the ruler to: prevent as far as possible the harming of oneself or others; prevent a major harm by sanctioning a minor one; if there is benefit to the public to sanction individual harm; to guarantee that prevention of harm has priority over obtaining benefits; to sanction violation of prohibited matters if necessary. The flexible rules of the ownership process are a dynamic system that can be applied by any Muslim at any time in any place. The internal and external controllers are the same before the

Shari'ah law. Every member of the Muslim community is obliged to ensure that the Shari'ah is practised in every manner. When this is not the case he/she should change that by his hand, his tongue (speech), or his heart and this is the weakest faith.

5.2 EASEMENT RIGHTS

Easement (Irtifaq) in Arabic means literally elbowing. It denotes the reduction of a property ownership benefit for the purpose of benefiting another property. Easement right (Haq Al Irtifaq) has been defined by Abu Zahrah (1939) as " The right of the different benefit of one property over the other, regardless of the owner" while Al Zarqa defined it as " An exclusive benefit of an immovable over another [adjacent] immovable in which the two immovable are owned by different parties, where the benefit belongs to the first immovable even if its owner changes, unless it was relinquished through conventional transaction", (Cited in Akbar 1984, pp.43). There are some differences between the easement right (Haq Al Irtifaq) and the right of benefit (Haq Al intifa) discussed earlier in the ownership process. Al-Ba'ly (1985) gave some of the jurists opinion on these differences. These are : 1) easement rights are always specific to immovable property (i.e. a land or a house), while the right of benefit is general to object movable, immovable, or human (i.e. a book); 2) easement rights cannot be abandoned and are mandatory upon the eased property, and the owner is compelled to give the others these rights, while the right of benefit may be elective. The owner of an object -including properties- can abandon the right of benefit when he wishes, as in the case of land borrowing; 3) easement rights have a negative return nature upon the eased property without the owners' consent, while the right of benefit may have positive returns with the owners' acceptance, such as getting back a favour or money; and 4) the easement rights exist as long as the eased upon property exists, regardless of its owners existence or death (this is the Hanafi school of law opinion), while the right of benefit may be conditional for a time defined by its owner, (Al Ba'ly 1985).

5.2.1 Causes of easement rights

Easement rights in general mean the benefit of an individual or group property from another property publicly or privately owned. In public ownership properties, the causes of the easement rights are the individual or group share in its ownership, as in the case of rivers and main through streets. In privately owned properties, the individual as well as the group has the easement rights because of the attachments and geographical topographical relationship between properties. For example, a difference in ground or floor levels causes some property to drain its rain water into another property, or a house nested in others' property needs a passage to reach it. Al Qabisi said "It [right] is the private right of the personal benefit and servitude, and it is not a complete manipulation....such as the passage of a house, the galley of water and path of road. The person may benefit from the flow of his water on the neighbour's roof and the path of his house [through the neighbours house]; and he[the owner] may not sell this right or give it as a gift to others", (Cited in Akbar 1985, pp 44-45).

5.2.2 Types of easement rights

The Hanafi school of law asserts that the easement rights can only be bestowed upon six types : drinking water resources (Shurb), drinking water channels (Majra), rain water drainage (Masil), passage on roads (Murur), and vertical (Ta'ally) or horizontal (Janibi) neighbouring rights. Other schools, such as Shafi'is' and Malikies' see the six types of easement rights being potentially extended in newly developed situations, (Al Khafif 1969 p 128). Among these six types, this thesis is interested in the passage on roads (Murur) and vertical (Ta'ally) or horizontal (Janibi) neighbouring rights.

The passage easement right means "the ability of the individual (alone or with his herds) to pass through others' property in order to arrive at his property", (Al Ba'ly 1985, p 146). The passage can be publicly owned by all Muslims collectively, or owned by a private individual or group. For the publicly owned passages all groups

have the right to pass, and if their properties are attached to it, park their animals and open doors and windows if they are not harming the others by doing so. If the owner of an attached property wants to built a projection or pass over this passage and this involves harming others, all schools of law said he should be prevented. If there is no harm to the others, Abu Hanifah insists on the permission of the ruler (Wali al amr) before doing so, while Abou Yusif approved such projection if there is no objection by the others before it is finished. Al-Shafi'i (d.204/820) gives the absolute right for such an action, if it is not harming the others, and sees it as a lawful act.(More elaboration of these cases will be given in the next section). For the passages owned privately by an individual or group of individuals, the owners have the right to open doors, windows, build projections and gates if they all agree. The other passer-by has the right to use private passages when the main passages are crowded. If the private passage is without gates, the public right of easement right is a reason for preventing the owners from building a gate, dividing it between them, or eliminating the use of the passage in general, (Abu Zahra 1963 p102, Al Khafif p.133).

The neighbouring easement rights of vertical or horizontal neighbours.
Vertical neighbouring concerns the relationship between the upper and lower floors ownership, as in the case of multi story houses. The Hanafi school of law insists upon the existence of the lower floor in order to be able to sell the upper floor. They did not consider the air right as objective property (Amwal) on its own. The Maliki's and Hanbali's considered the air right as objects, and allowed for the ownership process to be applied to it. Naturally, the upper floor owners are less dominant on the ground floor ownership. Therefore, the easement rights of vertical neighbours give some of the rights for the upper floors owners upon the lower floor owners. For example, the owner of the ground floor may not voluntarily demolish or cause damage to the structure of his property. If he does so the owner may be forced by law to rebuild his property. If the damage or demolition is not intended by the owner of the lower floor, the upper floor have the right to re-build it if he is volunteering to do so. The same rights are not applied on the top floor. If the owner demolishes or causes damages to

his property, the lower floor owner has no right to compel him to build his property. The two owners must not use their property in ways that cause harm to one another's properties' structure, such as opening large windows in the lower floors or adding a new structure in the upper floors. The damage prevention, if there is a dispute, is left to the judges and experienced people (Ahl al Khibrah) to be assessed, (Al Khafif 1969 p.166).

For the **horizontal neighbouring** easement rights, as in the case of side to side houses, the origin of the easement right is that every owner has the right to freely manipulate his ownership the way he/she pleases if he is not harming the others, (see 5.1.5 for harm definition). All schools of law agree about this right and consider it as a religious moral one (Dianah). The opinions of jurists differ on the assessment of use/relationship between neighbours (Qada), especially during disagreements and disputes among neighbours. Abu Hanifah, Early Hanafie's, and Al Shafi'i insist that the use of his house by the owner cannot be conditioned by his neighbours' benefit, therefore the neighbours have no right to condition their neighbours actions. These actions, if they cause minor harms, may be prevented by explaining the neighbours religious or moral obligations to the action initiator(Dianah). The Late Hanafies and Malikies, and Ibn Hanbal see the conditioning of the use of a house by its owner as not causing an unusual or obvious harm to his neighbours. If there is an obvious harm the law should interfere to prevent it (see the previous chapter for harm definition).

In summary, section two of chapter five gives a general introduction to the concept of easement rights in Shari'ah. It shows that the easement right is the benefit given to individual or group private properties to benefit from others' properties, privately or publicly owned. The concept of the ownership process, as well as the easement right are of major importance in defining the Arab-Muslim traditional built environment territory types.

5.3 JURISTS LEGAL OPINIONS (FATAWA)

This section will introduce some of the legal opinions of the major judges of the four Sunni schools: Hanafi, Maliki, Shafi'i, and Hanbaly. The source of these opinions in English is Al-Hathloul (1981) and Akbar (1984).

Abu Hanifah Al Nu'man (d.150/767) is the founder of the Hanafi school. Nowadays, this jurisdictional school is practised in India, Pakistan, Turkey, parts of Syria, Southeast Asia, and China. In regard to dead land revival, Abu Hanifah asserts that the authorities permission is needed in order to claim the ownership of the land, (Akbar 1984, p 81). Regarding property Fina (the space abutting a property and used by the residents of the property), he considers it as owned collectively by all Muslims, just like the street itself, (Akbar 1984, p 238). At the same time, he does not allow for the revival of the Fina's land and explains that an individual may use his property's Fina in the future by creating a door, or he may store building materials to use in maintaining his wall and the like, (Akbar 1984, p 239). Regarding street appropriation, his opinion is that any Muslim has the right to object to and prevent an action before it starts or shortly after it is completed. If no objection is voiced the individuals may extend their upper floors, (Akbar 1984, p246). An example of his fastidiousness in this is that he tore down the old plastering of his house before applying a new one so as not to appropriate a part of the Muslim's road, (Akbar 1984, p 250).

Malik Bin Annas (d.179/795) is the founder of the Maliki school. He was born and died in Madinah. His school now covers North and central Africa, upper Egypt, the Sudan and West Africa. In regard to street territory, Malik did not object to the appropriation from the street if no harm was caused to the public and the right of way was not hindered. For him the property's Fina's leasing is that :

"...For spaces of small width, where the least thing posed would hinder the circulation, I think that no one has the right to reserve their use for himself, and that the authorities must intervene; but for those where the width is such that the circulation would not be hindered at all if the neighbouring owners utilize them for their own needs, I see no harm if the authorities do not intervene..", (cited in Al Hathloul 1981, p.92)

When Malik was asked about the right to partition the Fina among the abutting properties owners, he replied "No", even if the abutters agreed it should be done. He sees the Fina spaces as open, which in the future would benefit the public, and people might use them should the public road be crowded with people and animals, (Al-Hathloul 1981, p 101). In regard to the upper floor projections, Malik allows this appropriation regardless of the objections raised by the others as long as the extension does not damage the public interest. His reason is that the acting individual has 'preceded' others in benefiting from the upper space of the street, (Akbar 1984, p253). Ibn Al-Qasim (d.191/807) commented that projections (ajnihah) are usually built at Madinah - Malik's city - and that the inhabitants do not object to them, and that Malik himself bought a house which had a projection (Caskar), (Al-Hathloul 1981, p 105).

Abu Yosef (d.182/798) from the Hanafi school, and lived in Baghdad during the Abassid Caliph Harown Al-Rashid. He defines the dead land as "any land distanced from urbanized areas so that if a man calls out loudly from thence [the edge of the urbanized area], his voice cannot be heard from there", (cited in Akbar 1984, p.71). In regard to the ownership of urban areas 'Harim', he stated that "if the residents of the village have a common land for grazing animals or getting wood, that land is owned by them. They can sell it or inherit it. They can make things in it [manipulate it] as any person does in his property", (cited in Akbar 1984,p.86). He also asserts that the inhabitants of the village have the right to prevent others from using their 'Harim' such as in grazing and wooding, if such a use can cause harm to the owners. In regard to the cul-de-sac street, Abu Yosef used the term "private lane" (sikkah khassah) to refer to it, which is not a physical description. He asserts that the owners of the private lane are free

from 'others harm prevention' if the owners all agree on the way of using it, (Akbar 1984, p 262).

Ibn Al-Qasim (191/807) from the Maliki school was asked about two hypothetical cases where in the first case an individual wants to built a bath in his vacant lot with an objection from his neighbours against such an act. According to the Maliki school he responded that "if it would cause a damage to the neighbours such as smoke or comparable matters, then they have the right to prevent him from doing so, because Malik said that one should be prevented from causing harm to his neighbour", (cited in Al-Hathloul 1981, p.67). In the second hypothetical case he was asked about a black smith who wanted to build a bellows or an oven to melt gold and silver on his lot, or set up a quern for milling that would cause damage to the neighbour's wall, or dig out wells, or set up a latrine near his neighbours wall. Would they have the right to prevent him from doing so? He replied "Yes, that is what Malik said in more than one of these cases, regarding smoke and other comparable matters", (cited in Al-Hathloul 1981, p. 76). Regarding the upper floor projection over the street, when asked whether an individual could project on the street with a low clearance, he stated that "If the action would cause the least harm to the circulation on the street, one would prevent him..", "The limit [he said] for its [the janah] distance from the street's ground is that which accommodates the rider of the greatest camel while there is still enough clearance over his head", fig (5.6), (cited in Al-Hathloul 1981,p.102). Regarding the subject of opening a window that will look into a neighbours house, he asserts that "...One has no right to create something that will inflict harm or damage to his neighbour, even when what is done is within his own property", (cited in Al-Hathloul 1981,p.108). When an individual builds his house encroaching on his neighbour's air or 'upper territory' preventing the neighbour from using his air later on, he ruled that the encroaching parts have to be demolished.

Mohammed Bin Edrees Al-Shafi'i (d.204/820) is the founder of the Shafi'i school. His school now covers Egypt, the Southern and Eastern part of the Arabian peninsula, East and Meridional Africa, and parts of Southern Asia. In land revival Al-Shafi'i defined the dead land (Mawat) as " what is not urbanized or built on [Camir] and yet which belongs to it [pasture lands for example], even if [that land] is abutting urban land", (Cited in Akbar 1984, p.71). He asserts that in land revival the individual does not need the permission of the ruler for such an act. Depending upon Al-Suyuti (d.911/1505) Al-Shafi'i's opinion on river banks is that they cannot be owned or revived by individuals, (Akbar 1984, p 87). For upper street level appropriation by abutting properties, he allows the projections regardless of the objections raised by others as long as the expansion does not damage the public benefit of the street, (Akbar 1984, p253).

Ibn Al-Majishun (d.213/828) did not approve of the change in the location of publicly used streets. His opinion is that the authorities may intervene if the change is more than one to two cubes (half to one meter) from its existing location, (Akbar 1984, p191). If the shifting of the publicly used road occurs in private land, he asserts that nothing can be taken from the owned land without the consent of the owner, (Akbar 1984, p232). Regarding the house Fina he relates that Maliks opinion is that the Fina in front of the houses should not be dimarked or subdivided among its owners, even if they agree upon that. He sees this act as a narrowing of the street which may harm the passers by.

Asbagh (d. 225/840) is reported to have said that the Finas, whether at the front or at the back, are part of the house, (Al-Hathloul 1981, p92). He approved the house appropriation from the street if the street is wide enough, and said " ... if the road is very wide and the encroachment is very small in comparison to its width so that it will cause no real damage, I think that it should not be demolished and that one must not worry ", (Cited in Al-Hathloul 1981 p. 86). He explained that if the residents of a group of houses have already

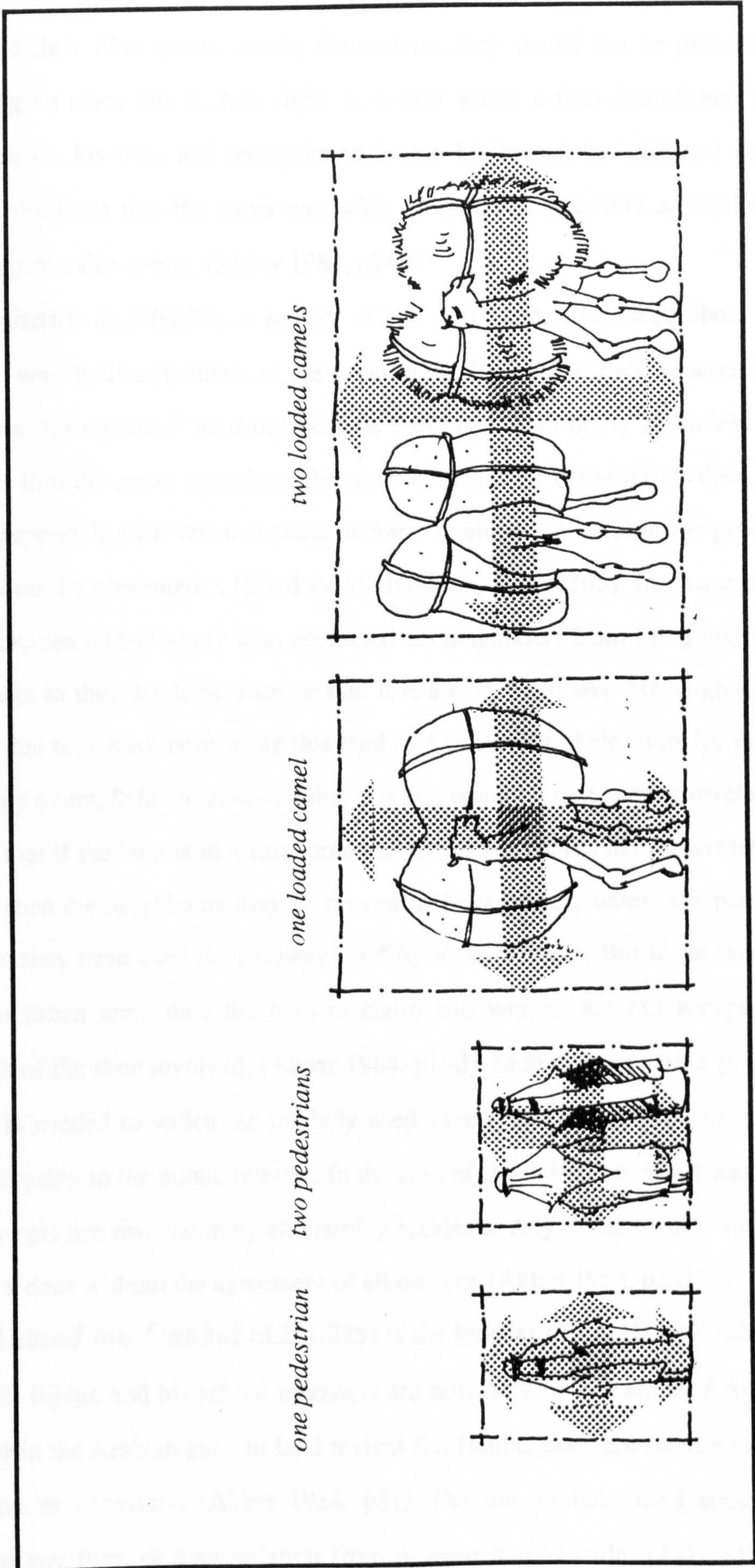


figure 5.6 Traditional street width definition.
 source: after Al-Said (1986).

subdivided their Fina spaces among themselves, they should not be prevented from doing so since this is their right. In a case where a man demolished the sitting area on his Fina and incorporated it into his house, he approved such action on the basis that the street was wide enough, and therefore advised the ruler to approve this action, (Akbar 1984, p240).

Sahnun (d.240/854), a student of Ibn Al-Qasim, was asked about an individual who built a chamber on the street upper floor to connect between his two houses. He replied : " he should not be prevented from doing so, unless he introduces into the street something that may narrow it or cause harm; then, he must be stopped. But for acts that cause no harm to either the street or the public, he should not be prevented.", (Cited in Al-Hathloul 1981, p.103). In a case of a dispute between a land owner who prevented his neighbours from using his land as a passage to their lands because he said it is a recent act, and his neighbours claiming that they have been using this land as a passage to their lands for more than twenty years, Sahnun answered that this is a common case among dwellers. He ruled that if the land is in a rural area and the owner proves his ownership of the land, then the neighbours may be prevented from passing unless the passers prove that they have used the pathway for fifty to sixty years. But if the land is within an urban area, then the owners claim and witness are not acceptable regardless of the time involved, (Akbar 1984, p190). In the case where a private property is needed to widen the publicly used streets, he compels the owner to sell his property to the public interest. In the case of the cul-de-sac street Sahnun sees it as a private ownership by all abutting residents. Any of the owners should not open a door without the agreement of all owners, (Akbar 1984, p231).

Ahmad bin Hanbal (d.241/885) is the founder of the Hanbali school. He died in Egypt, and his school followers are now only in the centre of Arabia and Qatar in the Arabian gulf. In land revival Ibn Hanbal does not see the ruler's permission as necessary, (Akbar 1984, p81). For the publicly used street he objects to any form of appropriation from it, even if it is wide, (Akbar 1984,

p242). When he was asked about appropriation from wide streets he answered that such an action is worse than taking from one's own neighbour, since taking from the neighbours property is only from one person, while taking from the street is taking from all Muslims. He said " If a path was used by the people and become [over time] a road, then no one can take anything from it whether it is little or much", (Cited in Akbar 1984, p. 193). One of his students was rejected by him because the student plastered his wall around the street door without scratching down the previous plastering, and thus taking a thickness of one finger from the through street. In the markets, Ibn Hanbal sees them as a place for everyone and the first arrival has the right upon the later arrival. He said:

' The first comer to a shop of the market at dawn has [the right to occupy] it until the night, this was the practice in Al-Madinah market in the past. The prophet had said that Mina is the place of occupancy for first comers. [The appropriator of a place] may shade himself, so long as he does no damage to the [place], by using cloth, a straw mat, an awning or other things, since they are needed [to provide the necessary shade] without harm. And he may not build benches or similar things which obstruct the way of passers by during night or the blind during day and night. Since such structures would remain, [the user] could then claim ownership of the place..... [However] we should not buy from those who sell on the [narrow] roads", (Cited in Akbar 1984, p. 64).

Ibn Qudamah (d. 620/1223) from the Hanbali school, did not see the permission of the ruler as needed in reviving a dead land, and said " reviving of dead lands is the custom in all towns [amsar], even if there are differences among jurists regarding its regulation", (Cited in Akbar 1984, p.72). In damage definition and prevention, he listed the opinion of various schools, and asserts that the change of the property function is allowed unless the damage caused by the function changing is considered very severe, such as irrigating the land with an excessive amount of water so as to damage the neighbours wall, or burning things that could ignite the neighbours wall. Similar to Ibn Hanbal, Ibn Qudamah did not allow for any taking from the through streets whether they are wide or narrow. He sees upper floor overpasses and cantilevers as an act that should not be permitted on through streets even if they do not cause any damage to the

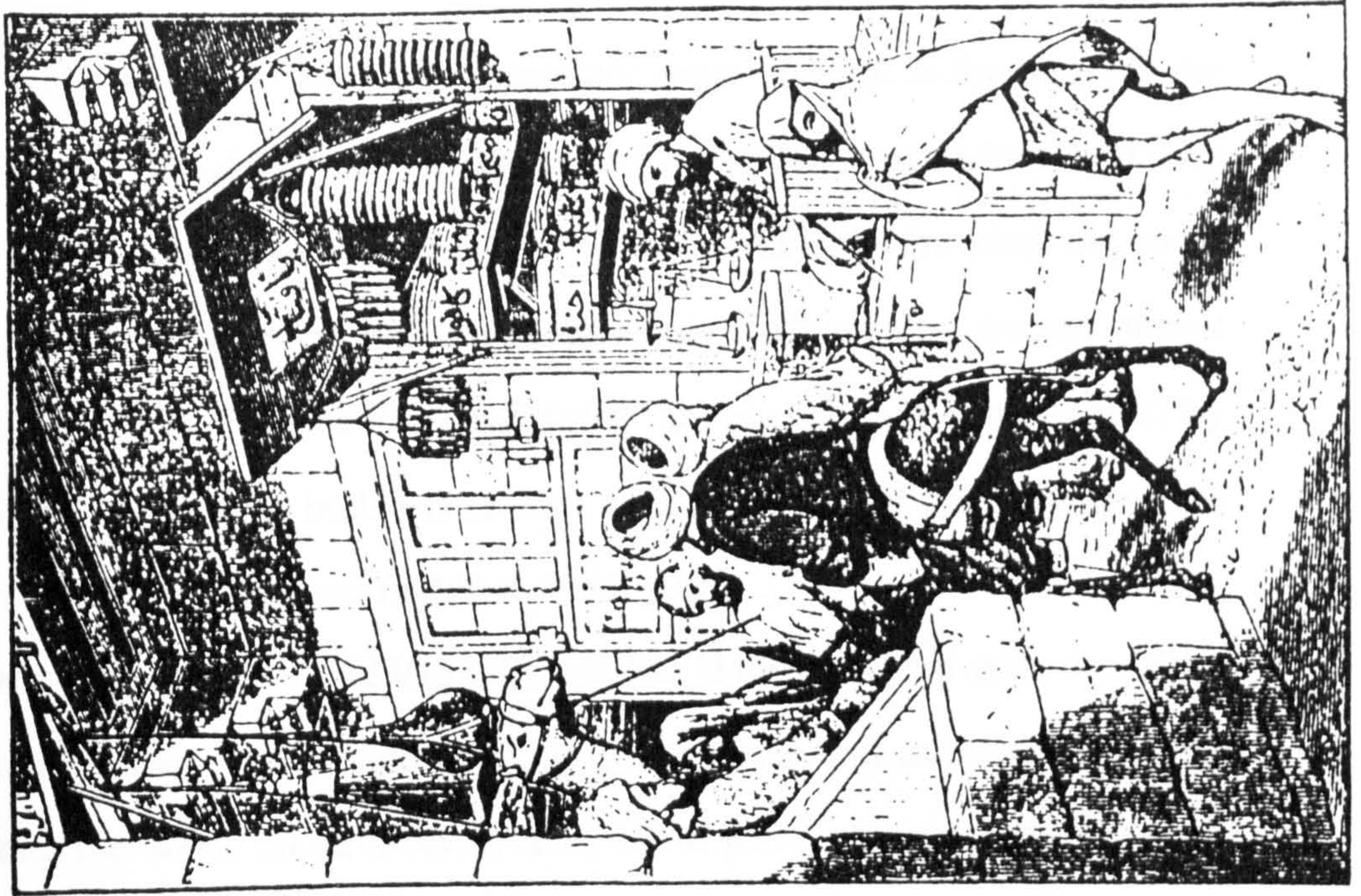
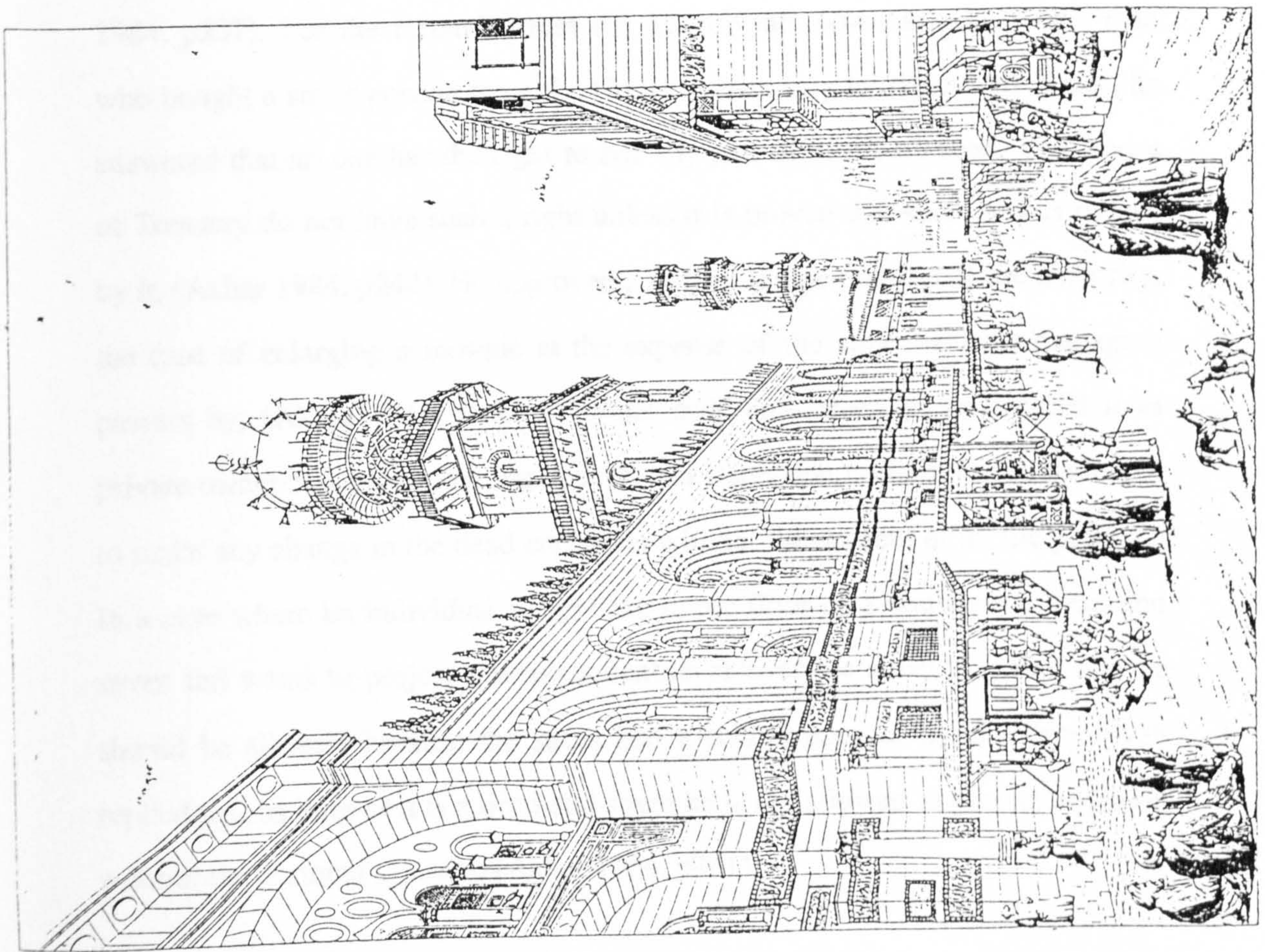


figure 5.7 Arab-Muslim street pattern characteristics.

passers by. His reason is that it will eventually cause damage in the future if the street floor rises. He said " we have seen these [overpasses] quite often" and they are a damage to the public, (Cited in Akbar 1984, p. 253). In the dead end street or the cul du sac the chambers building is legal only if all adjacent owners permit it, "and if the residents of the dead-end street [ahl al-darb] are compensated by [the resident who wants to built a chamber], it is as legal as if the owners of the street were one owner.", (Cited in Akbar 1984, p.88).

Ibn Taymiyyah (d.728/1328) from the Hanbali school sees the house Fina as not only the space around the door of the house, but as including all the area abutting the house on all sides, (Akbar 1984, p237). Its ownership extends as far as the houses abutting to it. Ibn Taymiyyah asserts that the Finas private ownership is as the opinion of Malik, who approved the leasing of wide Fina and not narrow ones. He adds that the Fina is demarked by its owners, the others are prohibited from using it unless permission is obtained from the owners, (Akbar 1984, p237). For the through street Ibn Taymiyyah, when asked about a man who bought a street portion from the House of Treasury to expand his house, he answered that no one has the right to sell any part of Muslim's road. The House of Treasury do not have such a right unless it is proven that such land is owned by it, (Akbar 1984, p244). He approved , without the permission of the authority, the case of enlarging a mosque at the expense of the street without damaging passers by, (Akbar 1984, p252). For the dead end street, he considered it as private ownership by all abutting houses, and states that no individual is allowed to make any change in the dead end street without the consent of all the partners. In a case where an individual bought the upper floor of a house on a dead end street and wants to project a wooden cantilever over the street claiming that he should be allowed because the street had a school door in it, Ibn Taymiyyah replied that as long as it is a dead end street he is not allowed to project anything without the partners' consent, (Akbar 1984, p261).

Ibn Al-Rami (d.734/1334) was a knowledgeable Tunisian builder who was expert in both building and jurists legal opinions. He was the author of the book *The Announcement of Buildings Regulations (Al I^calan Bi Ahkam Al Bunian)*. He collected most of the disputed cases in Tunis at that time and gave his ruling based on technical and legal opinion. For instance, in a case of a mill causing smoke he said " ...the judge [Ibn Abd al-Rafi^c (D.733/1333)] asked us to investigate the matter, and we wrote in a document that it produced too much smoke, and that it caused damage to the neighbours. The judge, then, ordered [the mill] to be stopped", (Cited in Al-Hathloul 1981,p.77). On publicly used roads Ibn al-Rami was chosen to subdivide some lands in Tunis. He said that he made the street widths eight cubits, enough for a camel to pass, (Al-Hathloul 1981, p88). He indicated that disputes and appropriation were common in Tunis. Judge Ibn al-Rafi^c ordered him several times to demolish a number of buildings and wooden structures which encroached upon the public way, (Al-Hathloul 1981, p86). Regarding the house Fina, Ibn Al-rami defines the width of the Fina as demarcated by the spot where the water spout pours on the ground, which is usually between four and six open hand-spans, (Akbar 1984, p237). In the cul-de-sac streets he requires the agreement between all the street abutting owners before any action is taken. In a case where a cul-de-sac gate was erected and one of the abutting house owners complained that the contentious opening and closing of the gate caused damage to his property walls, Ibn al-Rami, following the judges ruling, ordered the gate to be demolished, (Akbar 1984, p250).

In summary, the listed jurists legal opinions demonstrate the ability of the Islamic Shari^cah to be applied to any problem. The jurists opinions are an evaluation of the property ownership system, easement rights, other users' right and the ownership of benefit. Depending on the existing situation and its precedent examples, they gave their judgement.

CHAPTER SIX

TERRITORIAL BEHAVIOUR TYPES

6.1 Public territory

6.2 Semi-public territory

6.3 Semi-private territory

6.4 Private territory

6.5 Personal space

CHAPTER SIX

TERRITORIAL BEHAVIOUR

AND

THE TRADITIONAL BUILT ENVIRONMENT.

This chapter, based on the literature review of human territoriality introduced in part one of this thesis including territory definition, functions, characteristics, and type organisational models, is an attempt to define Arab-Muslim traditional built environment territorial types. The traditional built environment was started from the time of the prophet Mohammed migrated to Madinah (1/622) and ended in the term of this century.

Muslim scholars have given the ownership process a great deal of attention. They defined its concept, causes, types, and owners' types. They also defined the parameters that govern the ownership process. Among the human territory functions (ownership and possession, personalization, defence, and time duration) the ownership process will be given a major role in the categorising and defining of the Arab-Muslim traditional territory types. Therefore, territory types will be defined depending on :1) the concept of right of benefit (Haq al intifa^c), right of benefit ownership (Mulk al intifa^c), ownership of usufruct (Mulk al manfa^cah) , and the ownership of the object and usufruct (Mulkiah tamah) which indirectly affects the time duration; 2) private ownership by an individual (Mulkiah mumtazah), a group (Mulkiah shai^cah), or House of Treasury (Mulkiat bait al mal), and public ownership for all Muslims collectively (Mulkiah ^camah).3) internal and external controllers of ownership. It must be emphasised that, similarly to the ownership process, the territory types are dynamic and interchanging through space and time. The Arab-Muslim traditional built environment territory types are: public and jurisdictional, semi-public, semi-private, and private and personal space. These types are introduced by the author in an attempt to analyse the Arab-Muslim built territories, (fig 6.1).

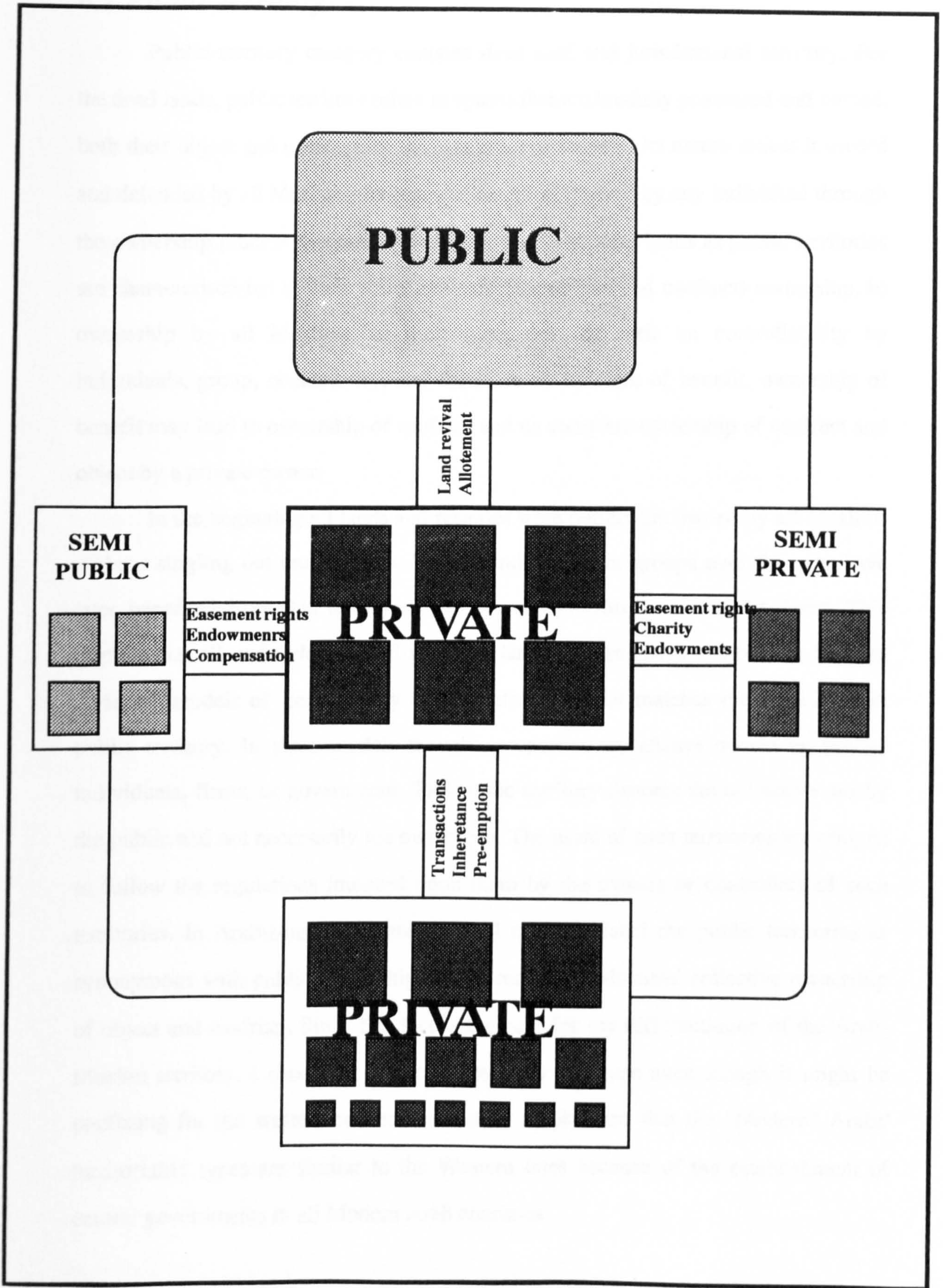


figure 6.1 Arab-Muslim traditional built environment territory types relationship.
 source: author.

6.1 Public territory

Public territory category contains dead land and jurisdictional territory. For the dead lands, public territory refers to spaces that are lawfully possessed and owned, both their object and usufruct, by all Muslims collectively. Its nature makes it owned and defended by all Muslims. Its personalization is allowed by any individual through the ownership process mentioned in chapter five. The dead lands as public territories are characterised by: a) their collective complete (object and usufruct) ownership, b) ownership by all Muslims, c) their large size, d) their un controllability by individuals, group, or authority, and therefore e) the right of benefit, ownership of benefit may lead to ownership of usufruct and its complete ownership of usufruct and object by a private owner.

In the beginning all lands and resumes were public, i.e. owned by all Muslims without singling out one of them. Various individuals or groups over the ages have later benefited from this unrevived space, and by effort have made it theirs. This implies that all undeveloped land is public land. A term could not be found in the reviewed models of territoriality type a definitions that matches the Arab-Muslim public territory. In these models thought, properties are always owned by private individuals, firms, or government. The public territory denotes the collective use by the public and not necessarily the ownership. The users of such territories are obliged to follow the regulations imposed upon them by the owners or controllers of such territories. In Arab-Muslim territory type, I chose to label the public territories as synonymous with public ownership, which means all Muslims' collective ownership of object and usufruct. Since this fact is the base for my differentiation of the Arab-Muslim territory, I chose the public territory for this type even though it might be confusing for the western reader. It must be emphasised that the "Modern" Arabs' territoriality types are similar to the Western ones because of the establishment of central governments in all Modern Arab countries

6.1.1 Jurisdictional territory

This is the right given to an individual or group of individuals to assess the function of certain territory. The external controllers of the ownership, the ruler, judge, Muhtasib, and neighbours, also function as persons with jurisdictional territory, (Al-Hathloul 1984, p130). Al-Wansharisi reports that a person has the right to enter his neighbour's house to check the condition of his party wall. If such a wall needs repair he has the right to bring building materials into the neighbour's house, (Akbar 1984, p228).

6.2 Semi public territory

This refers to spaces that are possessed and owned, either their object or use, by all Muslims collectively. Its nature makes it widely owned by Muslims, resulting in shifting the authority of its personalization and defence right to the governmental authority as a representative of all Muslims. These semi public territories are characterised by :a) their collective partial ownership of either the object or use by specific group of Muslims ;b) their limited availability in quantity, or the large number of its users; c) private citizens having the right of benefiting or the ownership of benefit only, and not the ownership of usufruct. d) the government authority (the ruler, judges, and Muhtasib) as the controllers of such territories. An example of the semi public territory is the protected lands (Hima), major roads in urban areas, bridges, the Harim of the urban areas, mosques and public endowments devoted for all Muslims, and easement rights between the public and other territory types :public, semi public, semi private, and private.

The Arab-Muslim semi-public territory is seen here as similar to the modern public territory type in terms of public rights of use. Stea (1965) used the term 'territorial complex', Lyman and Scott (1967) named it public territory; Roos (1968) referred to it as range; Altman (1975) as 'public territory', Porteous (1977) as macrospace; Rapoport (1979) as 'home range', and Elsharkawy (1979) calls it 'peripheral territory'.

6.3 Semi private territory

It refers to the spaces that are privately owned by an individual, group of individuals, or the government with a partial ownership of either the object or usufruct. Its nature makes it partially owned or possessed by a specific number of owners, highly personalized unless prevented, relatively defended by the owner, and used for a relatively long period of time. The semi-private territories are characterised by : a) their origin is a complete private ownership of the object and the usufruct being transferred to partial ownership; b) their partial ownership of the object or the usufruct; c) their defined owners. An example of the semi private territories are the un gated cul-de-sacs, and endowments for specific group.

Semi private territory is similar to Stea's (1965) 'territorial cluster', Roos' (1968) core area, Altman's (1975) secondary territory; Porteous's (1977) 'mesospace', Rapoport's 'core area', and Elsharkawy's supporting territory(semi private and semi public).

6.4 Private territory

This refers to the spaces that are privately owned by an individual, group of individuals or the government with a complete ownership of both the object and usufruct through the ownership process. Its nature makes it highly owned or possessed by a specific owner, freely personalized, highly defended by the owner, and used by the owner for a long period of time. Private territories are characterised by: a) their defined owners; b) their complete ownership of the object and usufruct; c) the ability of their owners to freely manipulate and benefit from the ownership. Private territory is manifested in the Harim concept consisting of the interior defined spaces and the origin of the exterior spaces abutting or surrounding the contained spaces (Fina). An example of the private territory is the houses and Finas abutting to them, defined by gates cul-de-sacs, and easement rights between private territories.

The private territory is comparable with Stea's (1965) 'territorial unit', Lyman and Scott's (1967) interactional territory, Roos's home area, Altman's (1975) primary

territory, Porteous' (1977) microspace, Rapoport's (1979) home area; and Elsharkawy's (1979) central territory.

6.4.1 Personal space

In Islam, the Shari'ah has mentioned the personal space or space attached to the body, the portable bubble surrounding the individual in different major conducts, such as prayer and different sex relationships, (fig. 6.2). In prayer the person must physically or symbolically define the personal space in front of him/her needed to perform the prayer. This space is defined by *Sutrah*. *Sutrah* can be symbolically defined by a line in the ground, or by placing an object such as a stick. Physically it can be defined by building a niche, as in the case of more permanent prayers place, the mosque. If a passer-by violated this space he must be prevented from doing so by a signal from the hand or a push if he did not respond to the signal. In the case of gathering for prayer (*Salat al jama'ah*) the demarcation of the prayer leader (Imam) *Sutrah* is enough, but his followers should provide and ensure their individual personal spaces through straightening the rows and filling the gaps in each row shoulder to shoulder and heel to heel. Due to that, the prayer performer should have a clean and nice smelling body. He is asked to wash, bathe, and wear some perfume, and refrain from making bad smell causes by eating onion, garlic, etc. The mosque as a place for permanent prayers is designed in this respect. The prayer leader (Imam) has a niche (*Mihrab*) in the front of the mosque directed to Makkah. The Mosque doors are located mostly in the back or sides of the mosque to prevent prayers' personal space violation.

For the different sex relationships the Shari'ah has respected the personal space since childhood. The segregation between sleeping beds is asked for by the prophet when he says " Order your children to pray when they are seven years old, beat them for not doing it when they are ten, and segregate between them in beds". The women have a 'personal space' that must not be violated except by her husband and close relatives (such as brothers, sons, fathers, uncles, and nephews). Violation by

sight (except the first sight) or physical touch is absolutely forbidden. This matter caused the Arab-Muslim houses to be designed with double circulation and sections, one for the male and male guests and other for the family and female guests. The family sector opens to the interior courtyard for maximum segregation, while the exterior openings are designed as sight prevention by devices such as Mashrabyyah windows.

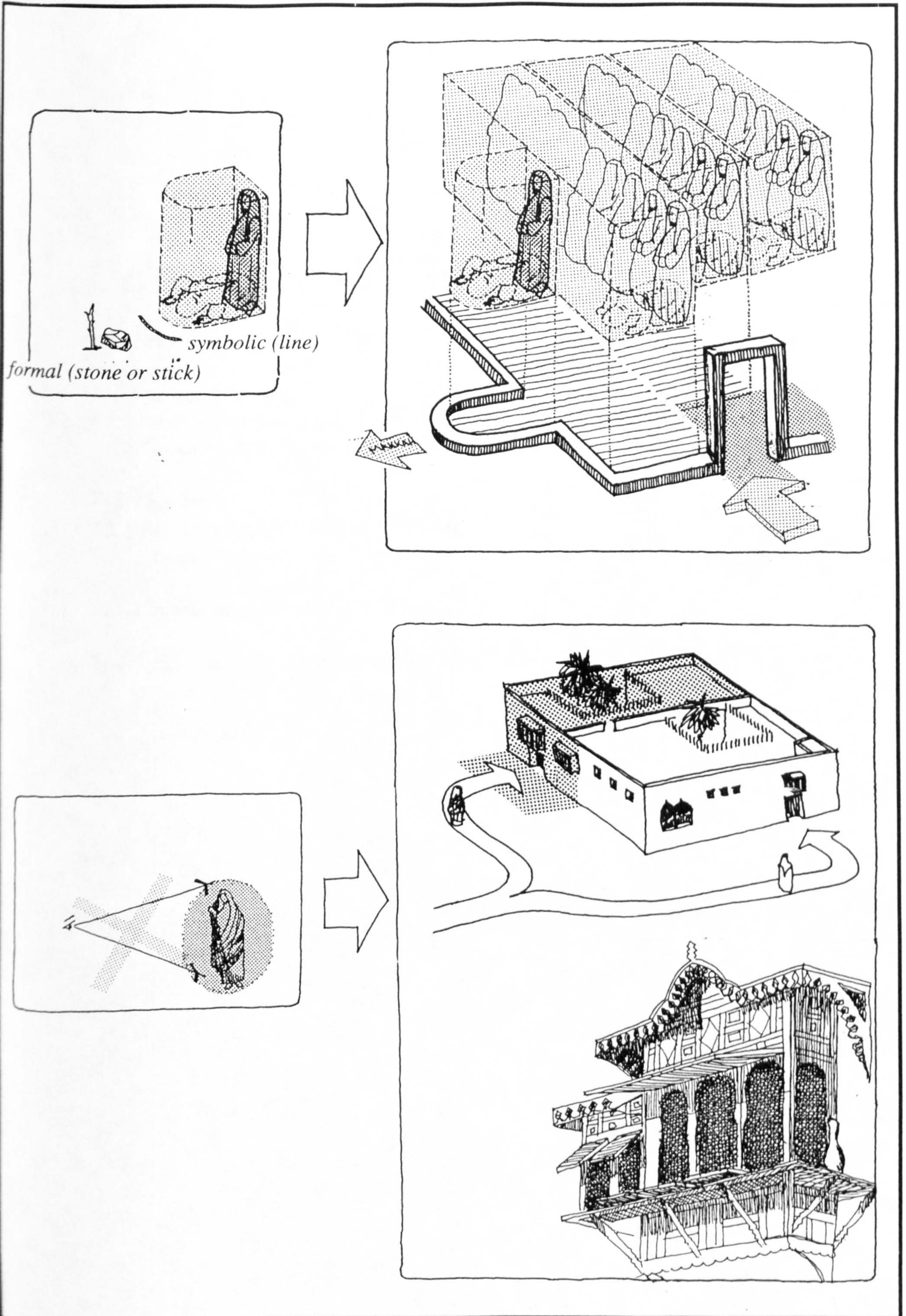


figure 6.2 Personal space effect on mosque and house design.
source: author.

CHAPTER SEVEN

TRADITIONAL BUILT ENVIRONMENT TERRITORIALITY

7.1 *The house*

7.1.1 *Formation of the house territoriality*

7.1.2 *Transformation of the house territoriality*

7.2 *The street*

7.2.1 *Formation of the street territoriality*

7.2.2 *Transformation of the street territoriality*

7.3 *The settlement territoriality*

7.4 *Appropriation vs. encroachment*

CHAPTER SEVEN

TRADITIONAL BUILT ENVIRONMENT

ELEMENTS TERRITORY

7.1 HOUSE TERRITORY

The land where the house stands is originally a private territory obtained through the ownership process such as land revival, conventional transaction, and succession. The first act of formally attaining the house private territory is to erect a fence. This follows the prophet saying "Who surrounds a land by a fence, it is owned by him", narrated by Abu-Dawud, (Al-Sumaih 1983, p.121). The fence erection, as a formal attainment of the house territory spaces, demarcates two important spaces: the interior enclosed by the fence, and the exterior space known as Fina. This demarcation includes the underground, ground, and air right of the house.

The interior of the house enclosed by the fence is considered as a private territory. The owner has the ownership of its object and usufruct. The owner has the freedom to manipulate it in its underground, ground, and air levels the way he/she pleases following the ownership process. The house interior may be divided, sold, or passed to others through ownership causes.

The exterior space of the house is its Fina which denotes "the space abutting a property and used by the residents of the property, (Akbar 1988, p.256). For its ownership the second Calif Umar bin Alkhatib (d.23/644) attributed the ownership of the space in front of the house to the owners of the house, (Al-Hathloul, 1981). The size of the Fina is relative depending on the nature of the house itself. In the case of a single detached house the Fina surrounds the house in all four directions, (fig 7.1). If the house is attached on one side or more, the Fina boundary ends where the house fence ends, (fig 7.2). The width of the Fina is defined by the need of the house users. Jurists, during disputes about the Fina width, define its width physically by four to six palms

(shibr), others by the distance usually needed for water dischargment from the house gargoye (between 1 and 1.5 meters), (Hakim 1986). The Fina height includes the spaces in the underground, on the ground, and air right levels.

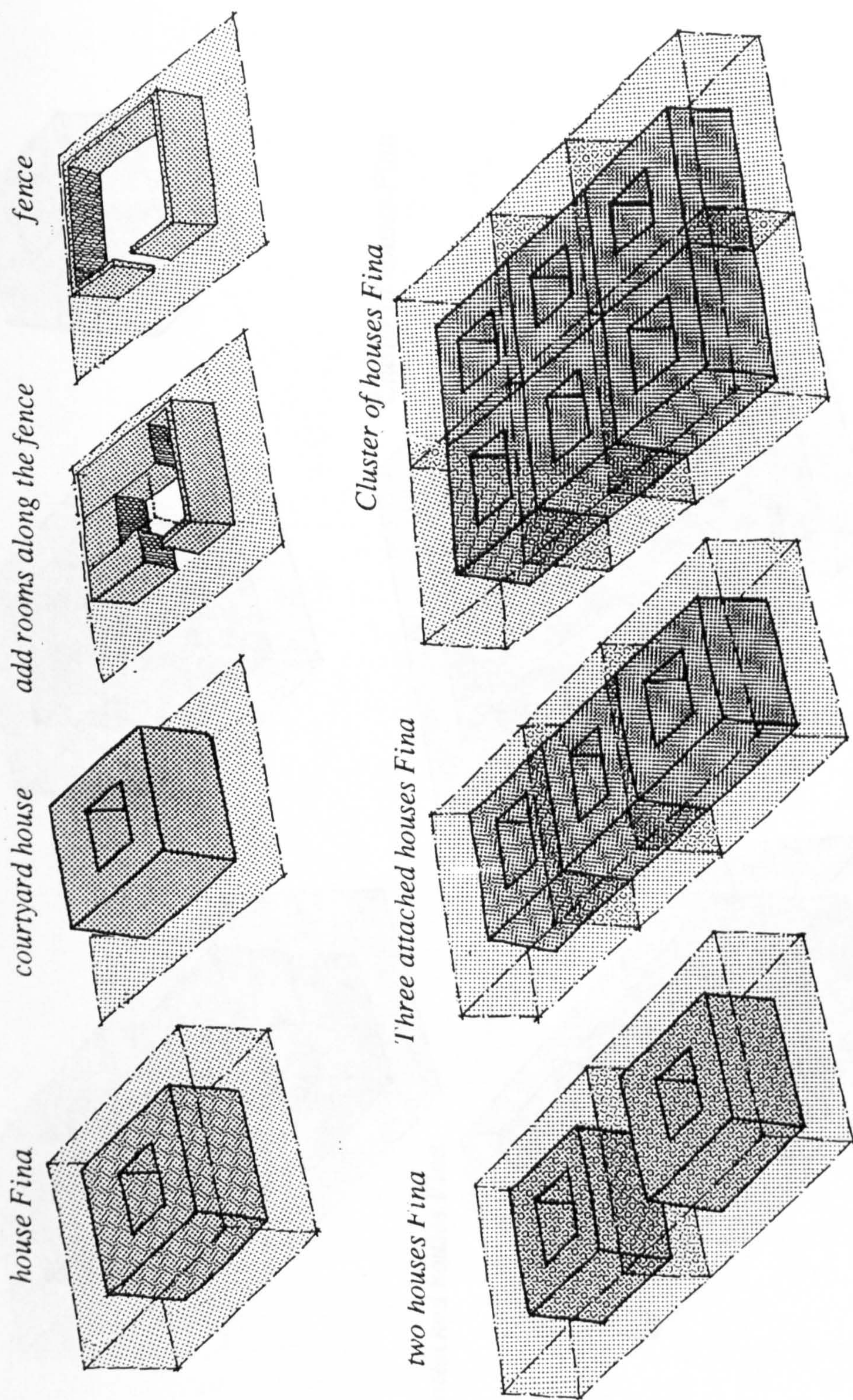
When a fence is erected to define the house interior and exterior territory logically, the house room arrangements will use this fence as a fourth wall. This territorial act is supported by economical, other cultural, and climatic issues resulting in court yard house type spreading all over the Arab-Muslim traditional cities. The court yard house is mainly a territorial act in the first place.

7.1.2 The transformation of the house territory

The origin of the house territory, interior and exterior (Fina), is private territory. Similar to the ownership process and easement rights, house territory is dynamic and interchanging through time. The house internal territory can remain private or be transformed into semi private or semi public territory. In the case of the assertion of the private territory of the house, the only physical change of the house pattern is the house subdivision and segmentation to smaller private territories, (fig 7.3). The cause of this subdivision is the ownership causes of new conventional transactions or successions. The transformation of the house interior territory from private to semi private or semi public is caused by endowments, gifts, and other property easement rights. The endowment of the house for a private individual or group to own its usufruct, private properties easement rights (such as a passage through the house) causes the house private territory to be transformed into semi private. The house private territory may also be transformed into semi public territory as a result of the owner's act such as public endowment, or ruler's act, as in the need of the house for public use, as in widening a mosque due to public needs. For the house exterior or Fina, at the ground floor level the territory type of the Fina is not always private. The other properties easement rights, and other users right of benefit may shift the private Fina to semi private or semi public territory. In the near by properties easement

rights the need for passage, water disposal, air, and light can cause the Fina to become semi private territory. If the beneficiaries of a Fina are large in number, this may cause the private Fina to be semi public. In the underground and upper floors the Fina is always private territory, where the owner of the house can manipulate it as the interior of his house. He can dig an underground basement, septic tank, or project a projection or an over pass in the upper floors. The easement right of the traditional Arab-Muslim city elements plays a major role in defining the physical arrangement and fabric of these elements. It functions as a magnetic field for the existing houses pushing away the new development, and as a fine knife cutting through the already existing one. It assists the efficient attachment of the elements without the disturbance of its function. The house passage, air, light, and height are governed by easement rights.

In summary, the Arab Muslim house territory is as dynamic as its ownership process and easement rights. The first act of defining the house territory is the fence erection which defines the interior of the house, the exterior space abutting to it (Fina), and its easement rights. This territorial act, supported by economic, cultural, and climatic issues, is the origin of the court yard house spread all over the Arab-Muslim cities, (fig. 7.4). Even though the house interior and exterior is a private territory, it may be transformed to semi private or semi public territory due to the ownership process change and other property easement rights. This dynamic transformation of territory type results in physical changes in the house's appearance and led to the saying that "the Arab house is never completed".



*figure 7.1 House fina in the ground floor.
source: author.*

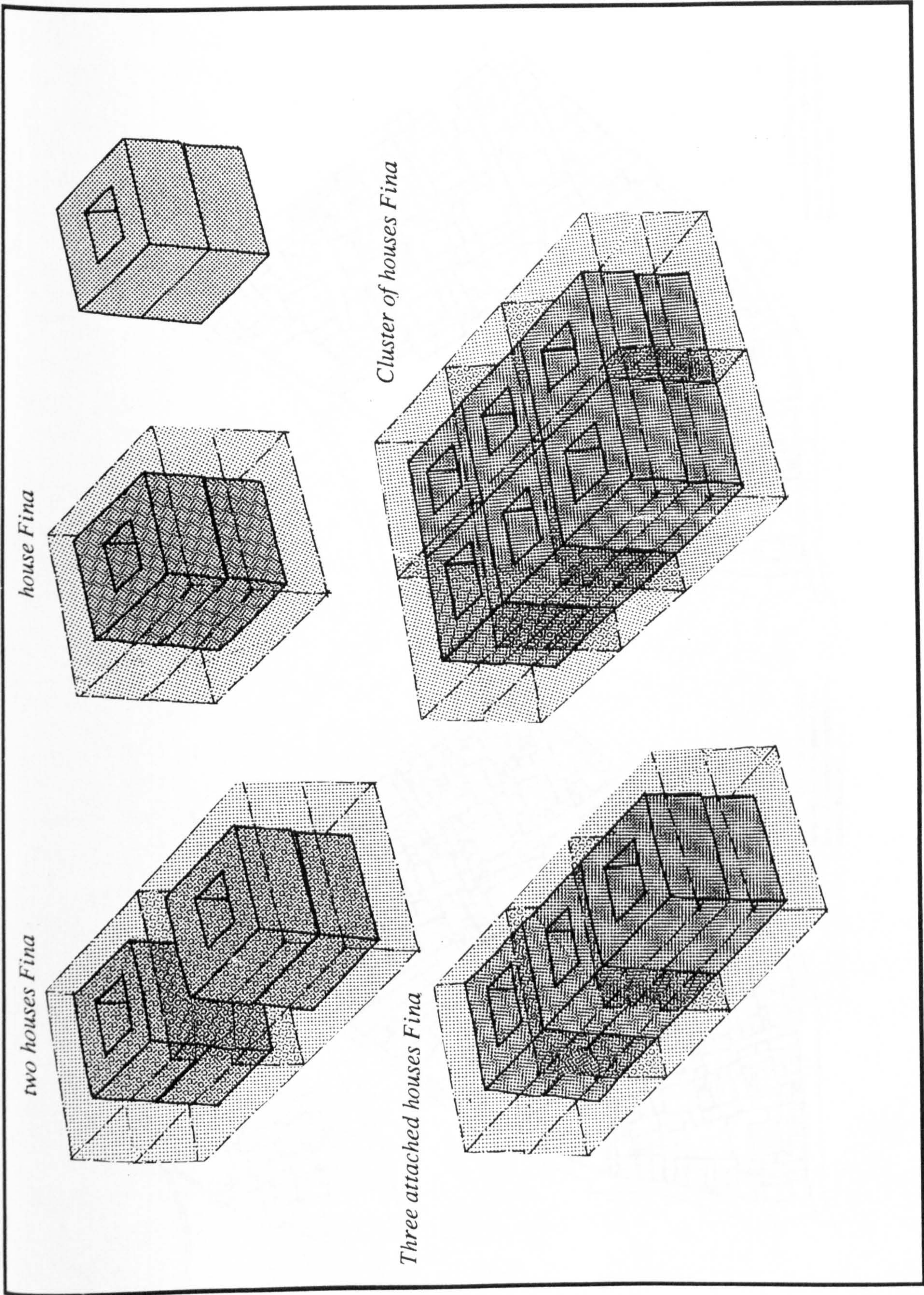


figure 7.2 House fina in the upper floor.
source: author.



figure 7.3 House subdivision and territorial transformation.
source: Akbar (1988).

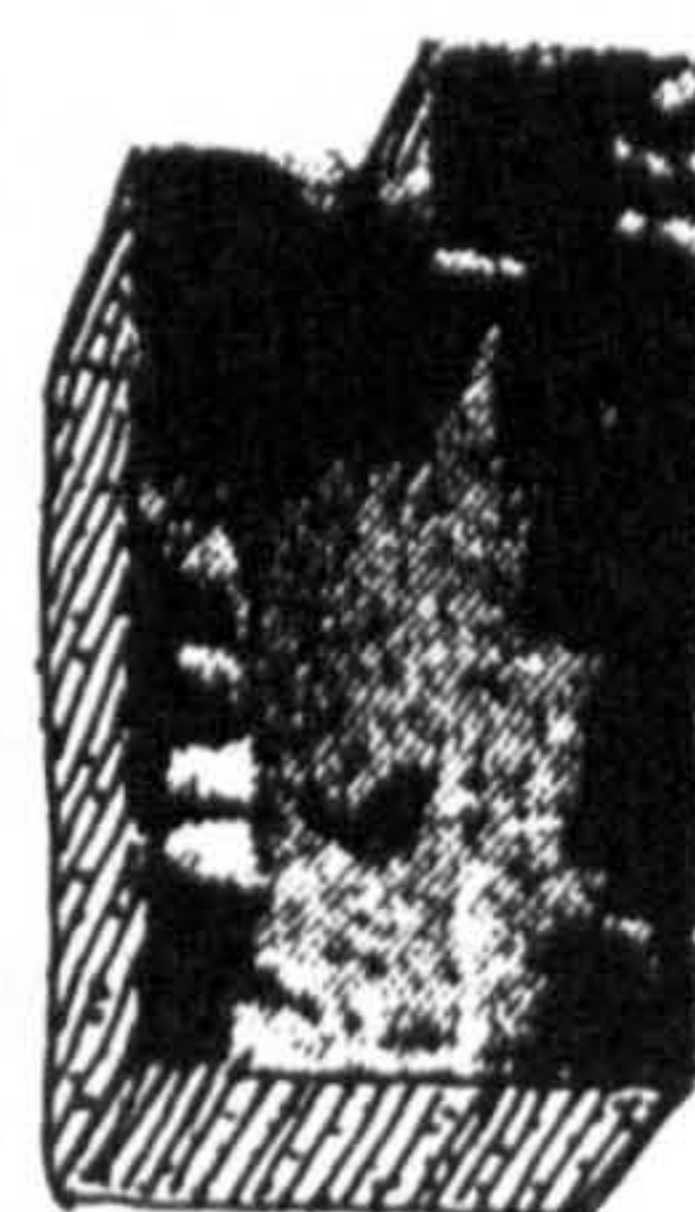
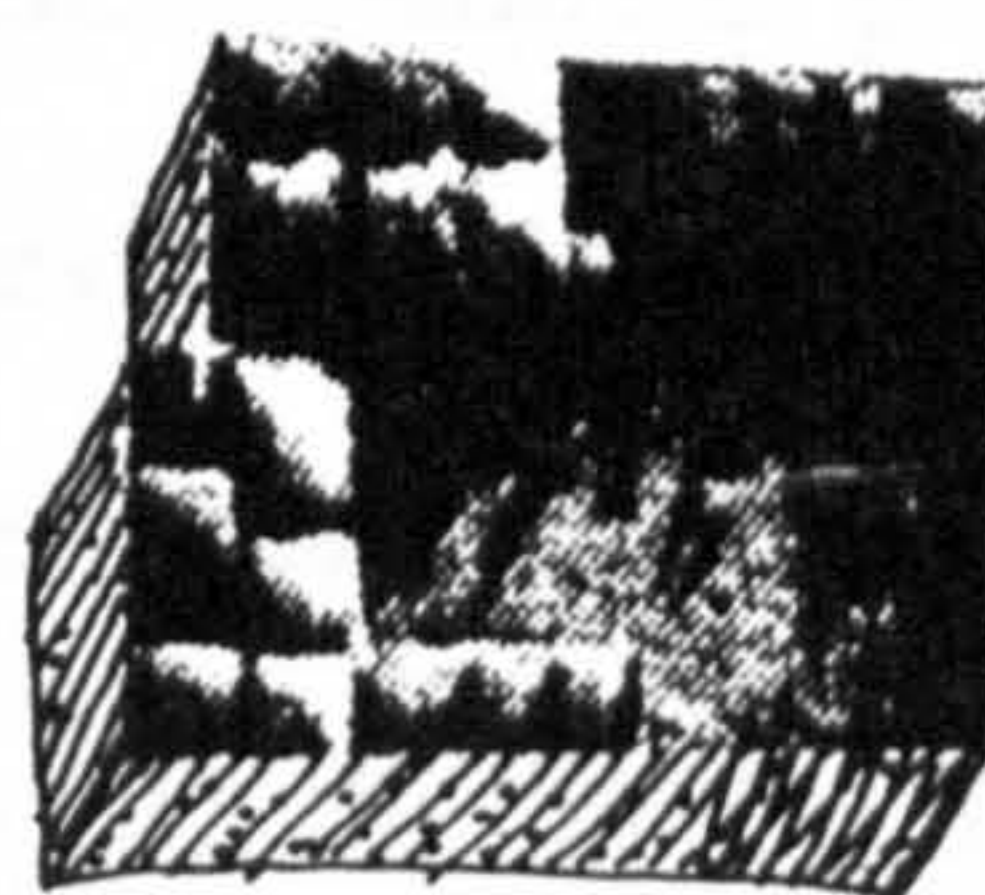
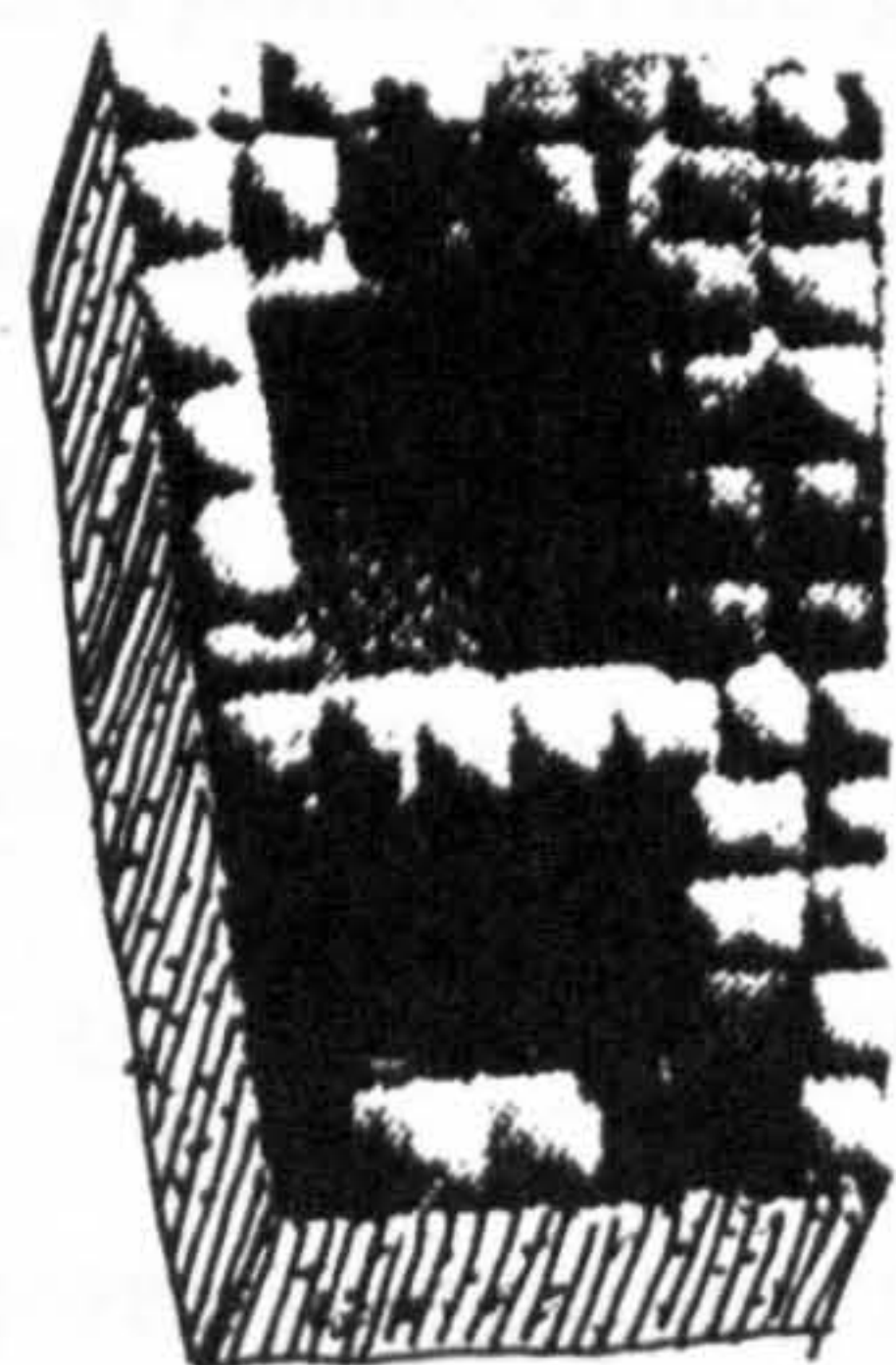
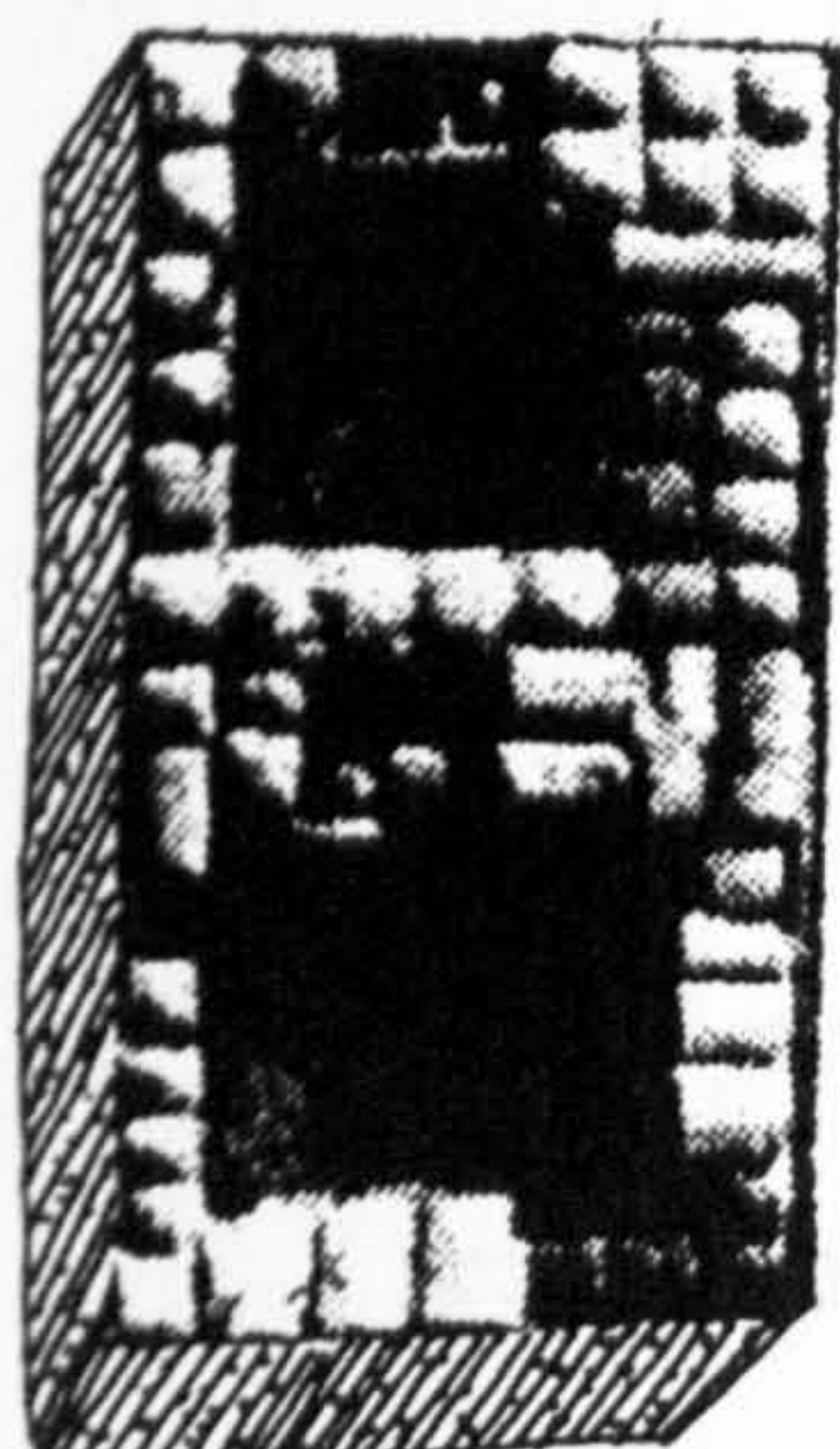
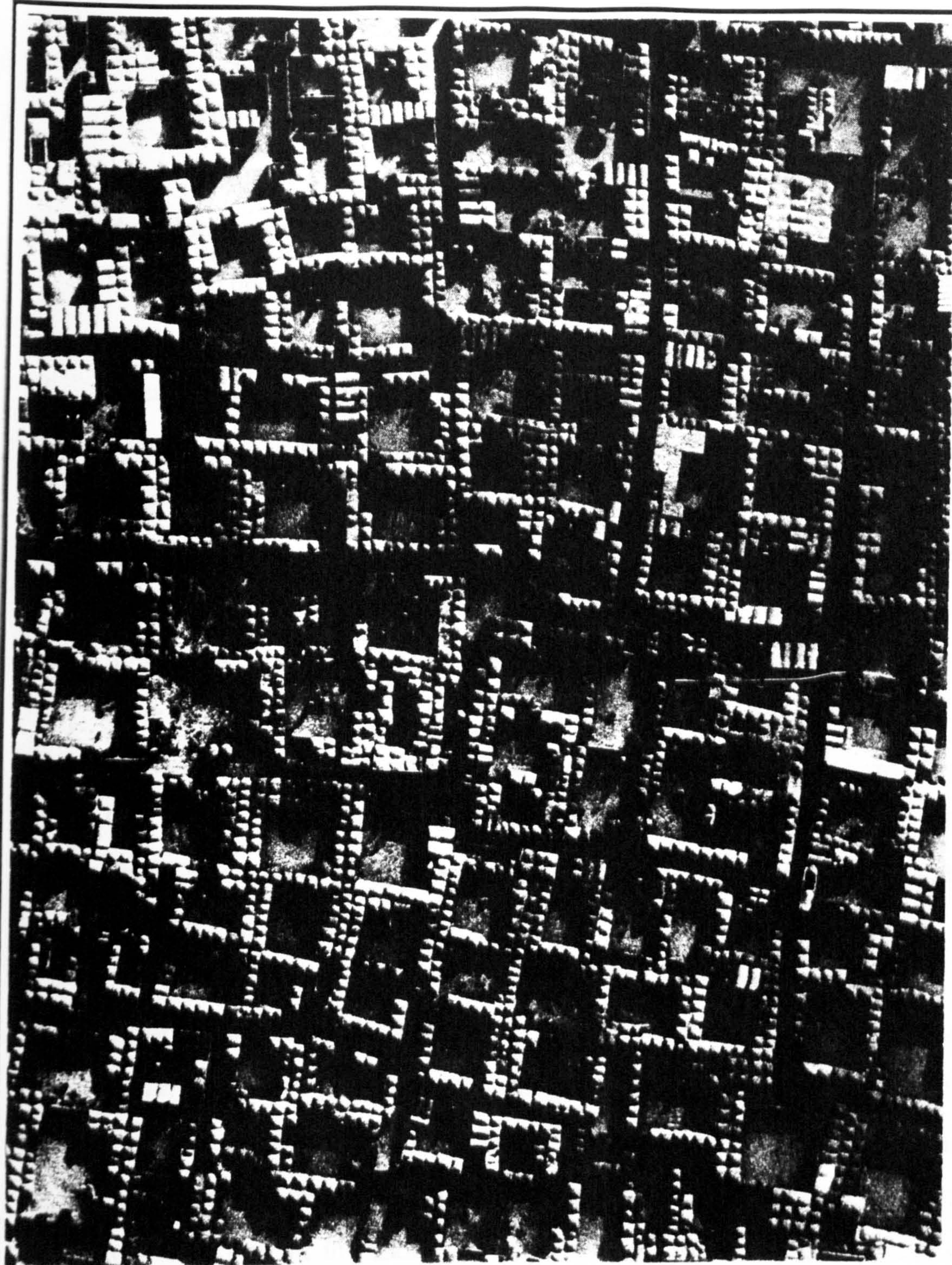


figure 7.4 Courtyard house formation: El-Oued, Algeria.

7.2 STREET TERRITORY

The through street (*shari^c*, *tariq nafith*, *tariq al-muslimin*) and the lane or cul-de-sac (*tariq ghair nafith*, *sikkah*, *zuqaq*) are another major element of the Arab-Muslim built environment.

To understand the street territory type, the street space is divided into two major sections: the first is the street space as a Fina of adjacent properties in both sides of the street, (fig 7.5). The second is the street space as a passage right of way. This division can be broken down to six spatial zones which are: 1- adjacent property A upper floor level Fina; 2- adjacent property A ground floor level Fina; 3- street air right in the upper floor level; 4- street right of way in the ground floor level; 5- adjacent property B upper floor Fina; and 6- adjacent property B ground floor Fina. These six spatial zones can be manipulated in more than twenty cases of the Arab-Muslim street space territory type. For instance the whole street space can be devoted to zone four (street right of way), (fig 7.5,1), with the exclusion of the adjacent properties A and B upper floor Fina (fig 7.5,2), or with the exclusion of the adjacent properties Fina and the street air right (fig 7.5,3), and so on.

To define the traditional through or cul-de-sac street territory type four major factors should be considered: 1) the original of the street space ownership; 2) the mechanism of street attainment, physical and symbolic; 3) the territory type of the adjacent properties or facilities that are served by and have easement right upon the street; and 4) the street users right/ownership of benefit. These four factors result in making the street territory various spaces private, semi private, or semi public at the ground or air right level, (fig 7.6).

The origin of the street ownership can be either public or private. Public ownership of the street occurs when a land is revived as a circulation space through its continuous use as a passage way by the people, or when the land use is designated as a street through planning. This makes the public street space a semi public territory owned and used by all Muslims collectively. The private

ownership of the street occurs when the street land is privately owned by an individual or group of individuals prior to its use as a pathway. This makes the street originally a private territory where its owners own its object and usufruct in ground and upper floor levels.

The mechanism of street attainment can be physical or symbolic. Building as objects, fences, and gates define the street physically to be a through fare or a cul-de-sac. The street users foot prints, and abutting buildings Fina spaces define the street symbolically. The physical and symbolic attainment of the street assists in defining the street ownership, abutting properties easement rights, and its users right/ownership of benefit.

The territory type of the adjacent properties or facilities that are served by and have easement rights upon the street is another factor in defining the street various spaces territory types. The semi public properties such as mosques, markets, and schools dictate that the street serving them must have the same territory type at the ground floor level. The private urban elements such as houses contribute to making the street territory type as private as possible.

Regarding the street users' right/ownership of benefit; they have the right of benefit which may lead to ownership of benefit and the ownership of usufruct. At the ground floor level, the origin of ownership, the symbolic or physical attainment, and the easement of the urban elements served by the street can enhance or hinder the users' ownership process from right of benefit to ownership of benefit to ownership of usufruct. In the upper floor level, the abutting urban elements' owners have the right of benefit leading to the ownership of usufruct in the form of projections and overpasses, without harming the main function of the street as a means of circulation in terms of sufficient height, air and light needed by the users.

In summary, various street spaces territory type at underground, ground, and upper levels is defined by the origins of the street ownership, the symbolic or physical definition of the street, the easement rights of the properties abutting or

served by the street, and users right and ownership of benefit. These four factors shaped the street form in ground and upper levels resulting in the traditional Arab-Muslim street form, (fig 7.7).

7.2.2 Street territory transformation

The four factors defining the street territory also function as a mechanism for enhancing, hindering, or freezing the street spaces territory into a certain type as semi public, semi private, or private. To explain the mechanism of street territory transformation, the thoroughfare and cul-de-sac street are analysed as two major urban pattern elements characterising the traditional Arab-Muslim towns.

Akbar (1984, 1988) considered cul-de-sac streets as a private territory and mentioned that they were developed into two ways : planned and emerging over time. Planned cul-de-sacs occur when a group of people subdivide a piece of land and designate part of it as a dead end street, while over time emergence is the result of incremental growth by abutting properties as a space necessary for circulation. The two types of cul-de-sac existence in Arab-Muslim towns are diagnosed on the basis of the four factors of street spaces territory definition. In planned cul-de-sacs the original of the cul-de-sac ownership is private territory . To freeze the street into this type the owner(s) will use the mechanisms of : 1- defining the street as private territory physically through buildings and fences; 2- preventing the existence of any semi public territory properties (such as mosques, markets, and schools) to deny its easement rights alongside or served by the street; 3- denial of the other users right of benefit by hindering them from using the street by either controlling the volume of the traffic - by narrowing the street, or controlling the traffic flow by closing one end of the street and erecting a gate at the cul-de-sac mouth. If these mechanisms are practised one can list the cul-de-sac street in the private territory type at its underground, ground and upper floor levels. But in the absence of these mechanisms the street, even though

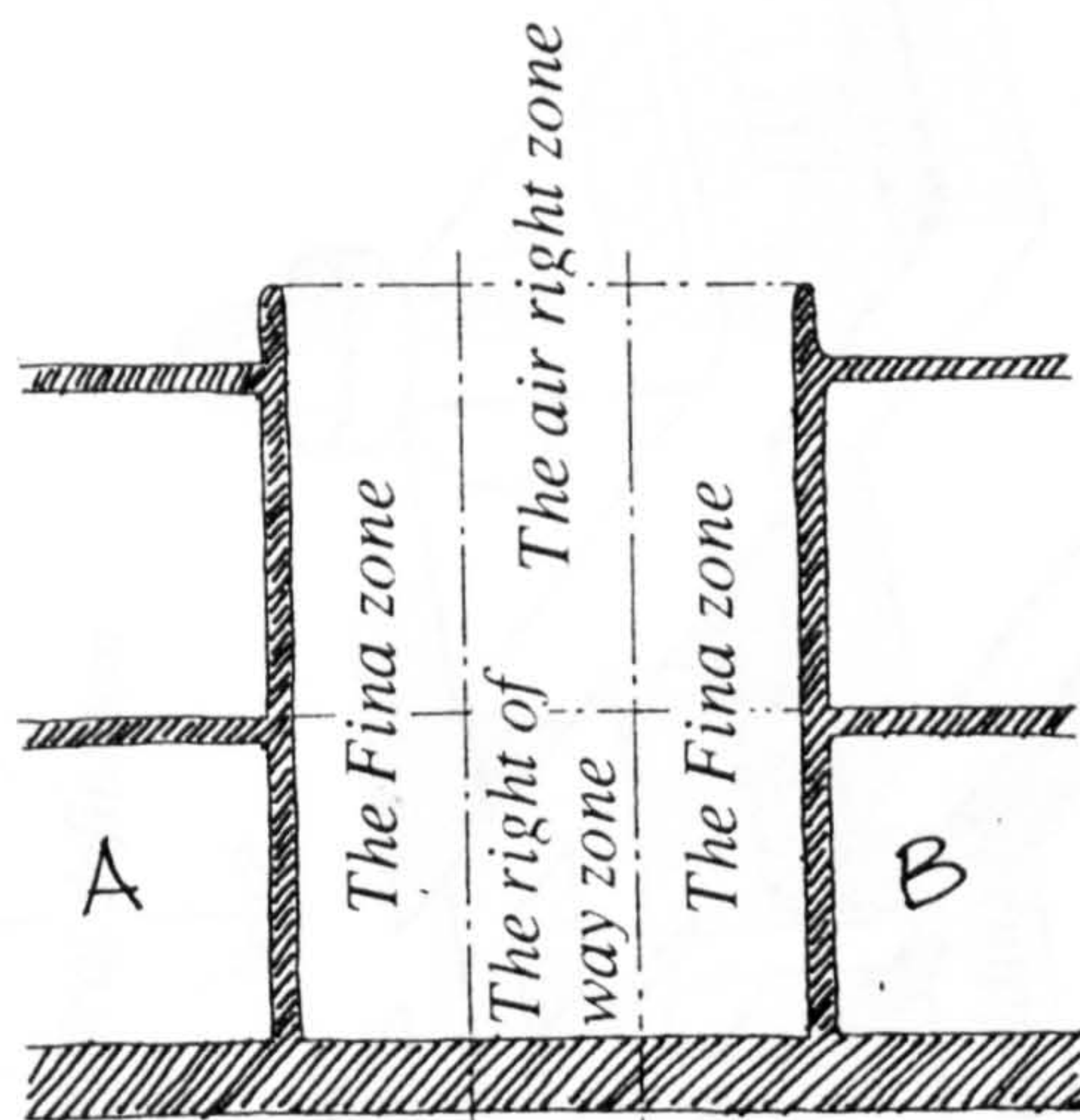
physically designed as a cul-de-sac, may be transformed in its territory type into semi private or semi public territory. For example, the existence of publicly used facilities served by or alongside the street results in transforming the cul-de-sac streets private territory into semi public territory or a territorial type similar to the served properties. By the same token, the uncontrolled flow of traffic volume transforms the street's private territory to semi private at the ground floor level only due to the other users right of benefit. From a look at any Arab-Muslim town's urban pattern and elements, such as in Tunis (fig 7.8) one can see these mechanisms in action. In Tunis urban pattern one can rarely find publicly used facilities (mosque, market, or schools) located in a cul-de-sac street.

In the case of emergence over time, cul-de-sac streets are a result of incremental growth by abutting properties as a space necessary for circulation. This incremental growth may be on other private, semi private, semi public, or public territories. If the cul-de-sac incremental growth is in another private or public territory (appropriation), its case is the same as the planned cul-de-sac. If the incremental growth is by appropriating another semi private territory, an examination of the reasons why the appropriated on street is semi private territory type is needed. If the reason is another property easement right, or the other passers'-by right of benefit, the owners of the street usufruct ownership and others' right of benefit are weighed and evaluated on the basis of harm prevention. The semi private territory owner may win the street territory transformation case or lose it. In Madinah during the eighteenth century, Al Hathloul (1981) presented two cases of street physical incremental growth of territory transformation. One was won by the owner of the street usufruct and another was lost by the owner due to the other passers'-by right of benefit, (Al-Hathloul 1981). In the streets that are originally semi public territory the act of individual incremental growth is seen as territory encroachment which is highly prevented in Shari'ah. Such an encroachment mostly existed during political crises, wars, and necessities. Necessities, as mentioned in chapter five section six,

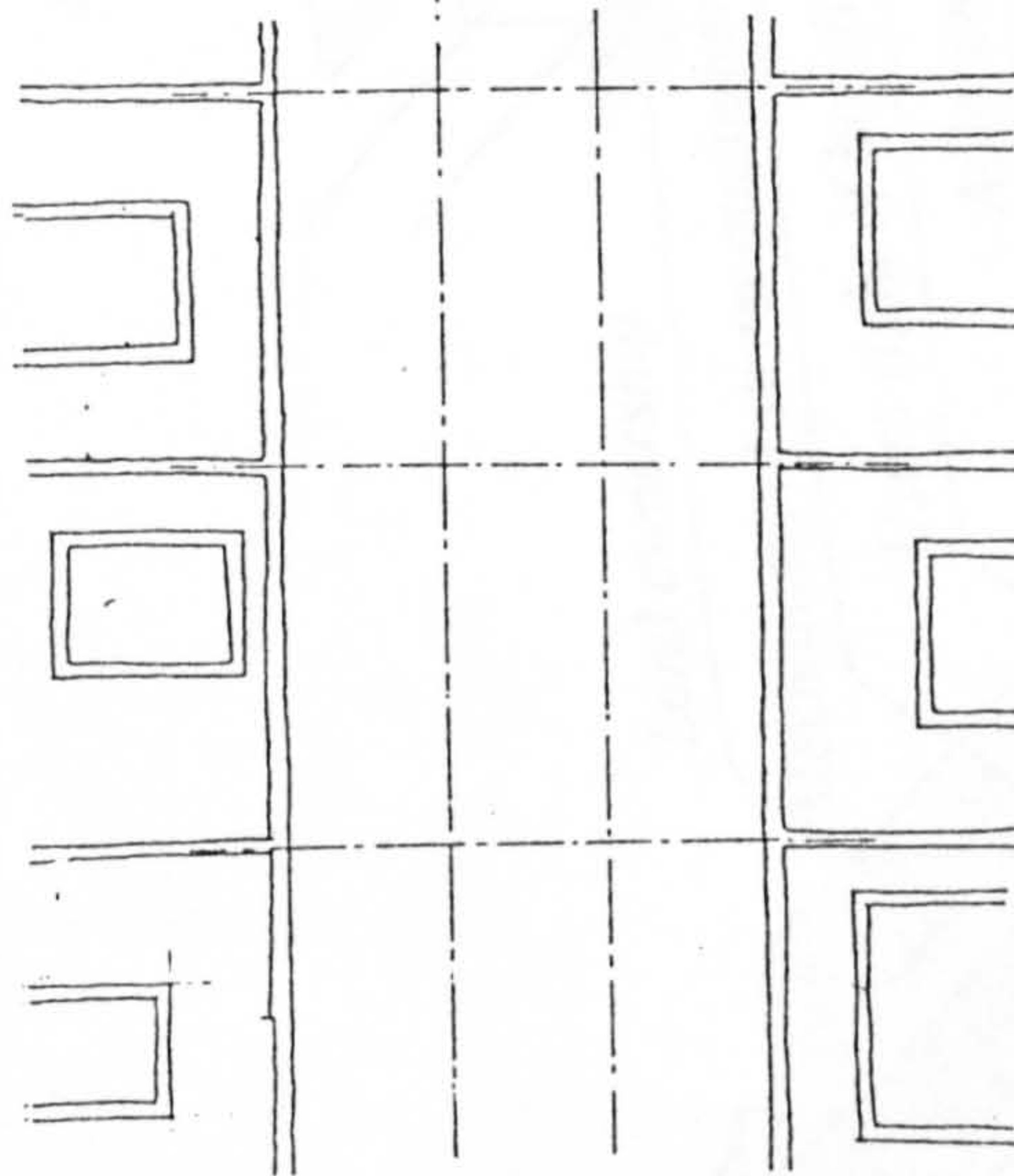
give the ruler the right to propose some solutions such as reattaining and retyping the street territory. For example when a wall is built around the city, and over time, the city residence increases in number, resulting in the consumption of all available spaces including the streets. In the case of Buraidah city, Saudi Arabia, between 1196/1782 and 1322/1904 three walls were built. The cul-de-sac and crooked streets are clearly seen in the oldest part of the city due to the continuous re-typing of the street territory type, (fig 7.9).


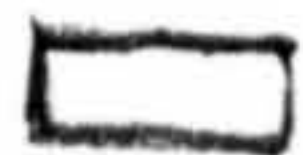
In summary, the street built environment is dynamic and changing in parallel to territory type and re-type. The physical changes can be at ground or upper floor levels, or both. Street territory is a major function in shaping the Arab-Muslim street urban pattern.

Section



Plan



 The right of way Zone
 The Fina Zone

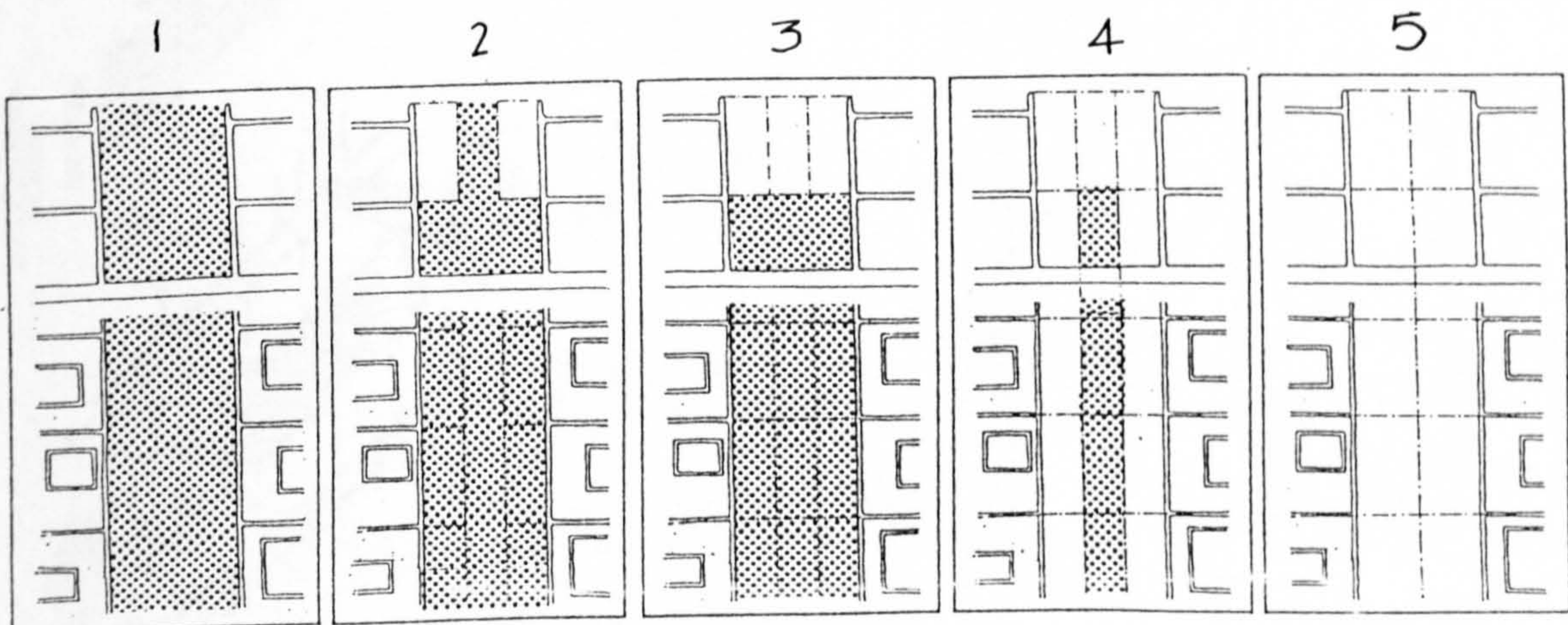


figure 7.5 Traditional street zones: the fina, the right of way, and air right.
source: Author

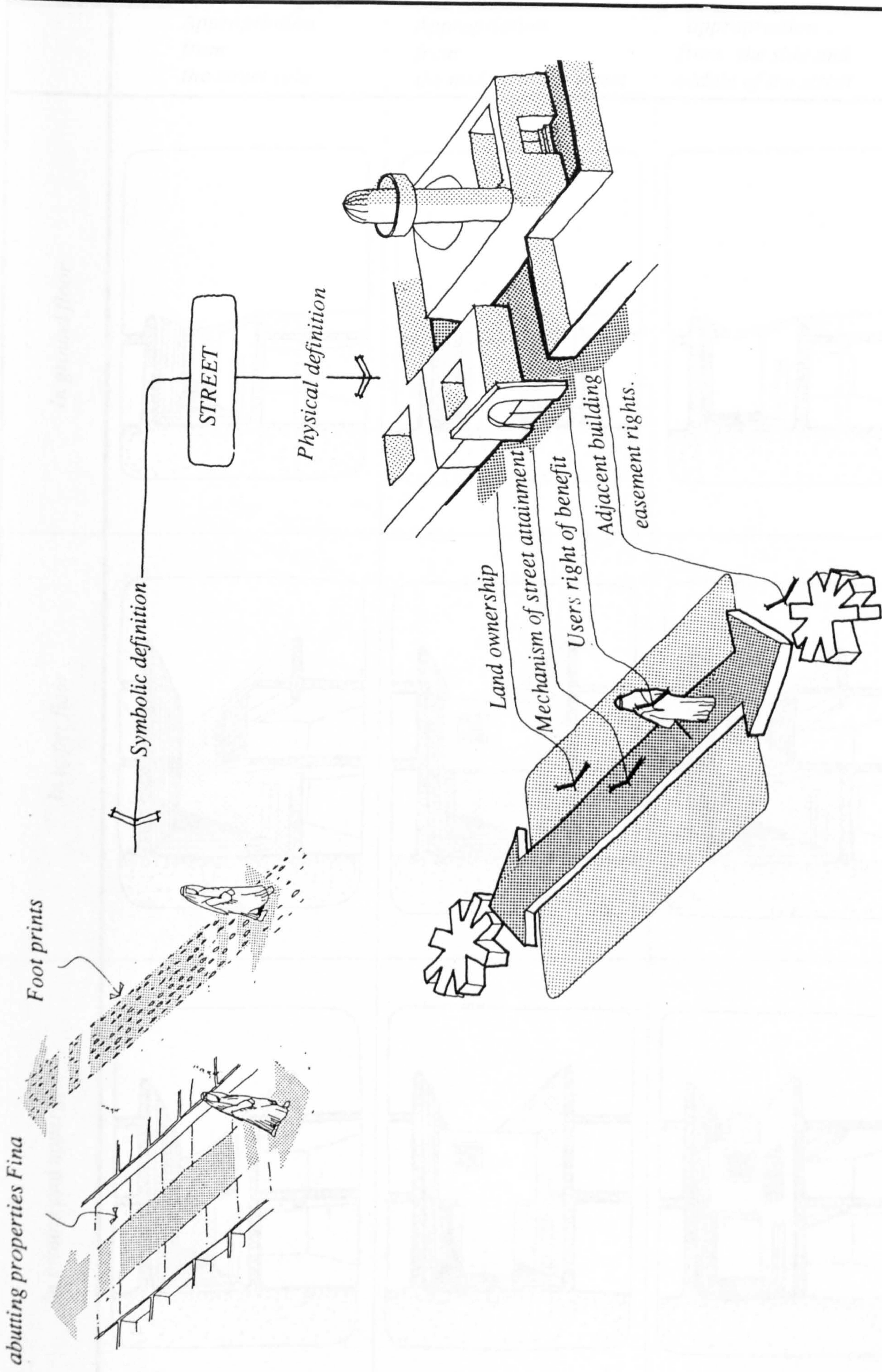


figure 7.6 Traditional street territory type definition.
source: author.

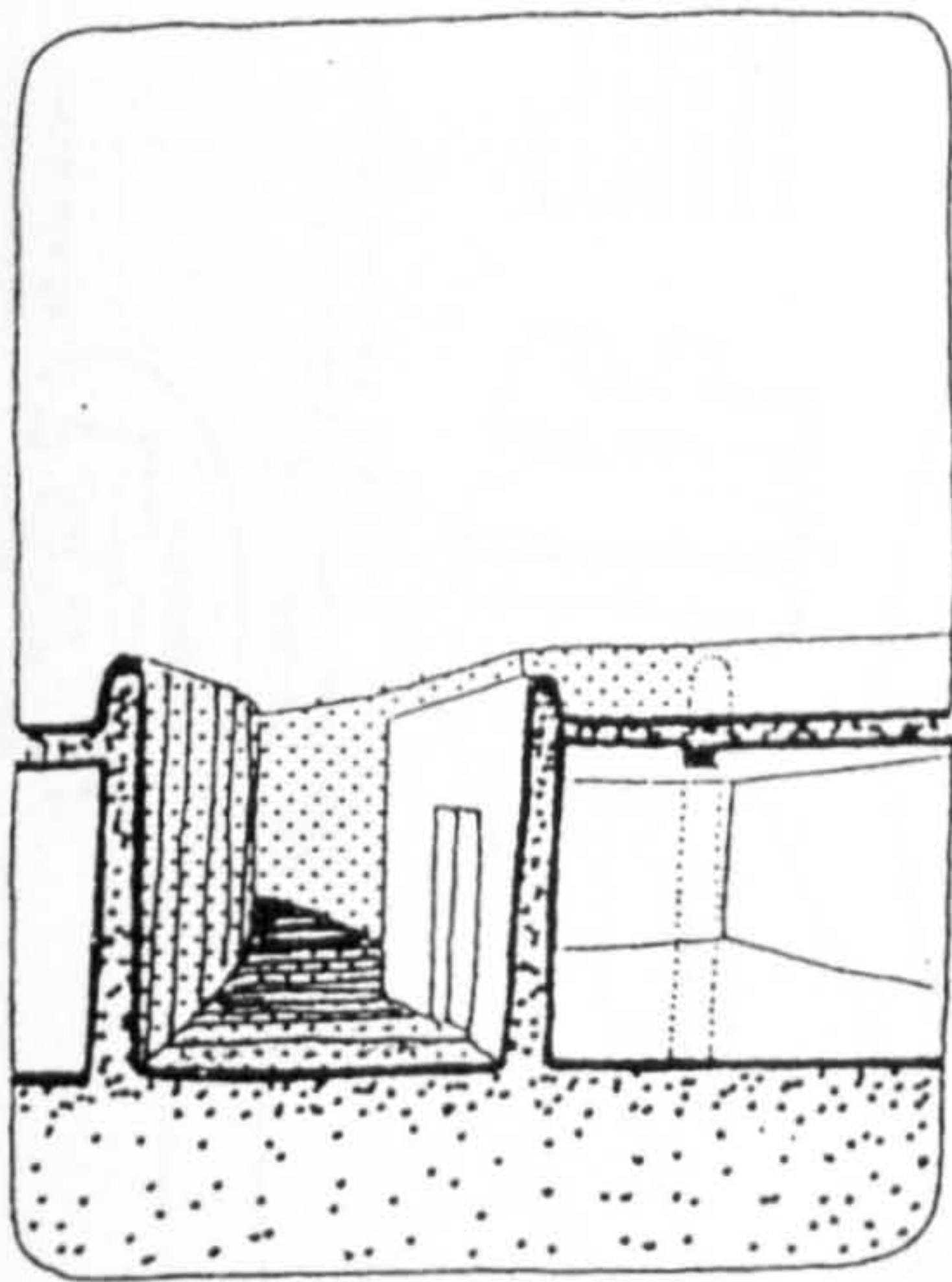
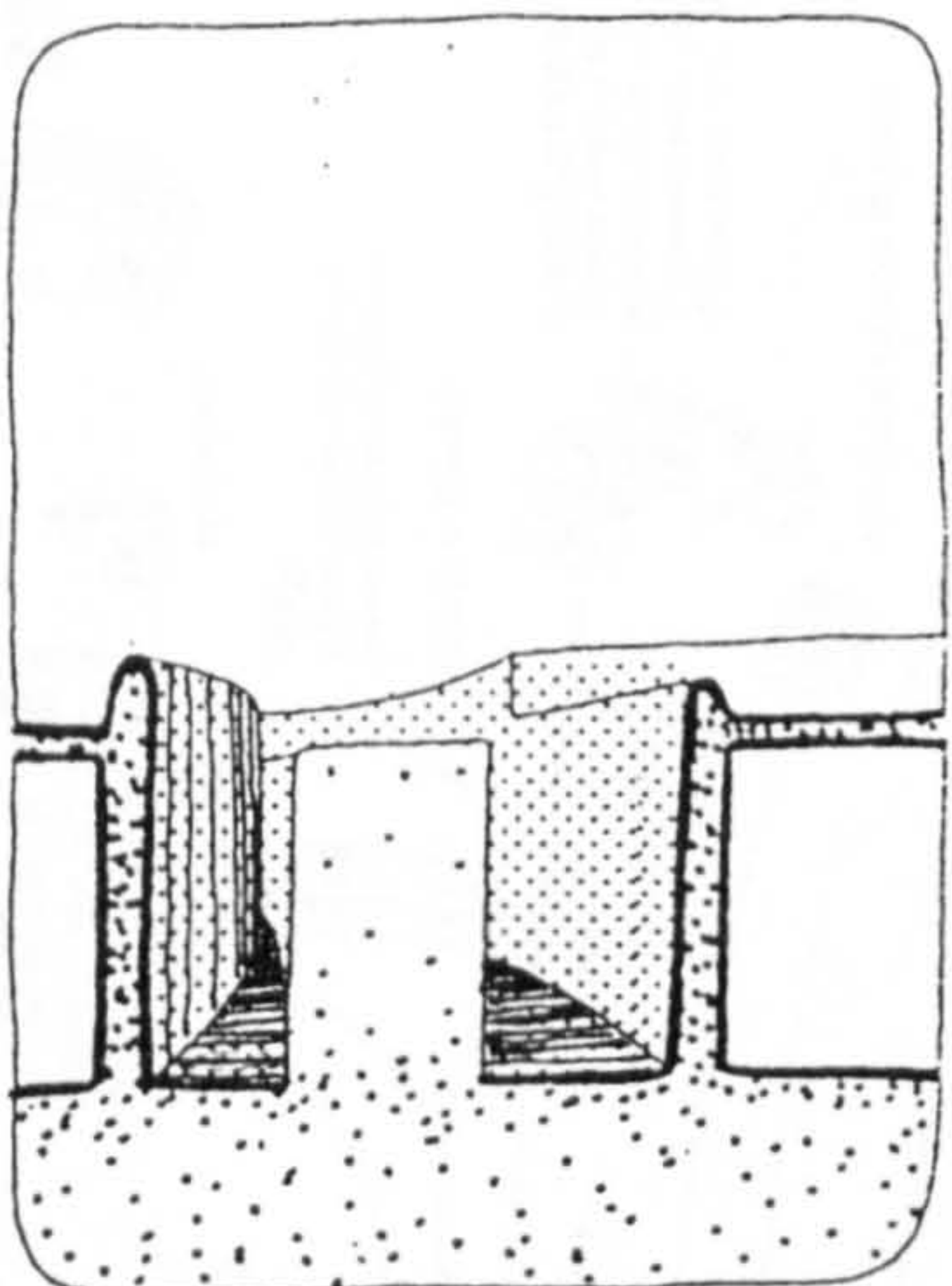
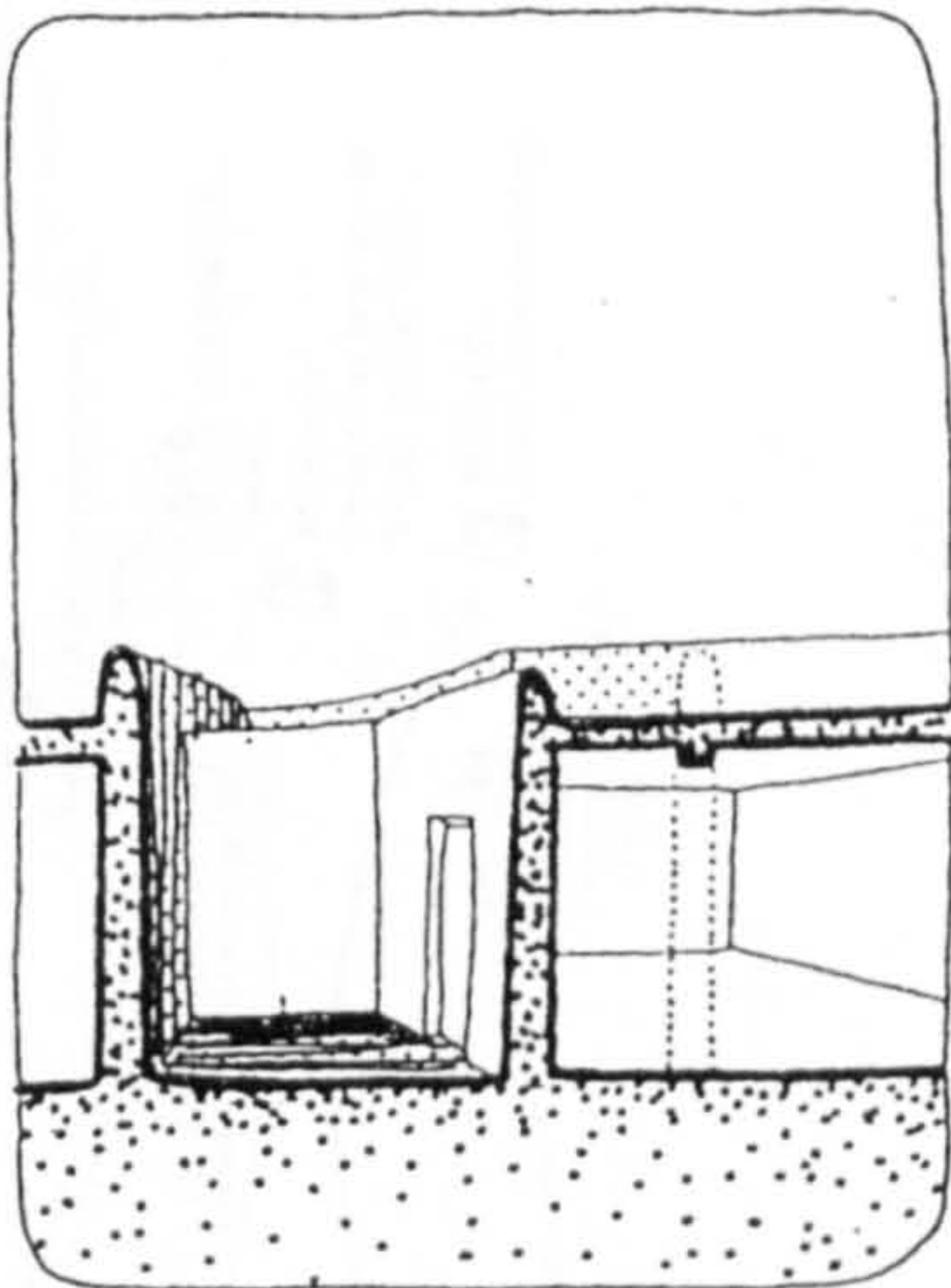
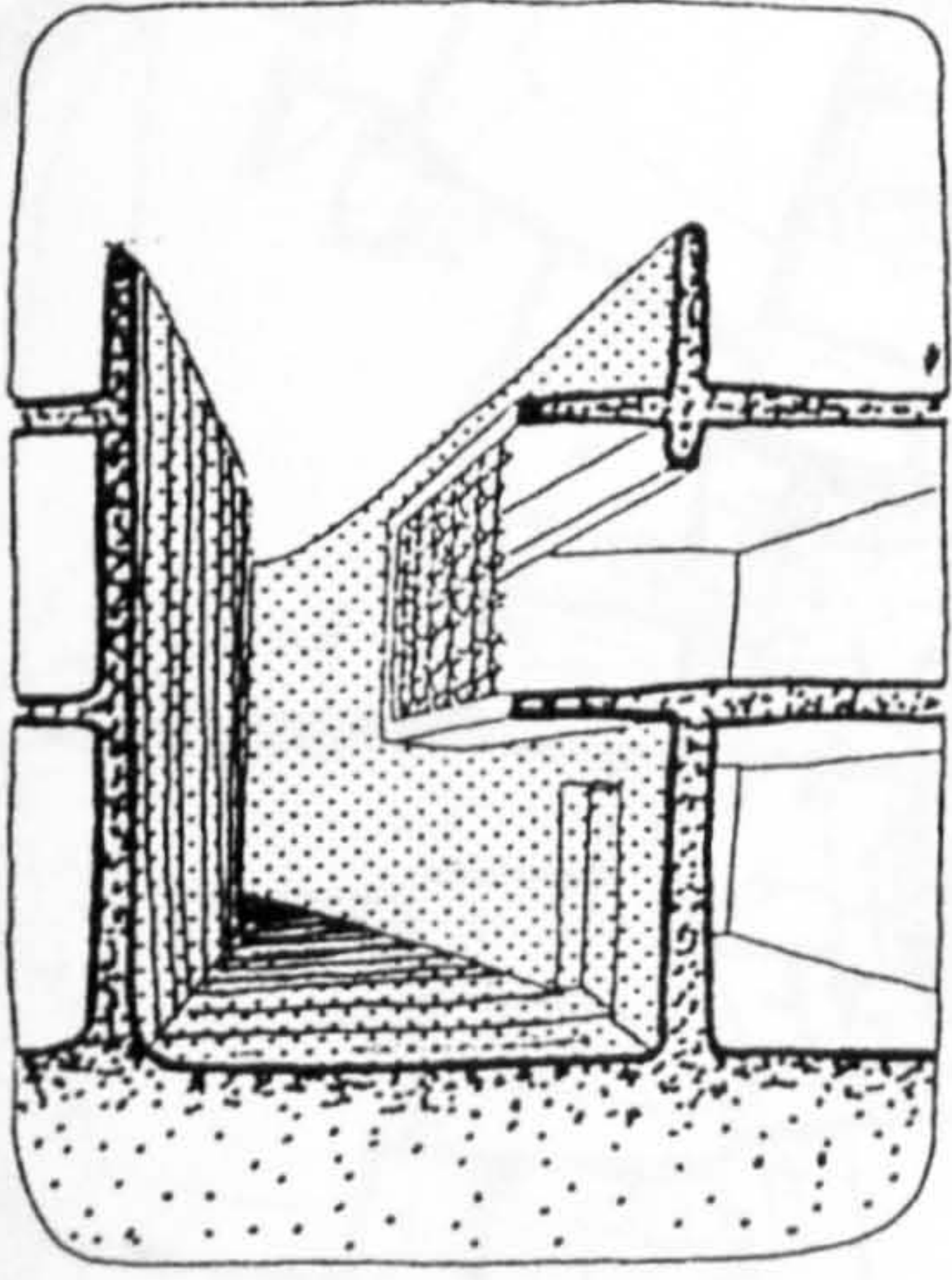
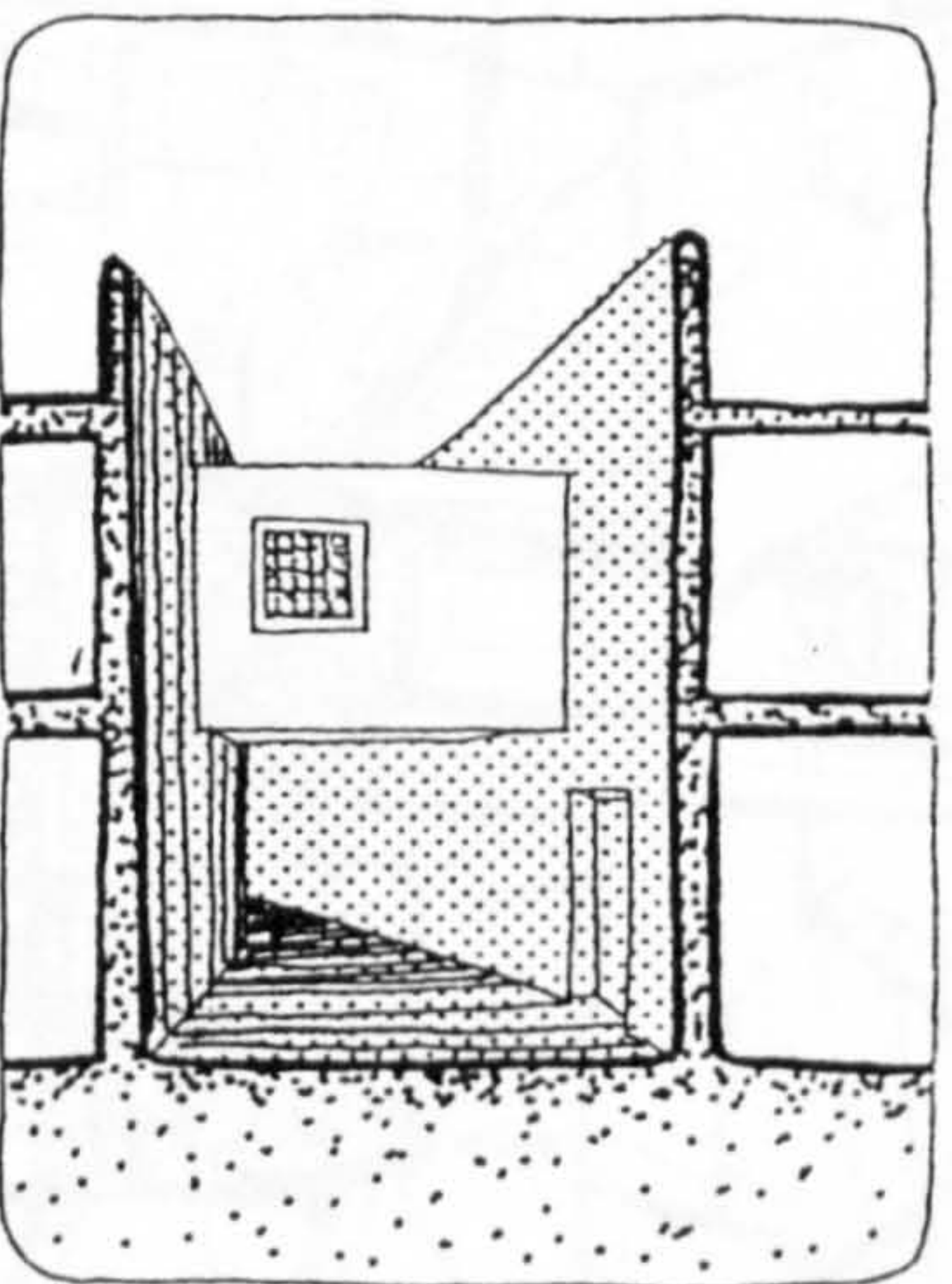
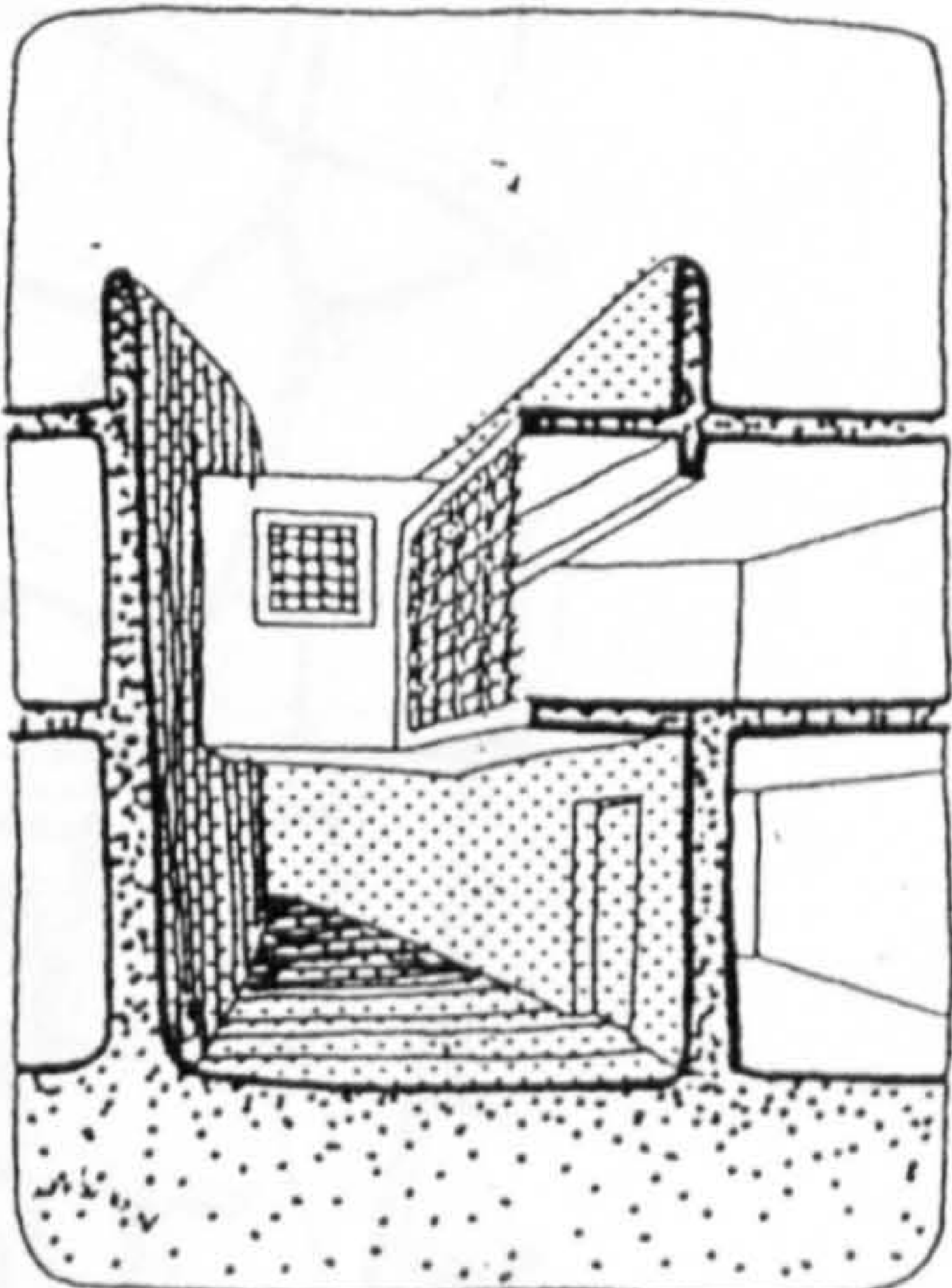
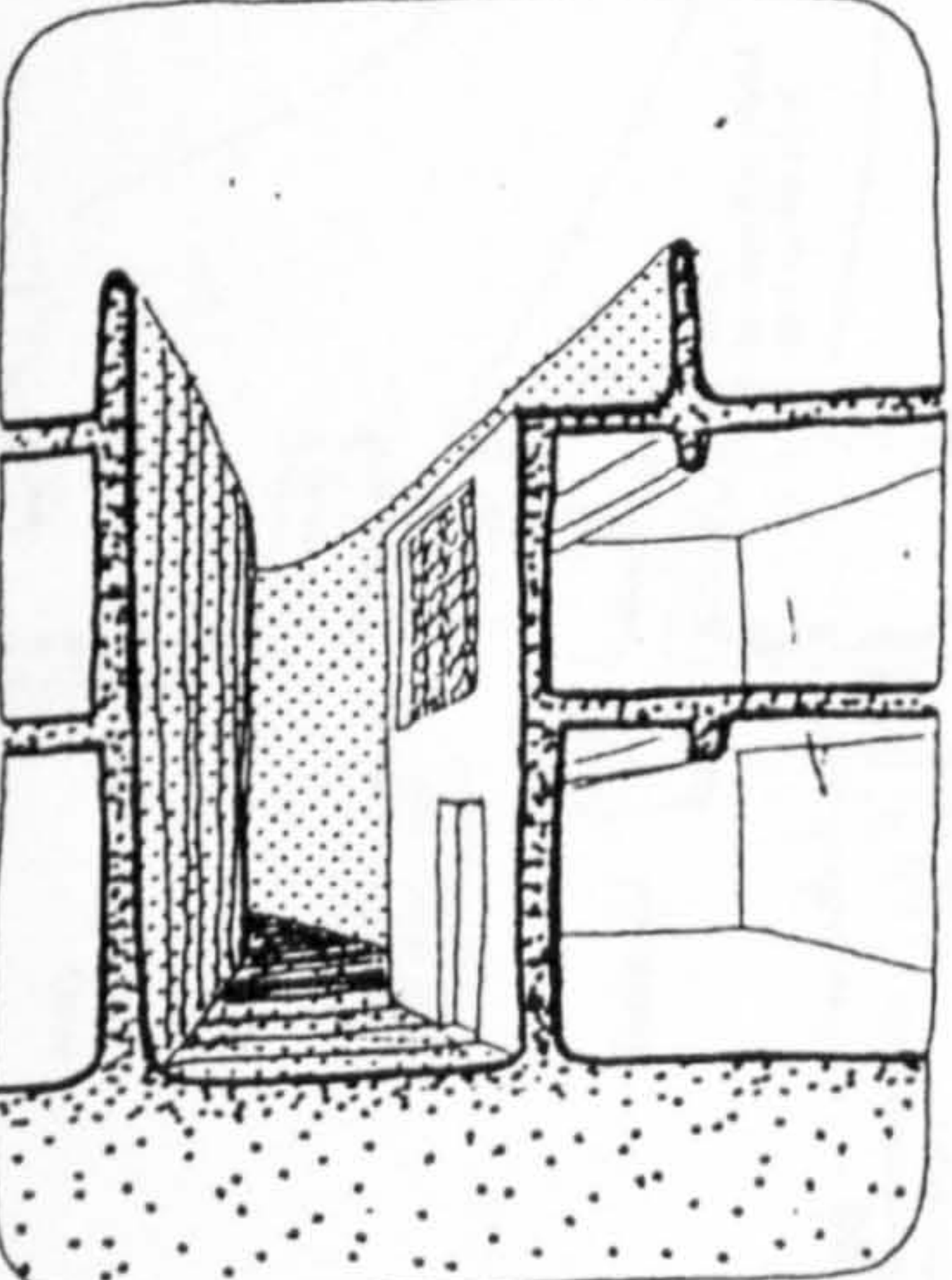
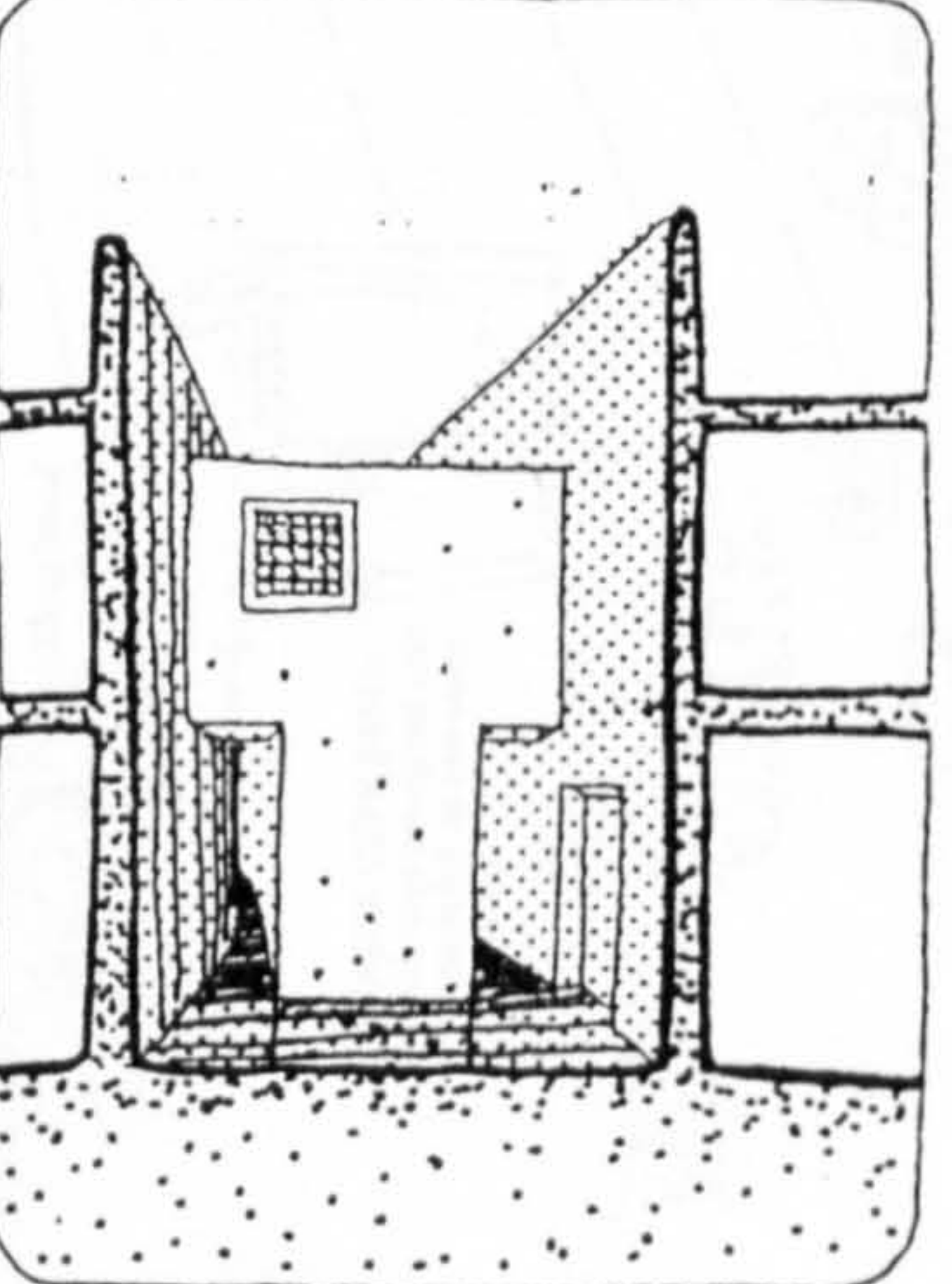
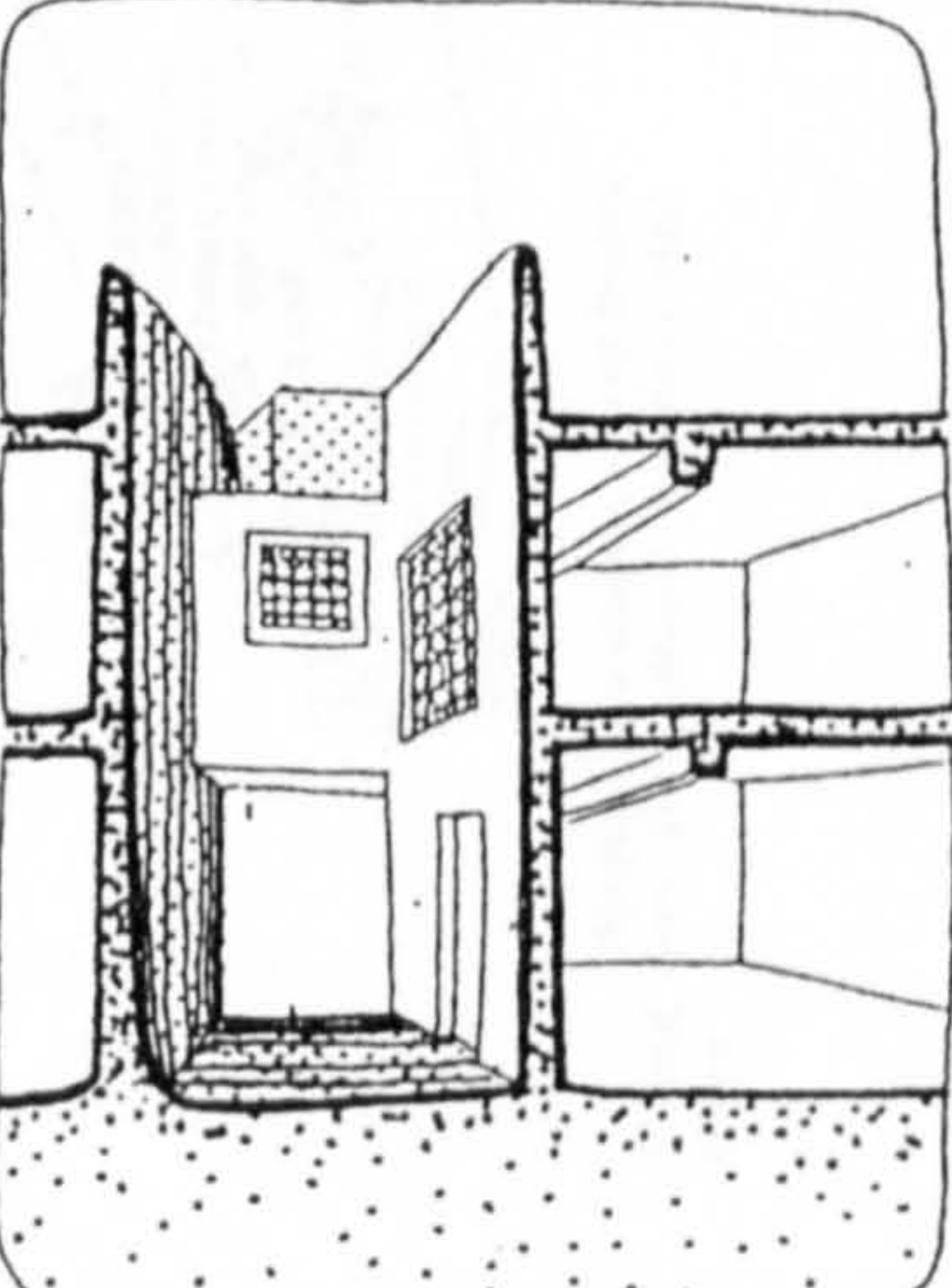
	<i>Appropriation from the street side</i>	<i>Appropriation from the middle of the street</i>	<i>appropriation from the side and middle of the street</i>
<i>In ground floor</i>			
<i>In upper floor</i>			
<i>In ground and upper floor</i>			

figure 7.7 Possibilities of house appropriation on the street pattern.
source: author.

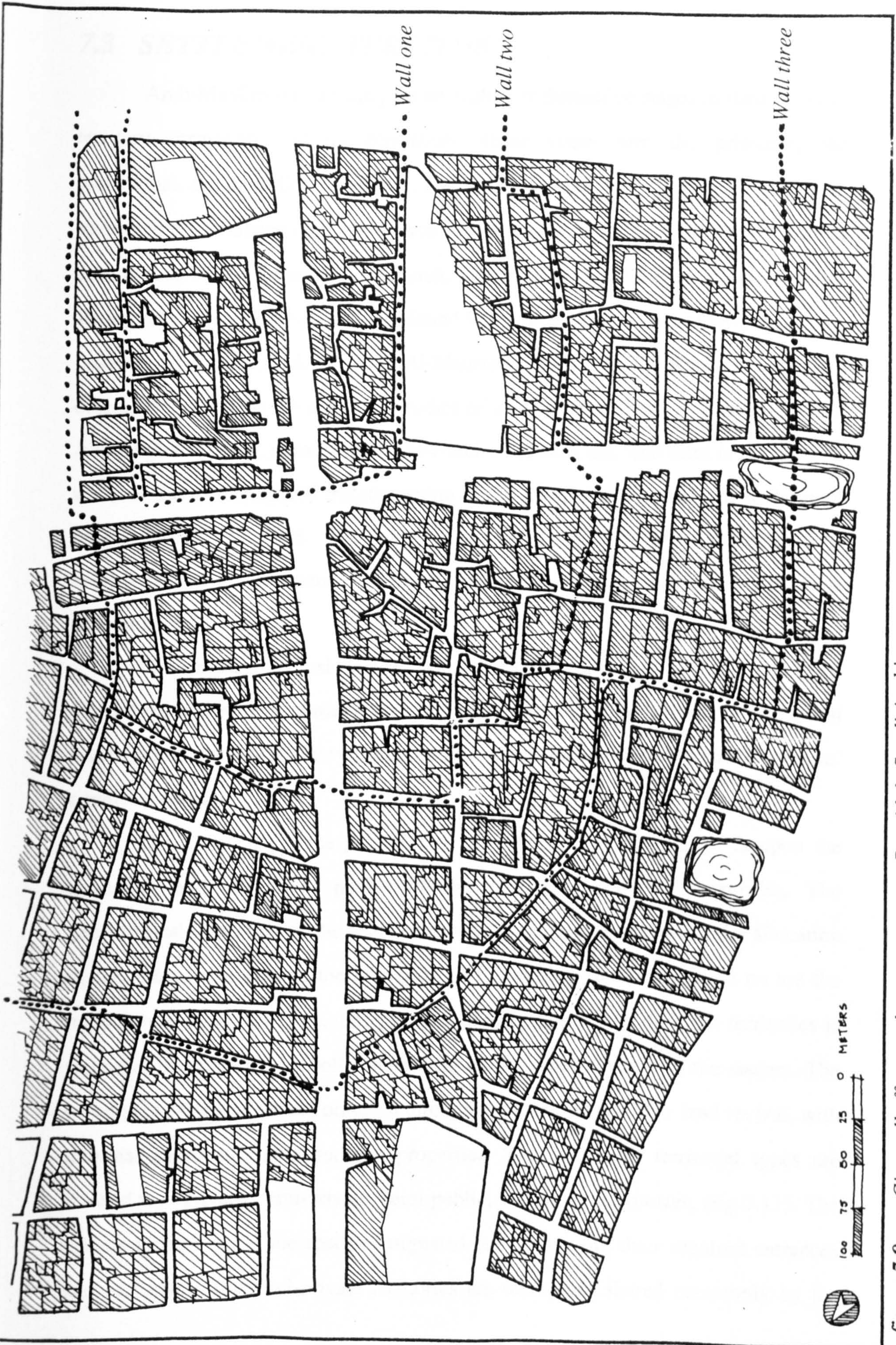


figure 7.9 City wall effect on the street pattern: Buraidah, Saudi Arabia.
 source: after Al-Rebdi (1988).

7.3 SETTLEMENT TERRITORY

Arab-Muslim settlements pass through four distinctive stages in their physical territory formation and transformation. These stages are: the primitive, the transitional, the consolidate maturity, and the contemporary stage, (fig 7.10). These stages were formulated depending upon four main sources: The first is the historical descriptions of the formation and transformation of some of the early Arab-Muslim settlements. These descriptions were found in the historical books and writings of, for instance, Al-Balathary (d. 279/892), Al-Maqrizi (d. 240/854), Ibn Khaldun, and many others. The second is the analytical studies of today's writers such as Lapidus (1984), Abu-Lughod (1971), Ismail (1966), Al-Hathloul (1981), etc. The third is the author's study of the formation and transformation of the Saudi Arabian Bedouin settlements between 1912 and 1985. The fourth is the thesis analysis of Al-Dawaser west neighbourhood in Dammam city, Saudi Arabia, which is the subject of part three chapter nine.

In each stage its residents territorial behaviour passes through the phases of *allocation, attainment, maintenance, and abandonment*. The aim of the formation and transformation of territory formal spaces is to achieve a match with its residents' *cognitive spaces*.

The first stage is the *primitive* stage, where the main concern is upon the allocation and attainment phases of the settlement residents' territories. The geographical allocation of the settlement, who is going to settle there, the allocation of the houses and sectors, the allocation of the needed facilities, and so on are the main concerns of this stage. The physical demarcation of the different territories is primitive in nature or symbolic, depending on the shared culture of the settlers. The ownership system is mainly obtained through the act of originality - land revival, with minimal easement rights between properties. The settlement territorial types are divided into private, semi-private, semi-public, and public territories, (fig 7.11). The private territories are the spaces designated for houses and their required entrances and exit routes. The semi-private territories are the spaces shared commonly by the

settlement residents, such as minor streets, and the fringe of the settlement (Harim) which is essential for its residents grazing, wooding and well-being in general. The semi-public territories consist of the publicly used facilities and the major thoroughfares connecting the settlement with the neighbouring settlements. The publicly used facilities, such as the Friday and daily mosques and open markets are for the locals and non-locals to use but not to own. The major thoroughfares leading to and from such facilities take the same type of semi-public territories. The public territories are the empty white lands surrounding the settlement. Being public in type means it is available for all Arab-Muslims, including the residents of the settlement themselves, to revive and therefore own them. An example of this stage is found in the historical description of the Arab-Muslim settlement during its foundation. Al-Hathloul (1981) gave a description of the early foundation of some of the Arab-Muslim towns such as Al-Kufah, Al-Basrah, and Madinah. For the foundation of Al-Basrah, he said :

Al-Basrah was founded as a military camp in the year 17/638 by Utbah b. Gazwan, on orders from Umar b. al-Khatib [the caliph]. According to al-Baladhuri, the first khattah [section] planned was the mosque, then dar al-Imarah which was originally located some distance from the mosque..... Regarding the laying out of the city, Al-Mawardi relates that the settlers divided the city into khattah according to the tribes, assigning a khattah for each tribe, and made the width of its main street sixty cubits. The main street also served as a kind of way station (marbad). The width of all other streets was twenty cubits, and each lane seven cubits. In the middle of each khattah, they provided a wide rahbah where they could station their horses and bury their dead. In addition their manazel abut each other. Although al-Mawardi is less reliable as historian, his summary is confirmed by al-Baladhuri who, when speaking of subdivision inside the khattah simply states : " The people subdivided and built the houses." This gives the impression that land-subdivision within each khattah was left to members of the tribe. (Al-Hathloul 1981, p.35).

The second stage is the *transitional* stage demarcated by the influence of the ownership system and easement rights, and the growth of the settlement in population and size. The conventional ownership transactions and inheritance of different properties leads to the physical growth of the private territories at the expense of other types. Consequently, the different property easement rights experience some conflicts which are settled mostly in a friendly manner. Due to this, the territory types are still private, semi-private, semi-public, and public,(see fig 7.10). The private territories are

mainly the residential units and its Fina, and the close paths leading to and from it. The semi-private territories are clear in the neighbourhood paths and the Harim of the settlement. The semi public territories are the settlement open market, the Friday and daily mosques, and the major thoroughfares leading to and from the settlement. Their control is mostly under the power of the ruler, especially for territorial transformation through land allotment.

The changes which took place after the building of Baghdad city is an example of this stage. Baghdad city was founded as a residence and capital by al-Mansur, the second abbasid caliph (136/754-158/775), in the year 145/762. After the city was built, some changes occurred in its physical pattern. Describing these changes Al-Hathloul (1981) said :

One of the changes that took place soon after its foundation was the closing of the portals from the inner ring opening onto the rahbah, thus separating the government agencies and the residence of al-Mansur's younger sons from the rahbah and minimizing the need for entering the rahbah. Another change was the transfer of markets to each of the four arcades leading from the gates at the outside wall to the rahbah. Then, in the year 157/773, these markets were moved to al-Karkh outside the circular city;(Al-Hathloul 1981, p.46)

Akbar (1988) gave a description of what is considered the transitional stage of the Arab-Muslim settlements. He said:

As urban population grew, the original territorial structure of towns changed. Over time, buildings came to abut one another, filling the open spaces between khittahs. Also, party walls between khittahs or quarters were sold and leased among neighbours, and properties were divided and enlarged.... Thus the responsibility layout that was based on a system of tribal loyalty changed as a result of a physical transformation in the built environment, (Akbar 1988, pp. 164-65).

Another example of this stage is Bedouin settlements founded in the beginning of fourteenth/twentieth century in Saudi Arabia. Al-Said (1986) considered these settlements as a recreation of the process in which the early *primitive* Arab-Muslim towns transformed into the *transitional* stage. He attributed the similarity of this process to the nature of the settlements' founders (Arab Bedouins), their intentions (war camps), building materials (mud bricks), and regulations (Shari'ah), (Al-Said 1986). The Dukhnah settlement, (fig 7.12) which was built in 1334/1912, is

an example of such settlements and of the Arab-Muslim primitive settlements transformation to transitional stage, (fig 7.13).

The third stage is the *consolidate* maturity stage, mainly characterised by the existence of political and social hierarchy in the settlement, and the existence of multi racial, cultural, and economical population. This leads to the settlement's physical definition, especially the wall construction. Containing the settlement in a wall for protection means the contentious territorial re-typing of it by the internal and external ownership controller - the ruler and the residents. Due to this fact three main characteristics of the settlement are demonstrated. First, the high utilisation and physical demarcation of the spaces (private, semi-private, semi-public, or public) by its owners' internal and external controllers; second, the homogeneity of the residents in terms of socio-cultural aspects. This cohesive homogeneity is due to the time duration and/or the forced culture upon the newcomers; third and most importantly, the appearance of easement rights conflicts which are taken to the settlement court of law to be settled. The house enclosure and Fina, the streets cul-de-sac or thoroughfares, the markets open and built, the mosques, and many other urban elements are clearly defined, demarcated, and guarded. The maturity stage is the stage that attracts most of the studies regarding the Arab-Muslim settlements. The observations, analyse, and recommendations are drawn from this stage, leading to the generalisation and, sometimes, misunderstanding of the Arab-Muslim settlements both physically and socio-culturally. For example, Lapidus said:

The fundamental elements of Mamluk period social organization -the quarter, the fraternity, the religious community, and the state - seem to have prevailed throughout the Muslim world.... Almost universally, Muslim cities contained socially homogeneous quarters. In Aleppo and Damascus the basic unit of society were quarters, which were social solidarity's as well as geographical entities. Small groups of people who believed themselves bound together by the most fundamental ties - family, clientage, common village origin, ethnic or sectarian religious identity, perhaps in some cases fortified by common occupation - lived in these neighbourhoods, (Lapidus 1969, pp.49,51)

Ismail (1966) has given an intensive analysis of the locations of the traditional, medieval town's urban elements, (fig 7.15). He mentioned that within the traditional Arab city, its centre is the city core consisting of the Jami mosque,

qaysariyyahs and specialised suqes, khans, and hammams. Some of the suqs are located on the thoroughfare streets or qasabah. The core area is surrounded by residential quarters (harah), which include local mosque, mini market (suwiqah), and baths (hammam). The governmental area (al-Makhzan) is located near the city citadel. The city wall (sur) is built around these elements for protection. Outside the city wall there exists the city's open market (maydan), semi rural districts, cemetery, cultivated fields, and pastures and parks, (Ismail 1966).

The fourth stage is the *contemporary* stage characterised by the introduction of new technology and new building regulations. This stage occurred at the turn of the fourteenth/twentieth century and has continued until now. New technology brought with it new building materials, construction methods, transportation and communication means, and micro climate control. The new building regulations include new building codes, set backs, height, density, street width, and so on. The shift from the third stage into the fourth stage will be the subject of chapter eight.

The Arab-Muslim settlement can have all or some of the four stages in its life cycle. The settlement can be primitive, transitional, then contemporary without passing through the consolidate stage.

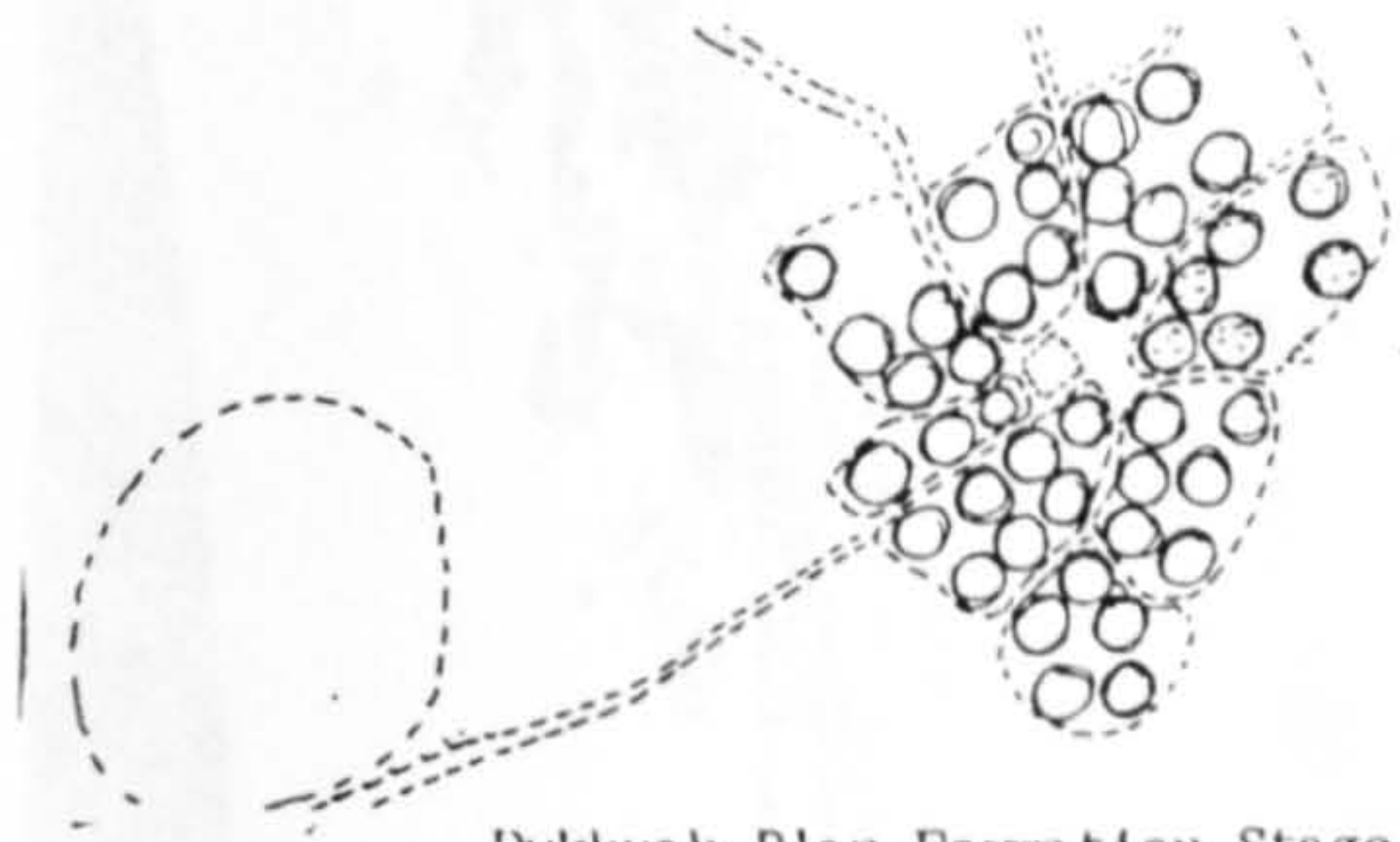
ELEMENT			TRADITIONAL			CONTEMPORARY
			STAGE 1	STAGE 2	STAGE 3	
HOUSE	Exterior (Fina)	Upper Floor				
		Ground Level				
	Interior					
STREET	Cul-de-sac	Upper Floor				
		Ground Level				
	Through	Upper Floor				
		Ground Level				
MARKET	Open					
	Covered					
MOSQUE						

	PRIVATE		SEMIPRIVATE		SEMIPUBLIC		PUBLIC
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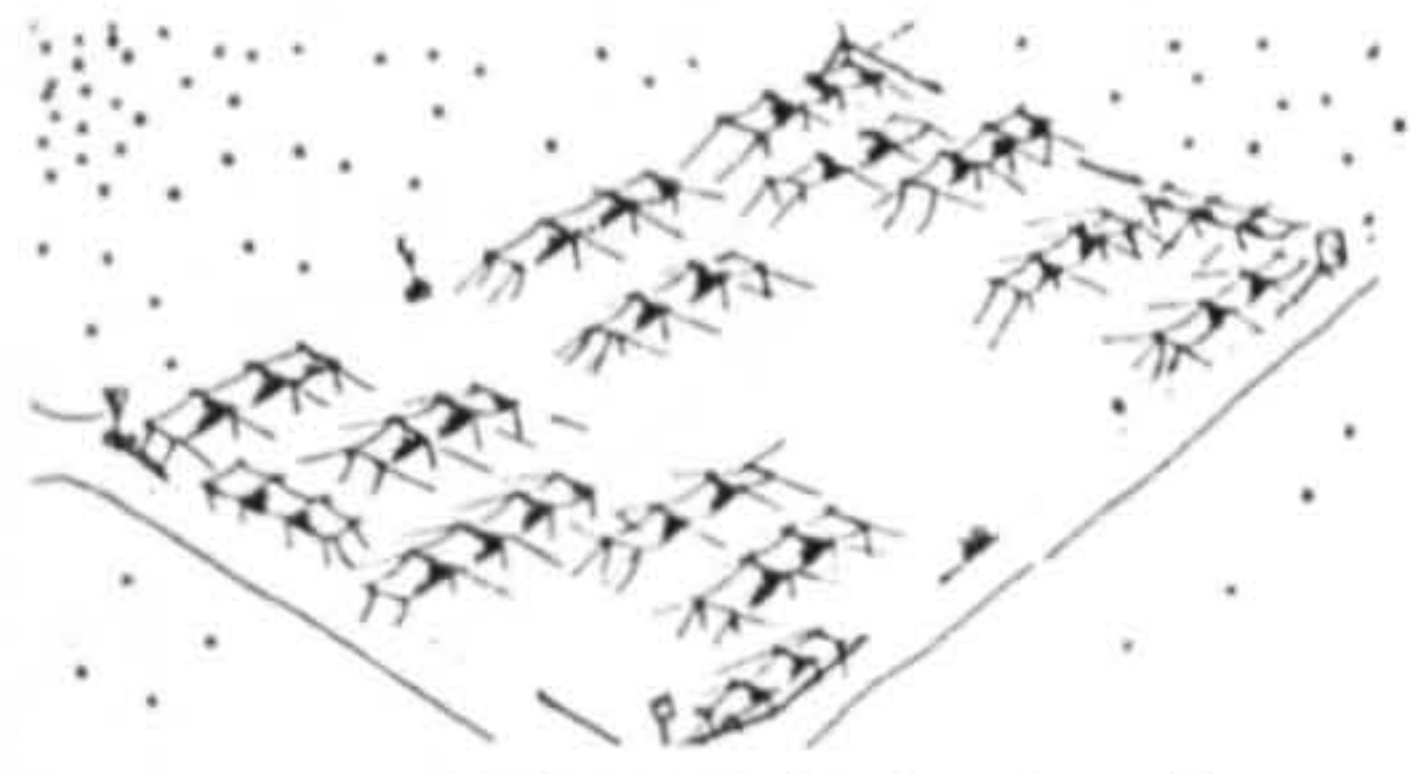
figure 7.11 Arab-Muslim settlement urban element territory stages.
source: author.



figure 7.12 An example of Arab-Muslim settlement in the transitional stage, Dukhnah, Saudi Arabia. source: Al-Said (1986).



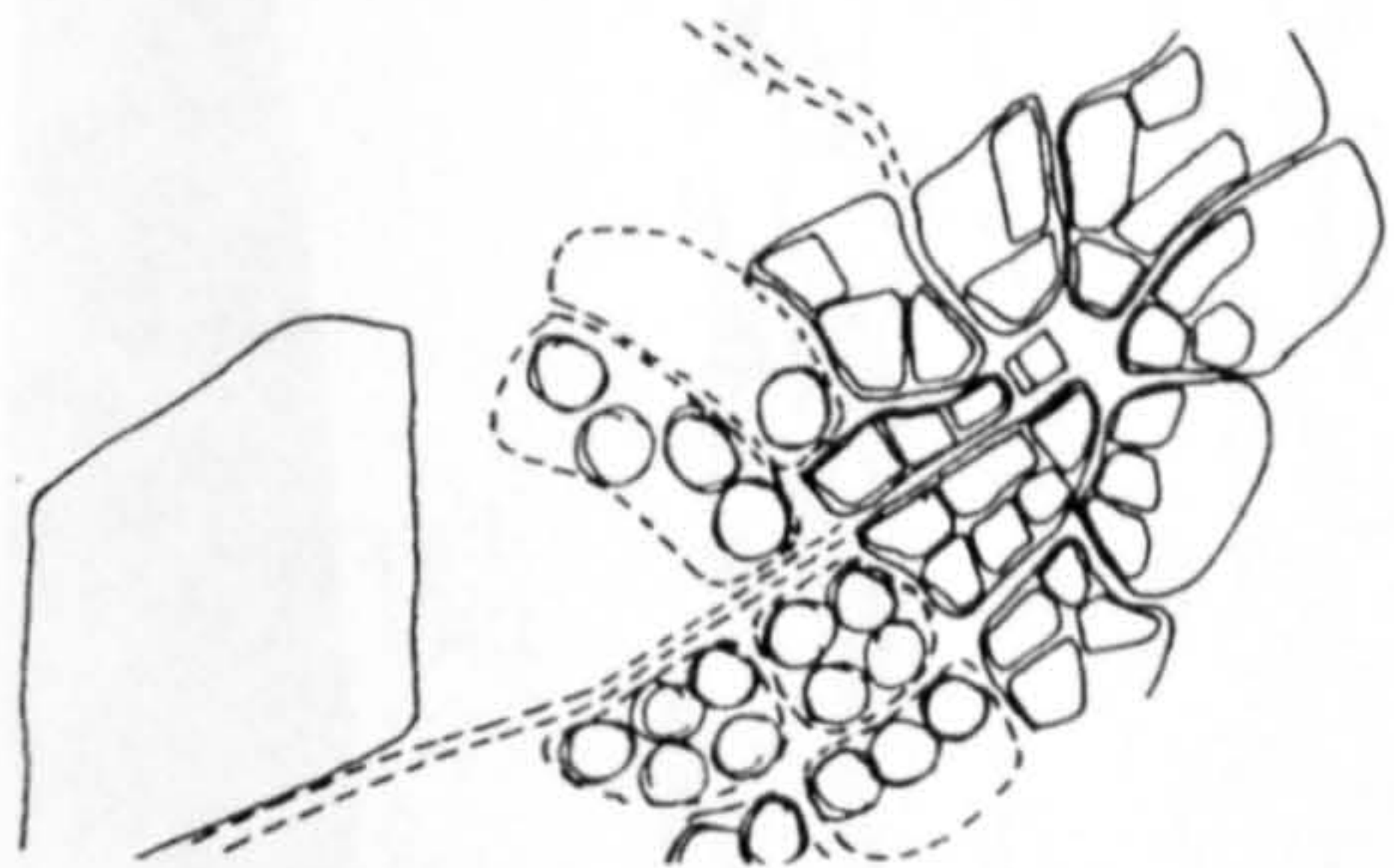
Dukhnah Plan Formation Stage 1.



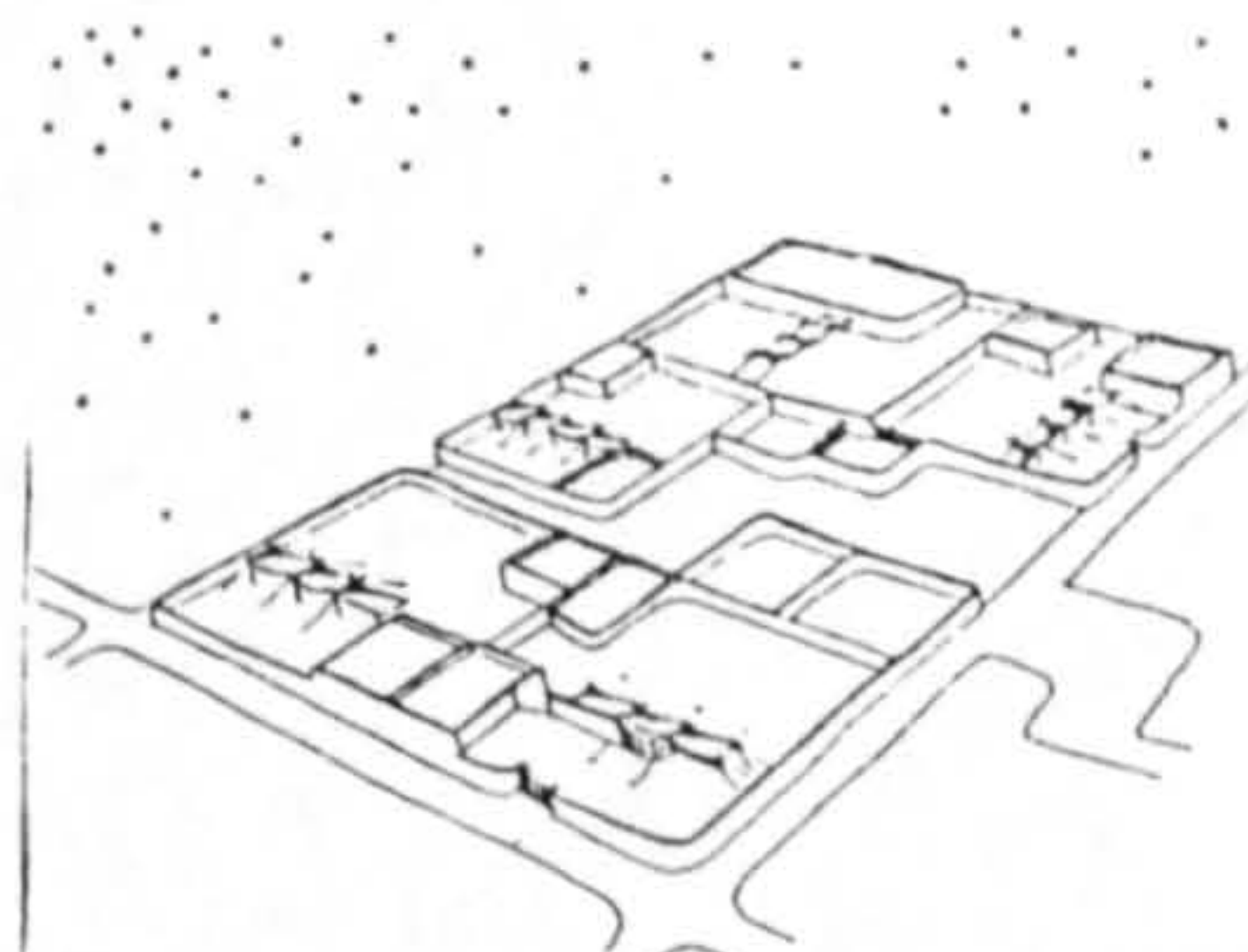
Residential Cluster Stage 1 .



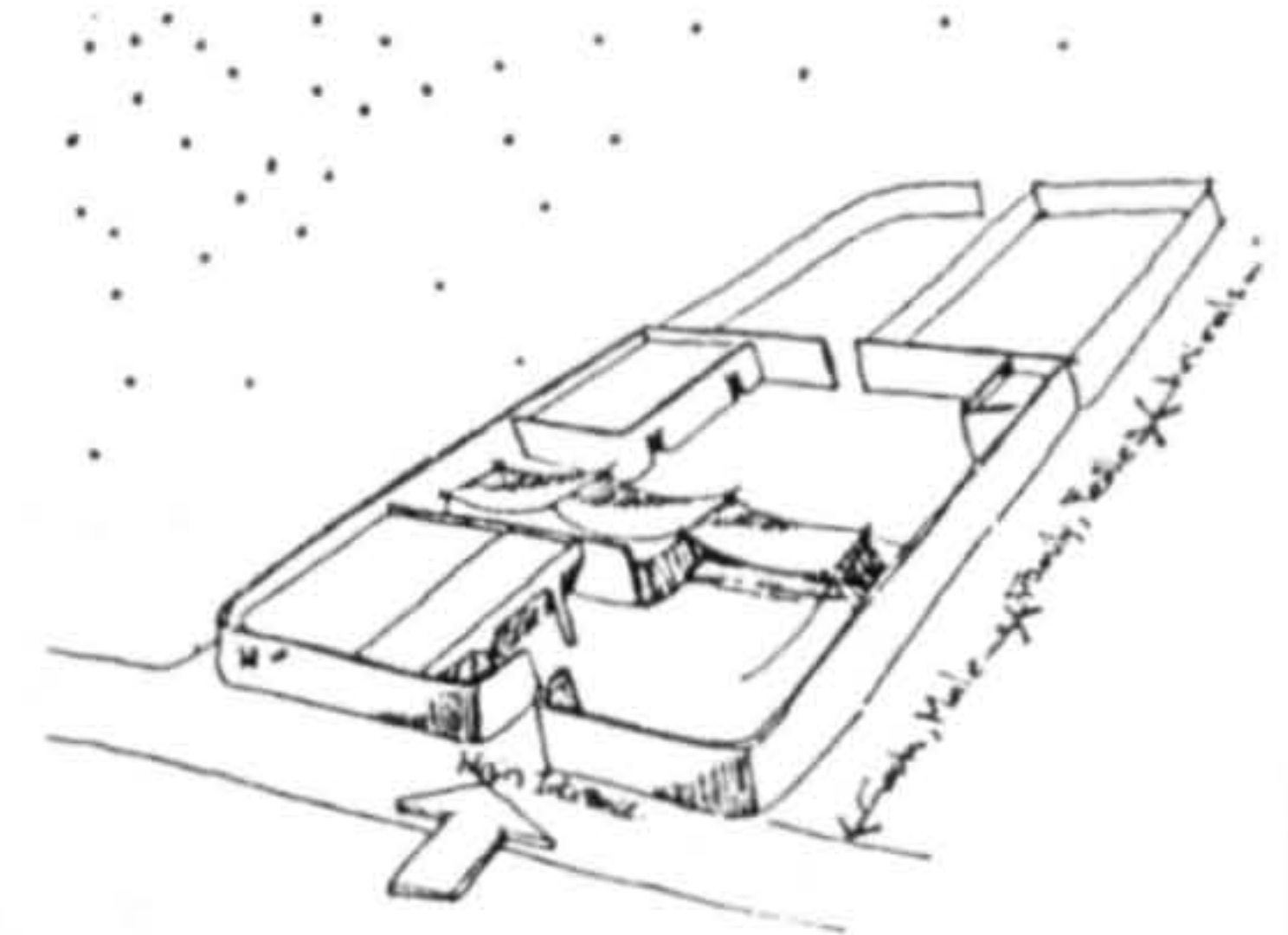
Residential Unit Stage 1 .



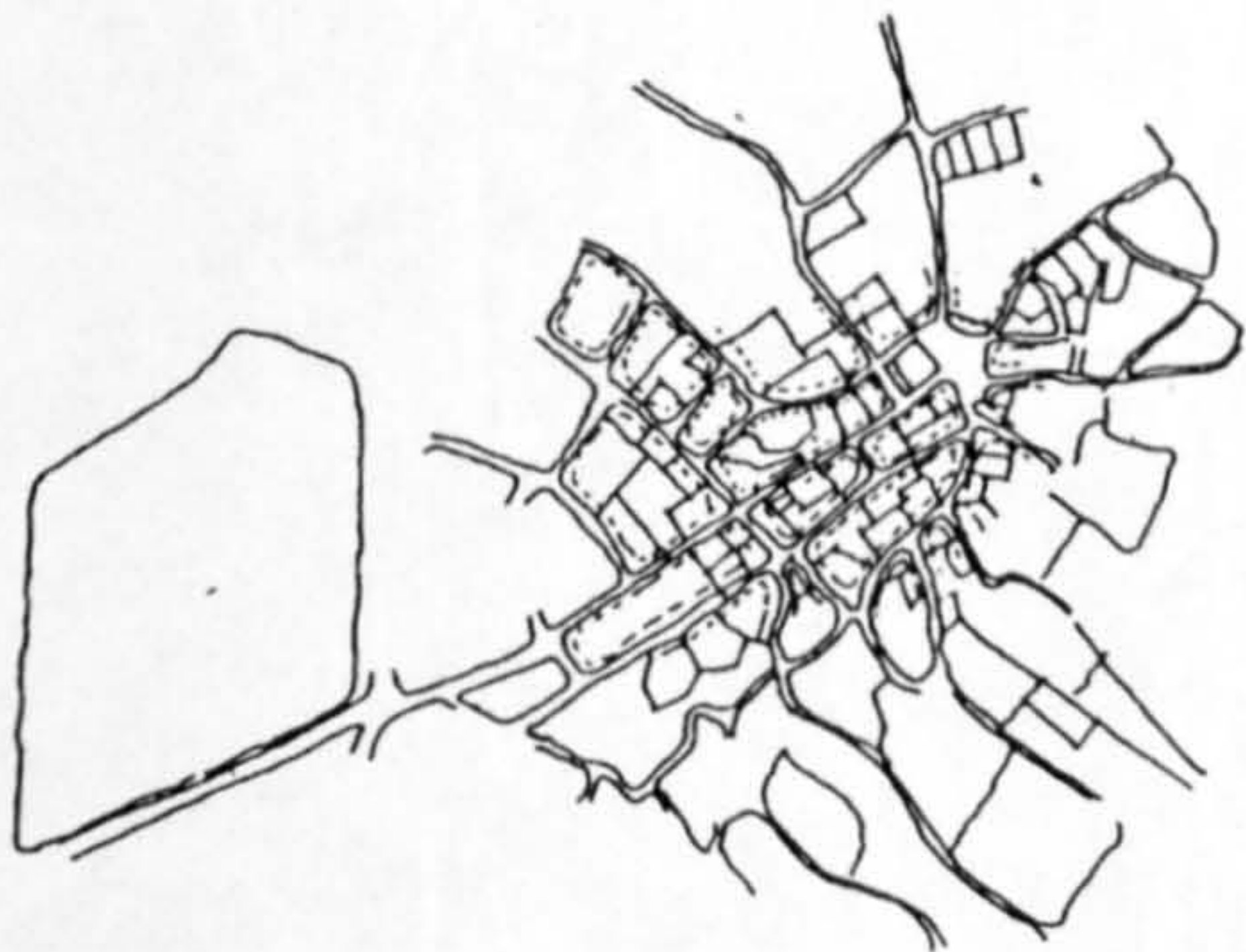
Dukhnah Plan Formation Stage 2.



Residential Cluster Stage 2 .



Residential Unit Stage 2 .



Dukhnah Plan Formation Stage 3.

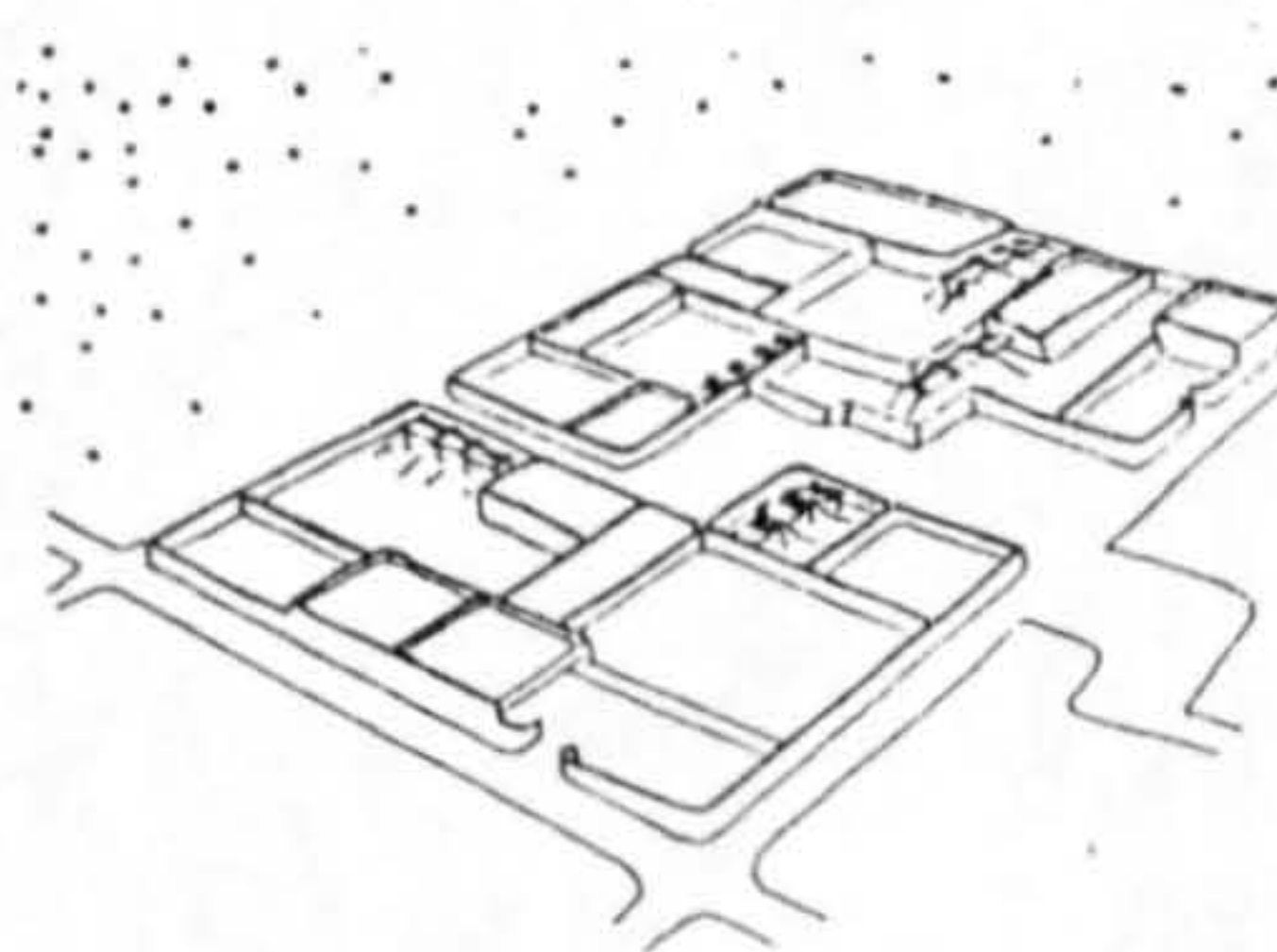
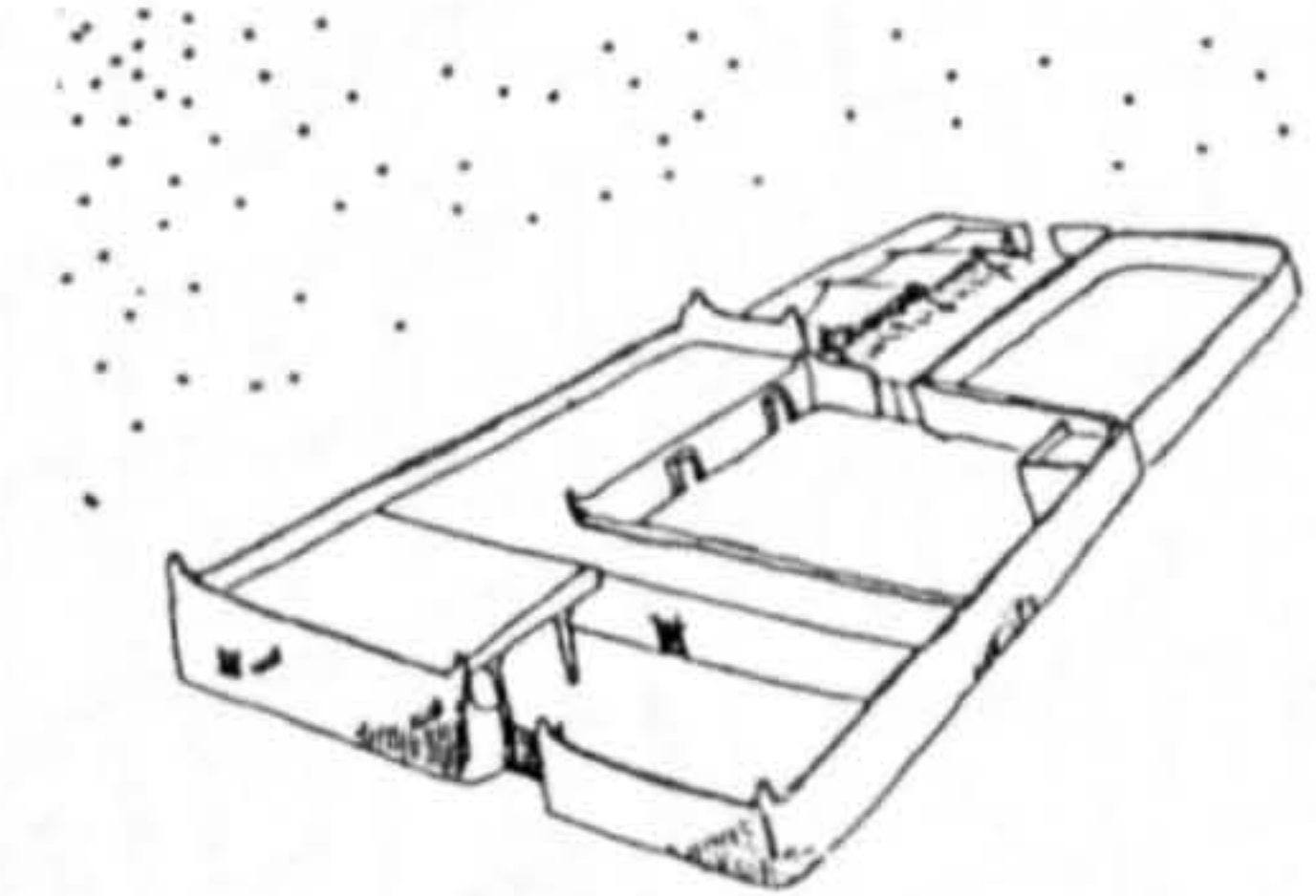


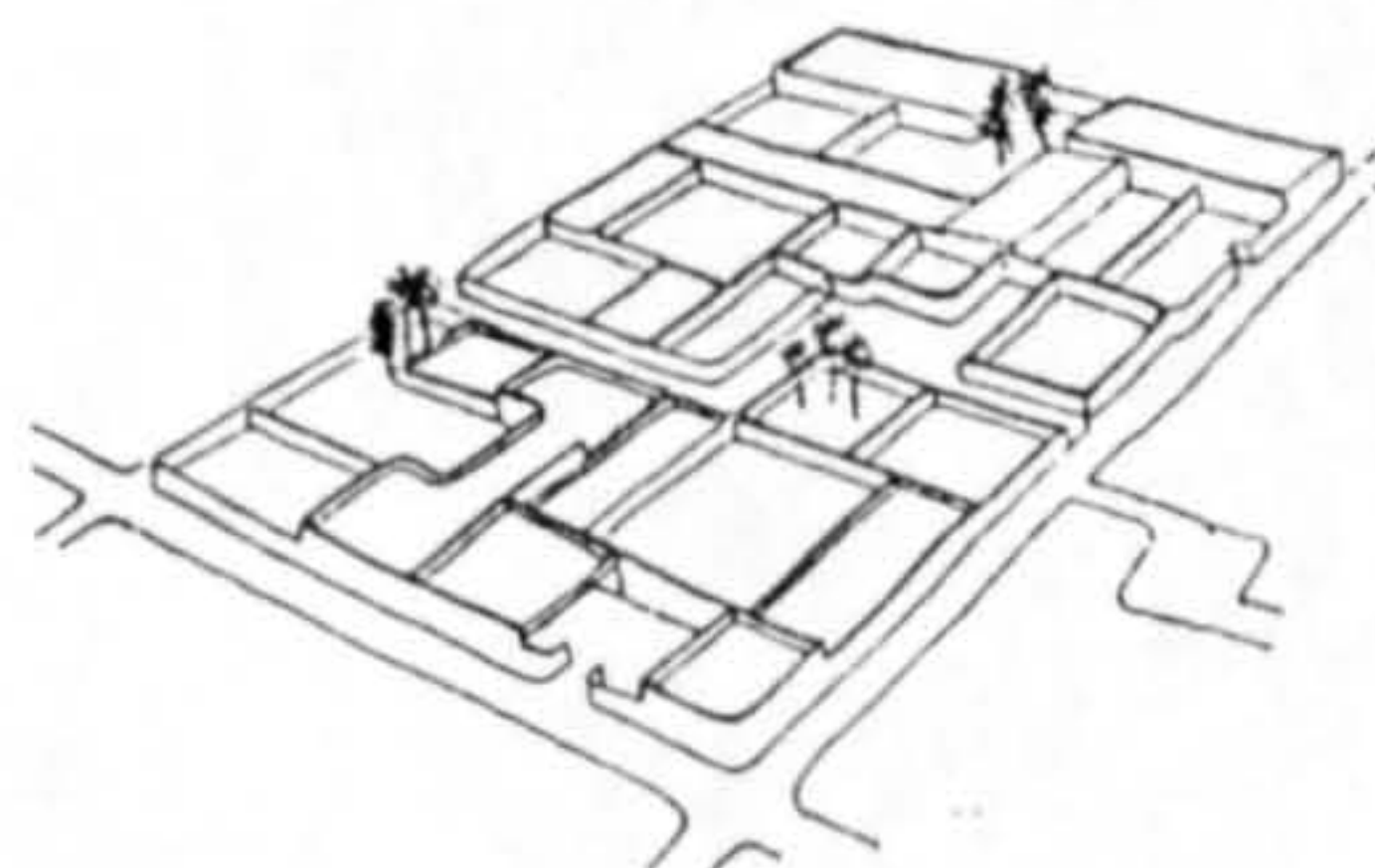
Figure (51) Residential Cluster Stage 3 .



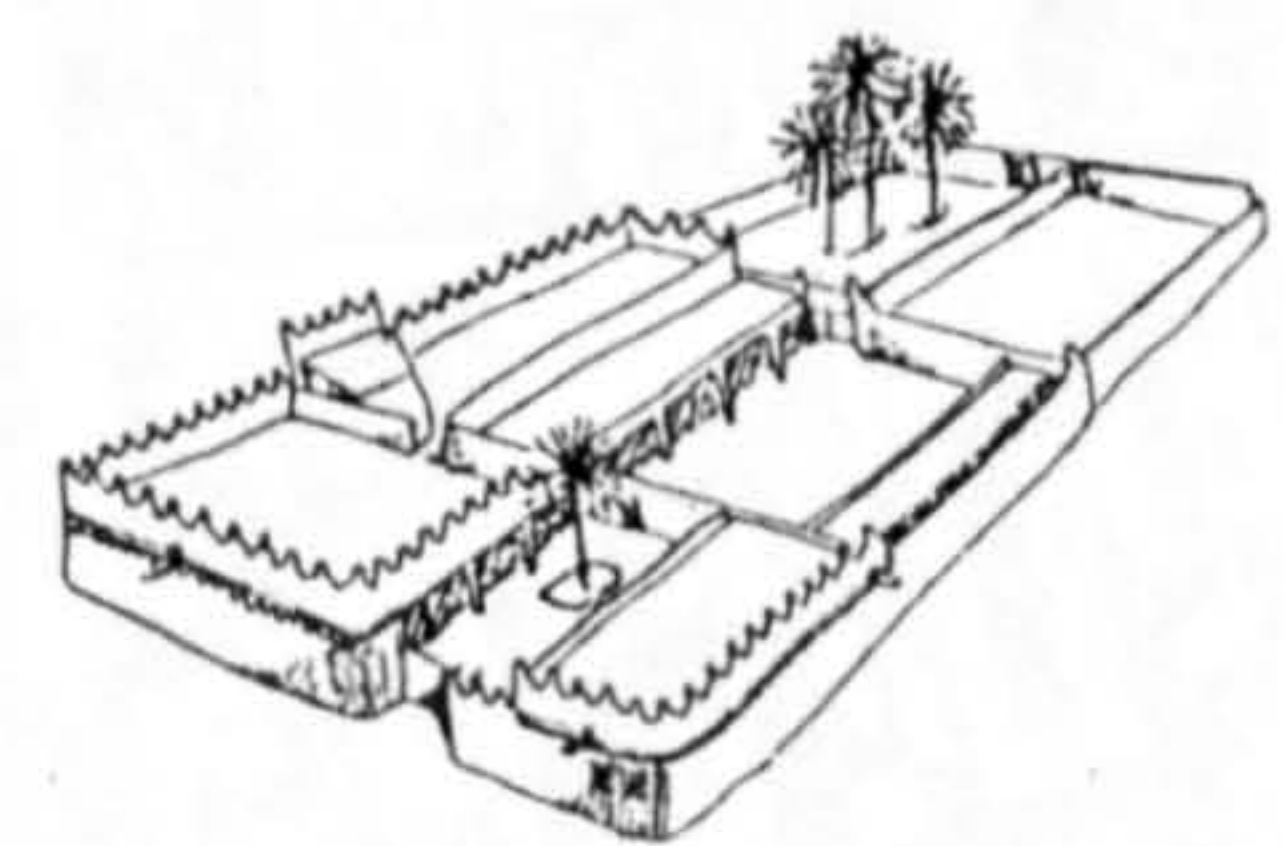
Residential Unit Stage 3.



Dukhnah Plan Formation Stage 4.

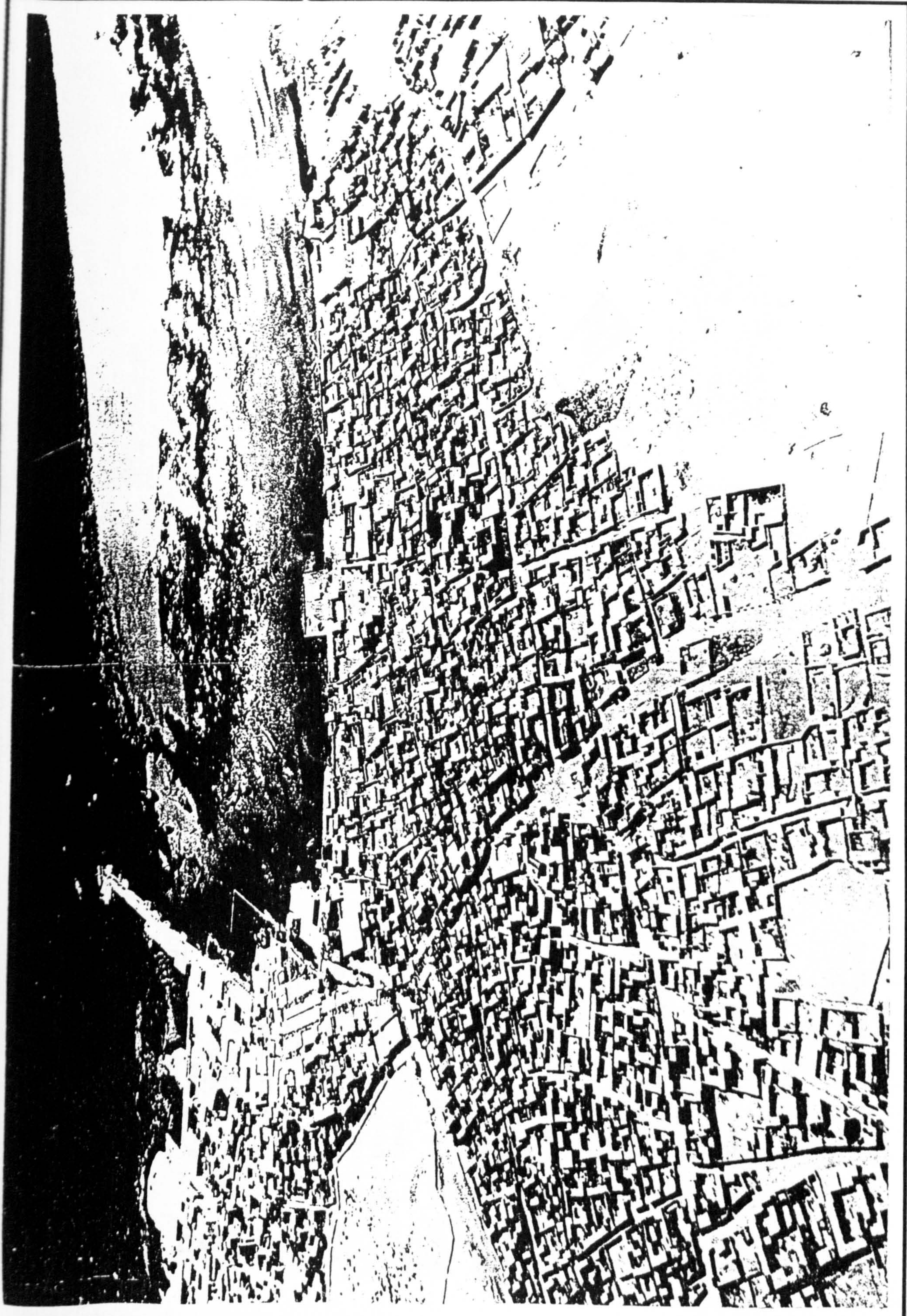


Residential Cluster Stage 4 .



Residential Unit Stage 4.

figure 7.13 The settlement transformation from primitive to transitional stage:
Dukhnah, Saudi Arabia.
source: Al-Said (1986).



*figure 7.14 An example of Arab-Muslim settlement in the transitional stage:
Dohah, Qatar.*

A SCHEMATIC LAND USE PATTERN FOR THE EARLY MEDIEVAL ARAB CITY

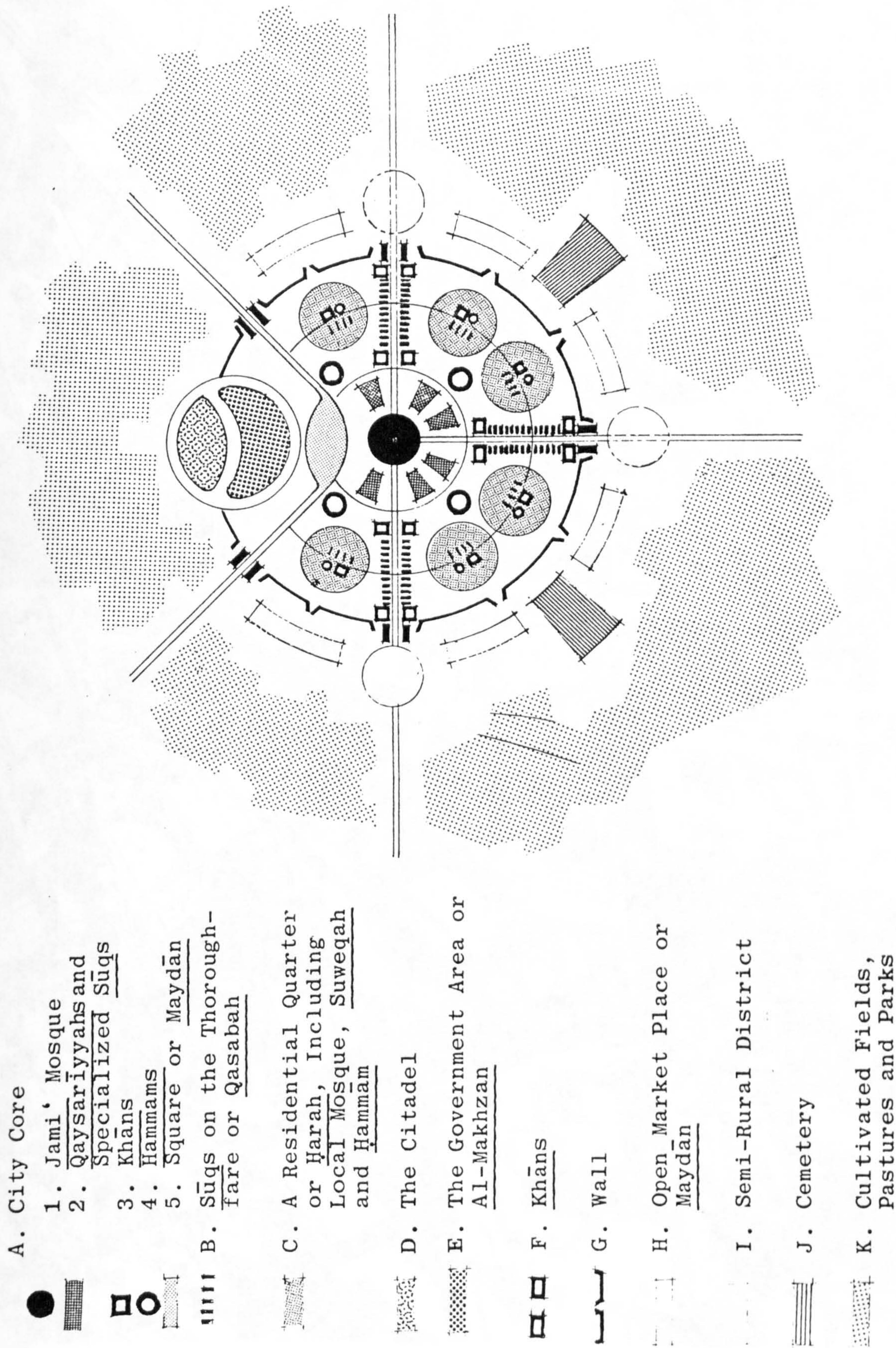
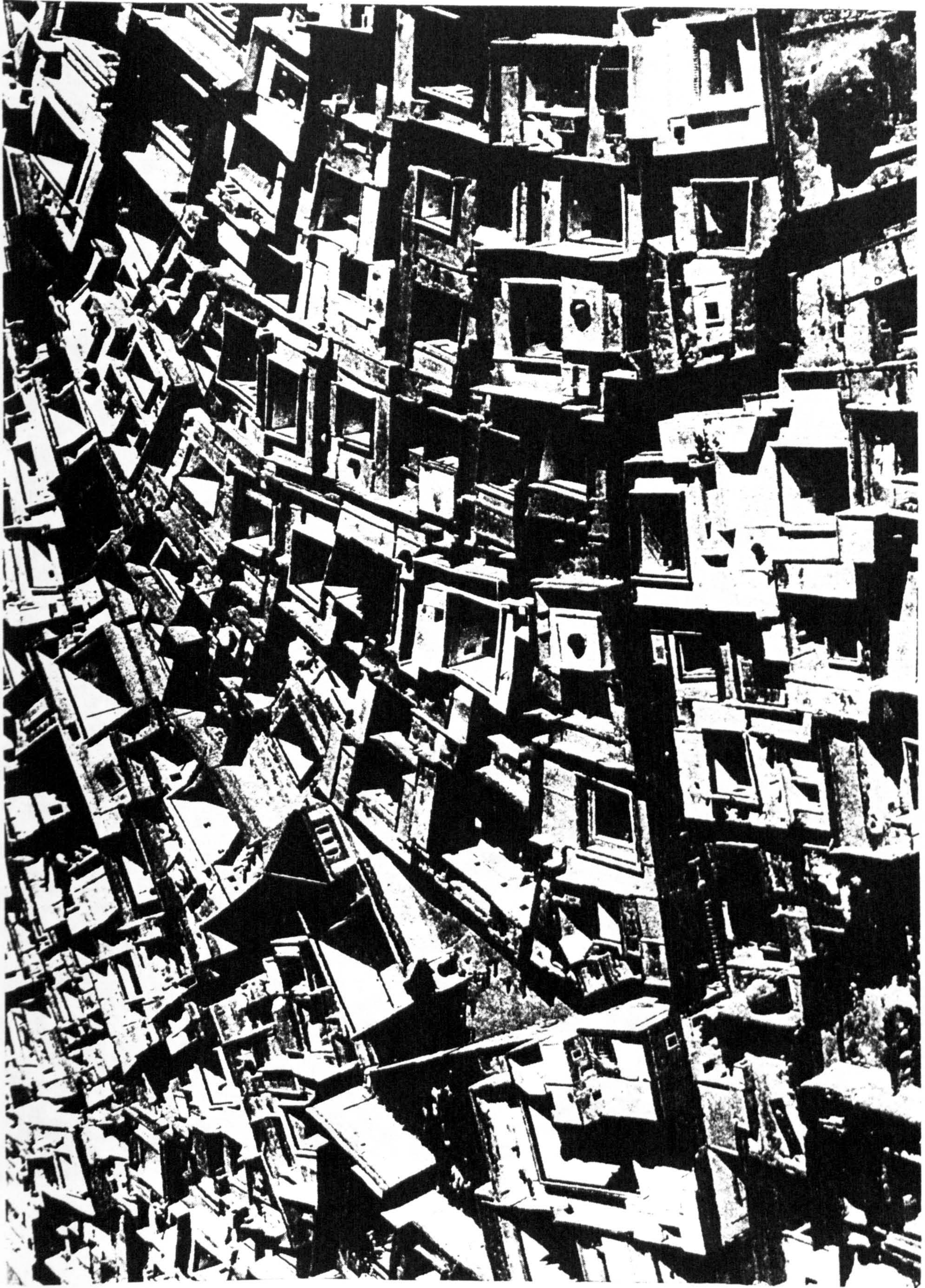


figure 7.15 The elements of consolidate stage settlement.
source: Ismail (1966).



*figure 7.16 An example of the consolidate stage neighbourhood: Tunis, Tunisia.
source: Hakim (1984).*

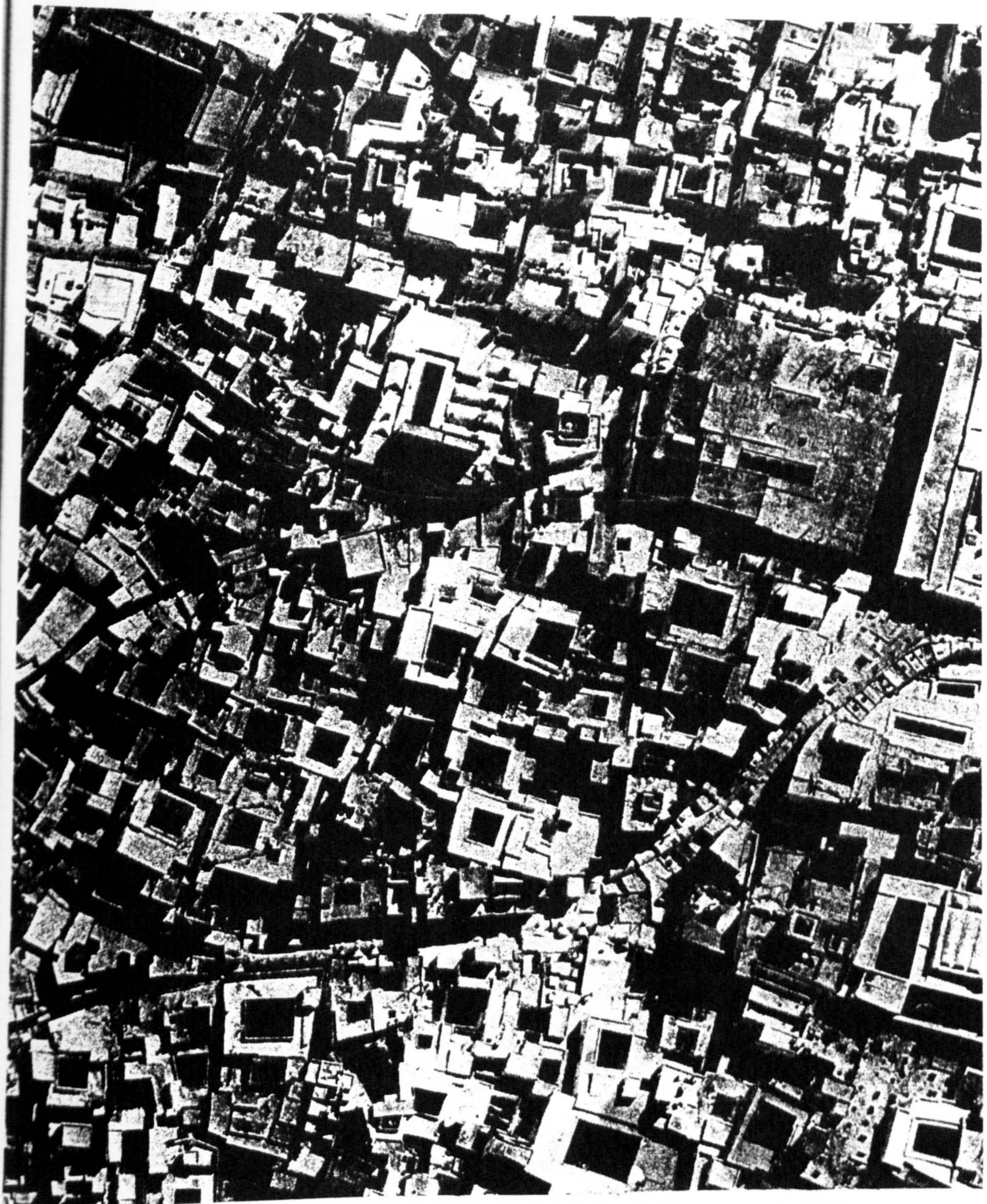


figure 7.17 An example of the consolidate stage neighbourhood: Fez, Morocco.
source: Hakim (1984).

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AS ORIGINAL**

7.4 APPROPRIATION VS. ENCROACHMENT

In chapter five and six, the ownership process, property easement rights, and traditional Arab-Muslim territory types are introduced. Based on this some of the writings about the Arab-Muslim built environment are investigated. The investigation will now try to give an understanding to the way in which writers see the growth and transformation of the Arab-Muslim built environment, especially the belief that it is the result of residents continuous encroachments. English dictionaries define encroachment as "Intruding, Invasion, Usurping.." denoting the illegal act of taking someone else's belongings, while appropriation is defined as "adopt, take to one's self, take as one's own, apply to one's own use..." denoting some legality of such an act. The difference between encroachment and appropriation is the difference between the illegal act and the lawful act. In Sharicah the illegal act of taking others belongings is highly prohibited. The prophet said " He who may appropriate without right one palm of ground will be yoked by God of seven grounds at the day of Resurrection". In the literature about the Arab-Muslim built environment the words "encroachment" and "appropriation" are commonly used. Sometimes they are used synonymously to describe the growth and transformation of the built environment.

Lapidus (1984) reporting the Muslim cities in the later middle ages said:

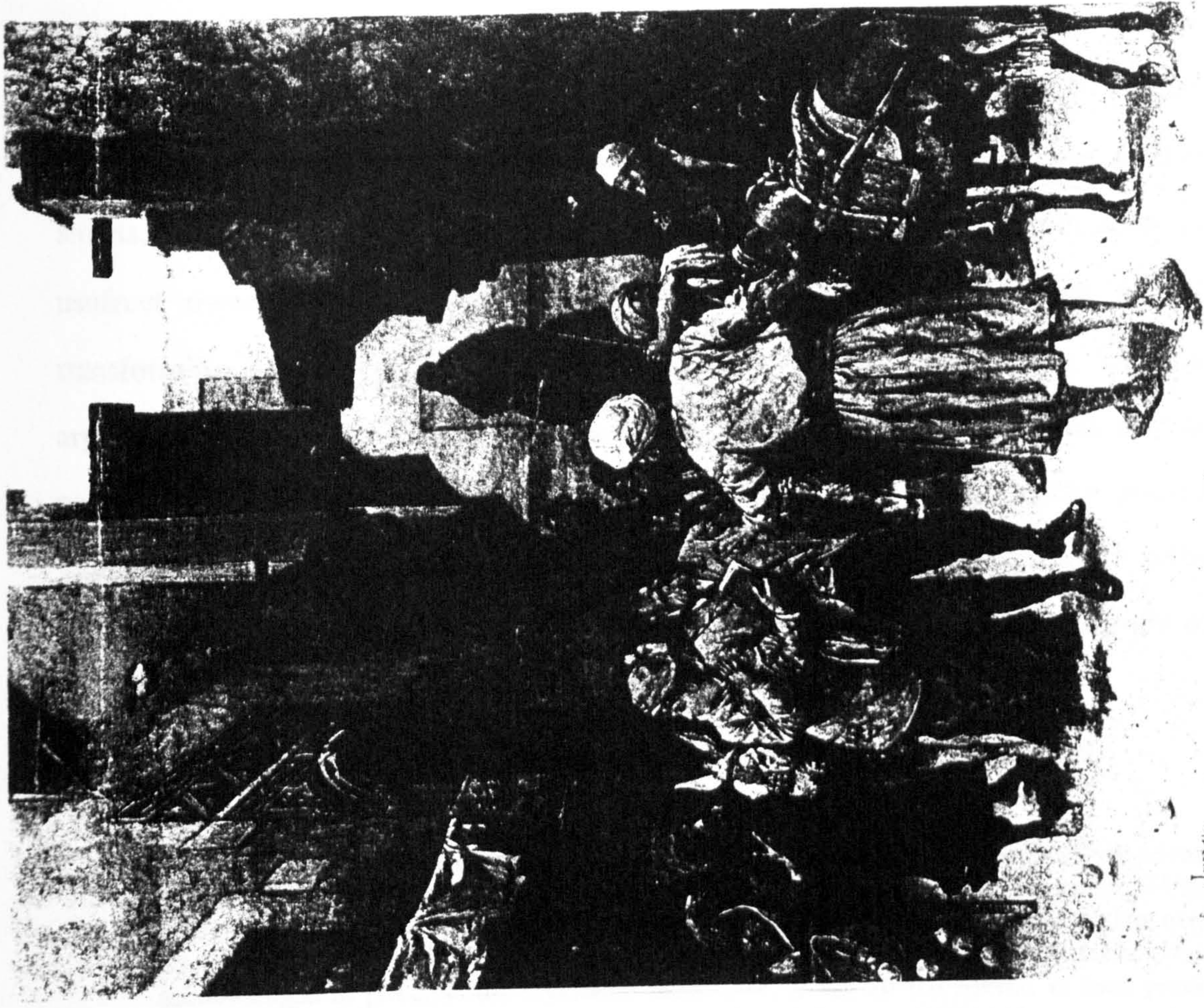
In the flimsily built Muslim city of medieval days, shops and houses quickly grew over all available public spaces-squares, streets, mosque and school facades, walls, and bridges. Governors sporadically exercised a right eminent domain, seizing properties which encroached on public spaces removing nuisances and danger, and widening the streets. People could be forcibly moved from their homes and shops. No compensation was paid to private owners, although actual demolitions and improvements were made at the governors expense. Such measures, despite the presumed ultimate right of the community as a whole, were unjust from the point of view of property owners who may not themselves have built on the common way, but purchased property long ago erected in this fashion." (Lapidus 1984, p.61).

The highlighted segments of this quotation show the areas of disagreement between Lapidus and this thesis. Without any distinction of the various street spaces territories (at the under ground, ground or upper floor level), the origin of the street ownership, the territory type of adjacent properties that are served by or have

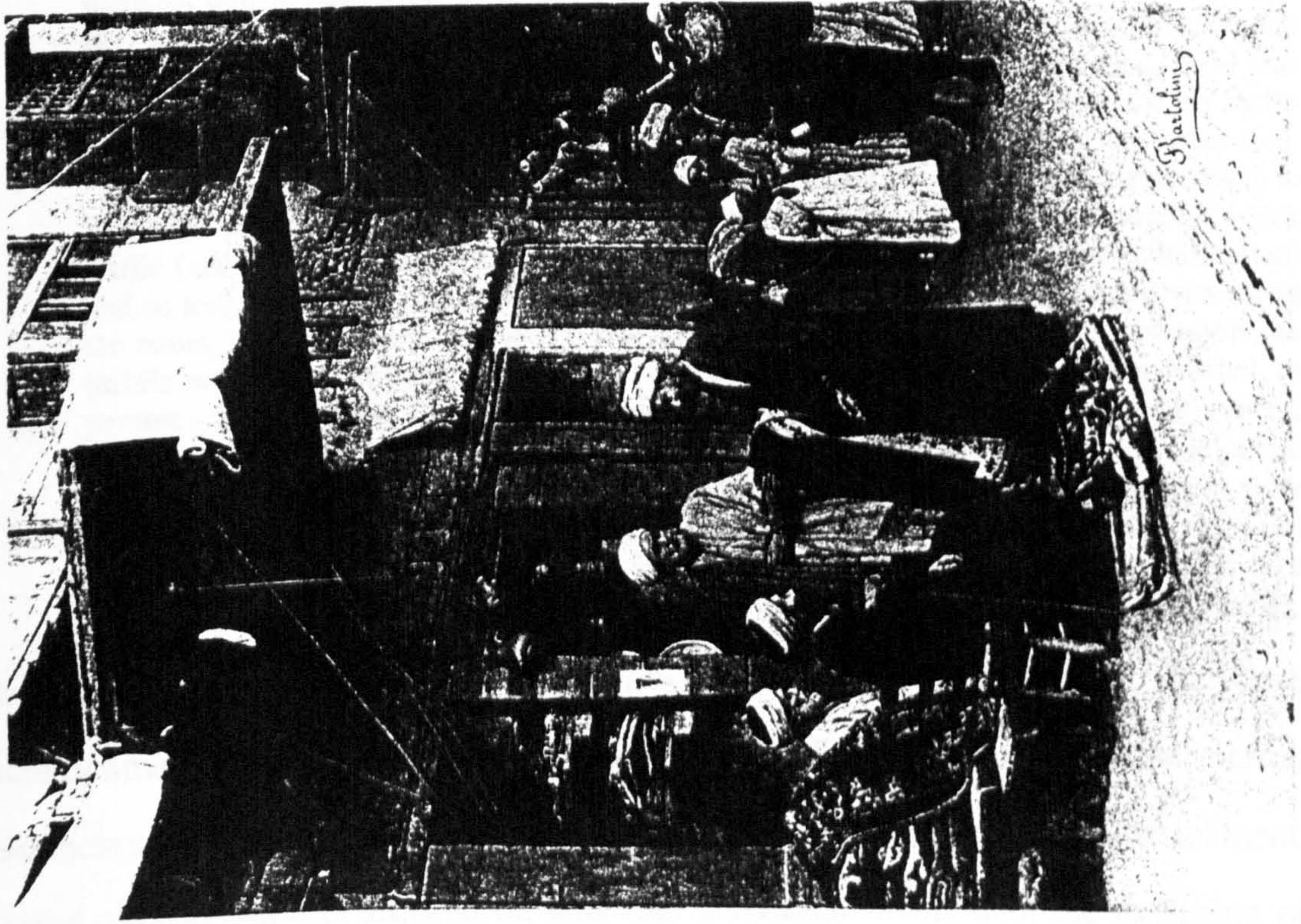
easement rights upon the street, and the street user right of benefit, Lapidus labelled all streets as 'available public spaces'. He justified his street territory typing as public spaces by the two sentences "properties which encroached on public spaces", and "Governors act in seizing properties, removing nuisances and danger, and widening the streets". One can sense Lapidus doubt about his street territory typing as public spaces when he said "people could be forcibly moved from their homes and shops". In the governors' response toward maintaining the street function as the external controller, he combined some lawful acts with others that are prohibited. 'Removing nuisance and danger, and widening the streets' is the lawful act assured by the weighing of the public right of benefit in comparison to the private usufruct ownership. But the prohibited act that was committed by the governor when 'no compensation was paid private owners... despite the ultimate right of the community as a whole' which Lapidus refers to as 'unjust from the point view of the property owners who may not themselves have built on the common way'. He continued :

In the Muslim towns without a highly developed sense of the importance of the public spaces and ways, shopkeepers constantly encroached on the streets, occupying strategic positions closer and closer to the centre as they pushed out their wares to catch the attention of the passer-by, and crowded bridges and gates just as at the points of high density of circulation. Yet despite the obvious importance of disengaging the streets and squares, and the recognized authority of the emirs to protect the public, only in times of great prosperity, and when long tenure of office made governors both responsive to popular needs and sufficiently powerful to override special interest, were such projects actually carried out. For example, in Damascus during the long tenure of Tankiz (1312-1340), a great effort was made to provide adequate streets in new parts of the city. Shops were knocked down and benches removed to widen the way. The interior of the city, long established, was not touched or improved, but Tankiz tried to rationalize the expansion around the citadel on the city's northern and western boundaries. Once this urgent need was satisfied, only minor projects were carried out. In all of two and a half centuries there was but the finest echo of these efforts in other cities. (p.72).

The first statement " In the Muslim towns.." is a general inaccurate statement about the Arab-Muslim city elements and their growth and transformation. If the case of 'shopkeepers constantly encroaching on the streets' one has to look again at the same argument raised about his first quotation. If the shopkeepers are encroaching on semi public streets which were semi public due to their numerous number of users, then in this case this act is truly an encroachment. But if they are appropriating from private



1881
Jersey



Harold

figure 7.18 Cairo's street environment in the eyes of the Orientalists.

streets owned by themselves then the exercise of passer-by right of benefit and the owners usufruct ownership must be weighed in the street ground floor level. Ahmad bin Hanbal (d.241/885) discouraged buying from those who narrow the market streets, which may be interpreted by this thesis as shopkeepers appropriation of usufruct ownership vs. public passer-by right of benefit, or the first act of transforming the market private territory into semi public one. Taking Lapidus' argument, one can say that modern shopping centres interior design with narrow pedestrian paths is an act of encroachment upon the public space!. Lapidus praised Tankiz's action in widening the street of Damascus. As mentioned with respect to the ownership controllers, the internal and external (Tankiz) controllers have the right of weighing the public vs. private rights, and if needed enforcing the results.

In the book "Cairo 1001 years of the city Victories" Abu-Lughod said :

It is perhaps ironic that Roman (and from thence, Western) law, which emphasized private property rights, should have been so much more successful in preserving the sanctity of the public ways than Islamic law which emphasizes the public and communal rights over land, i.e., favoured state domains and trusteeship over freehold tenure. While Islamic law acknowledged in principle the inviolable sanctity of, if not all the streets, at least public thoroughfares, in actual practice several factors intervened to make preservation difficult and to soften the penalties for encroachment. First, within an ally, cul-du-sac, or other limited access way, the abutters alone were responsible for maintenance and for keeping the passageway clear of obstructions; unless a neighbour complained, there was nothing to be adjudicated. Second, even on the thoroughfares or public way, the air rights over the street and basic easement around the building plot itself, including the street side, "belonged" to the owners of abutting property. Owners, then, retained preferential rights to the street which they were free to exercise, so long as they did not "unreasonably" block traffic (and this was a matter for ex post facto legal opinion, not of prior legal specification) and so long as their exercise did not infringe on equally valid rights of other owners along the street. In short, whereas Western law sought to prohibit all encroachment upon the public way except where specifically exempted, the law in Islamic cities tended to permit encroachments, except when these were judged to interfere with rights of others. Therefore, while watchful neighbourhood and a zealous government might guard the public way by requiring the demolition of obstructing constructions, neither could prevent their existence a prior. And third, once an obstruction has been in existence for lengthy periods of time and been uncontested, the right to its continuance was assured. Thus the result of a period of public neglect could not later be remedied; constant vigilance was required. (p.68).

The highlighted statement shows Abu-Lughod's synonymous use of the word 'encroachment and 'appropriation'. The law in Islamic cities neither permit encroachment of any kind of territory, nor soften the penalties for encroachment, instead appropriation is allowed on what the individual owns, with the exclusion of

the semi public territories. That is at the ground floor level; in the upper floor levels the appropriation of the air right is not an act of encroachment under the Islamic law. In a later article Abu-Lughod confessed that the early orientalist's writings had influenced her way of thinking about the Arab-Muslim built environment. She said:

My own book on Cairo fell into the trap set by the Orientalists by accepting many of the earlier authorities about the nature of the Islamic city. The edifice they had built over the years seemed to me a strong and substantial one. Only gradually did it become clear how much a conspiracy of copying and glossing had yielded this optical illusion. But criticisms were already beginning to appear, (Abu-Lughod 1987, p.160).

Al-Hathloul (1981), studying the tradition, continuity and change in the physical environment in the Arab-Muslim city reported some cases of jurists legal opinions and said that:

These cases clearly show the concern of Muslim jurists about the right of way and their underlying agreement on not narrowing the way, hindering circulation or causing damage to the public. However, despite this common theme, when they were faced with specific cases, jurists' opinions differed. For instance, if Malik did not object to the mosque encroaching on the street or if Asbagh did not demand the demolition of a house which encroached on only a small portion of the street, then the net result was clearly predictable : people would occupy portions of the streets or of spaces along their houses whenever they had a chance to do so. Both contentious concern of the jurists about these questions and the large number of hypothetical cases posed in the books of fiqh suggest that such appropriations did take place. At a later time than these jurists, Ibn al-Rami (d.734/1334) indicates that such practice was very common in Tunis. He stated that he was ordered several times by the great judge Ibn Abd al-Rafi to demolish a number of buildings and wooden structures which encroached on part of the public way. This also seems to have been the case in Cairo where, in 882/1474, it is reported that prince Yashbuk undertook the widening of streets and lanes of Cairo, especially that of the main street from al-Futuh to the Zuwaylah gate (shari al-Muizz). He is also reported to have asked the Shafii judge to rule in demolishing all encroachments on streets and lanes, whether they were buildings, wooden structures, or built up benches. (Al-Hathloul 1981, p.86-7).

Here again Al-Hathloul used the word 'encroachment and 'appropriation' synonymously which led him to say "jurist's opinions differed". Malik will not allow for an encroachment of any kind, but in accordance with the point offered by this thesis, Malik allowed the shifting of a semi public territory boundary (the mosque) to appropriate more in the ground floor level from another semi public territory (the street) due to the public benefit from such an act. For Asbgh ruling the private territory (enclosed house) has expanded or appropriated in the ground floor level

from the same owner's private territory (the house Fina) in a way that did not hinder the circulation or narrow the streets right of way zone, which will not deny the street users' right of benefit or adjacent properties easement rights. In the case of the judge Ibn Abd al-Rafi^c of Tunis who ordered Ibn al-Rami to demolish a number of buildings and wooden structures which encroached on part of the public way, one can assume that the street on ground and upper floor levels territory was semi public as a right of way zone where no encroachment was allowed. In the case of Yashbuk winding of al-Mu^cizz street in Cairo, Yashbuk could not legally do that until a rule from the Shafi^ci judge allow the demolition of what is considered to be an 'encroachment' on the street. Again the judge is expected to rule his judgement depending on weighing the public right of benefit and other properties easement rights at that moment compared to the private ownership of usufruct. Since demolition has taken place, the private territories have been transformed into semi public.

Akbar (1988), in his book 'Crisis in the Built Environment, The Case of the Muslim City, devoted a chapter to "Encroachments on the street". In defining the public street , he said:

What kind of space is a street that is owned by all Muslims collectively? A public way is defined as a road upon which the passers-by are countless. The implication is that inaccessible streets, isolated streets, or streets on the outskirts of towns are not yet well-defined enough to be public way. They therefore follow different ruling regarding appropriation by abutting parties. (Akbar 1988, p.114).

With regard to the Muslim jurists' ruling on 'encroachments on the street' , he said:

As there was no municipal control over the streets, the objections of the passers-by were the main means of control. Streets varied in their degree of publicness from major heavily-used thoroughfares to isolated streets with limited use. Objections of passers-by and the ruling of judges, therefore, also varied. All jurists agree that no individual is allowed to appropriate any property from the street on the ground level....

There were a few standards used by some jurists to resolve disputes in the case of objections to the action that causes no damage: For example a street was considered wide if its width was more than seven cubits. Or according to Ibn Kinanah (d.186/802), the people should leave a width sufficient for circulation of the heaviest and largest possible loads along the street, such as loaded camels. Or if a person's two neighbours from both sides have already encroached upon the street or were originally beyond his property line, then he (the middle property owner) has the right to extend his property line since he does not damage passers-by.

This principal might be the reason behind the crooked continuous edge of many streets in the traditional built environment.....(p.116)

Another form of encroachment is from upper floors, such as cantilevers (rushan, janah, zullah, kharijah) or overpasses (sabat, sabbah) that connect two houses, or room(s) that belong to one or two houses. The principles applied are similar to those pertaining to encroachment on the ground floors, but with the abutting property having more freedom. Many jurists allow intrusion by upper floors regardless of objections raised by others, so long as the extension does not damage the public. Their reason is that the acting individual has preceded others in benefiting from upper spaces. (p.117)

Akbar's statement that "All jurists agree that no individual is allowed to appropriate any property from the street on the ground floor" is a general statement contradicting his preceding one " There were a few standards..." Again Akbar mixed the jurists ruling on different types of street territories (public, semi public, semi private, and private) in the ground and upper floor levels. He also used the term "encroachment" to refer to all legal and illegal acts of expanding properties on the street. His statement " Another form of encroachment..." is later referred to as 'intrusion' and 'extension' to justify his understanding of the different jurists allowances for such an act. He regarded this allowance only according to the concept of the prevention of harm to the public, and the acting individual precedence in benefiting from the upper space.

These four well known writers have been chosen to show some of the confusion about Arab-Muslim street territory classifications. This confusion is seen in the continuous use of the words 'encroachment', 'appropriation', 'intrusion', 'extension' to denote the legal and illegal actions affecting properties' growth and expansion. **The word 'encroachment' has been chosen by this thesis to denote the illegal action of expanding properties on the street, while 'appropriation means the Shari'ah lawful action of expanding properties on the street.** This distinction is based upon:

1)The meaning of the ownership concept (especially streets) and its process in the Muslim Shari'ah (causes, types, owners, controllers, and parameters).

2) Different types and causes of property easement rights, especially for those abutting or served by the street.

3) Defining the different territorial types of the Arab-Muslim traditional built environment (private, semi private, semi public, and public), in comparison to the modern Western territorial types.

4) Understanding the three dimensional phenomena of the ownership process, easement rights, and consequently territory types and their dynamic interchanging nature through space and time, especially in the adjacent properties ground and upper floor Fina, and the right of way in the ground and upper floors.

It must be emphasised that encroachments do occur in the Arab-Muslim traditional built environment. The lack of concern of internal and external ownership process controllers, and easement rights abuse are two main reasons for territory encroachments. During residents disputes, at times of political crises and oppressions, the traditional built environment experienced , and has been affected by territorial encroachments. The residents of the Arab-Muslim cities, as the internal controllers, may see the act of establishing another residence as a form of encroachment or at least a "damage causing" act. In such disputes the matter is taken to the court of Shari^hah where the judge (Qadi) is to rule the case and decide if the act is an encroachment or damage causing appropriation which should be prevented, or an act of appropriation causing no harm which is approved. The acts of rulers abusing the ownership process are documented in most Arab history books. For instance, in Madinah during Hisham Bin Abdulmalik's rule (105/724-125/743), the residents of Madinah demolished a market, built by the governor of Hisham, because of its encroachment upon the semi public open market ground, (Akbar 1984, p77). During the Mamluk period in Egypt, the sultans considered the urban lands as owned by them and, therefore, the owners of the private properties must pay 'rent' to the Sultans. Monumental Mamluk buildings were built on semi public, semi private, or private lands seized from their owners by force, (Akbar 1988). At that time the people moved their private territory into semi public endowments (wakf ^hamm) as a mechanism to prevent the rulers' confiscation of it. For example Az-Zahir Baybars (658/1260) decided to take over all the lands belonging to those who could not prove 'legal ownership'. Muslim jurists protested that such an action was illegal according to Islamic Shari^hah. " An-Nawawi [the judge] kept insisting and advising the Sultan until in the end he stopped the Sultan", (Akbar 1984, p83). In the late Ottoman

empire the public lands territories were shifted entirely to the government causing them to be 'private territory'. These lands were rented to private individuals for cultivation and building. These cases and many others show the act of 'encroachment' of the traditional built environment territory. But to generalise these cases and to believe that all the Arab-Muslim built environment is the result of encroachment is an unjustifiable belief. Appropriation is the original lawful act of the traditional built environment formation and transformation. The difference between encroachment and appropriation is understood through the Shari^hah ownership process and easement rights, and Arab-Muslim built environment territorial types in the ground and upper floor levels. If one is to understand the resultant physical pattern of Al-Mu^hizz street in Fatimied Cairo, an understanding of its territory type and its re-typing for almost nine centuries is needed, fig (7.18, 19)

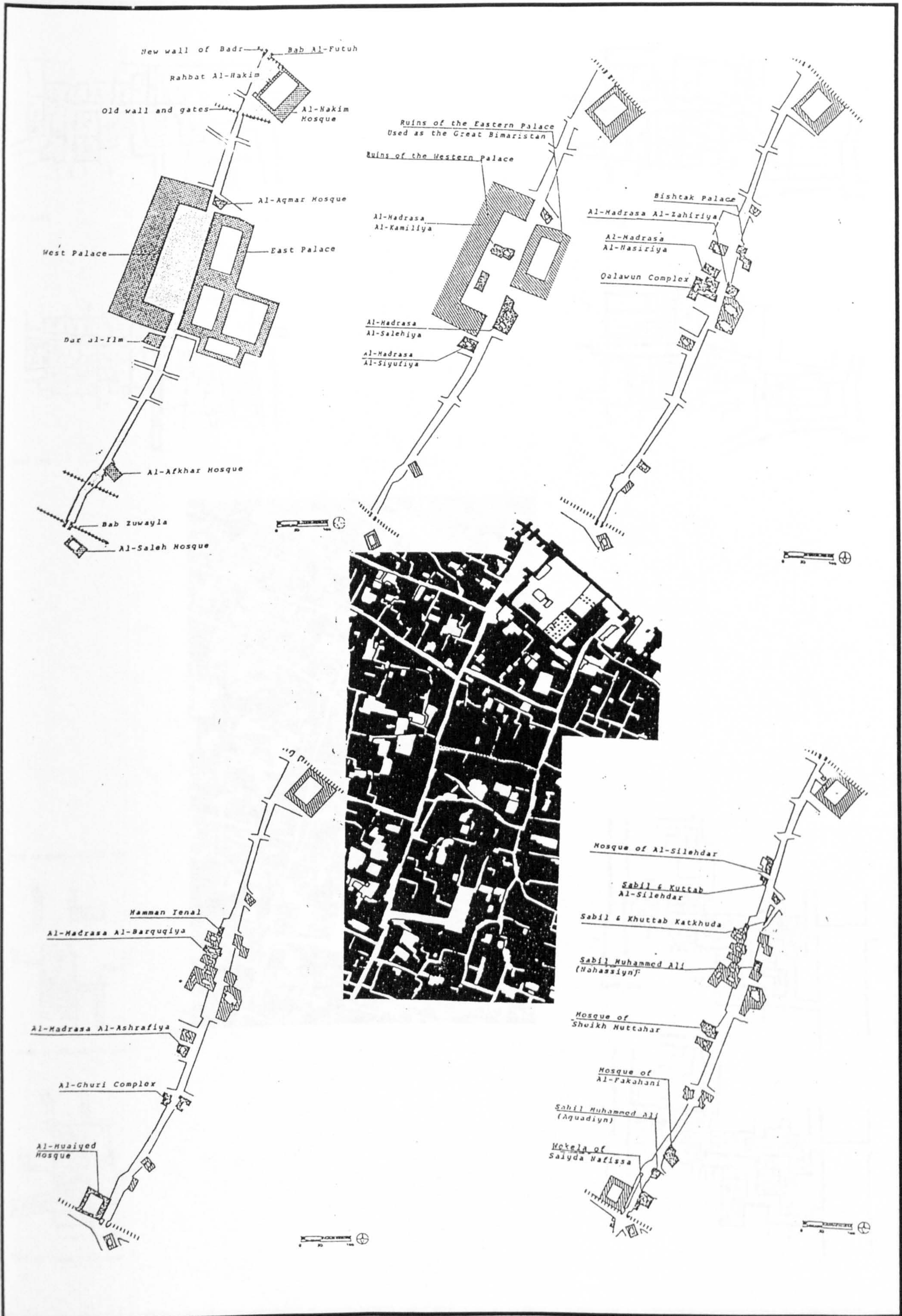
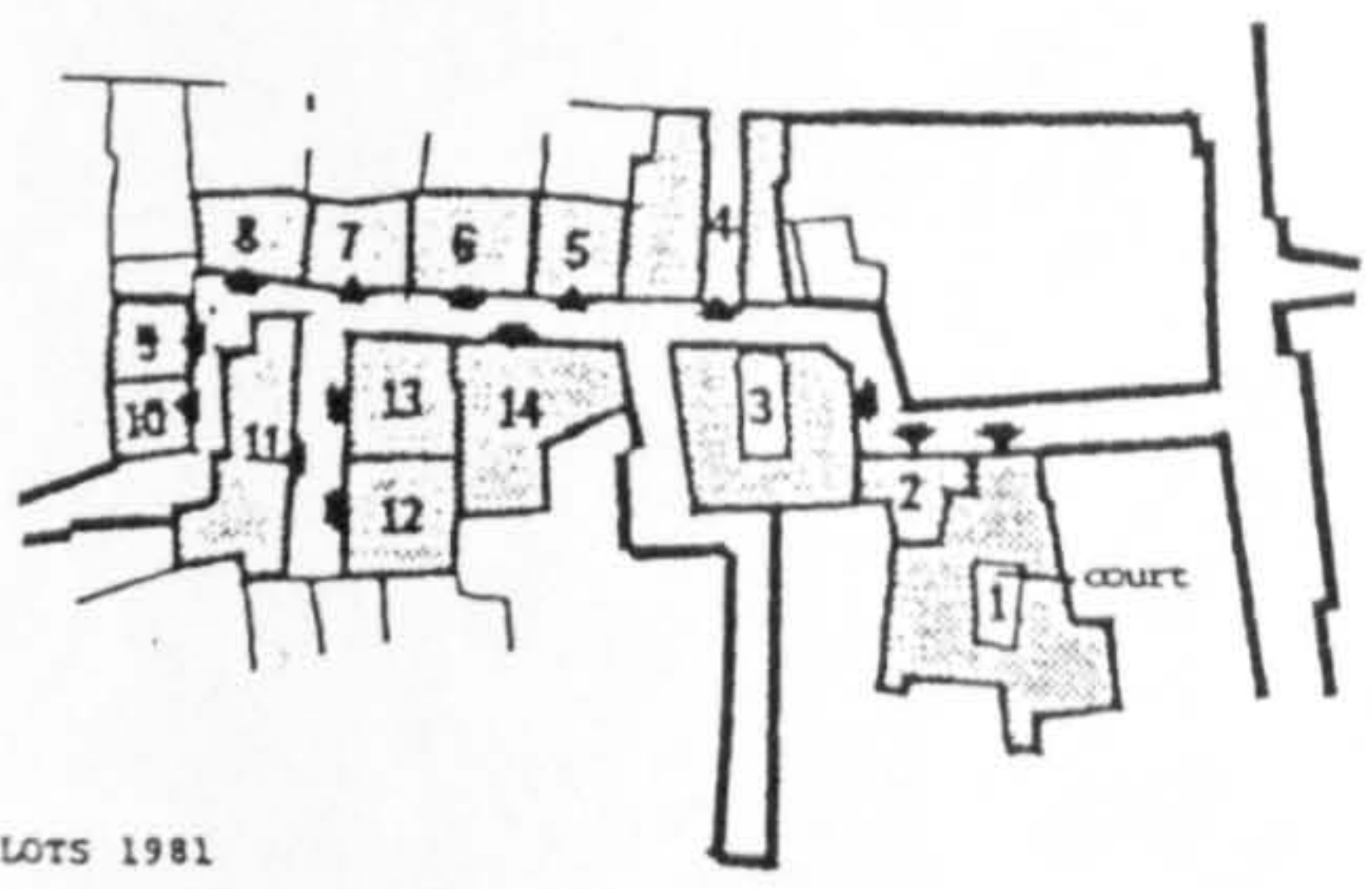
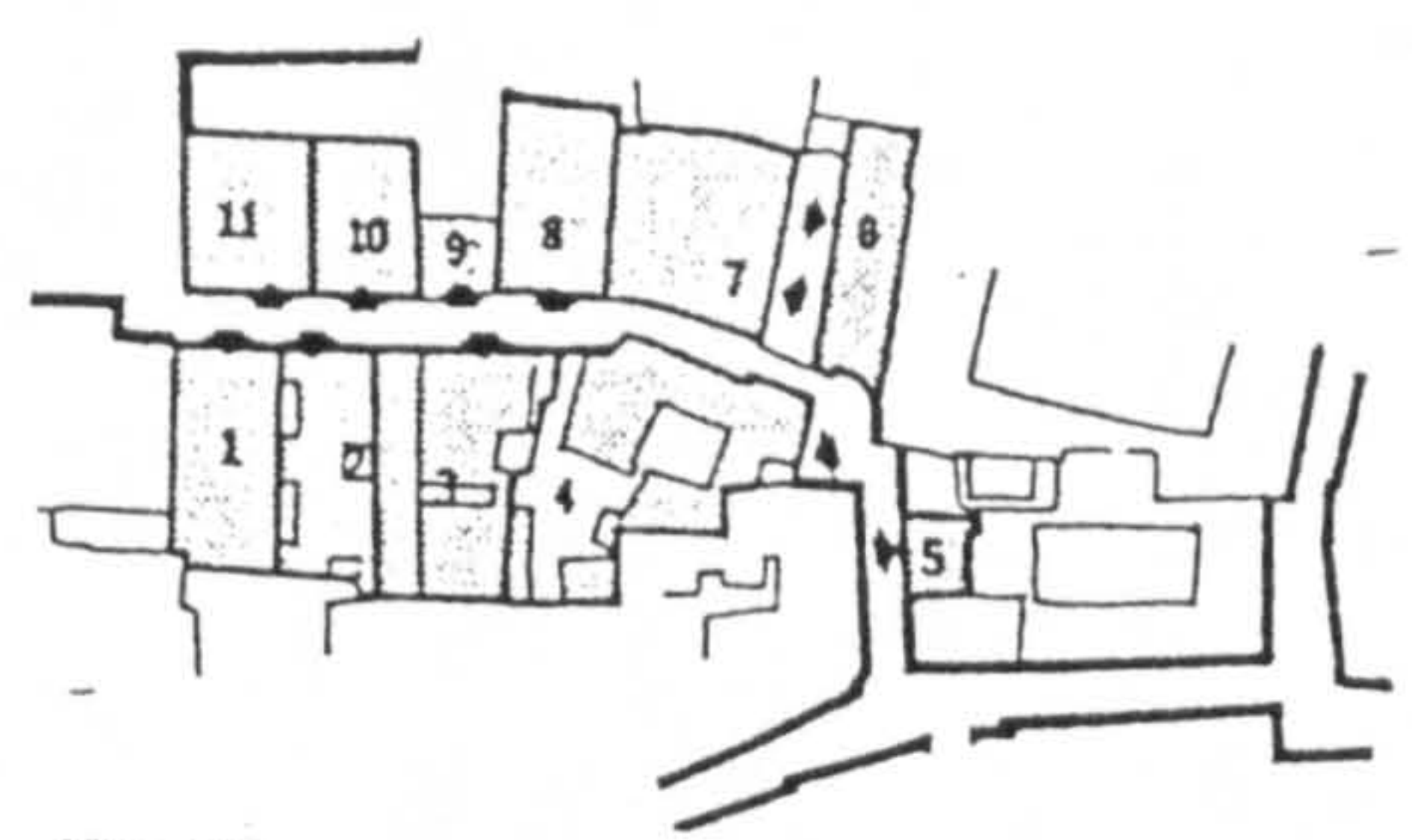


Figure 7.19 A story of thousand years of street pattern formation and transformation: Al-Mucizz Street, Cairo



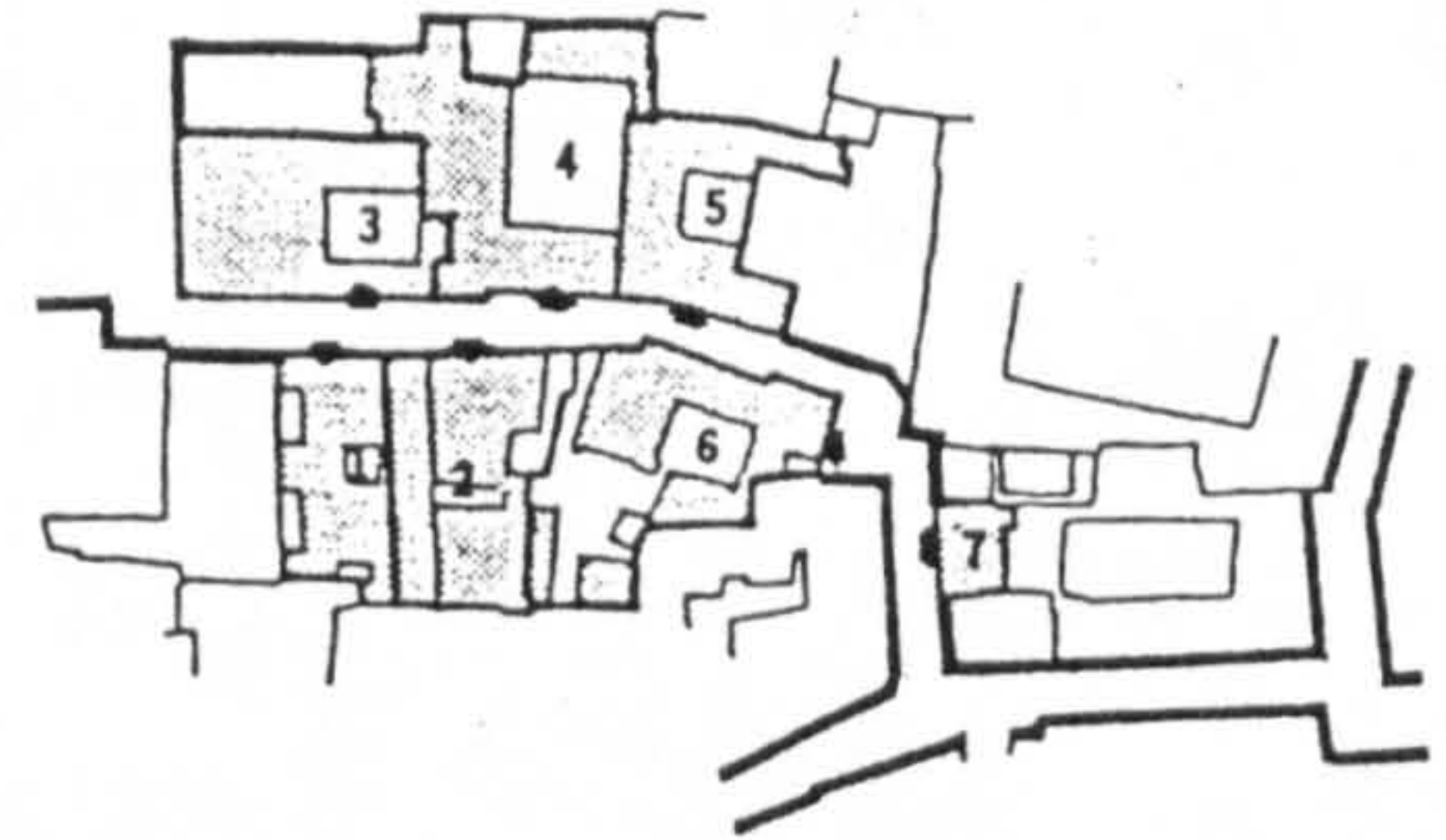
LOTS 1981



LOTS 1981



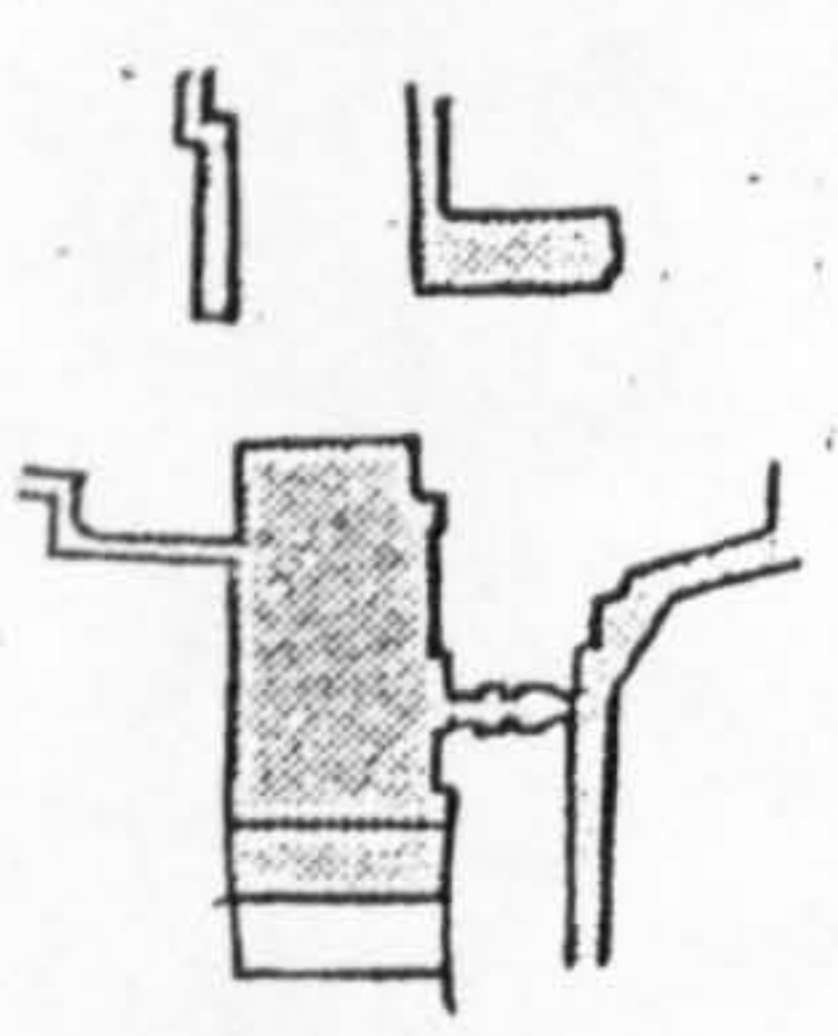
LOTS 1951



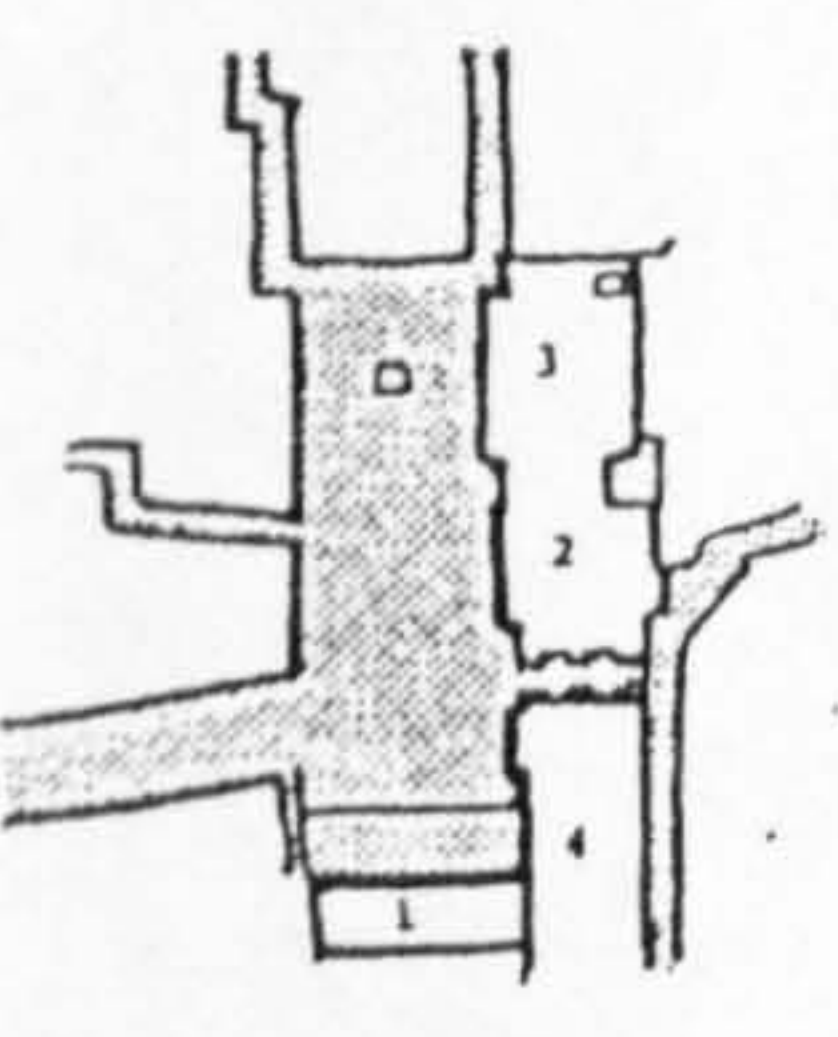
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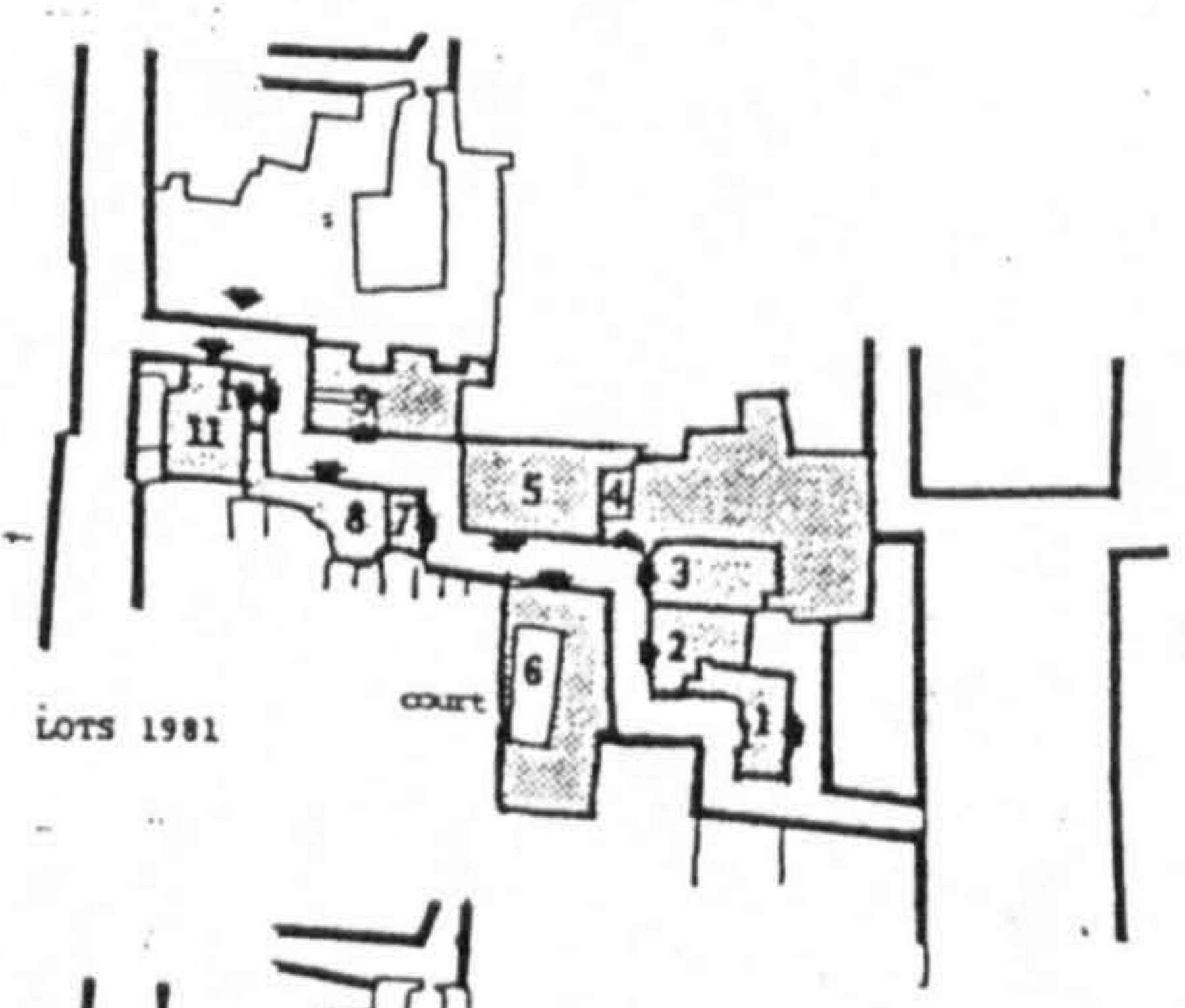
BAIT AL QADI SQUARE (S)



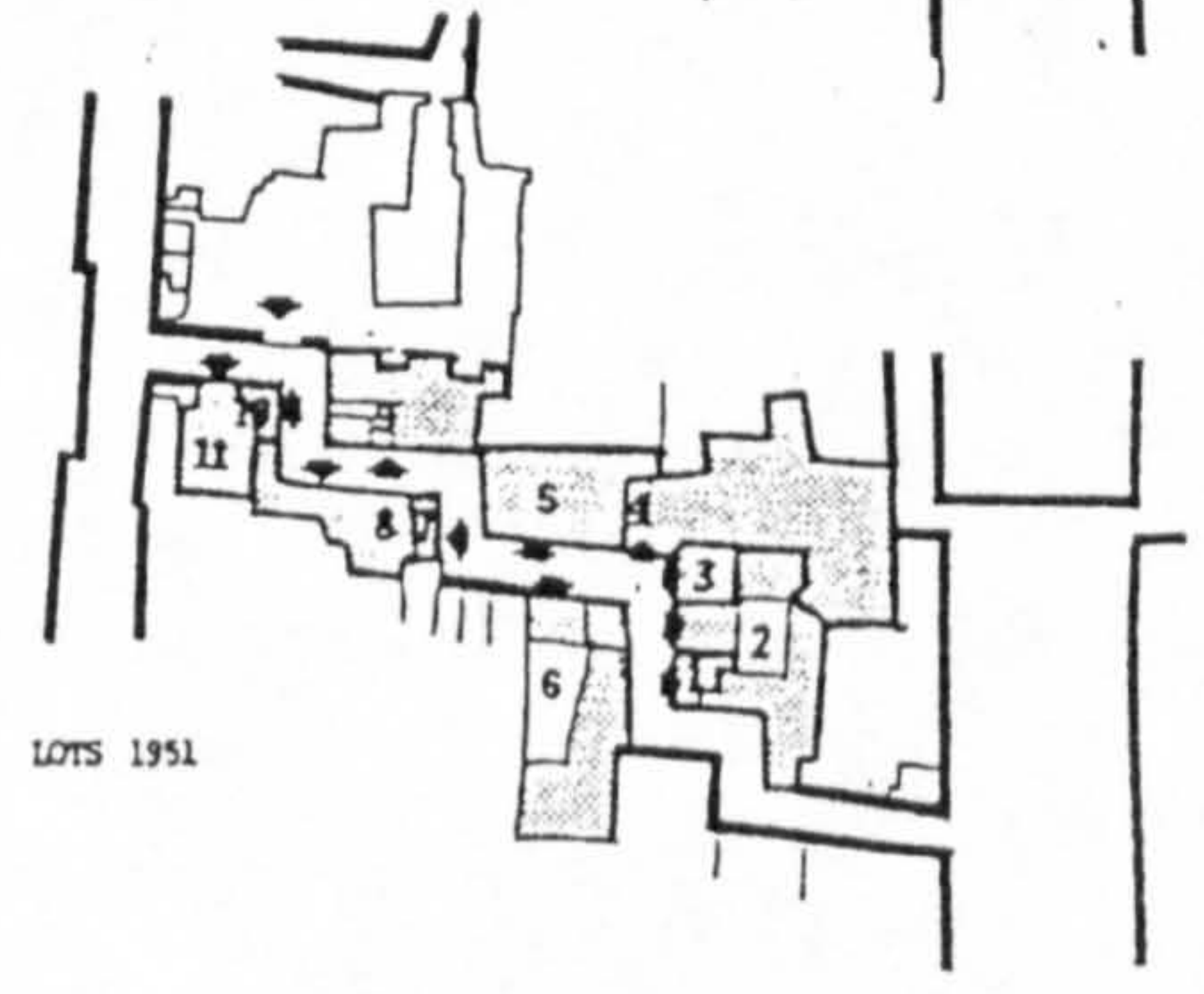
FORM OF SQUARE IN 1800



FORM OF SQUARE IN 1981



LOTS 1981



LOTS 1951

figure 7.20 Residential street transformation in old Cairo. source: after

CHAPTER EIGHT

THE ARAB-MUSLIM CONTEMPORARY BUILT ENVIRONMENT

8.1 Introduction

8.2 Attitudes toward change

8.3 The future of Arab-Muslim built environment

8.4 The future of Arab-Muslim territory

CHAPTER EIGHT

THE ARAB-MUSLIM CONTEMPORARY BUILT ENVIRONMENT

8.1 Introduction

The Arab-Muslim contemporary built environment started at the turn of this century, and continued until now. The fifteenth/twentieth century technological advancement, economical growth, and political and socio-cultural changes have produced a pattern that is different from the traditional one. Studying Arab-Muslim settlements, one can easily distinguish the old 'traditional' pattern from the contemporary one, (fig 8.1). This distinction is due to the difference in the street widths and spatial organisation of the different urban elements. Adel Ismail (1966) described the process by which the Arab-Muslim settlements were transformed from traditional medieval settlements to contemporary ones. In other words, he analysed the transformation from the third consolidate stage to the fourth contemporary stage. He mentioned that the traditional medieval city with its distinct urban elements had its first growth by new building clusters and new districts gradually appearing on the routes leading to and from the walled city, (fig 8.2 1). The new districts grew in function and size to form urban satellites, (fig 8.2 2). The satellites gradually grew to reach and connect with the main urban body of the settlement, fig (8.2 3). Various urban elements and functions shifted their location from the old settlement to the new satellites. Describing the modern changes in the traditional Arab-Muslim settlements, (fig 8.2 4), he said :

Modern and contemporary periods witnessed the founding of new districts influenced in their design by imported foreign urban standards. These districts bordered the older quarters, and filled in the gaps between the former urban satellites. New businesses, along with some of the old ones moving from the main old city core, formed a new central business district. This caused a gradual physical degradation of the old city centre. Light and heavy industries appeared on the periphery of the city, (Ismail 1966, p. 193).

Due to the technological, economic, political, socio-cultural, and therefore physical pattern changes, the Arab-Muslim built environment territory became identical in type and definition to the western world. Consequently the territory type models

presented in chapter three section 3.3 are valid in talking about the Arab-Muslim built environment territory types. In this thesis Al-sharkawy model territorial types (personal space, private, semi-private, semi-public, public, and jurisdictional) will be used when describing the contemporary territorial type.

8.2 Attitudes toward changes

The contemporary physical changes that the Arab-Muslim settlements experienced have generated mixed reactions among their users, and later among Arab designers. Most of the reactions were not in favour of the introduction of new urban patterns and building types and regulations accompanying them. The new urban pattern was labelled "modern", "foreign", or "western". To understand this negative attitude the reader has to bear in mind that when the contemporary stage of the Arab-Muslim settlement occurred at the turn of this century, most of the Arab-Muslim countries were under western colonisation. Naturally, the fourth stage, the contemporary, was consigned with colonisation, where the coloniser segregated between the natives and non-natives, looking for his own comfort at the expense of the natives' comfort, and using the colonised towns as a guinea-pig for testing new ideas in planning and regulation before applying them in his own 'western' towns. This political stand found its way among some young Arab planners.

In the book "From Madina to Metropolis " (1973) Dethier talked about one of the North African Arab-Muslim settlement changes in Morocco and said:

The first rule was that new European quarters to be built must be separated from the old madinas in order to protect the autonomy of each. Some people took that as evidence of his [the French town planner] intention to enforce segregation, (Dethier 1973, p.202)

For the new building regulations she continued:

These sorely needed laws were rapidly passed and enforced. First the "dahir on urban planning" of April 16, 1914, was instrument adapted to the necessity of acting quickly in order to forestall to rapid growth of the cities... In 1914, there was no such legislation even in France.(It would be introduced five years later.) Morocco, meanwhile, served as a trial run, a huge field for experimentation", (p.205)

The opposition to the colonisation took the form of rejecting it in any form, especially in planning. This rejection, later on, was supported by the failure of the 'progressivist movement' in architecture and planning in the Western world. Francoise Choya (1965) noticed two opposite trends in the method of idea development of the modern city: the 'culturalist' and the 'progressivist' approaches. The culturalist approach has been followed by Ruskin, William Morris, Ebenezer Howard, and more recently, Camillio Sitte, Unwin, Patric Geddes, Mumford, and others. The progressivist approach was introduced in the twentieth century by Tony Garrier, Gropius, Le Corbusier, and others, (Dethier 1973). These two trends have influenced the new generation of Arab planners who became 'traditionalists' or 'liberals'. Alhathloul (1981) discussed these two trends and said:

We pointed out the existence of two approaches in the Arab world, that of the traditionalists and that of the liberals. The traditionalists reaffirm the authority of the past as the only guide for the present, a position which can only result in the traditionalization of society and where the idea of taqlid (imitation) of the past becomes a central theme. The traditionalist position ascribes the technological backwardness of Arab societies to a deviation from the spiritual goals; hence, what is needed, according to them, is moral reform. The advocates of this position do not reject modern "foreign" technology. In fact, the adoption of some aspects of this technology is adjudged necessary, provided, as they believe, it is stripped of all cultural implications. The liberal approach not only denies the authority of tradition but does not even recognize its authenticity as a resource for the present. The advocates of this approach look at tradition as a destiny and, hence, an obstacle to progress. Therefore, the only way for the society to come out of its backwardness, according to them, is by wiping out everything and starting from scratch. As a result of this approach, the society embarks on an extensive process of borrowing ideas and technologies from other cultures, (Al-Hathloul 1981, p.259).

The intention of this thesis is not to find the reasons behind the physical changes of the contemporary Arab-Muslim towns, but rather to deal with these changes as a stage in their development. One has to understand that the Arab-Muslim towns we are dealing with now are not the same as the traditional ones. Their formal spaces, and their users cognitive space has changed dramatically.

The contemporary urban pattern was criticised on the basis of its organisation (i.e. the gridiron street layout), its unsuitability for the Arabs socio-cultural environment, and natural environment (i.e. climate). For the contemporary formal organisation the grid pattern is believed by some Arab planners to be an alien spatial organisation forced upon its traditional pattern. This is not true considering that the

town of Sammara was founded by al-Mu^ctasim (218/833-227/842) after he moved out of Baghdad in 221/836. It follows an orthogonal grid plan, (fig 8.3). Its houses were built with set backs resulting, according to al-Yaqubi, in a form of palaces within gardens, (Al-Hathloul 1981). Al-Yaqubi mentioned the reasons behind the foundation of Sammara. He reported that when al-Mu^ctasim built his army he used Turkish soldiers instead of Arabs and Persians. Turkish soldiers raced their horses in the streets of Baghdad without any concern for the pedestrians, crashing old men, women, and children. Residents complained to al-Mu^ctasim and gave him two choices: either to leave Baghdad or he will be fought against. Al-Mutasim asked the residents " How can you fight me?. They answered " with late night arrows", He asked "what are late night arrows?, they replied "prayers to Allah in late nights". Al-Mutasim said " I can not bear this", and asked his Turkish soldiers to move out of Baghdad, (Almusawy 1982,pp.144-5). In short, Baghdad traditional streets were not designed for neglect people who race their horses in them. The Turkish soldiers act disturbed the *maintenance phase* of the street territory, and as a result, al-Mu^ctasim planned a new city, Sammara, which could satisfy his and its users' needs.

The residents of contemporary Arab-Muslim cities have changed socio-culturally and economically, and adopted the technological advancement of this century. Like any urban individual around the world, the Arab urban individual lives an individualistic life, supported by a growing economy and technological advancement. In the old city, the residents reaction to the cul-de-sac street is :

Because of such a place (cul-de-sac), we used to see each other everyday. Its protection of privacy enable a woman to move from her dwelling to the neighbours or to meet and sit together in between shared places... Now in modern Al-Khabra [town in Saudi Arabia] our house is too exposed for everybody, in which we have to use a lot of cover in order to go outside. Therefore such efforts and discomfort discourage us to go outside", (Al-Nowaiser 1983, p.8).

Al-Olet (1991) reported that when a man who used to live in a cul-de-sac was asked if he would like to repeat the same experience, the man replied:

If you accept living in a cul-de-sac that means you accept to limit your freedom. For example, when you invite some of your relatives or friends for dinner or lunch you have to

invite all the residents of the cul-de-sac too. If you don't invite them, they send their children to watch what is going on there. This is an example and you can make it a measure for other behaviour, (Al-Olet 1991, p.273).

These examples and many more give an idea about the changes that residents of the contemporary Arab-Muslim settlements have experienced. But one wonders, if the urban residents' behaviour is sometimes unpredictable, then what is the future of the Arab-Muslim built environment. Is the destiny of the built environment to be an imitation of the built environment around the world? The answers to these questions will be discussed in the next section.

8.3 The future of Arab-Muslim built environment.

Designers are the makers of the how, and therefore the makers of the probability for the why's, when's and the meanings of built environment spaces in the past, present, and future. Most of the previous criticisms of designers makings is on the way they are made to believe in the influence of their design upon the users' behaviour. Deterministic and free-will behavioural approaches are introduced by Behaviourists, as well as designers, to explain the relationship between the built environment and human behaviour. That led, directly or indirectly, to the users' dissatisfaction, or failure of some of the designs. The modern movement, as an example, was criticised on several points: 1) the respective roles of the professionals, sponsors, and users of buildings and landscape in providing information and making decisions need to be rethought; 2) the concept of function as in the dictum "form follows function" has been a limited one; 3) architects have been using a limited model of human nature and behaviour as a basis for their work; 4) architects have an inadequate understanding of the relationship between the built environment and human behaviour, thus their decision about the importance of their work in shaping the experience of the people who observe and use it is misleading the designers themselves and their clients, and ;5) the theoretical basis for designing is inadequate, (Lang 1987).

In the last two decades designers were made aware of these issues through the writing of many scholars, both designers and non designers. Lang (1987) stated that :

Many people have been concerned about the knowledge base of the environment design profession. During the past two decades there has been much soul-searching but also much research on the built environment and its inhabitants and on the process of designing. This research is having a negligible impact on design, however. Some professionals, particularly behavioural scientists, believe this because the research is not sufficiently empirical, (p. 12)

Lang contributed to the theory of design by clarifying the nature of the architectural theory -normative and positive-, and proposing a design method model.

Zeisel (1975,1985) tackled the problem of the "users'-need gap". He insists that in societies as complex as ours, it is rare for designers and users to be the same person, especially in the case of large-scale projects. Drawing on Zeisel's work, Krupka (1985) identified six needs common to all people that can be addressed by designers : 1) security: the need to be safe; 2)clarity: the legibility of the environment; 3) privacy: the ability to regulate the amount of contact humans have with others; 4) social interaction; 5) convenience: the ease of performance of day-to-day and special tasks; and 6) identity: relationship of self to environment.

Rapoport (1977) related the absence of the theory , among other things, to the lack of a consistent approach arising from the way people and urban environment interact rather than being based on a prior assumptions. He emphasises that whether or not the planners encourage or accept input from users, they ought to be asking what is the minimum that needs to be designed and fixed. Rapoport, then, introduced an approach for 'designing for cultural pluralism, known as open-ended design. He said :

Open-ended design is a form of design which determines certain parts of the system allowing other parts, including the unforeseen, to happen spontaneously. This allows for some levels of ambiguity, for giving meaning through personalization, for the expression of different values, needs and lifestyles in the environment. It also gets over the problem of tight fit: environments can be used by different groups and individuals. In cities, successive groups can more easily restructure the organization of space, time, meaning and communication. (p. 365).

He based his approach of the open-ended design on the analysis of the existing design philosophy. He said :

There is a more general problem: planners and designers operate within the high-style tradition of design with a high degree of control. Such designs do not lend themselves to change, addition or subtraction. This is one of the primary differences between high-style and vernacular environment.

Rapoport, like Zeisel, was asking for the users' participation in the design of the built environment when he said :

The desiderata of frameworks can be listed: they should allow the expression of the characteristic of various groups and their preferences, they should allow people to construct valid cognitive schemata, provide the proper perceptual information and meanings. Thus the evaluative, cognitive, perceptual, soci-cultural and symbolic aspects of the environment and characteristics of the people should be the basis for designing areas and frameworks, (p.363)

He rejected the limitation of the egoistic functionalism, and preferred "functional flexibility", and stated :

Open-endedness also corresponds with the desiderata of "functional" flexibility. This is a potential advantage, and if they can be made congruent, so much the better. Thus if meaning and home range (and house-settlement systems) are congruent very clear schemata should result. Yet they are not necessarily congruent, particularly if we relate function to latent aspects of activities, since then symbolic and communicative flexibility may be more important than use or instrumental flexibility, (p.360).

He sees the designer's role as "provider" and "evaluator" of the built environment:

Within the approach proposed, specific data and characteristics can be used. Given this approach design becomes a matter of providing a variety of environments, the qualities and characteristics of which need to be specified, as do the means for the achievement of these objectives; this also implies a need to evaluate the success of the hypotheses underlying design : in fact, any design can be seen as a hypothesis needing to be evaluated, (p.384).

The open-ended design, for him, has to have some 'closeness' in some scales and situations. He states:

Also the general frameworks should be "closed" so as to retain their character and recognizability. In the case of dwellings there is, of course, the influence of individuals and families, the groups at the scale of the block, neighbourhood, district and so on. The definition of these levels, the degree of open-endedness and what it means for various groups are still open questions, but this would be a most useful approach complementing the others discussed, (p.364).

The open-ended design approach has been favoured by some designers. For example Krupat (1985), after an evaluation of the urban built environment and its effect on the city people, was in favour of this approach and said :

This pluralistic view is perfectly consistent with the multiple- and contrasting-realities approach taken here. Different groups have different needs and different views of the world. They need room to express themselves within it. Open-ended design encourages diversity and offers a sense of control. It allows an environment to be flexible enough so that successive groups of occupants can adapt it in their lifestyles and so that the same people can change it as they change themselves. Such an environment may be complex and ambiguous because of the multiple inputs, but the increased involvement of residents should still lead to greater imageability, (p.206).

In the view of this thesis, there is great hope that Arab designers have learned from the past of their urban settlements, especially from the contemporary phase. The earlier times have become a "tradition" in Arab architectural design history. The hope is also that today's designer has accumulated enough knowledge about his design as a theory and profession. Designers should know their design more than the users themselves. They should know the past, present, and the future of the users' relationship to the design elements. Part of this knowledge is the dynamic interchanging nature of the built environment and its users. Bokhari (1975) said:

The future of the Arab-Islamic city lies in our hands today. But we must accept the fact that we are no longer dealing with the Arab-Islamic city of half a century back. From now on, the issue we should face will be on the scale, and within the context, of the metropolis, megalopolis and conurbation. The early Arab-Islamic city, with all its charm and intimacy, possessed its own *raison d'etre* which made it possible for the town to survive and preserve its own personality through the centuries. But I tend to believe that the Arab-Islamic city of today, different in scale and form as it is, can still be a gratifying and fulfilling place to live in as well as commercially viable. We must therefore think of our cities as being deeply rooted in our culture, history and our lives, as the index of our maturity and progress, rather than as way stations, (Bokhari 1975, p.80)

By now the open-ended design approach is accepted in application but not in principles. The medieval towns all over the world, and particularly in Arab-Muslim

countries are presumed to be designed owing to an open-ended design approach. The only problem that the designers (users) of these cities have not predicted is today's technological and economical achievements. These advancements in effect made the users of these cities dynamic socially and spatially, interchanging, knowledgeable, independent, individualistic, with a lot of available choices. Many socio-psychological discrepancies were attributable to them. Today's designers know, or should know, about these facts. For example, on one hand there is the knowledge that the world's main energy reserves, that is oil, may be consumed in the near future. On the other hand, we do not have the knowledge, other than trust, about the human intellectual innovation regarding energy. The future of mankind's space, time, meaning, and communication are unknown. With the assistance of their creativity they can only predict. The traditional era of lack of theory, user-need gap, the human built environment relationship, and open-ended design must be renewed. The designer was, still is, and will remain the maker of the formal spaces that provide probabilities for cognitive spaces. In the open-ended design approach he is the active controller of what Rapoport (1977), at that time, said :

Active control relates not only to habitual selection and physical modifications; it also includes the definition of domains such as private and public, front and back, the house-settlement system, use of the streets, and other settings. Many of these are defined through particular involvement and use by various individuals and groups. The cultural differences in the extent of home range, and hence behavioural or life space, and many of the other aspects described before, receive their definition through the ability of people actively and freely to choose and act, (p.372).

In this thesis, it is the *recycling of our cities* 'space, time, meaning, and communication' which is favoured. *Recycling the city* means the ability of the designer's creativity to transform the built environment to match the users' need and behaviour in the past, present and future in order not to have a spatial *abandonment* or reduce its time and cost. The recycling of the city approach is dependent upon: the knowledge of today's designer as the maker and active controller of the built environment, and upon the open-ended approach application as an attempt to

incorporate the design method evaluation phase into the design phase. Recycling of the city sees the built environment as being composed of *permanent* and *temporary* elements. *Permanent* elements are the components which are presumed to take a long period of time in the territory *primary cycle*. The *temporary* elements are the parts which may be permanent in nature but it is presumed that they will be in the secondary cycle for a time shorter than permanent elements. The temporal parts are the representation of the built environment at different stages of users and built environment development. In that view recycling the city is viewing the city built environment as a "lego game" composed of permanent parts and temporal parts that can be added or eliminated depending on the users' needs, (fig 8.4). The recycling of the city does not eliminate the economical cost factor of the built environment, rather it distributes it in time and space. Recycling of the city does not reject the mobile nature of today's culture, rather it gives a chance for the built environment changes to reduce the human environment mobility. Due to the wide implications of recycling the city, the thesis will give an example of its uses in the case of Saudi Arabian cities, which is the subject of part three, chapter eleven.

8.4 The future of Arab-Muslim territory

The *contemporary* stage of the Arab-Muslim settlement development has a territorial secondary cycle, or dysfunction. This was voiced by both its planner/designer and users. The territorial behaviour *secondary cycle* is in its users *formal* and *cognitive* spaces and their *territorial behaviour cycle* is mainly in the *attainment and maintenance* phases.

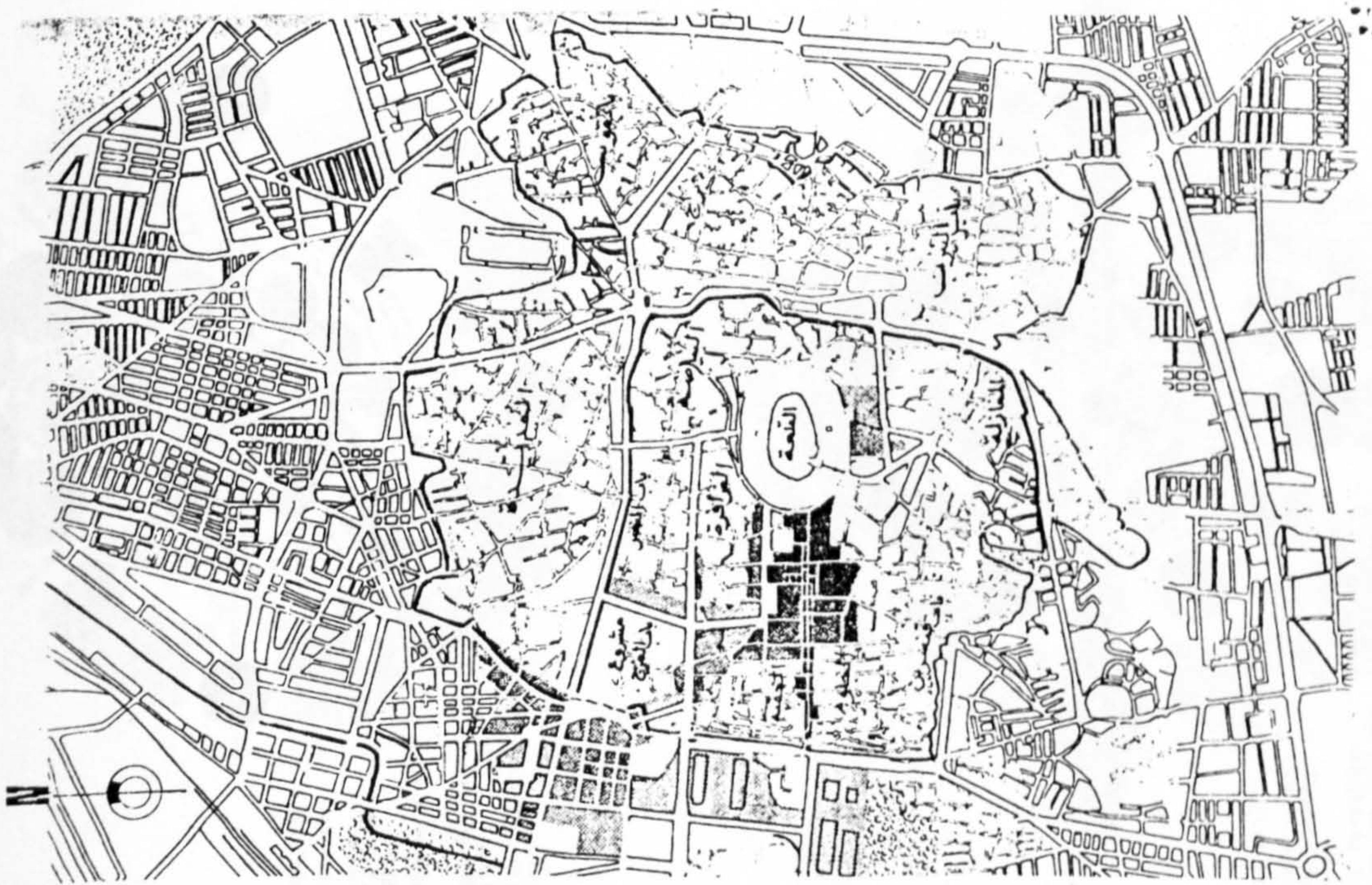
The *formal* spaces of the contemporary settlement are organised in a geometric way. That geometrical organisation be it a grid pattern is not the problem, knowing that traditionally Damascus, Aleppo, and Sammara are built in an organised grid pattern. The example of modern city of Taif in Saudi Arabia, used by Akbar (1984), showed how the residents of a modern grid pattern neighbourhood transform it through ownership system and easement rights of the residential lots, to a different

pattern, (fig 8.5). The problem of the contemporary settlement lies in the regulations accompanying the organised pattern. On one hand these regulations defined clearly the territory types of the public and private territories in a new sense. The new public territory came to denote the ownership, personalization, and defence of these spaces by the government and its institutions, such as ministries and municipalities. The residents have only the right of use. The private territories denote the clearly defined spaces that are owned, personalized, defended, and used by the private individuals or groups. Between these two clearly distinct spaces there is some space left for semi public or semi private territories. These distinctions have eliminated the traditional concept of the property Fina zone in the ground and upper floor levels for the benefit of the right of way zone. The contemporary street *formal* spaces became of two dimension territory in sharp contrast to the traditional street three dimensional territory type. On the other hand, the settlement residents have, or may have, four territory cognitive spaces: private, semi private, semi public, and public. This results in a territorial behaviour mismatch in the *attainment and maintenance* phases. If the residents make any attempt to *re-attain* the *formal* space to match the *cognitive* spaces, the government, owing to the building regulations, will consider such an act as an encroachment upon public territory and it will be stopped immediately. To legally reduce the gap between the mismatched *formal* and *cognitive* spaces, the residents are left with few choices: either to give part of their private spaces as a buffer zone between it and the public territories functioning as semi private, (see fig.2.12), or to adapt the territorial behaviour of two *cognitive* spaces, i.e. private and public. In both cases the losers are the settlement and its residents. Most of the residents conduct their activities indoors, resulting in the death of the Arab-Muslim street functionally and spatially.

The hope is that the concept of *recycling of the city* introduced in the previous section will be one step toward the solution of the Arab-Muslim settlement territorial behaviour *secondary cycle*. The planner/designer as the controller must assist the residents, if they choose to, in achieving their territorial behaviour *primary cycle*.

This implies the *re-attainment* and *re-maintenance* of the existing two dimensional territorial spaces and transform them into three dimensional territory spaces. To assist this a relaxation of the stiff existing building regulations in the urban design scale of the settlement is needed, with the assurance that this will not affect the settlement's overall function. In other words, street and house encroachment common believe should be replaced by street and house appropriation. Rooted in the traditional settlement principles of formation and transformation, the recycling of the city will not only lead to the satisfaction of the residents, but also to the incorporation of the contemporary stage into the stream of the Arab-Muslim settlement stages of development.

Aleppo



Tunis

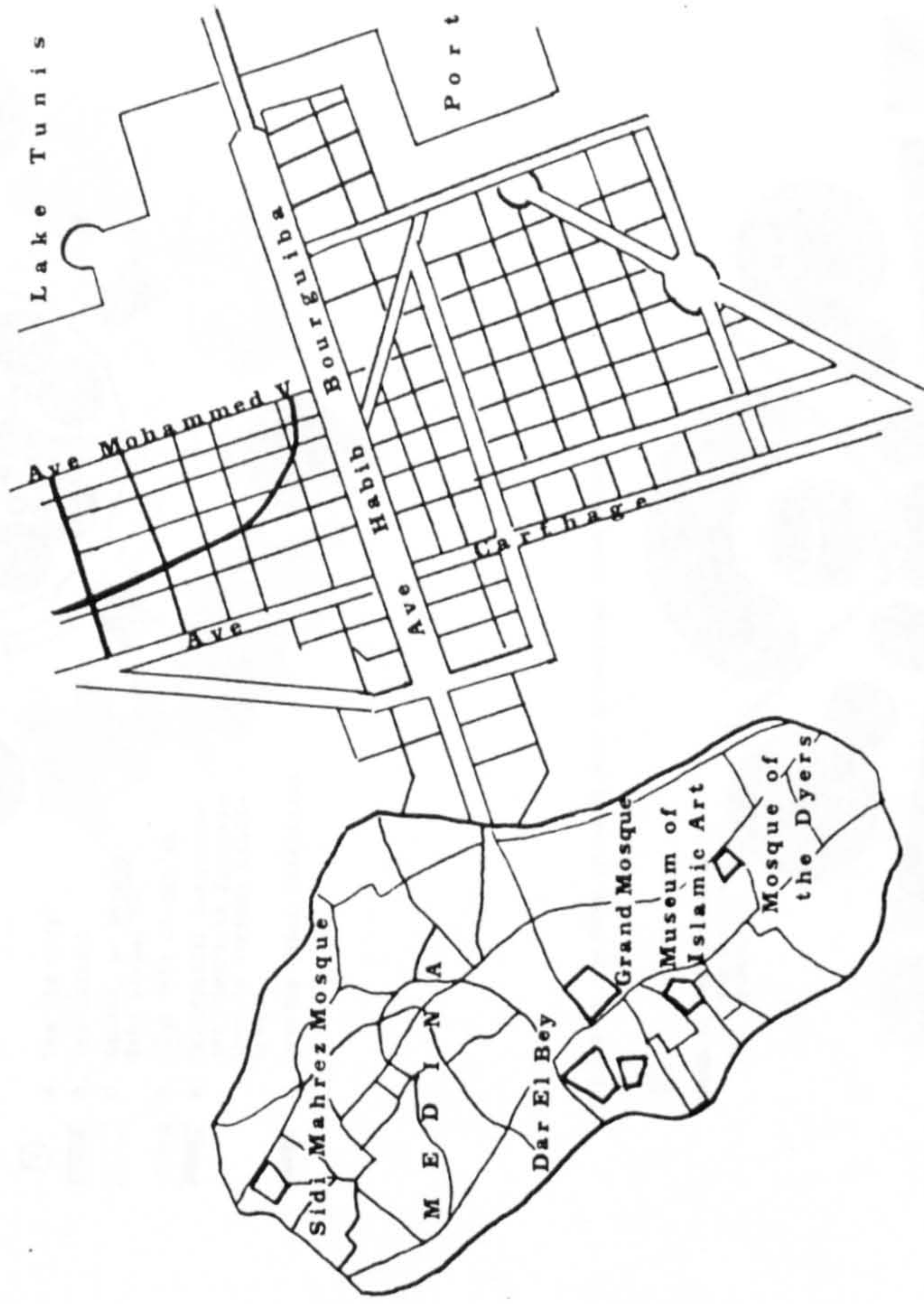
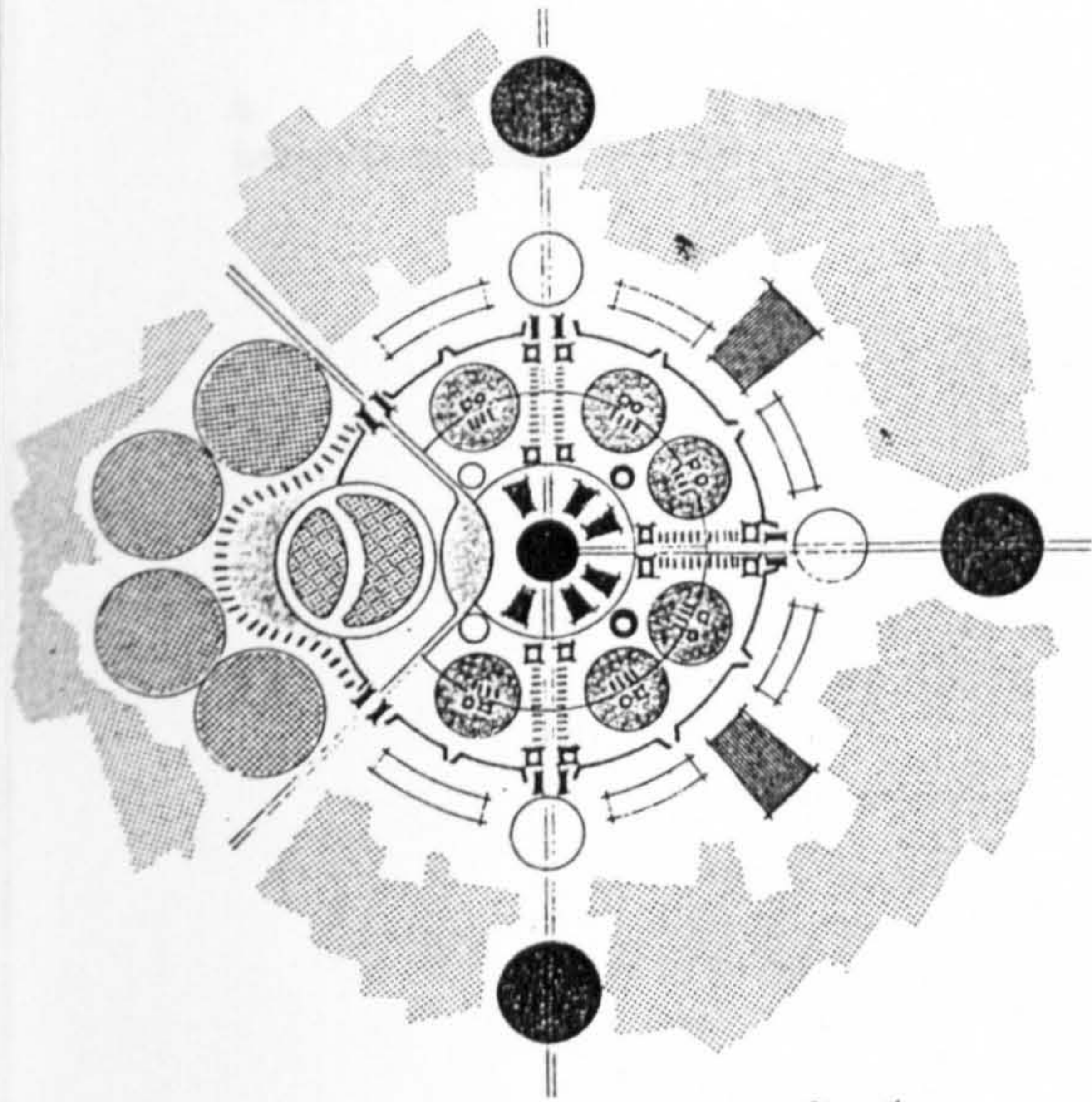


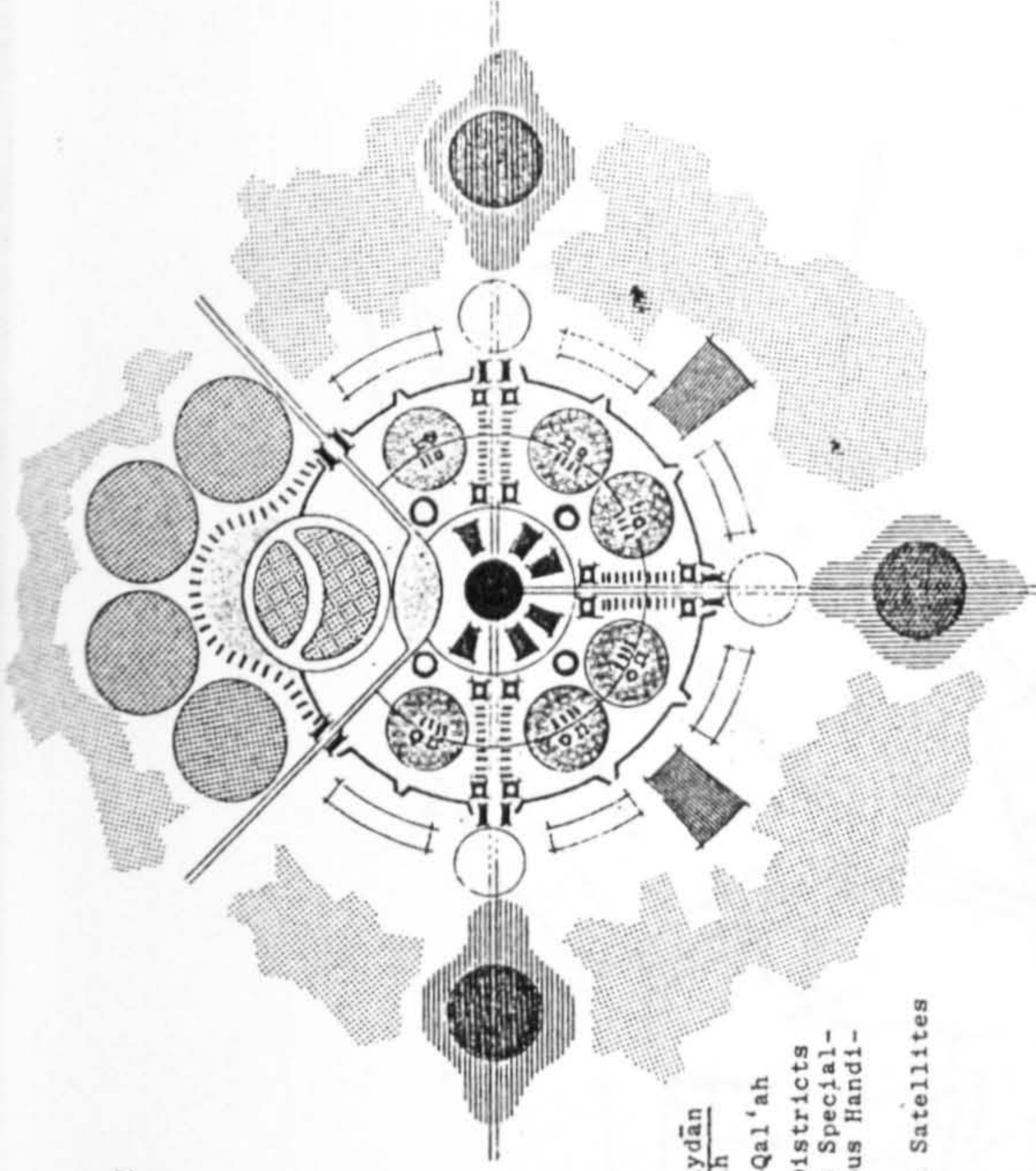
figure 8.1 The traditional and contemporary urban pattern in Arab-Muslim settlements: Aleppo and Tunis

PATTERN OF PHASE ONE
OF PHYSICAL URBAN GROWTH



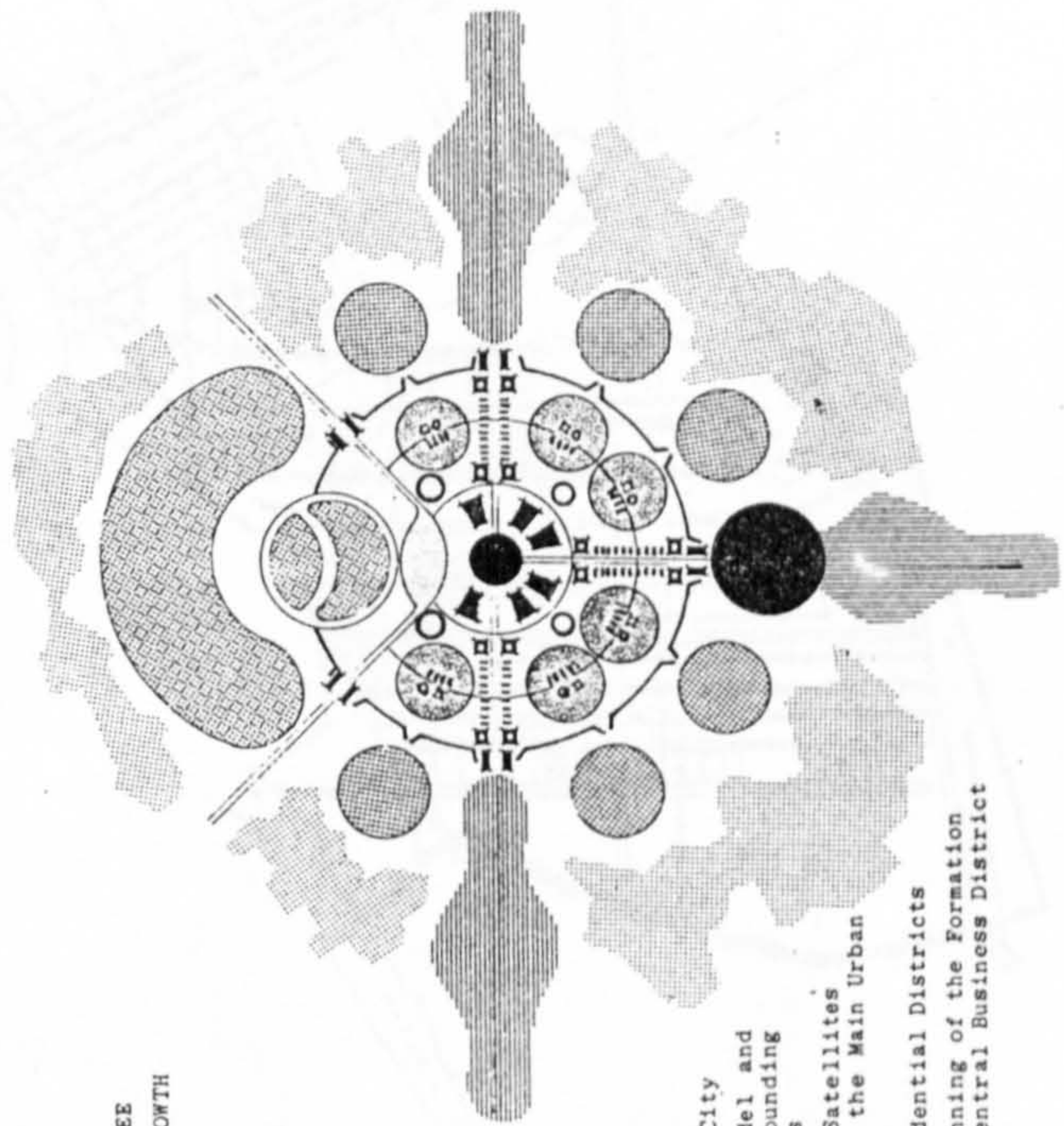
- A. The Old City
- B. The Citadel
- C. Square, or Maydān Taht al-Qal'ah
- D. New Clusters of Suqs
- E. New Residential Districts
- F. New Dwelling Clusters

PATTERN OF PHASE TWO
OF PHYSICAL URBAN GROWTH



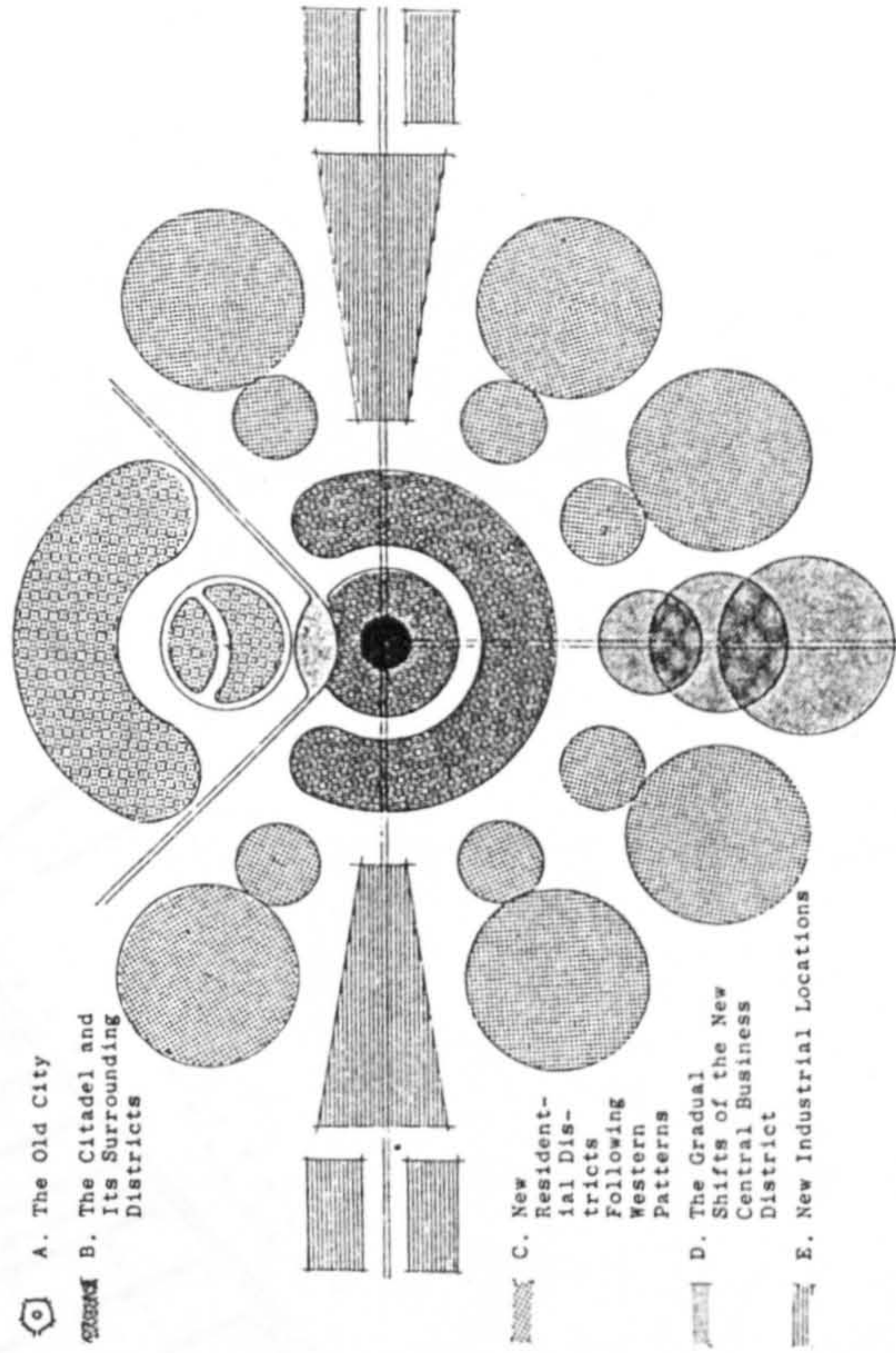
- A. The Old City
- B. The Citadel
- C. Square, or Maydān Taht al-Qal'ah
- D. Suqs Taht al-Qal'ah
- E. Residential Districts and Districts Specialized in Various Handicrafts
- F. Growing Urban Satellites

PATTERN OF PHASE THREE
OF PHYSICAL URBAN GROWTH



- A. The Old City
- B. The Citadel and Its Surrounding Districts
- C. Growing Satellites Reaching the Main Urban Body
- D. New Residential Districts
- E. The Beginning of the Formation of New Central Business District

FIGURE 91. PATTERN OF PHASE FOUR OF PHYSICAL URBAN GROWTH



- A. The Old City
- B. The Citadel and Its Surrounding Districts
- C. New Residential Districts Following Western Patterns
- D. The Gradual Shifts of the New Central Business District
- E. New Industrial Locations

figure 8.2 Arab-Muslim transformation from consolidate to contemporary stage.
source: Ismail (1966).

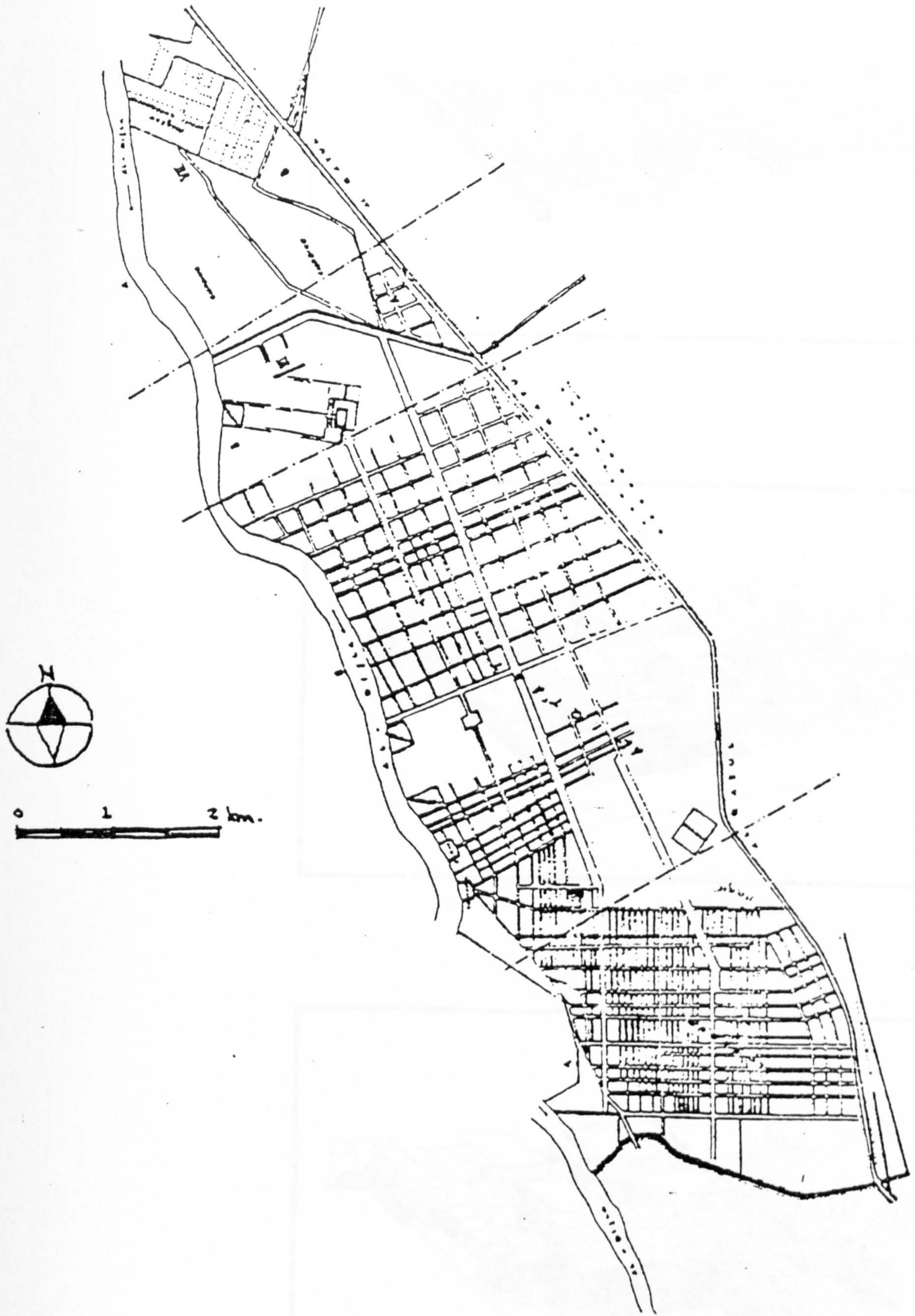


figure 8.3 Traditional grid pattern: Al-Ja'fariah, Sammara.
source: Al-Hathloul (1981).

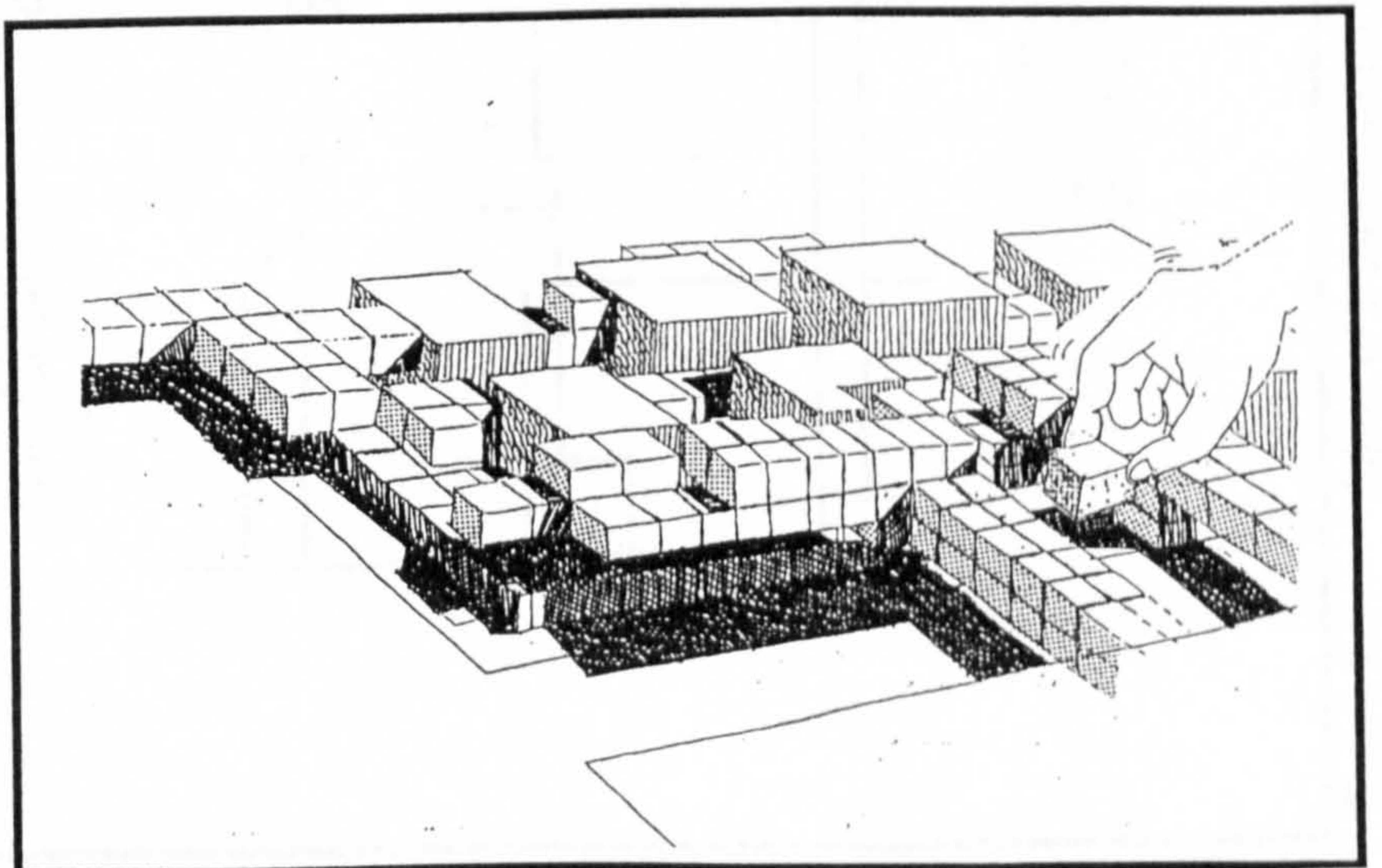
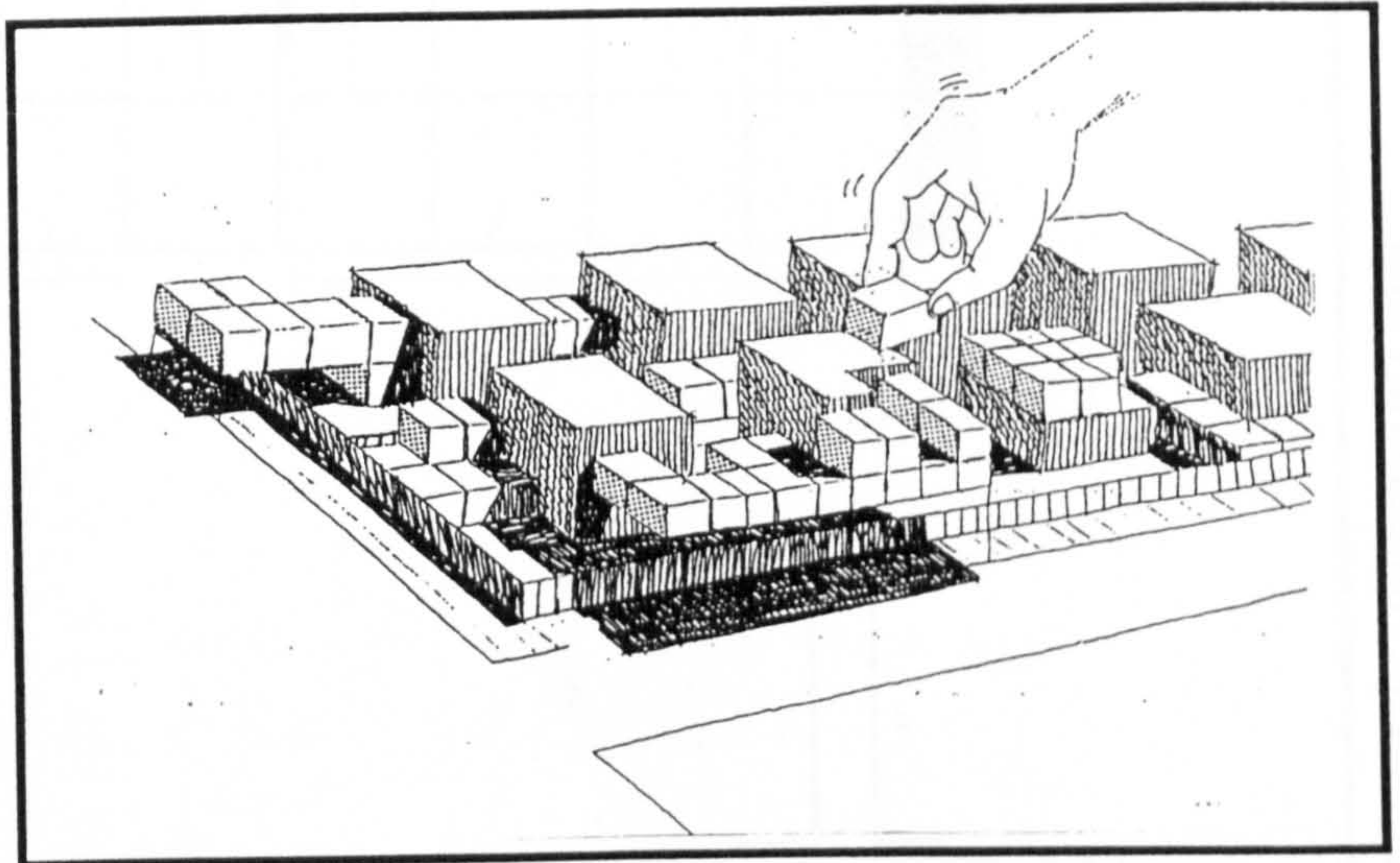
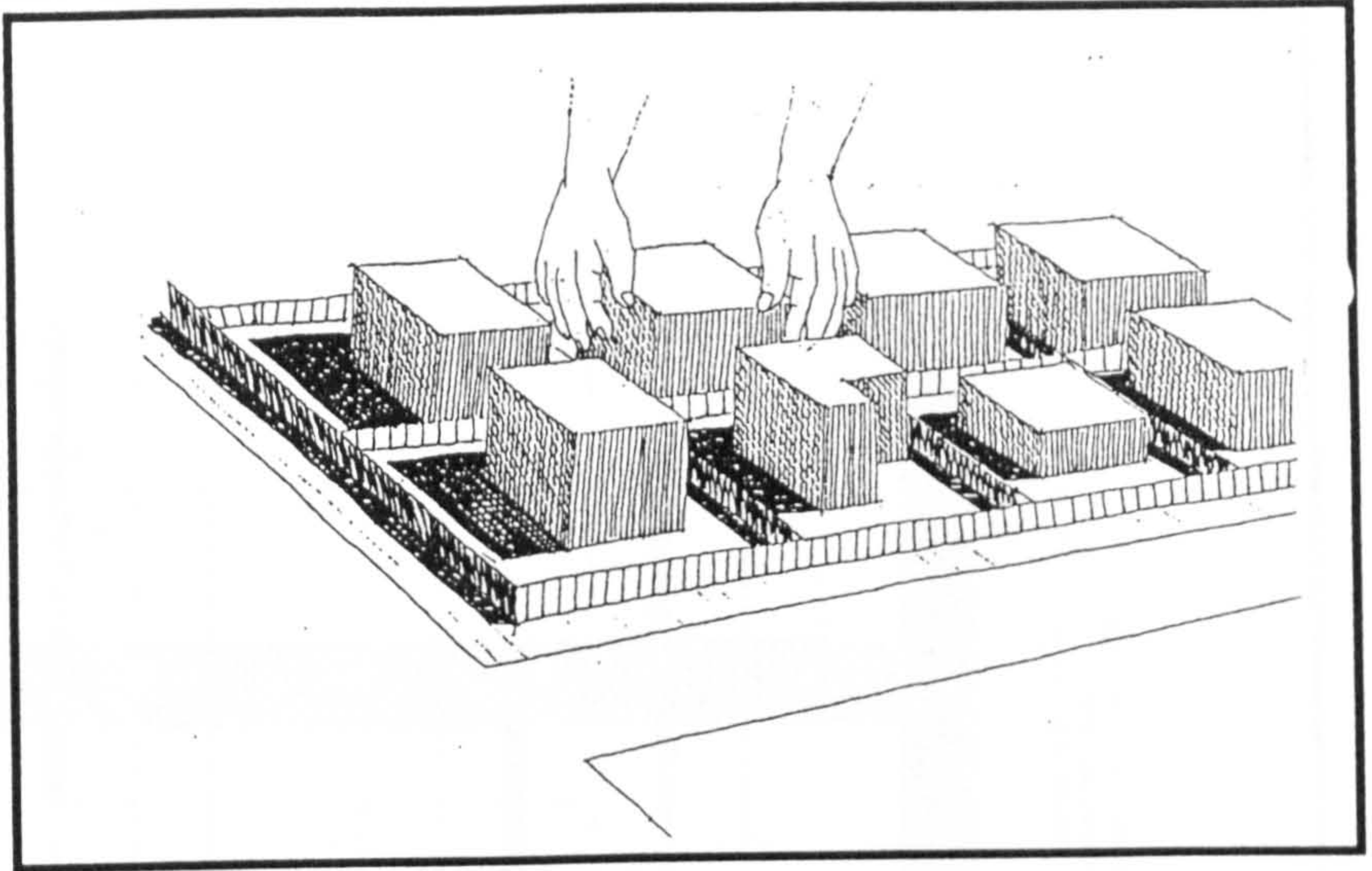
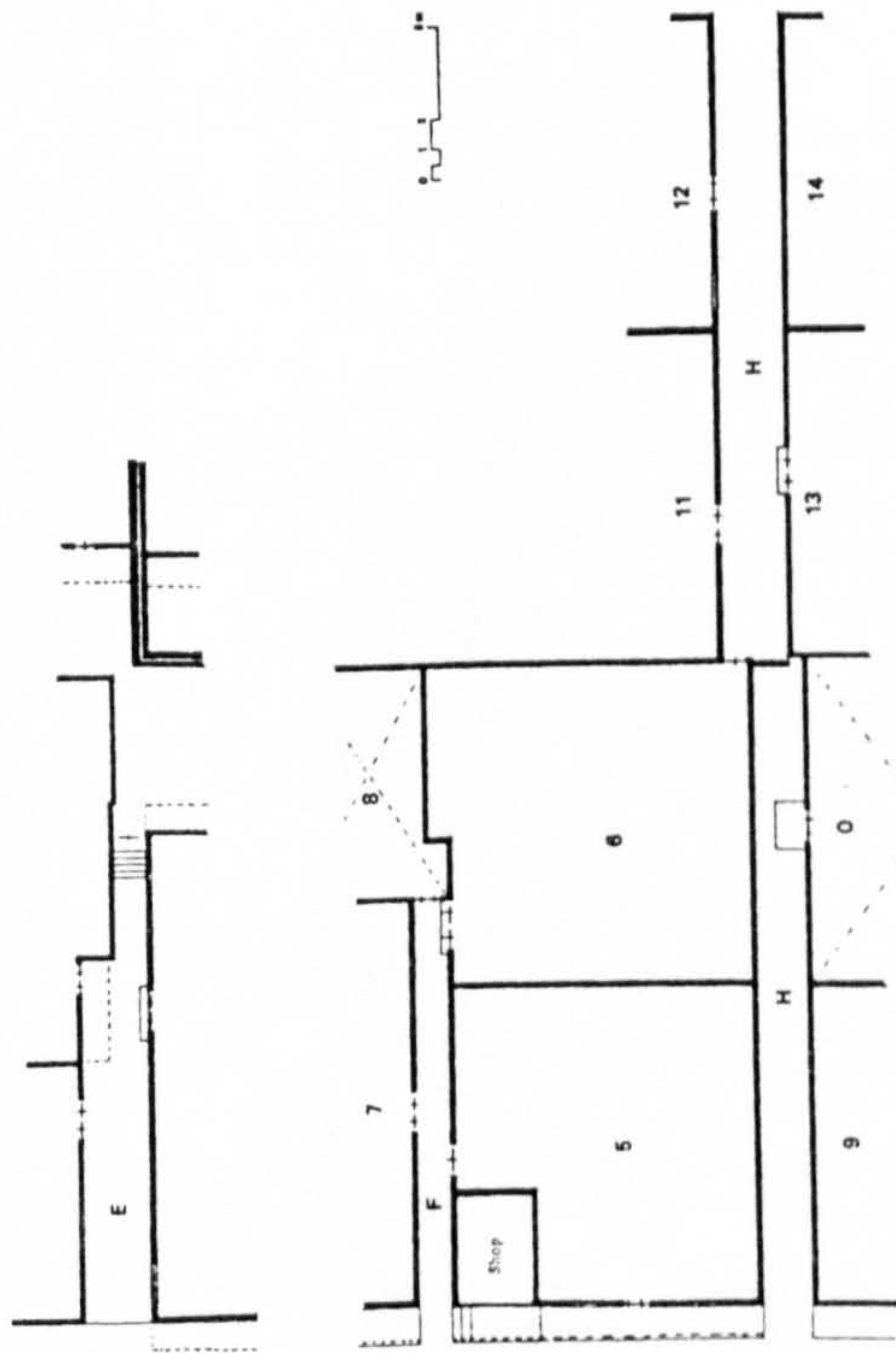
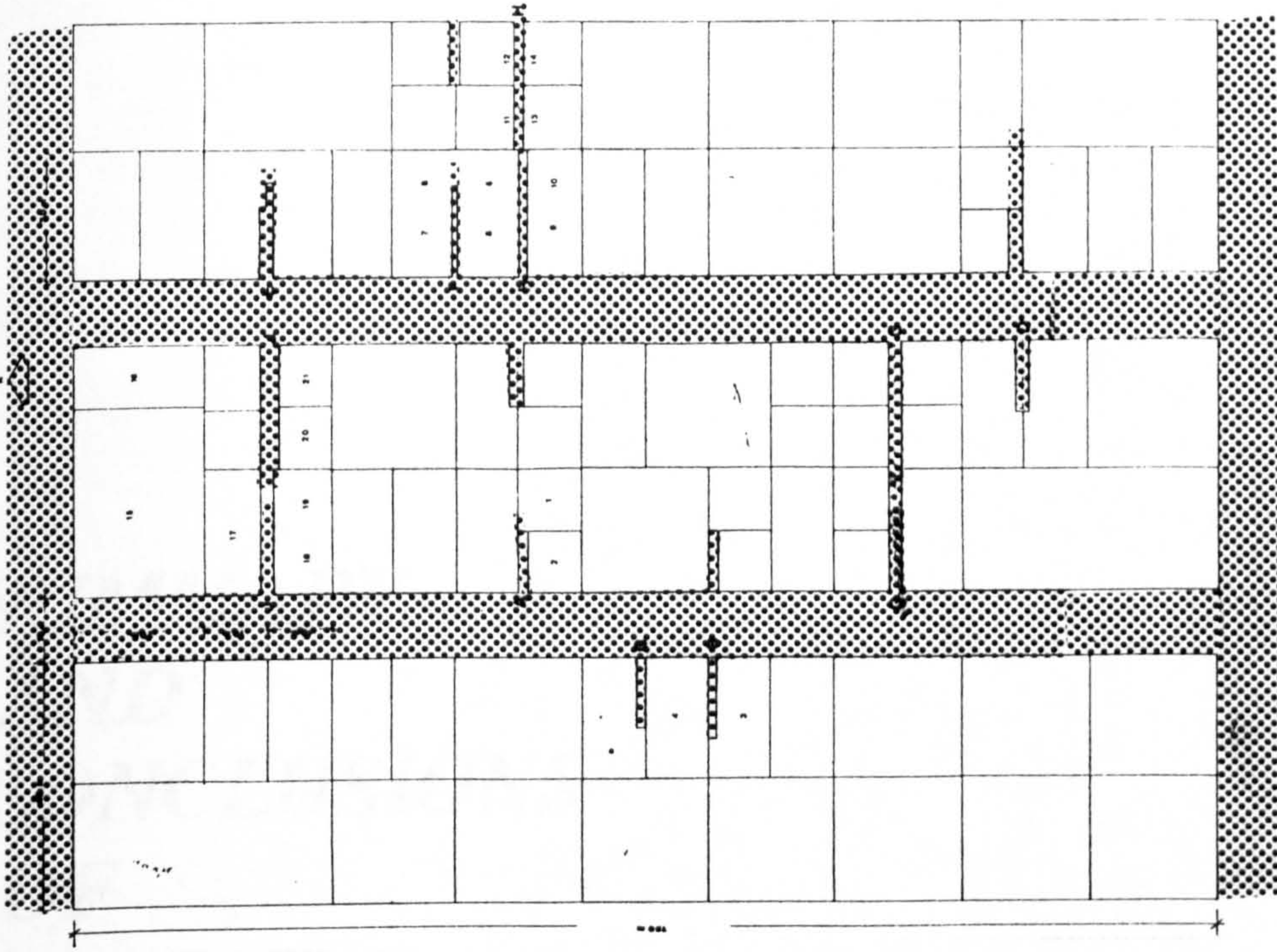


figure 8.4 Recycling of the city concept.
source: author.



Taif
 (upper) Plan showing the layout of the blocks in al-Shuhuf
 al-Jamhiyah section.
 Source: Ministry of Municipal and Rural Affairs, Survey and
 Cadastral Department, Riyadh, Saudi Arabia.
 (lower) Plan of a residential block and through street W that
 was developed by the residents.
 Source: Survey by the author in summer 1982.



Taif
 Layout of three blocks showing only the locations of the
 studied streets and dead-end streets.
 Source: Survey by the author in Summer 1982.

figure 8.5 Effect of traditional building regulation on the contemporary built environment: Taif, Saudi Arabia. source: Akbar (1984).

The aim of this part is to give an understanding of the Arab-Muslim territory and its effect on the Division, organization, and transformation of the traditional Arab-Muslim built environment. This understanding is based upon the analysis of the Arab-Muslim divine legal sources (Shari'ah) which depend upon the sources: the Quran and the holy book, the tradition of the prophet Muhammad's (Sunnah) sayings and actions (Sunah), the jurists' writings (Ijtihad), and collective opinion (Ijma'). In this investigation the aim is to give the general outlines of the ownership process, customary rights, and legal systems of the jurists regarding the built environment in the Arab-Muslim built environment of law: Hanafi, Maliki, Shafi'i, and Hanbali.

**SUMMARY
AND
CONCLUSIONS
OF
PART TWO**

The aim of this part is to give an understanding of the Arab-Muslim territory and its effect on the formation, organisation, and transformation of the traditional Arab-Muslim built environment. This understanding is based upon the analysis of the Arab-Muslim divine legal system (Shari^h) which depends upon its sources: the Quran the holy book, the tradition of the prophet Mohammed's (p.b.u.h) saying and actions (Sunah), the jurists' analogy (Qias), and collective opinion (Ijtihad). In this investigation the aim is to list the general outlines of the ownership process, easement rights, and legal opinions of the jurists regarding the built environment in the most influential four Sunni school of laws: Hanafi, Maliki, Shafi^h, and Hanbali.

In chapter five the ownership process: concept, causes, types, owners types, parameters, and type of controllers are introduced. The concept of ownership is based on Allah's creation of this earth which made it lawful (Mubah) for humans to benefit from Allah's creation. This concept made the ownership per se not the goal but rather the benefit and use of what is on earth. This assures that every human has the right of benefit (Haq al intifa^h) which can cause the ownership of benefit (Mulk al intifa^h), the ownership of usufruct (Mulk al Manfa^h), and the ownership of the object and its usufruct (Mulk al ^hain wal Manfa^h). This concept can be obtained through ownership causes: originality, conventional transactions, succession, product of ownership, and time duration. These causes are governed by priorities, action, and not harming oneself or others. The ownership concept and causes result in the ownership type of either a partial ownership (Mulk naqis) of the object or its usufruct, or a complete ownership of the object and its usufruct (Mulk Tam). The owners' types are also classified by Shari^h as private for individuals or groups (Mulkiyah Khasah), House of Treasury ownership (Mulkiyah Bait al Mal) represented by the ruler, and the public ownership by all the Muslims collectively (Melkiyah ^hammah). The ownership concept, causes, types, and owners' types are governed by the Shari^h to assure an equal opportunity for every individual to benefit from what is on earth. It clearly sets some rules for the concept, causes, types, and owners' types. It makes every Muslim,

individual, judge, or ruler responsible for practising the Shari^h in every manner and not only regarding the ownership process.

Easement rights are a limited form of ownership process of right of benefit and ownership of benefit. Its limitation is due to the fact that Easement rights deal with built environment ownership only. It is the right given to an individual's private properties to benefit from other properties privately or publicly owned due to the topographical nature of the property locations or share in its ownership. The easement rights include the benefit from drinking water resources (Shurb), water canals (Majra), water drainage (Masil), passage on roads (Murur), neighbouring rights of vertical (Ta^{lly}) or horizontal (Janibi), and any other developing matters. The passage on roads easement right is "the ability of the individual alone or with his herds to pass through others property in order to arrive to his property". In publicly owned passages every individual has the easement rights of benefit to his property, such as using it for circulation, and if his property is adjacent to the street the individual may open doors and windows, build projections and overpasses if he is not harming the function of the street as a passage or its users' well-being. For the neighbouring easement rights, Shari^h assured the benefit of each neighbour from his property without harming or being harmed by neighbours next door, above or below. Easement right in general is a mechanism for utilising the maximum benefit of the built environment to every individual. It functions as a magnetic field for the existing properties pushing away unwanted new development, and as a fine knife cutting through the urban pattern resulting in a dynamic cycle of formation and transformation of the traditional Arab-Muslim cities.

The judges' legal opinions (Fatawa) of the four major Sunni schools: Hanafi, Maliki, Shafiⁱ, and Hanbali indicated clearly the constants and variables in the Shari^h built environment regulations. They show the essence of Shari^h and its ability to survive at any place at any time, especially in relation to the built environment. In most of the introduced legal opinions the jurists' rule depends on their evaluation of the built environment ownership process, easement rights,

symbolic or physical definitions of the built environment, and its users right of benefit, ownership of benefit, and ownership of usufruct.

* * * *

Based upon the territory definition, characteristics, mechanism, function and types discussed earlier in part one, and based mainly upon Arab-Muslim's ownership process and easement rights introduced in section one of chapter five, the traditional Arab-Muslim territory types are identified in chapter six. These are *the public and jurisdictional, semi public, semi private, and private and personal spaces*. *Public territory* is characterised by its collective ownership of the object and its usufruct by all Muslims collectively, its large size, not controllable by individuals or authority. Therefore every individual is able to have the right and ownership of benefit, and the ownership of usufruct and object. An example of this territory type is the undeveloped lands between urban and agricultural centres, i.e. dead lands. The *jurisdictional territory*, even though dynamic in nature, is the right given to the internal and external controllers of the ownership process. That guarantees the practice of Shari'ah and ensures the performance of any territory type. The *semi public territory* is characterised by its collective partial ownership of either the usufruct or the object by all Muslims collectively, its limited availability in quantity or the large number of its users causing the individuals to have the right of benefit or ownership of benefit only and not the ownership of the usufruct. Its controllability is shifted to the representative of all Muslims, i.e. 'the government'. Examples of this type are mosques, open markets, and main streets at the ground level. The *semi private territory* is characterised by its complete private ownership origin, transformed into partial ownership of either the usufruct or the object by and for an identified owner. An example of this type are private endowments, and un-gated cul-de-sac streets. The private territory is characterised by its defined owner of complete ownership of both the usufruct and object which allows him to manipulate it the way

he pleases. *The personal space* or the bubble surrounding the individual has resulted in shaping the elements of the built environment such as the mosque and the house design. The mosque niche, locating the doors in the side or the rear of the mosque is intended so as not to intrude on the prayers' personal space in front of them. Because women's personal space violation even by sight is forbidden, the house is designed in two sections with separate circulation's. The first is for males and their males guests, and the second is for family and female guests. The houses (Mashrabyyah) windows are placed in a way that prevents the sight violation of the private territory.

* * *

In chapter seven the traditional built environment elements: the house, the street, and the settlement as a unit are analysed. The house is a private territory; the first territorial act is erecting a fence which defines the house territory (interior and Fina), and its easement rights upon other properties. This territorial act, supported by economic, climatic, and other social and cultural issues, resulted in the courtyard house prototype spread all over the Arab-Muslim cities from Baghdad to Fez. The private territory of the house is dynamic and may experience a territorial type transformation to another person's private, semi private and semi public depending on the ownership process and its easement rights. Transformation from private to another private is physically demonstrated through the addition and subdivision of the house layout. This territorial dynamic transformation led to the saying that " the Arab house is never completed".

For the street territory, the street space is divided into two major sections: the street space as Fina of adjacent properties in both sides of the street, and the street space as passage right of way. The same street may have different territory types at its underground, ground, and upper floor levels. The bases for defining the street territory are : the street land's original ownership, street symbolic and physical definition, facilities adjacent or served by the street and its territorial type and

easement rights, and the street users' right of benefit and ownership of benefit. Because of these factors, the street territory in its three dimensions can be private, semi private, or semi public. The cul-de-sac street characterising the urban pattern of most of the Arab-Muslim traditional towns is a territorial mechanism to freeze its territory form and to prevent it from transforming to other types. Its ownership is private in origin, physically defined by buildings, with no publicly used facilities alongside or served by it. To ensure the denial of others' right of benefit, a closing of one end of it, narrowing it, and the erection of a gate in its mouth is practised by its owners. The through street is an opposite situation where the assurance of its semi public territory dictates the existence of publicly used facilities, such as mosques, markets and schools, and the right of benefit of its users which prevents circulation hindering objects. The controllers of the semi public territory are the ruler, judges, and Muhtasibs, which prevents the street semi public territory from transforming to another type.

The Arab-Muslim settlement passed through four distinct stages during its formation and transformation process. These are: *the primitive, the transitional, the consolidate, and the contemporary* stages. In the primitive stage the settlement users attention is upon the allocation and attainment phase of the territorial behaviour. In the transitional stage, the main concern is its residents development maintenance phase of their territorial behaviour, where the settlement formal spaces are transformed. The consolidate stage is when the balance maintenance of its residents territorial behaviour is achieved. The main characteristics of this stage are the city wall erection and the utilisation of all contained spaces in the settlement. The Final stage is the contemporary one, characterised by the introduction of new technology and new building regulations. This dynamic transformation led some of the writers on the Arab-Muslim built environment to use the two words "encroachment" and "appropriation" synonymously. Territorial encroachment is an illegal act of taking someone else's territory, and is prevented by Islamic Shari'ah, while appropriation is taking back the right of use of the territory giving it some legality. To generalise that

all the Arab-Muslim built environment is a result of continuous encroachment upon the public and semi public is an unjust belief. Most of the traditional built environment formation and transformation are shaped by a dynamic ownership process, property easement rights, and territorial types resulting in an organic living pattern changing over time. This fact does not deny the existence of encroachment in the built environment , but one can not accept it as the norm.

In chapter eight, the Arab-Muslim settlement contemporary stage is given more attention. The timing of this stage is in the late thirteen/nineteenth century, when most of the Arab countries were under the colonisation of the western countries. Opposition to the coloniser took the form of rejecting the "westernization" of the Arabs culture and the built environment in particular. It was thought that the coloniser introduced this stage and its accompanying building regulations to change the culture of the Arab-Muslim residents through the changing of the built environment pattern. Consequently most of the Arab designers/planners adopted the "traditionalists" ideology which was supported by the failure of the "modern movement" ideology of planning and design in the western countries. The contemporary stage of the Arab settlement is a stage in its development, similar to any other settlement in the world. This stage occurs due to the technological, economical, and socio-cultural changes that occur in the Arab countries. The contemporary Arab resident wants an environment that satisfies his need for security, clarity, privacy, social interaction, convenience, and identity. These changes can be achieved through the understanding of the original, traditional built environment essence. The original built environment is as dynamic as any living entity and freezing it through stiff building regulations is the crux of the problem. The contemporary building regulations have some positive impact, but in return they prevent the transformation of the built environment which is the secret of survival of the original built environment. The contemporary built environment needs to be reconsidered and recycled in a process similar to the original one. The recycling of the city is the ability of the designer's creativity to allow for the transformation of the built environment to match the users' needs and behaviour in the

past, present, and future. It depends upon the knowledge and skill of today's designer as the maker and active controller of the built environment and on the participation of the users. One step toward achieving this is through the re-typing of the existing built environment territory types. Instead of a dominating public territory with a struggling private territory, a consideration for semi public and semi private spaces is urgently needed. This re-typing should not be seen as encroachment, so:

"LET US ENCROACH UPON THE STREET."

CONCLUSION OF PART TWO

Arab-Muslim original traditional built environment is a dynamic organic entity responding to its users' territorial behaviour of *allocation, attainment, and maintenance*, in order not to be *abandoned*. This fact is enhanced by Shari'ah law which aims at human well-being according to its main sources: the Quran and Sunnah. Jurists' legal opinions are the outcome of day-to-day assessment of the built environment and its users' right of benefit. The contemporary stage of the Arab-Muslim built environment stands in a sharp contrast to that. It depends upon advanced building technology and general static building regulation resulting in freezing of the built environment into one formation, with little scope for small scale transformation. The result is the division of the Arab settlements into two segments: organic dynamic traditional built environment, and static geometric contemporary built environment. The contemporary built environment regulations are the crux of the problem, and needs consideration which allows for the territory types to be re-typed, and the city spaces to be recycled. Recycling of the contemporary stage of the Arab-Muslim settlement is urgently needed.

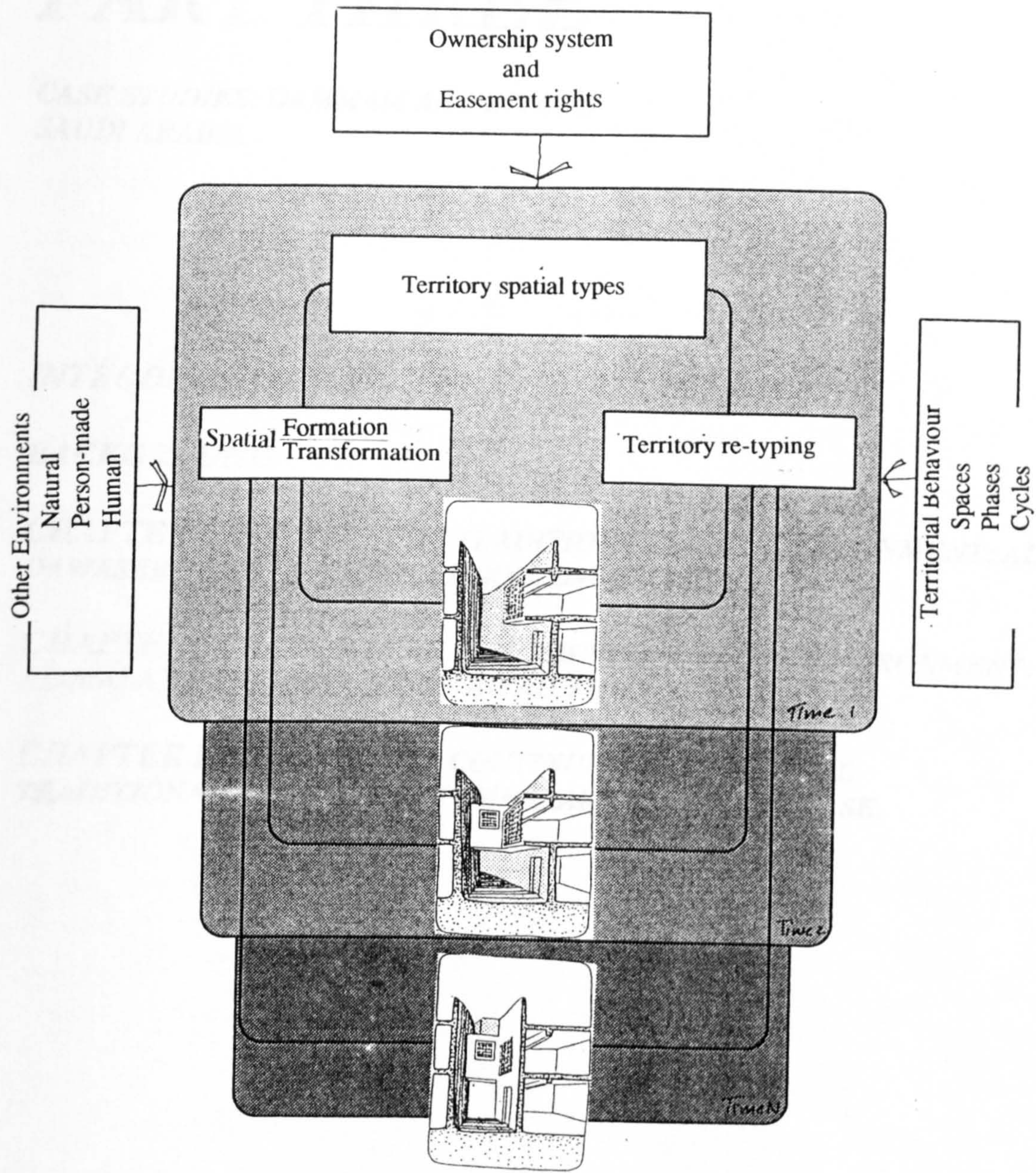


figure 8.6 Transformation of Arab-Muslim traditional street. source: author.

PART THREE

CASE STUDIES: DAMMAM AND RIYADH SAUDI ARABIA

INTRODUCTION

BACKGROUND

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CHAPTER TEN THE CONTEMPORARY BUILT ENVIRONMENT: AL-MALAZ NEIGHBOURHOOD, RIYADH CITY

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INTRODUCTION

Prior to the foundation of the kingdom of Saudi Arabia in 1351/1931 by king Abdul Aziz Al-Saud , the Arabian peninsula territory was divided into two major domains: the sedentary (Hadhar) territories, and the nomadic tribes (Albadiah) territories, (fig III.1). Each sedentary territory was under the control of Emir who divides his territory among his followers for agricultural or building purpose. The nomadic tribes territory (Dirah) are the summer and winter grazing and camping lands. The sedentary and nomadic tribe territories are considered private and others should obtain permission before trespassing or other uses. The permission is usually obtained from the Emir, the Shaikh, or any honourable member of the community. Failing to do so the trespasser may be hurt or killed. Wars between nomadic tribes and sedentary people usually occurs because of territorial ambition or prohibited trespassing.

When the kingdom of Saudi Arabia was founded, King Abdulaziz became the ruler responsible for Arabia territory. In return for law and order nomadic tribes territories boundaries were abandoned, urban areas Harim was abolished, and the cities walls became obsolete.

Dammam city is one of this century early settlement which characterise the shifting of territorial responsibility to the central government. It stands as a hallmark because it witnesses the development of Saudi Arabia built environment territorial shift. Dammam urban pattern formation and transformation was in parallel to the development of regulation development in Saudi Arabia. Discussing this fact will be the subject of chapter nine of part three. Riyadh city, the capital, has experienced the agility of the adaptation of modern planning and regulation in the kingdom. It represents the evolution of urban and regional planning, and therefore, modern built environment territoriality. Discussing this point will be the subject of chapter ten. Chapter eleven is a design workshop demonstrating the applications of recycling the city concept in the case of Al-Malaz neighbourhood in Riyadh city.

I BACKGROUND: EVOLUTION OF URBAN AND REGIONAL PLANNING IN SAUDI ARABIA

Al-Hathloul (1981, 1985) has divided the emergence and evolution of urban and regional planning in Saudi Arabia into two major eras: the first era begins in the late 1930's emphasising the physical aspects of planning. It continued until the 1970's with the Doxiadis master plan of Riyadh city. The second era has been in operation since the early 1970's, with the adoption of a comprehensive urban and regional planning approach with interdisciplinary emphasis, (fig III a), (Al-Hathloul 1985).

1.1 The first era: Town planning with physical emphasis.

During the first era, Al-Hathloul noticed the development and institutionalisation of various provisions of land use controls along with related statutes. This era experienced the rise of municipality status, the development of the grid-iron street pattern, the application of the square lot ratio, the introduction of the villa type houses, the beginning of the various buildings set back regulations, the appearance of the apartment buildings, and the providence of master plans for major Saudi cities.

The municipality statutes were declared in Makkah city under the Royal order number 8723, dated 20th of Rajab 1357/1937. This order stated the duties of the municipalities such as the supervision of the town's organisation, their beautification, designation of places for selling fire wood, specifying construction materials, locating and maintaining markets for meat and vegetables, supervision of general housing conditions, prevention of projections and encroachment on streets and public spaces, extension and widening of towns streets, and creating public open spaces, (Al-Hathloul 1985).

In 1360/1941, another statute title "Roads and building statute" was issued concerning three main issues: planning procedures, building codes, and zoning and right of way. The fundamental objective of these statutes is to meet the need for

future planning and street widening. Al-Hathloul relates the introduction of the building set back concept and regulations to these statutes.

Concerning the gridiron pattern, Aramco established its first oil camp at Dhahran in 1357/1938 following a grid iron plan. A year later another oil camp was built at Ras-Tunura. In 1363/1944 a third camp was founded at Abqaiq. These camps introduced the gridiron pattern for the first time into modern Saudi Arabia. In 1366/1947 the gridiron pattern started to appear in the traditional pattern Saudi cities after Aramco engineers were requested to help in producing a layout for both Dammam and Al-Khobar cities in the eastern province of Saudi Arabia. In 1372/1953 following the shift of the eastern province capital to Dammam city, Aramco developed a more comprehensive plan for Dammam city which is still being followed today, (see chapter nine). For Al-Khobar city plan Al-Hathloul said:

As a new community, Al-Khobar stands out in the history of urbanism in Saudi Arabia; taken as a model for many years, its planning established numerous demonstrably unfortunate precedents as it disturbed the traditional pattern of physical development and initiated the demolition process of old parts of the town. It was, however, the first community to be wholly planned, and the first to have an overall gridiron plan. It provided the first street name signs, and even initiated the convention of numbered avenues, forsaking the traditional use of persons' names. In other words, Al-Khobar, wither consciously or not, led the way and set up a model which other Saudi Arabian cities were to follow in the 50's, 60's and 70's, (Al-Hathloul 1985, p.6)

For the square lot ratio regulation and villa type houses, Aramco in 1371/1951 undertook various planning and subdivisions for its local workers. The Saudi government provided the land either as a grant or for a minimal price, while Aramco provided interest-free loans for house construction. The company also worked out several villa type design alternatives for its employees selection. Two years later in 1373/1953, the government of Saudi Arabia moved its head quarters from Makkah city to the capital Riyadh. Al-Malaz housing project was initiated to provide the necessary houses for the transferred government employees. The project building type, the villa, and its accompanied building regulations, the set backs requirement have influenced Saudi citizens' image about future house appearances. This project will be the subject of chapter ten.

Coverage	Decades		1930's	1940's	1950's	1960's	1970's	1980's
	Institutionalization of							
Town Planning with Physical Emphasis	Municipal & Roads Statues		●	●				
	Square Lot, Block and Gridiron Pattern		○	○ ●			⊙	⊙
	Subdivision Regulations		●	●				
	Zoning Regulations		●		●			
	Subdivision/Town Plans			●	● ● ●			
	Master Plans						● ● ● ●	●
Comprehensive Urban and Regional Planning	Five Year National Plans						● ● ● ●	● ●
	Urban & Regional Plans						●	
	Comprehensive Urban, Rural and Regional Plans							●
	Enabling Legislation						○	⊙
	Plan Implementation							
	Urban and Regional Planning Institutions							
	On the job Training							
	Updating of Urban & Regional Plans and Existing Conditions							
	Monitoring and Evaluation of Urban & Regional Plans							

- Initialization of activity
- ⊙ Initiated activity requiring completion
- Completed activity
- ⊙ Suggested modifications to a completed activity
- ⊙ Modified version of completed activity
- Intermittent activity
- Continuous activity
- First evolutionary era of Urban Planning and physical emphasis (Late 1930's - early 1970's).
- Second evolutionary era of Comprehensive Urban and Regional Planning (Early 1970's - to-date).

1: Temporal Evolution and Status of Various Elements and processes of Urban & Regional Planning in Saudi Arabia

Table III a Temporal evolution and status of various elements and processes of urban and regional planning in Saudi Arabia. source: Al-Hathloul 1985

For the city's master plan development, the idea started in the late 1380's/1960's after the government felt the need to control and direct the growth in major urban areas. Riyadh, the capital, was the first to have a master plan because of its fast growth, and being the most important city from the governments' point of view. In 1388/1968 the task of preparing a master plan for Riyadh city was assigned to the Greek firm Doxiadis Associates. Al-Hathloul described this plan as " a milestone in the history of urban planning in Saudi Arabia as it was the first formal attempt towards the study and analyses of the existing conditions of the city of Riyadh, emphasising on the planned development of the city as a whole", (Al-Hathloul 1988, p.6). The master plan was submitted in 1391/1971 and was approved by the council of ministers in 1393/1973.

1.2 The second era: Comprehensive Urban and Regional Planning

In this era, Saudi Arabian planning pursued a holistic approach resulting in a hierarchy of development plans. This era witnessed the first generation of regional physical plans, the action master planes, and the comprehensive urban, rural and regional development plans.

The first generation of regional physical plans came as a result of the huge oil revenues in the 70's. In order to cope with the Saudi cities unexpected growth and, the subsequent, planning problems with respect to the entire range of urban services and facilities, the Saudi government appointed several international planning firms for the cities study. International consultants were appointed to prepare the first generation of regional physical plans of five regions and their cities. In 1392/1972 the Western region was the first to be assigned to Messrs, Robert Matthew's & Partners. This was followed in the same year by the Central and Northern regions to be studied by Doxiadis Associates. In 1393/1973 Messrs, Candilis Metra and Kenzo Tang, were assigned the task of the development plans of the Eastern and Southern regions.

The action master plans were launched by the Ministry of Municipal and Rural Affairs, Deputy Ministry of Towns and Planning in 1976/77 for the seven

major cities in Saudi Arabia: Jeddah, Riyadh, Dammam, Al-Madinah, Taif, Abha, and Jizan. These plans required the establishment of Planning and Development Department in each city in order to update the master plans in a regular basis.

For the comprehensive urban, rural, and regional development plans, there aims were to integrate the urban and rural development of Saudi Arabia. The five Emirates of Hail, Tabuk, Makkah, Qassim, and Abha were the first to be launched. When completed, the plans are expected to serve as a co-ordination tool at the Emirate scale, where most of the development decisions are taken, (Al-Hathloul 1988).

This brief history of the evolution of urban and regional planning in Saudi Arabia showed:

1- The shifting of the urban areas planning, growth, development, and most importantly ownership from its users to the governmental agencies such as the municipality. The cities municipalities started as part of the Ministry of Interior, and in 1395/1975 as part of Ministry of Municipal and Rural affairs as the official representative of the government concerned with cities affairs.

2- The contemporary planning, growth direction and shape, and development of the Saudi Arabian cities at that time were assigned to international firms, all are foreign. This assignment can be related to the lack of Saudi, or even Arab, firms who were capable of handling such tasks.

3- These firms participated through their effort to improve the Saudi cities, into introducing the latest planning and design concepts of their times. Concepts such as car devoted city plans, promoting villa type housing and its accompanied set back regulations as part of the master plan proposals.

4- Following the Saudi city planning chronologically, city planning started as a conscious act by Makkah municipality statute in 1358/1937, King's Abdulaziz order to found Al-Khobar city (Al-Subai' 1987), ARAMCOs' organisation plan for Dammam city, and Riyadh Al-

Malaz neighbourhood foundation. In 1380/1960 the Saudi city scale was enhanced by the preparation of city master plans such as in Riyadh. The regional scale was introduced in 1393/1973 by preparing comprehensive studies for the five main Saudi regions. It was not until the early 1400's/1980's that the urban, rural and regional development plans in the sub-region Emirates scale were initiated.

5- The result was the division of Saudi Arabian territories into three major domains: first: the dead lands development were the responsibility of Ministry of Agriculture and water resources and Ministry of Petroleum and Minerals; second the urban areas and its surroundings were the responsibility of Ministry of Municipal and Rural Affairs. third the private ownership which follows the instructions of the government Ministries, depending on the private ownership location.

For a close look at the impact of the traditional built environment territories and the contemporary territorial changes upon the Saudi Arabian house and neighbourhood, Al-Dawaser west in Dammam city and Al-Malaz neighbourhood in Riyadh city are chosen. This is the subject of chapter nine and ten. The continuity between the traditional and the contemporary will be the subject of chapter eleven.

CHAPTER NINE

THE TRADITIONAL BUILT ENVIRONMENT AL-DAWASER WEST NEIGHBOURHOOD DAMMAM CITY

9.1 Dammam urban history

9.2 Dammam built environment territoriality

9.2.1 The primitive stage

9.2.2 The transitional stage

9.2.3 The consolidate stage

9.2.4 The contemporary stage

9.3 Findings

CHAPTER NINE
THE TRADITIONAL BUILT ENVIRONMENT
CASE STUDY: DAMMAM CITY,
SAUDI ARABIA:

Dammam city is located on the Arabian gulf, east of Saudi Arabia, (fig. 9.1). Dammam is chosen as an example for the traditional Arab-Muslim built environment because, even though founded in 1344/1923, its traditional formation and transformation is considered a reasonable example. The main reason for selecting Dammam city is the availability of the data concerning its urban pattern formation and transformation. Dammam is the only Traditional Arab-Muslim town which is documented by aerial photos, since the early 30's, shortly after its foundation. The Arab American Oil Company (ARAMCO) has surveyed Dammam area in the 30's as part of the oil excavation areas. This fact makes no place for speculation about the Arab-Muslim built environment formation and transformation. Instead analysis of aerial photos and personal observation are used. There are four factors weakening Dammam city's chance of being a perfect example of the Traditional Arab-Muslim towns formation and transformation stages. The first is the establishment of law and order in the kingdom through the central government. the second is the development world wide of new technologies especially in military, transportation, and communication. modern militaries have made the city wall redundant, therefore Dammam does not have one. For transportation, the street size during its transformation may be later influenced by the introduction of the new machine, the car. The third factor is the establishment of the Dammam municipality in 1372/1951 which may have had some effect in restraining the town from becoming a fully typical Traditional Arab town. The municipality in its effort to improve Dammam introduced new planning and building regulations which may not be traditional in its contents. The fourth factor is Dammam proximity to ARAMCO camp in Dhahran 20 km south of it. The cultural transfusion between the early Americans and the residents is inevitable. Also ARAMCO planning office contributed to Saudi Arabia

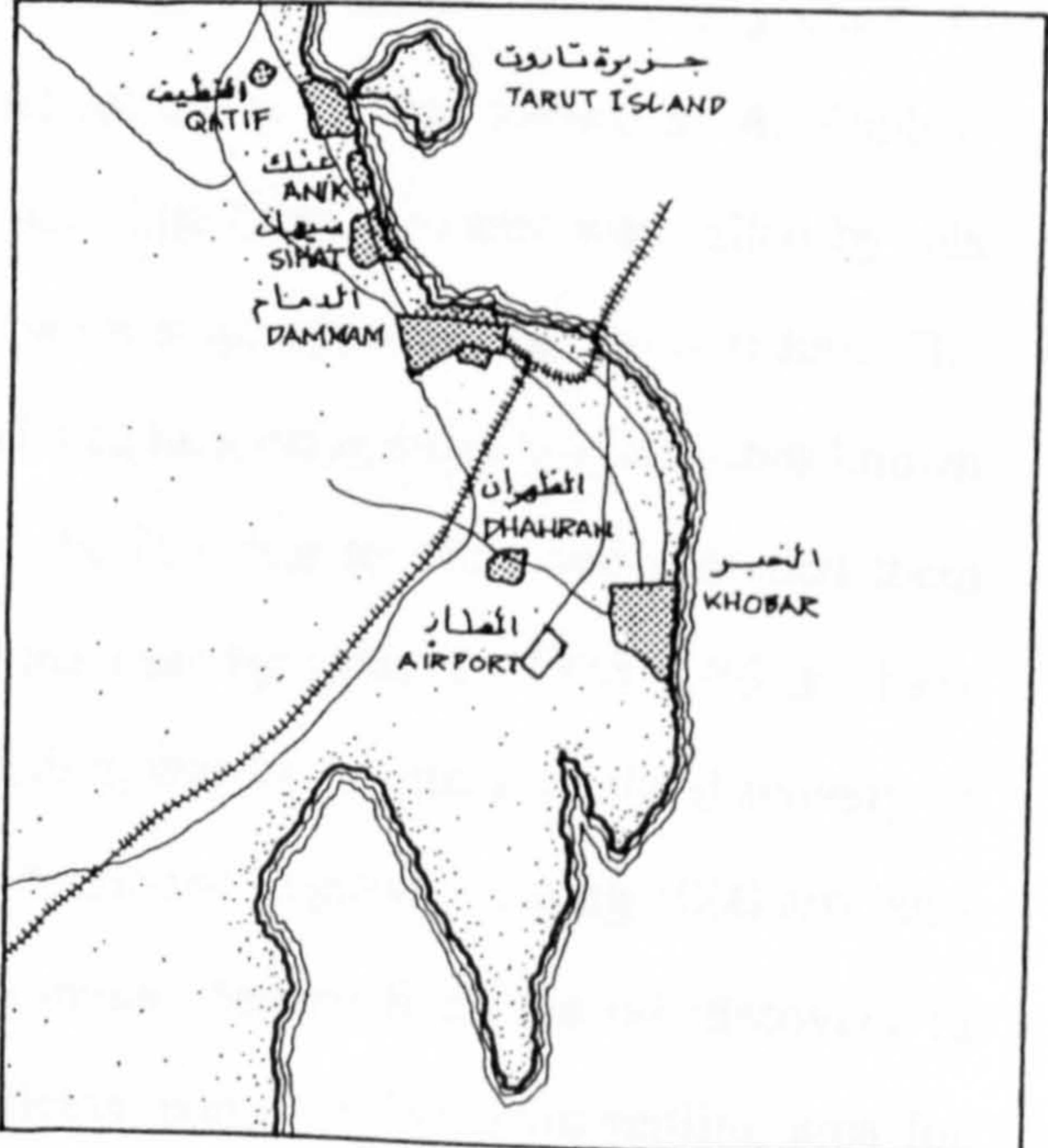
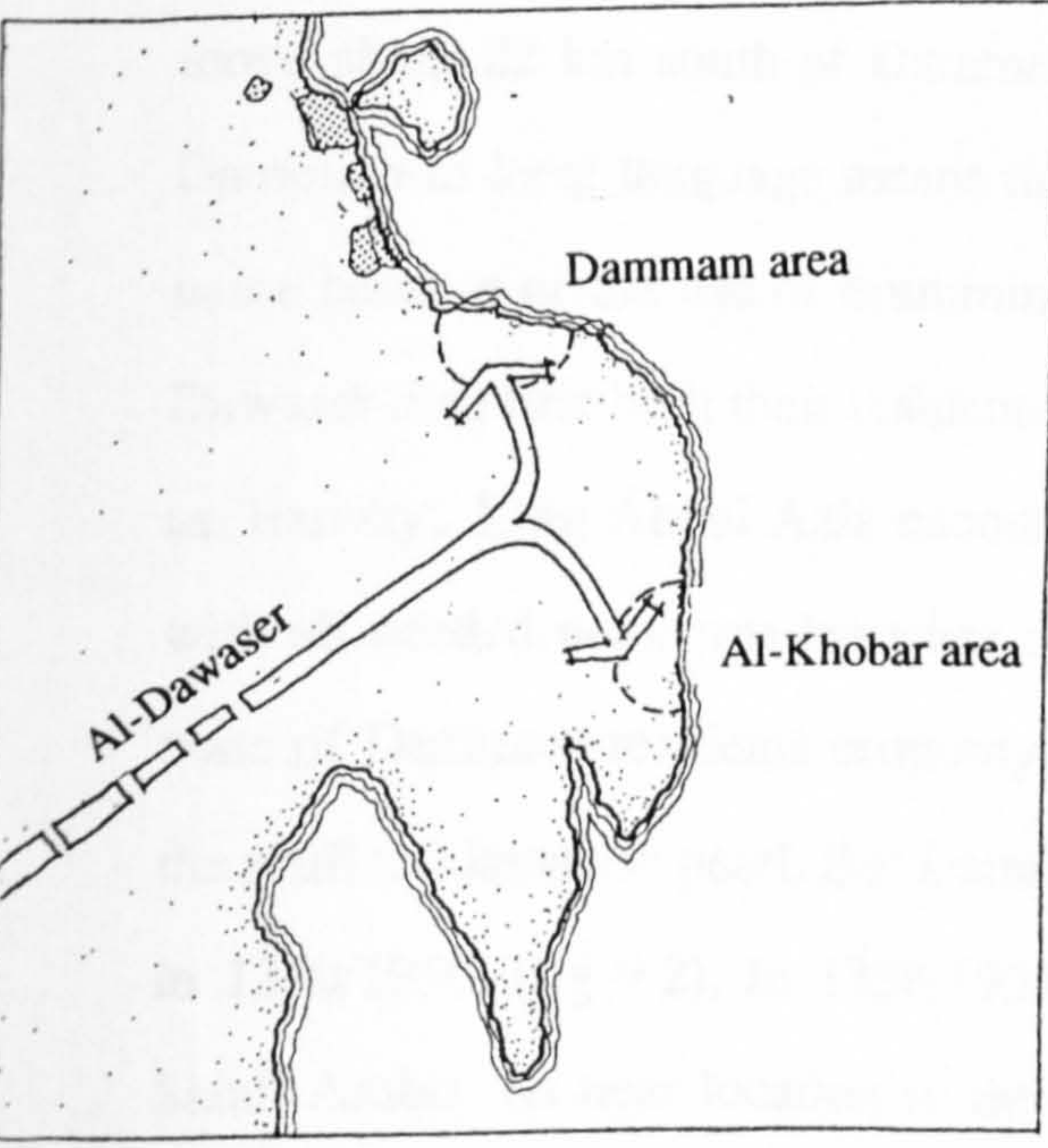
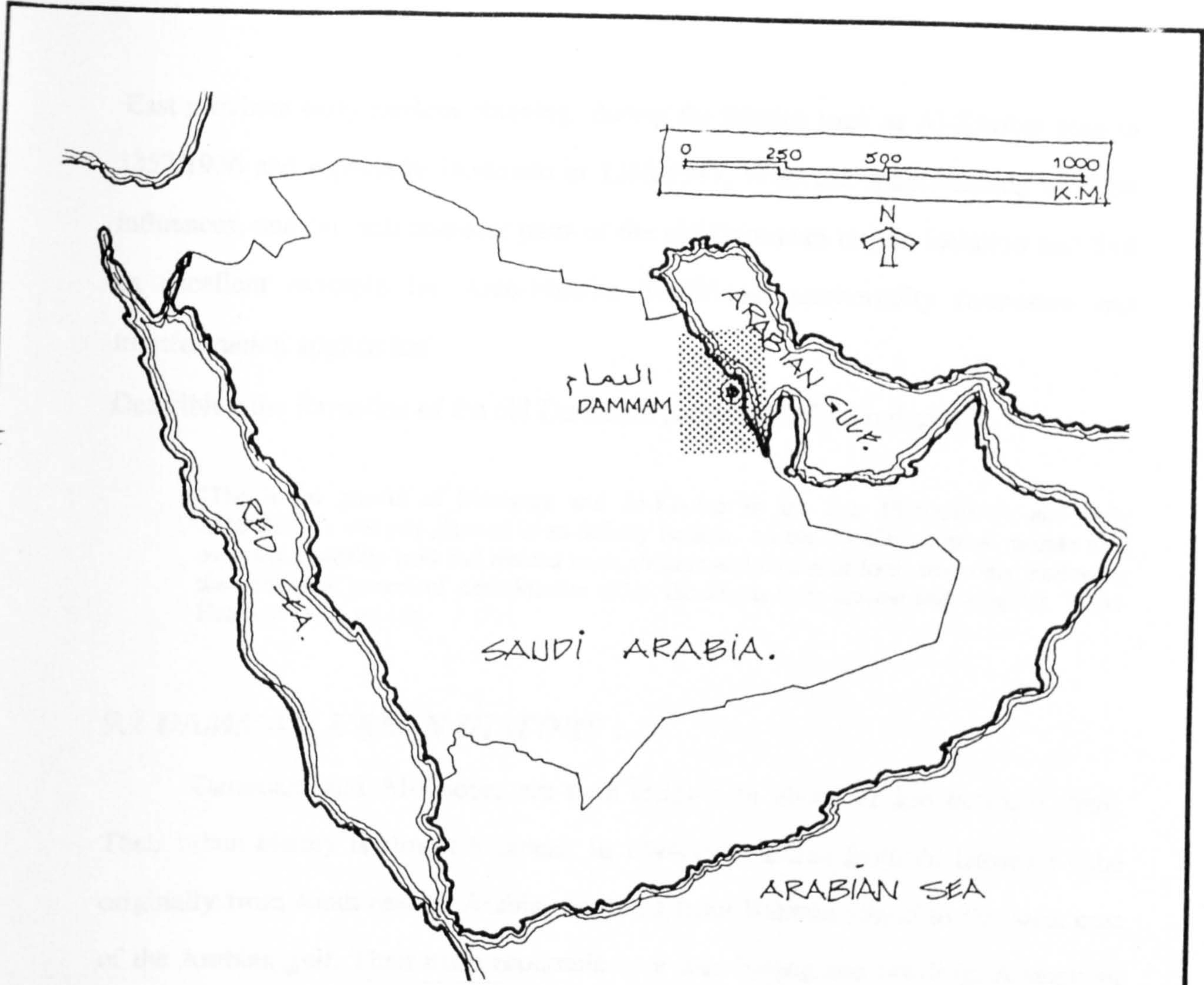


figure 9.1 Dammam location in Saudi Arabia.

East province early modern planning during the thirties such as Al-Khobar plan in 1357/1936 and especially Dammam in 1368/1947. With the understanding of these influences, one can still consider parts of the old Dammam city in isolation and find an excellent example for Arab-Muslim Traditional territoriality formation and transformation application.

Describing the formation of the old Dammam pattern, Al-Hathloul said :

"The initial growth of Dammam and Al-Khobar in the late 1350's/1930's and early 1360's/1940's was not planned in an orderly fashion. As the population grew, people took over any available land and erected basic shelters and fences of local materials. Following the traditional pattern of Arab-Muslim cities, the streets were narrow and irregular. ", (Al-Hathloul 1981, p.146).

9.1 DAMMAM URBAN HISTORY :

Dammam and Al-Khobar are twin cities with about 22 km between them. Their urban history is almost identical. In 1344/1923 a clan from Al-Dawaser tribe originally from south eastern Arabia, migrated from Bahrain island to the west coast of the Arabian gulf. Their main economic base was fishing and pearling. A segment of this clan under the leadership of Shaikh Ahmad Bin Abdullah Al-Dawsary chose a location in the gulf for their settlement known as Dammam. Another segment of this clan under the leadership of Shaikh Mohammed Bin Rashid Al-Dawsary chose to move about 22 km south of Dammam and settled at an area known as Al-Khobar. Dammam in local language means the 'drum'. The Dammam area was called by this name because of the use of drumming to warn ships approaching the coast line. The Dawaser clan first built their residential units as huts using palm tree branches known as 'Barasty'. King Abdul Aziz encouraged the Dawaser to settle and provided them with all needed palm tree branches from the near by oasis. In 1345/1926 the backbone of Dammam residents economy, pearling, was hit severely by the discovery of the artificial Japanese pearl. But Dammam continued to grow reaching 3000 residents in 1350/1930, (fig 9.2). In 1358/1938 Dammam benefit from the oil discovery in Saudi Arabia. Its near location to the oil fields made it a favourite settling area for

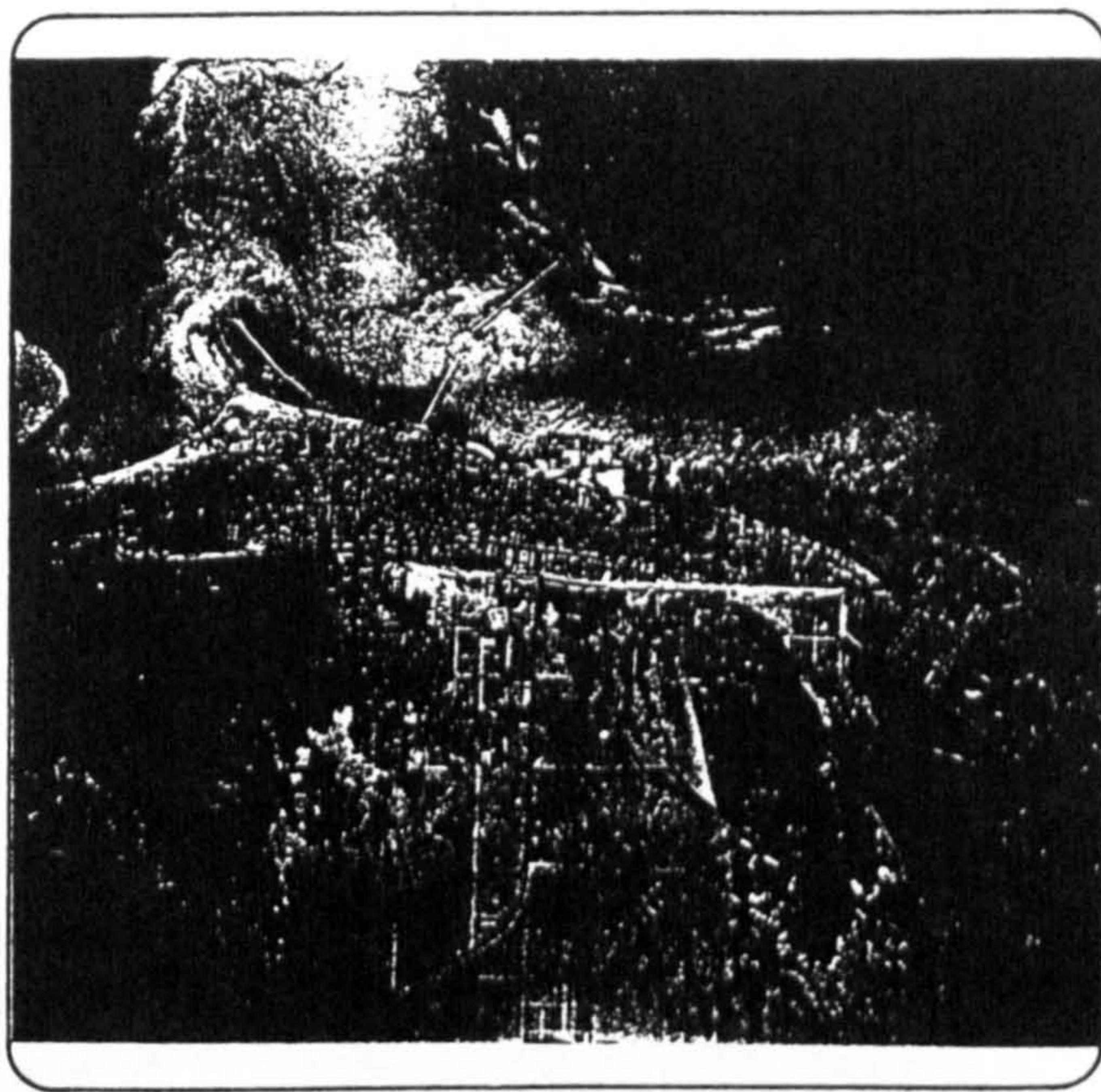
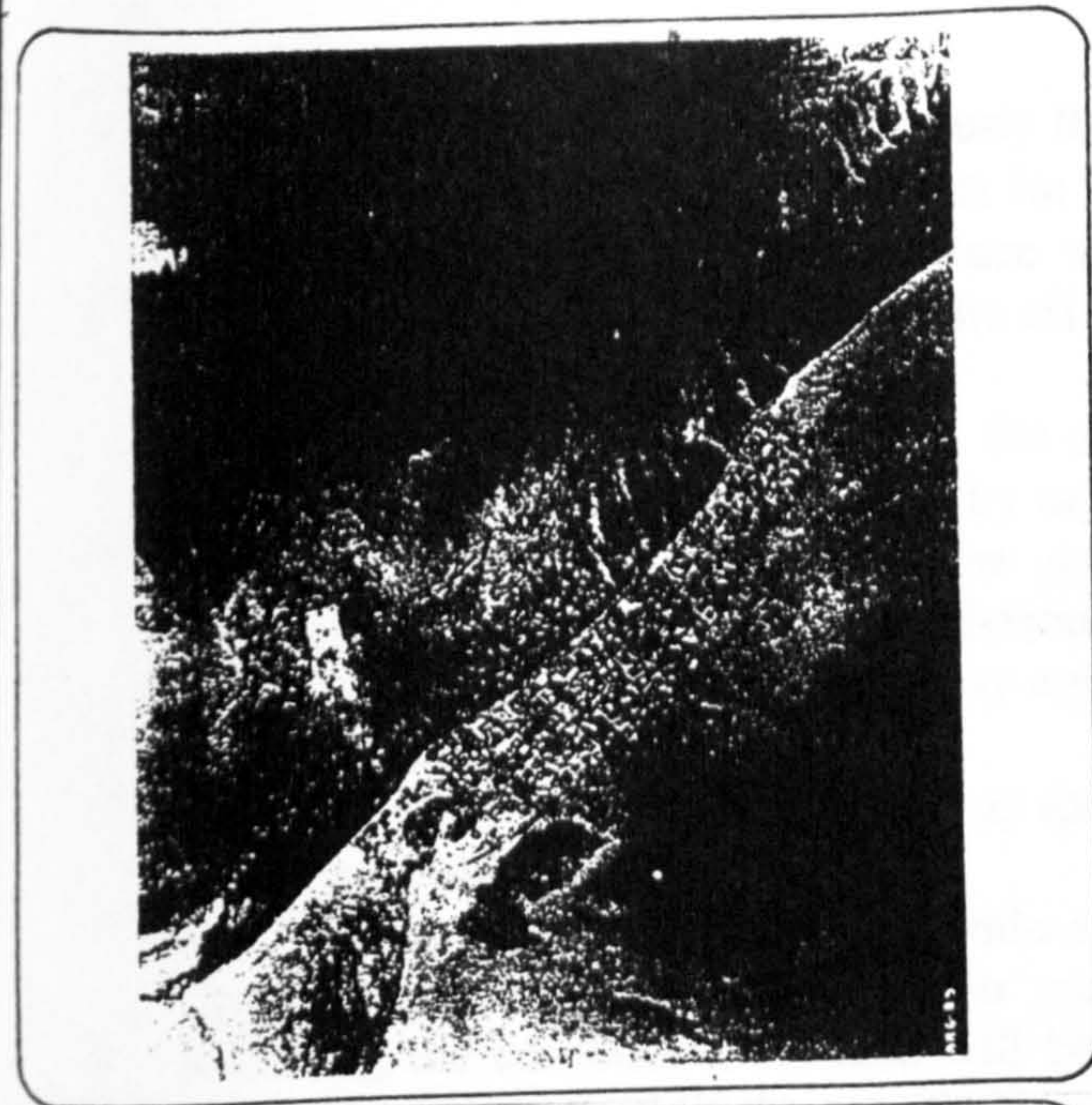


figure 9.2 Dammam urban pattern growth between 1935 and 1973.
source: courtesy of Dammam municipality.

local oil fields workers. In the same year King Abdul Aziz granted permission to found the city of Al-Khobar following its planning by the Aramco planning office. Al-Subai'ci (1987) mentioned that the king issued an order dated 6th of Safar 1358/1938, which said :

The government of his majesty the king wishes to encourage the urbanisation (Umran), and to provide the comfort for her citizens, granted the permission to found Al-Khobar city in Al-Ahsa province following the ideal plans provided by the representative of minerals and public affairs in Dammam has issued these conditions to be followed :

1- Every Saudi citizen is eligible for a grant of land [in Al-Khobar] for building, depending on the conditions issued by organisational (Tanzem) committee.

2- The government will not tax the given lands for the period of ten years begins from the date of obtaining the permission.

3- The grant holder is obliged to pay a yearly rent which the government will decide ten years later.

4- The grant applicants should fill up the accompanying form with the acceptance of these conditions.

5- The construction must start within six months from receiving the granted land, and must be completed within two years. If the given period is passed without fulfilling the conditions, the land will be granted to another person and the building materials will be sold [if the construction was started and was not completed].

6- The buildings must be one floor height in all of the city [Al-Khobar], except the first row of buildings along side the sea shore.

7- It is prohibited to build houses using palm tree branches or wood. The building materials must be stone or cement only, except places located by the authority in south of Al-Khobar away from the company [ARAMCO].

8- Citizens are not allowed to buy building ruins [as materials] or lands except if it is registered with the land title office. The same applies for selling. Only to Saudi Arabian citizens and eligible.

9- Those who own a land through His Majesty gifts or [other] perchesing methods prior to these orders, they must register it in a proper manner at the Land Title office (Katib ^cadl).

10- The houses that have been already constructed with palm tree branches may be kept except those which are in the way of a organisation line. The owners are not allowed to renew it [with the same building materials] and will be given a reasonable time to replace the materials with stone.

11- The Dawaser in Al-Khobar who migrated to this country and settled there, and built their houses are the subject to :

a- registering their existing properties as a Majestic gift from His Majesty the King, by filling the accompanied form.

b- if they wish to sell their properties, they are not eligible for another gift.

c- houses that are located in the proposed streets will be demolished for the benefit of organising the city. The owners will be compensated given another land and a help[money] as the government wishes as a favour from her.

12- Forming a committee for registering and organising the buildings under the supervision of the representative of the minerals office and the membership of Qatif treasury, director of Amiri ownership's, Land Title office (Kateb Adl), the director of the municipality, and Ahmad Bin Abdulah Al-Dawsary and Isa Bin Rashed Al-Dawsary.

13- The appointed committee must prosecute these instructions and assure compliance through the supervision of the organisation and buildings inspector in Al-Khobar.

14- The same instructions are applied in Dammam town.(Al-Subi^{ci},1987, pp.146-7).

Al-Subi^{ci} (1987) relates ARAMCO's early planning of Al-Khobar idea for the reason of making it the "ARAMCO City" due to its strategic location along the Arabian Gulf coast. The residents resisted any attempt to re-locate them leaving ARAMCO no choice other than to select Dhahran as its office and residential head quarter. These building regulations are the first not only for Dammam and Al-Khobar cities, but also in all Saudi Arabia cities.

In 1361/1942 the municipality of Al-Khobar was established with its two branches in Dammam and Dhahran. It was in 1366/ 1947 that Dammam municipality became independent . The governor of the East province prince Abdulah Bin Jalawy had requested the assistance of ARAMCO planning office in providing a plan for the growing city of Dammam. The planning office avoided interference in the old town pattern by planning an east west road dividing the city into two parts, (fig 9.3). The northern part is the old traditional Dammam. The 400 acres southern part was planned in gridiron blocks of 300 * 600 feet (90*180 m.) north to south oriented. The streets were of 70 to 100 feet in width (20-30 m.). In 1371/1950 Dammam sea port was inaugurated as the main oil export terminal and the capital Riyadh's import centre. Dammam has grown rapidly especially after it became the capital of the east province of Saudi Arabia. The government has moved all its eastern province main headquarters to Dammam. The governor requested ARAMCO planning office to reconsider its proposed planning of Dammam city. He formed the Public Projects Agency for this purpose. The result was the subdivision of the existing 300*600 feet lots into two smaller ones of 300*300 feet. The street width was kept the same. In 1374/1953 the lot sizes were reduced to 150*150 feet making a block of 8 lots. In the

same year responsibility for the public lands was shifted to the municipality following a Majestic order number 20/1/13/1009 dated in 17/6/1374. Until 1380/1959 Dammam municipality role was in providing public services to the city such as electricity, roads' pavements, and public building constructions. The Aramco proposal was followed until it was revised in 1394/1973. In this year the Ministry of Interior Deputy ministry for Municipals and Rural Affairs retained G. Candilis and Metra to perform planning studies for the Eastern province. In 1974 the firm Candilis-Metra had submitted the Eastern Province Regional Plan. The firm did not interfere in the old plan and only provided a plan for the new and proposed growth of the city, (fig 9.4). Today Dammam is the third largest Saudi Arabian city,

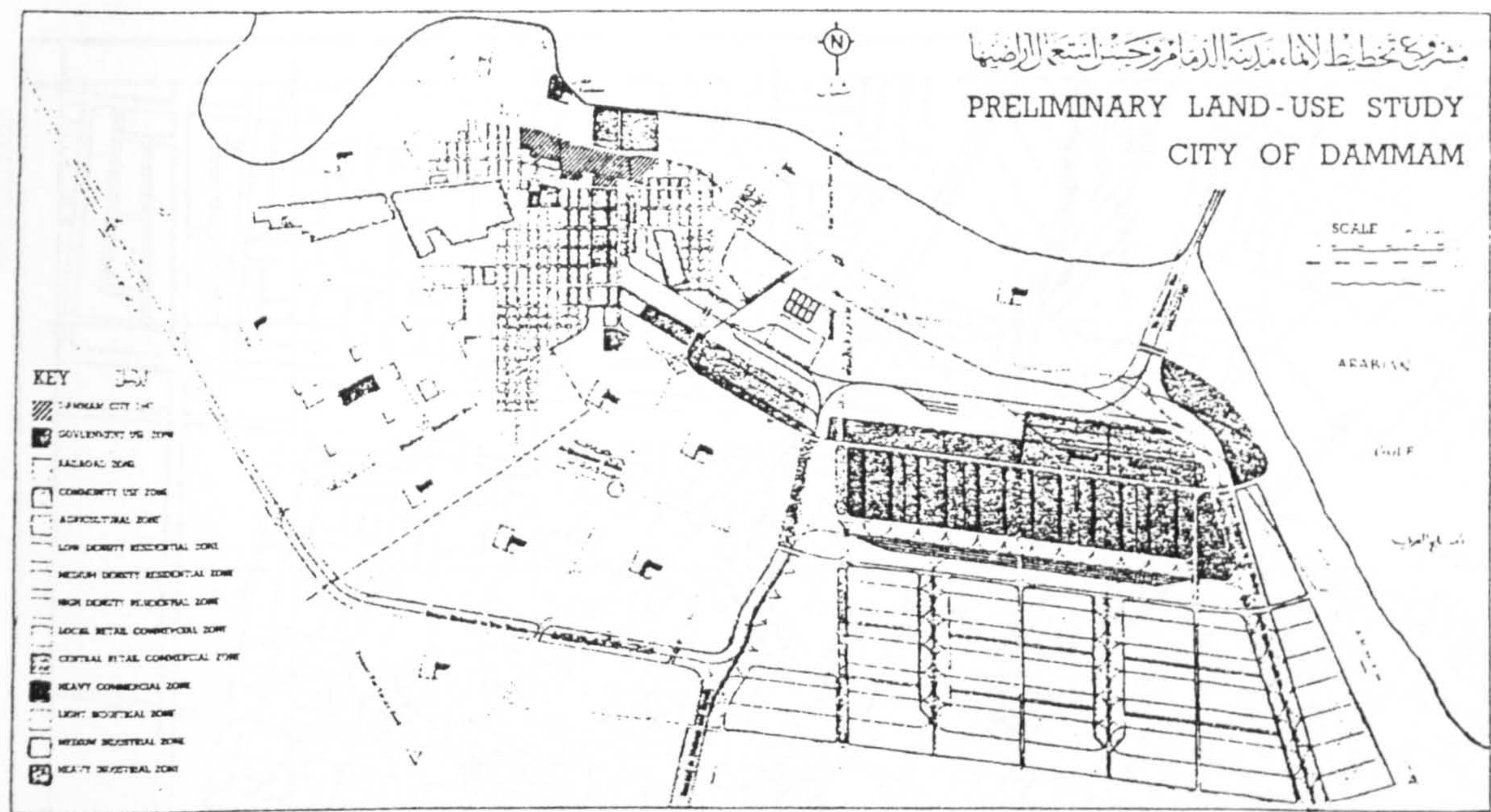
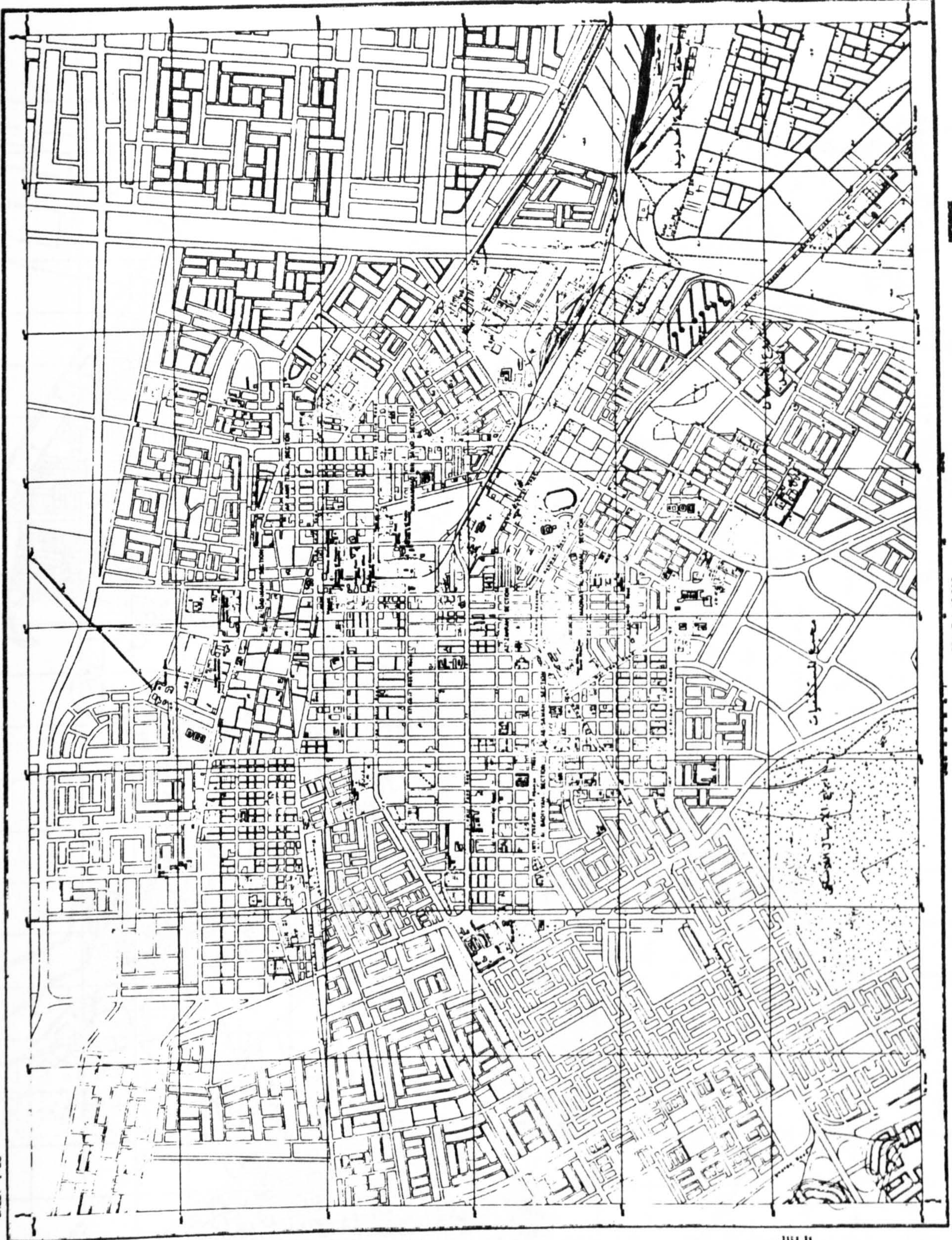


figure 9.3 ARAMCO plan for Dammam in 1953.
 source: MOMRA (1981).

KINGDOM OF SAUDI ARABIA
Ministry of Municipalities and Public Works
Municipality of Dammam

AD-DAMMAM

SHEET 1-23



SCALE 1:10,000

figure 9.4 Dammam city in 1976.
source: Dammam municipality.

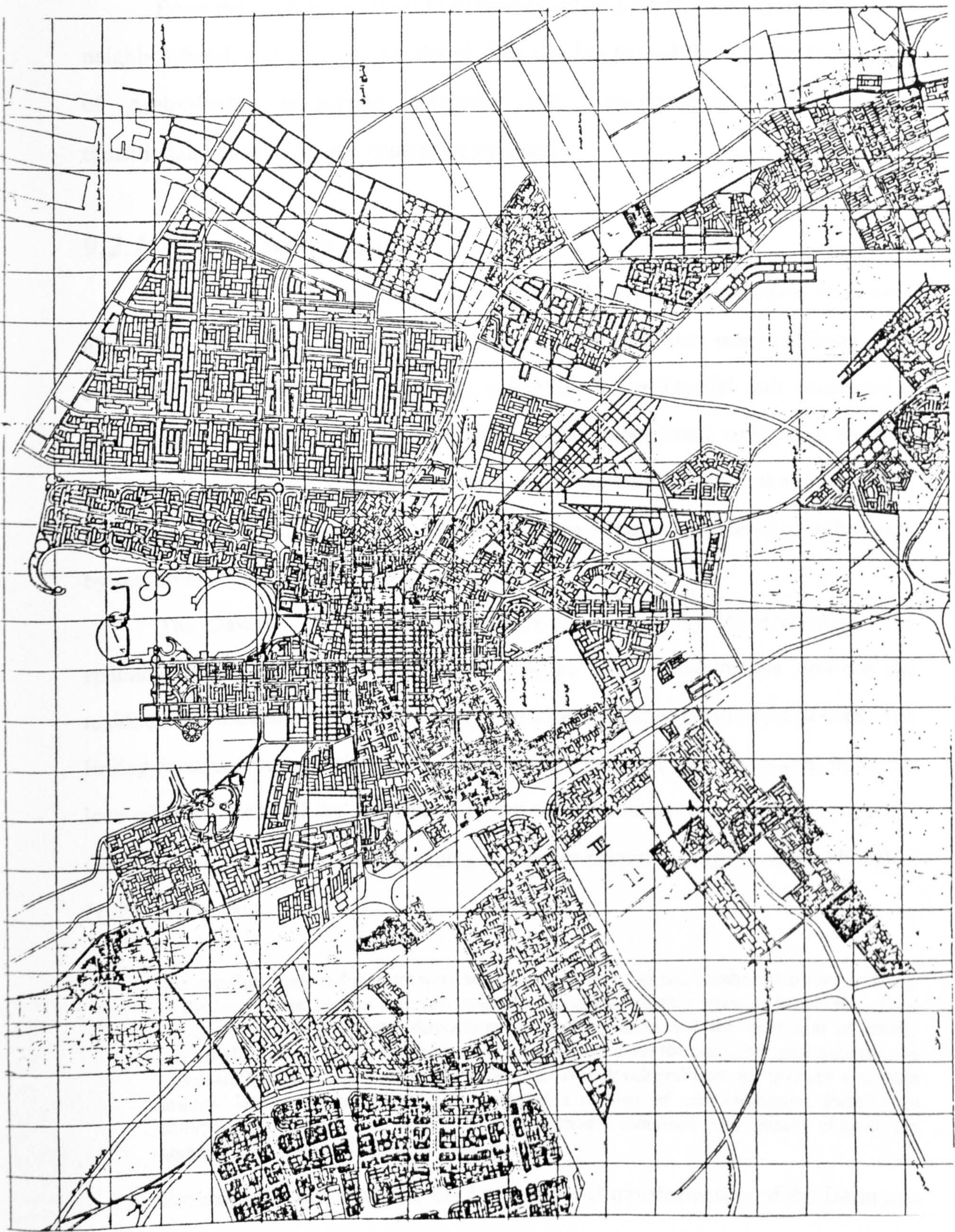


figure 9.5 Dammam city in 1988.
source: Dammam municipality.

9.2 DAMMAM BUILT ENVIRONMENT TERRITORIALITY

From the brief description of Dammams' urban history, an analysis of the city, neighbourhood, and house is introduced. The city has passed through the four stages of Arab-Muslim settlements formation and transformation. The primitive, transitional, consolidate, and contemporary stage.

9.2.1 The primitive stage

Dammam village was founded in 1344/1923 when the Dawaser clan were allocated a site that supported their reason for settling. These were fulfilling their economic needs (fishing and pearling), suitability for residential unit construction (flat land), availability of fresh water (Rahmah Bin Gaber castle well), near to other oasis (food marketing and common culture), and locating the sea at the north of the site (cooler summer north winds). The selected site is not in the Harim of other near by settlements such as Sihat town in the north.

The Dawaser started settling by reviving the land by fence erection. The spatial organisation of the lots is govern by the social relationships between the residents. Houses may be free standing or grouped together up to eight houses. The Friday mosque, daily market, and Dawaser tribe social figures residential units are located in the heart of the settlement. In the south, areas are designated for festival (Ead) prayer and cemetery. Describing Dammam primitive stage pattern, MOMRA (1981) report said:

The dwelling units and clusters were added onto or joined to one another according to needs of the inhabitants. Neither the open space nor circulation pattern were predetermined. They resulted from the accidental disposition of dwelling units and the definition of family territorial holdings. The building block of the settlement was the perimeter enclosure for one tribal family. Shelters and secondary enclosures were developed from the primary enclosure inward. The expansion of a family produced a number of new enclosures forming an amorphous compound. The primitive stage settlement remained conceptually close to the nomadic tribes camps, (MOMRA 1981, pp.15-6)

For more detailed study for the formation and transformation of the Dammam settlement the North West neighbourhood known locally as Al-Dwaser west

neighbourhood is chosen for its isolation from the non residential activities transformation and the availability of clear aerial photos, (fig 9.6).

Between 1923 and 1934 the Al-Dawaser west neighbourhood is bordered by the sea shore in the north, (fig 9.7). The sea Harim is considered a semi public space where reviving is not allowed. In the south a thoroughfare connecting the settlement centre with other nearby settlement in the south. This street is also considered semi public because of its connection between the settlement centre market and Friday mosque, and the other nearby settlements. In the east the site is bounded by another neighbourhood. The north south street separating the two neighbourhoods is considered a semi public territory because of its connection between two semi public streets. In the west the neighbourhood is bounded by virgin unrevived lands . The unrevived lands are semi private in the neighbourhood Harim, and public in the areas distant from the settlement. The areas designated for circulation (the streets) average between five and eight meters wide. The neighbourhood consists of 56 residential units and a daily mosque. Because of the social organisation of the residents, the house Fina, and residential units easement rights, the residential units are grouped into three major areas divided by north south thoroughfares. These thoroughfares are semi public since they connect between another two semi public streets. There is only one cul de sac built between three houses believed to be caused by the shortening of the circulation to the daily mosque. The daily mosque, as a semi public element, is located in the south east of the neighbourhood between the two semi public thoroughfares. The house spatial organisation is primitive in its formation. It was divided into two main spaces: the patio defined by the palm tree branches fence, and one or two living huts. In 1934 out of 56 residential units that are located in the neighbourhood, about 50 units built their huts using the fence as a fourth wall. The house spatial depth, similar to its residents social depths, is part of the overall settlement spatial organisation, (fig 9.8). The settlement Harim, neighbourhood, and streets function as an advanced spatial organisation providing the needed spatial depth for privacy and territoriality.

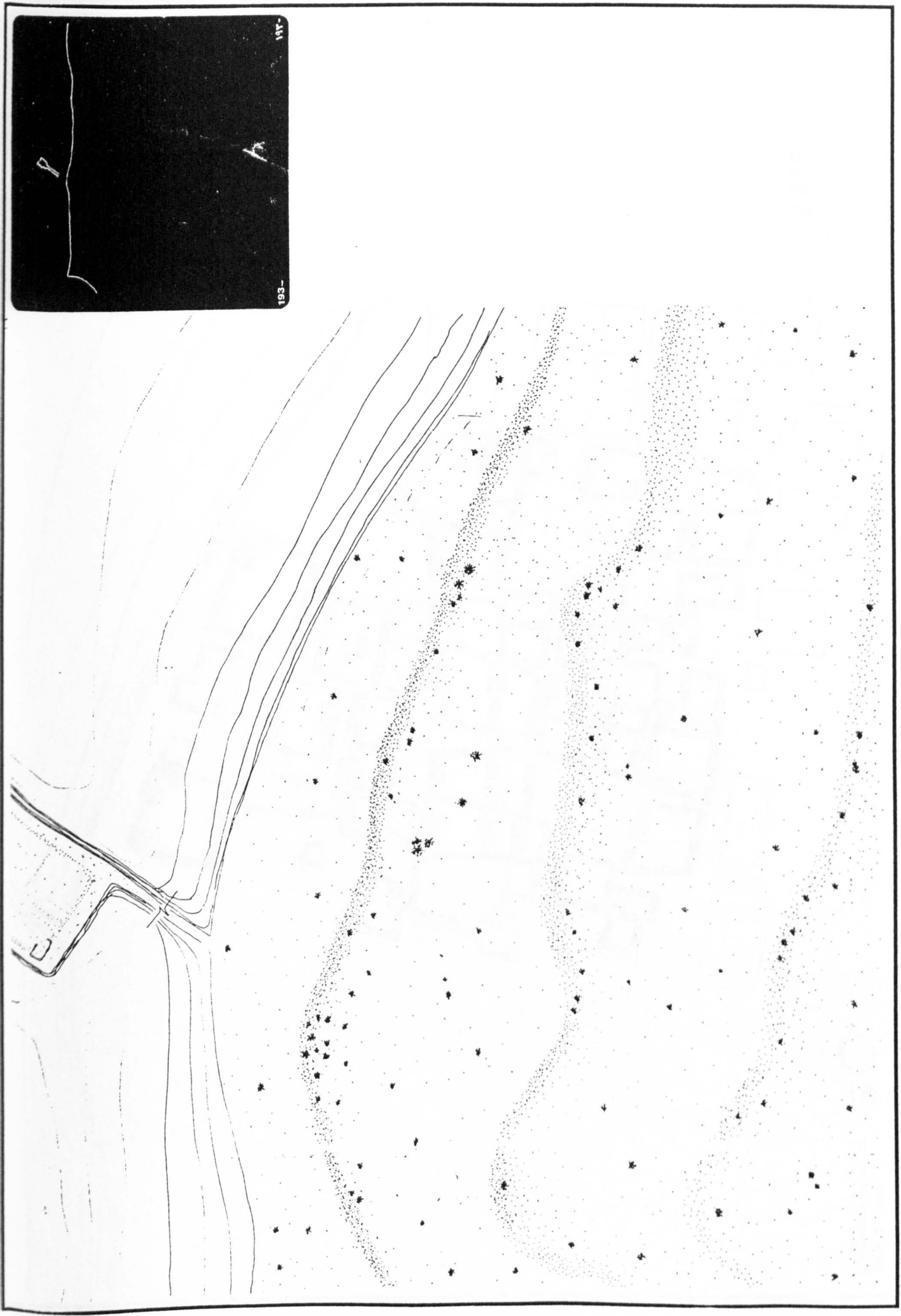
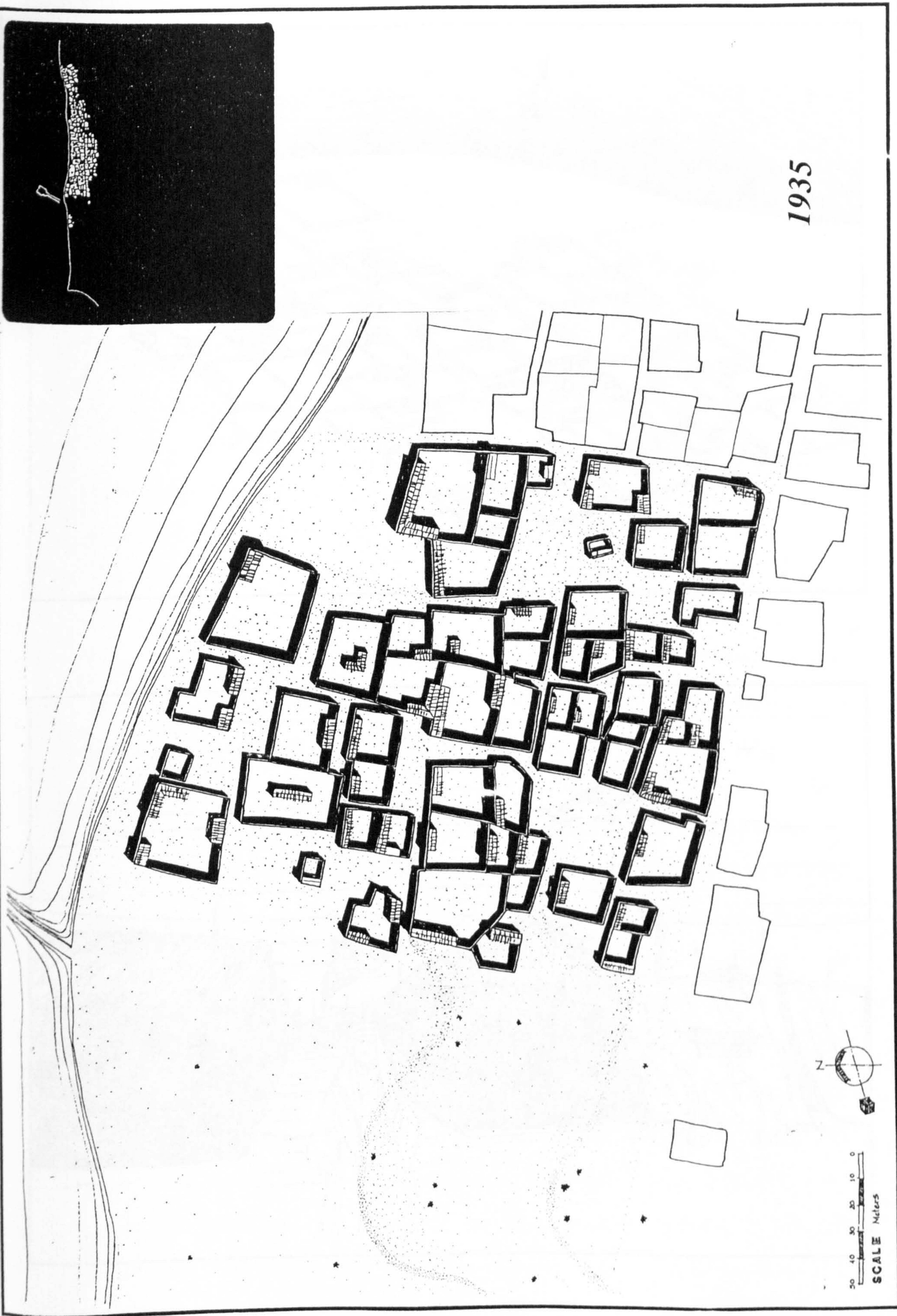


figure 9.6 Al-Dawaser west neighbourhood location prior to 1932.
source: author.



1935

Figure 9.7 Al-Dawaser west neighbourhood in 1935: The primitive stage.
 source: after an aerial photo.

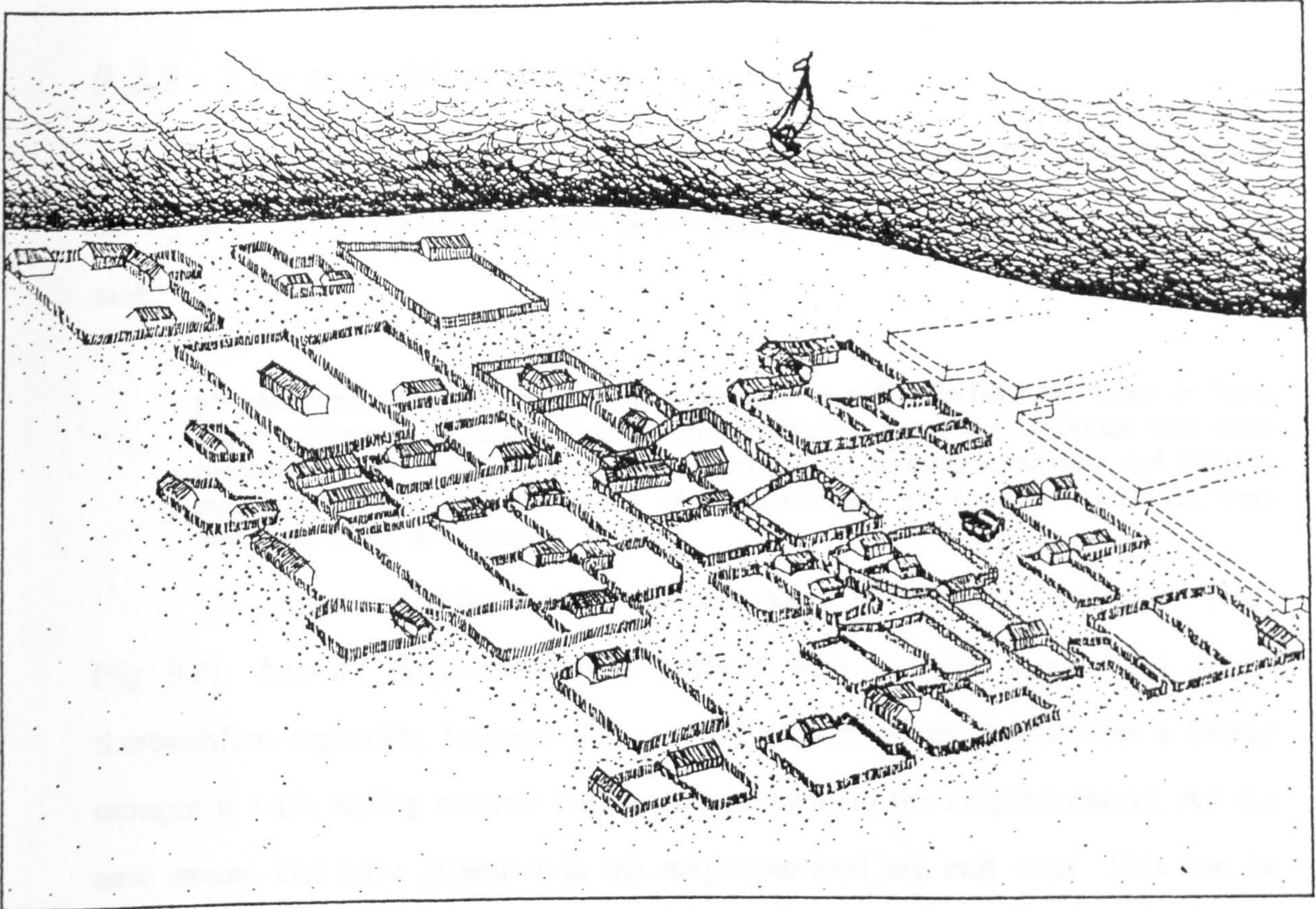


figure 9.8 Al-Dawaser west neighbourhood, street pattern, and house in 1935.
source: author.

9.2.2 *The transitional stage*

In the early 1940's the settlement has grown in size to be a town. The growth is mostly east west along the sea shore. Describing this growth MOMRA (1981) report said:

permanent possession of land became a necessity as either "in-between" space or "open space" became more scarce. The primitive settlement thus became denser with more permanent structures. There was a notable change in building techniques and building materials. Neither formal patterning of the settlement, nor building restrictions, were developed during this stage, (pp. 18-9)

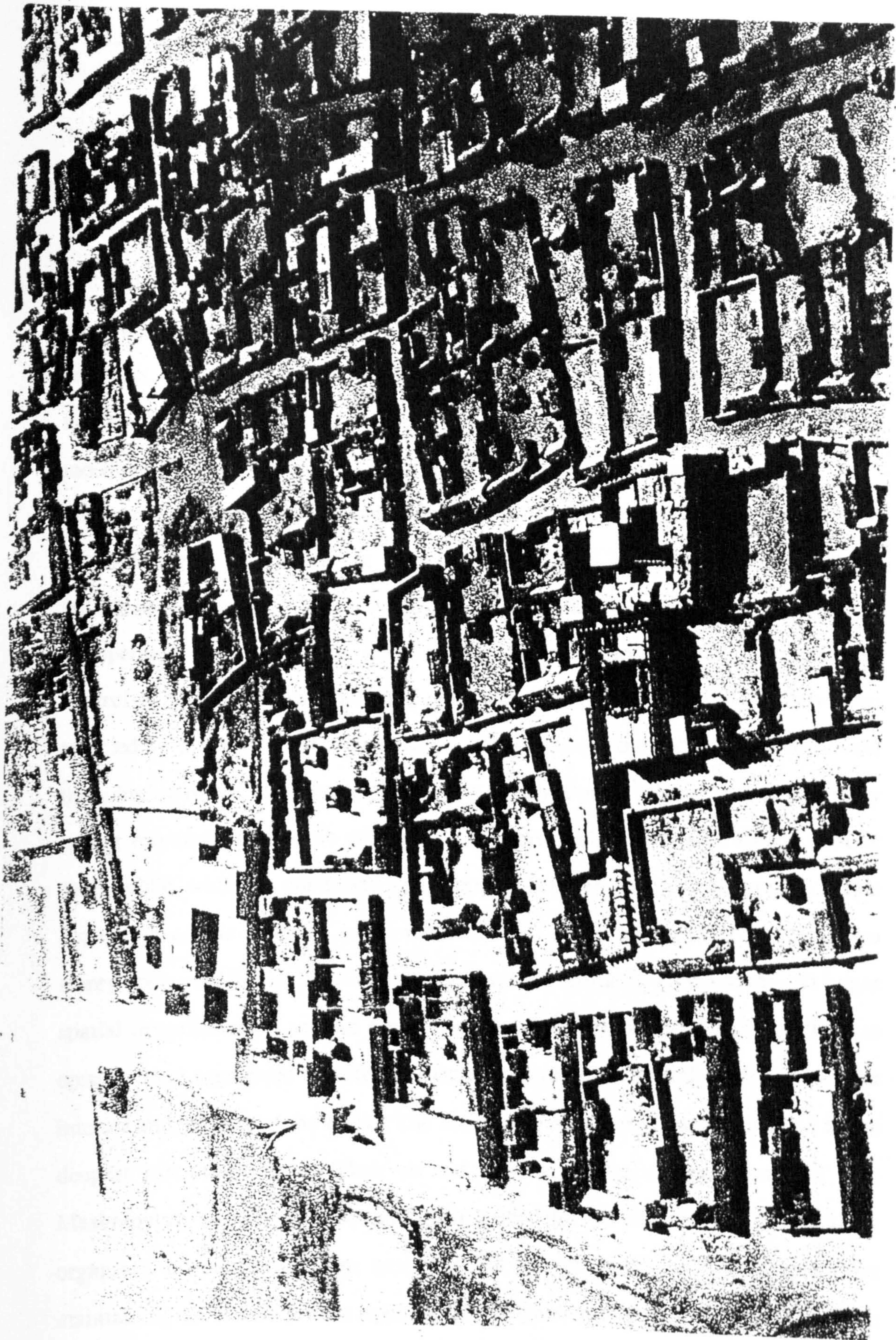
The chosen neighbourhood is no more bounded by a dead land in the west, (fig 9.9). Another neighbourhood is revived with a north south semi public thoroughfare separating between them. In their north corner intersection a Friday mosque is built adding another semi public element to the neighbourhood. All the new streets that have appeared in the neighbourhood are east west. This can be attributed to the residents attempt to preserve the private territory of their streets. From observation another private cul-de-sac was built mostly as a result of land subdivision. During this period more physical definition of the streets by buildings and fences is happening. Through the appropriation of the existing semi private open spaces left between residential lots, the street width is averaging between seven and five meters. Because of that and the existing lots subdivision (due to ownership process and easement rights) the number of the residential units has risen to more than 110 units. In this decade the house has experienced a dramatic change in its spatial formation, transformation and depth. Stone as a building material has replaced most of the palm tree branches. More rooms are added along side the fence interior. The lot where the house is located has been subdivided into two or more lots due to gifts, inheritance, and conventional transaction of the new settlers. The interior of the house and its exterior (Fina) has a more interchanging spatial relationship. The positive appropriation and negative attrition have resulted in more definition of the house and the street. The zoning of the house interior to family/female and guests/male areas is more clear than in the previous stage. The neighbourhood as a

social unit separated from the settlements' social structure is obvious from the neighbourhood physical appearance, (fig 9.10). MOMRA (1981) report said:

Land occupation consisted of a perimeter wall and one or two masonry buildings, usually at corners. Temporary shelters were added in the more conventional (jareed), or palm frond, technique. Small alleyways, or suqaq, were developed. These came more from a need to separate properties of different families than from a circulation or functional requirement. With the densification of the urban fabric, these suqaqs became a permanent semi-private circulation network in the later consolidation stage of development, (pp. 19-20).



figure 9.9 Al-Dawaser west neighbourhood around 1948: the transitional stage.
 source: after aerial photo.



*figure 9.10 Al-Dawaser west neighbourhood, street, and house around 1948.
source: Dammam municipality.*

9.2.3 *The consolidate stage*

During the 1950's and until the early 1970's the neighbourhood reached its final stage, (fig 9.11). The streets have become crooked and narrow averaging five meters in width because of the residents appropriation on the ground level of the private and semi private streets. There are more than twenty five cul de sac streets counted as a result of private lands subdivision (due to ownership process and easement rights), and the socio-cultural relationships between the neighbourhood residents. None of these cul-de-sac streets is the result of encroachment on or blocking off of semi public streets, or leading to semi public facilities such as the mosques. The neighbourhood consists of about 250 mostly typical court yard residential units as a result of contentious house subdivision and room additions. The building materials are the sea stones plastered with gypsum. The style of the buildings is the stile of the hot humid zones with an influence from the Persian style of openings and ornaments. Even though Dammam municipality has complete control over its streets and building regulations, the neighbourhood has only been affected by the creation of a major street (King Abdul Aziz street) in the north, and the winding of the south street (King Fahd street). Due to this and the municipality taking responsibility for the semi public territories, all the through streets became semi public, while the cul de sac streets ranged between semi private to semi public depending on the residents social relations. The house prototype is a typical two storey court yard house. The users (designers) have manipulated the street and house spatial organisation to achieve the desired depth for privacy and territory. Houses entrances are segmented to different spaces to increase the spatial depth between the interior and exterior of the house. The family and female sections are located in the deepest part of the house. Their air and light window openings are treated with Mashrabyyah to sustain the spatial depth needed for privacy. Houses are spatially organised by clustering them around a cul de sac street as a mechanism for maintaining the streets' private territory. The neighbourhood as a social and therefore a physical unit is very clear in this phase, (fig 9.12).

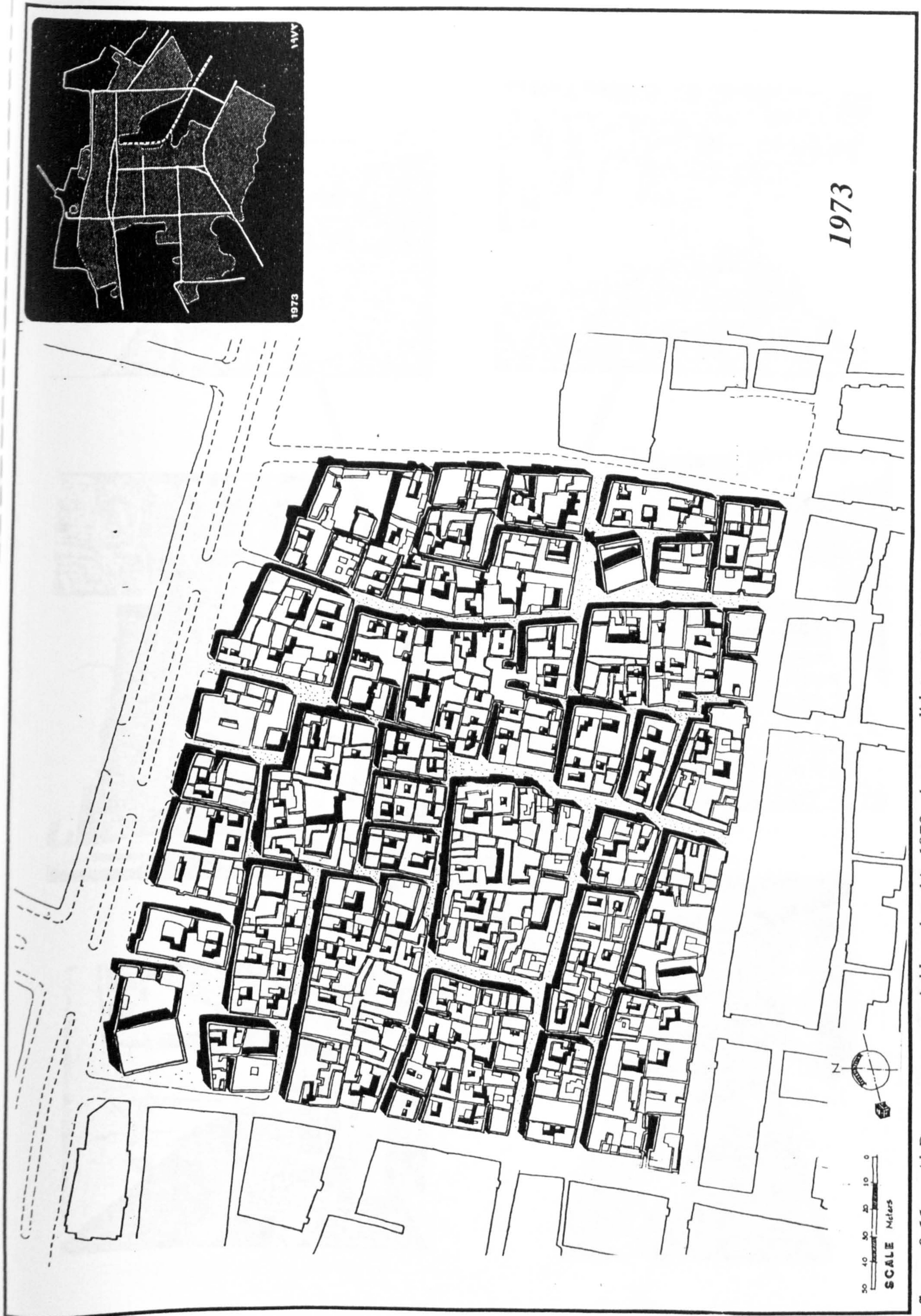


figure 9.11 Al-Dawaser west neighbourhood in 1973: the consolidate stage.
 source: after Candilis-Metra (1976).

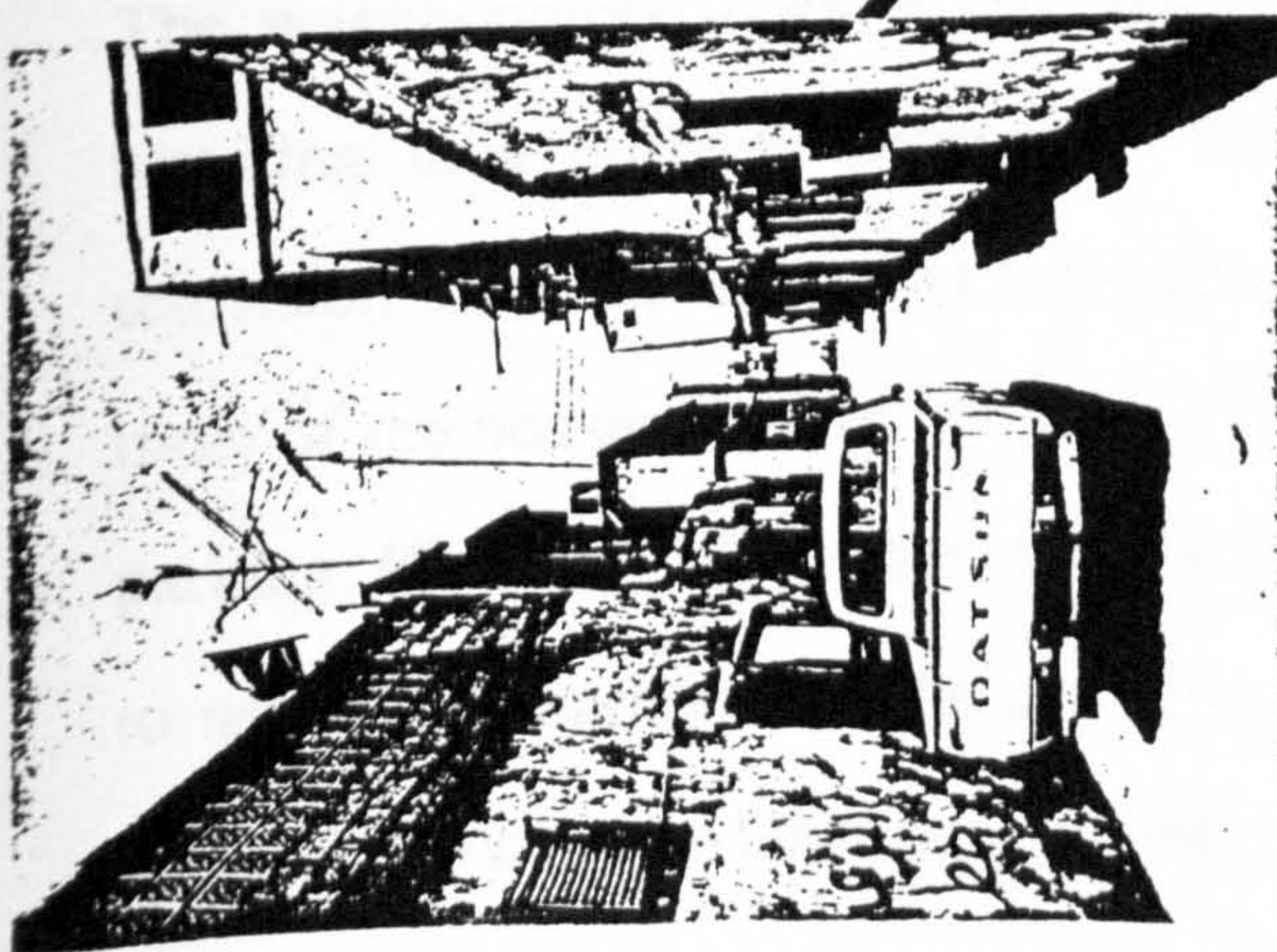
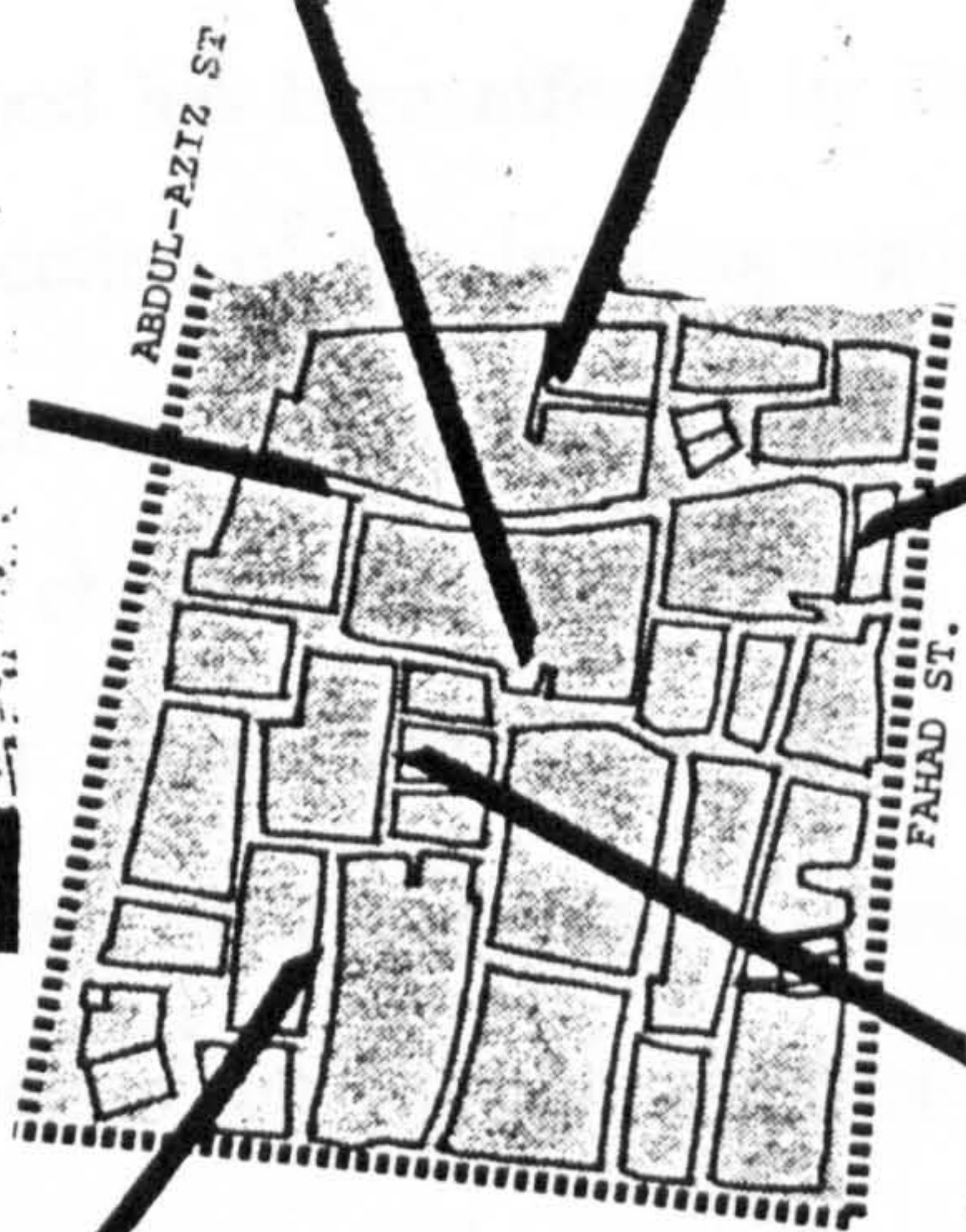
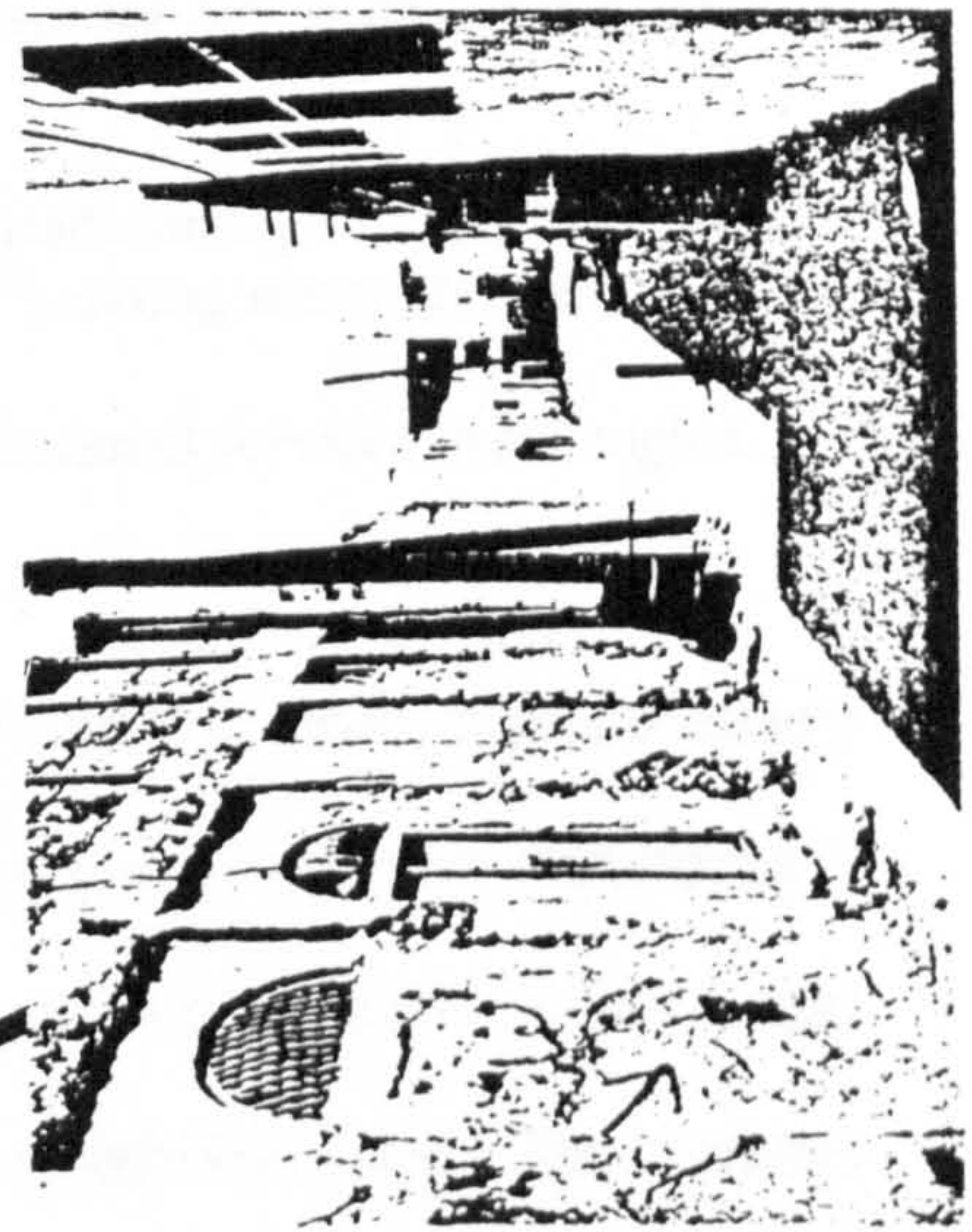
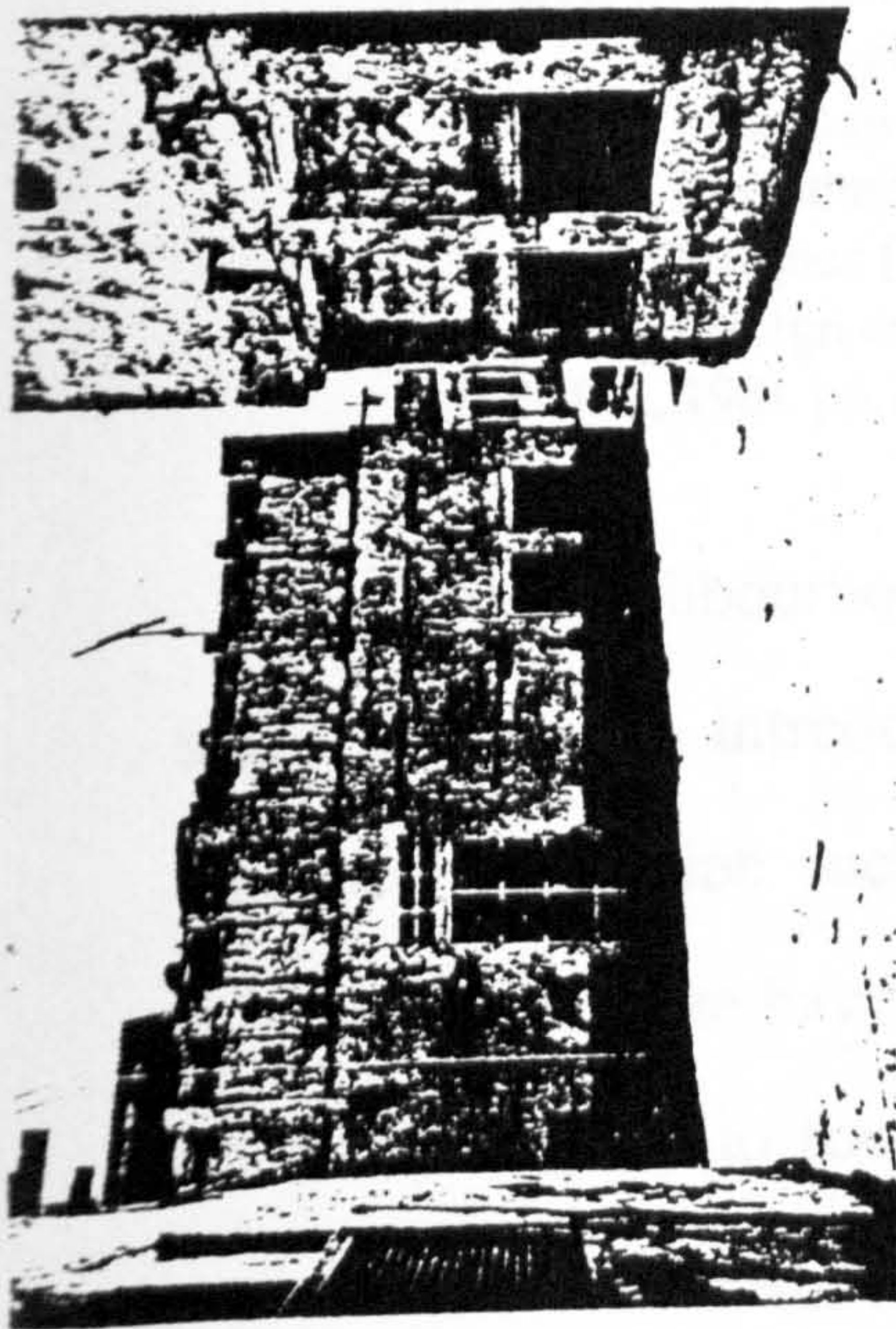
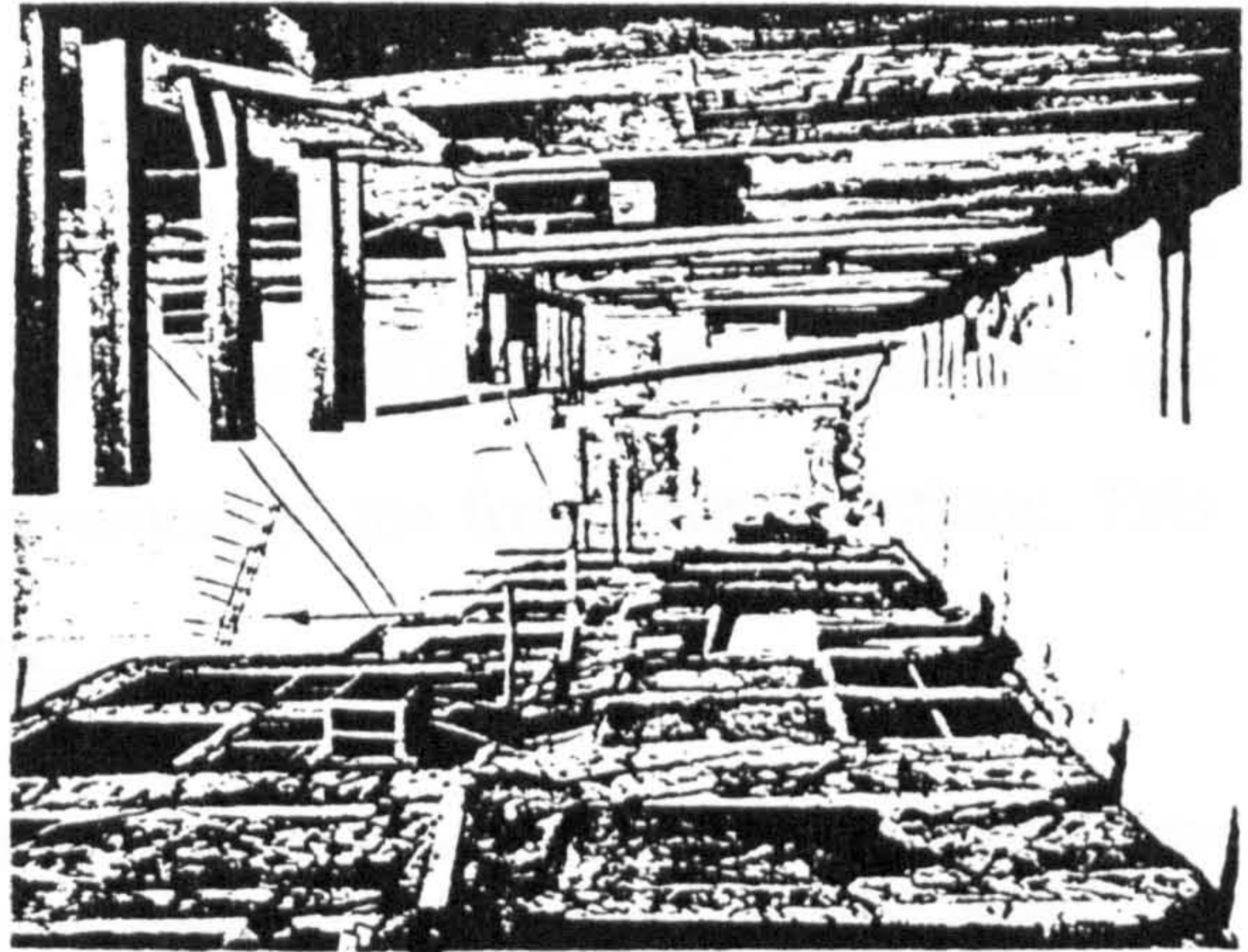


figure 9.12 Al-Dawaser west neighbourhood, street, and house in 1973.
source: after Candilis-Metra (1976).

9.2.4 The contemporary stage

This stage started as early as the 1370's/1950's parallel to the consolidate stage. The result is dividing Dammam into two different urban patterns: the traditional core area, surrounded by the contemporary one from four directions. This change has been described by MOMRA (1981) report as:

Prior to 1370/1949, lands was distributed at no cost by the Emir. As of 1370/1949, lots could be put up for sale and could be bought without constraints. Individuals could either develop a single house or a number of dwelling clusters which they could then sell.....

The introduction of Western model of institutions and organization caused some radical transformation in the Dammam urban environment. Dammam, throughout the 1940's and 1950's, had remained relatively compact city. In the 1960's, four new urban design features appeared which were:

- a) wide boulevards and venues;
 - b) suburban or satellite developments beyond the traditional perimeter of the city;
 - c) free-standing villa models, as well as "modern" building materials and techniques (cement and ferroconcrete frame);
 - d) foreign engineers and architects providing professional services in the region,
- (MOMRA, 1981 pp.24-6)

The neighbourhood has been affected by Dammam's overall contemporary stage, mainly the introduction of new building regulations and the new technology. The new regulation such as building heights and the use of concrete blocks and reinforced concrete have changed the appearance of the neighbourhood. New houses are built with up to four stories, and old houses are maintained using cement and cement bricks instead of sea stone and gypsum mortar. The effect of new technology is through the introduction of, for example electricity, telephone, television, and car. The neighbourhood open spaces and streets are filled with wires and generators resulting in a different appearance than it was. The sky line is dominated by television antennae instead of mosque minarets and palm trees. Most importantly, most of the houses have to be demolished to make space for the car circulation and parking, (fig 9.13). These actions are supported by the migration of the old residents to new neighbourhoods in the city. The current residents are mostly Asian workers who are attracted to Dammam job opportunities, the neighbourhoods' proximity to the city centre, and the cheap rents rates in this neighbourhood, (fig 9.14,15,and 16).

1991



figure 9.13 Al-Dawaser west neighbourhood existing condition.
Source: authors' survey.

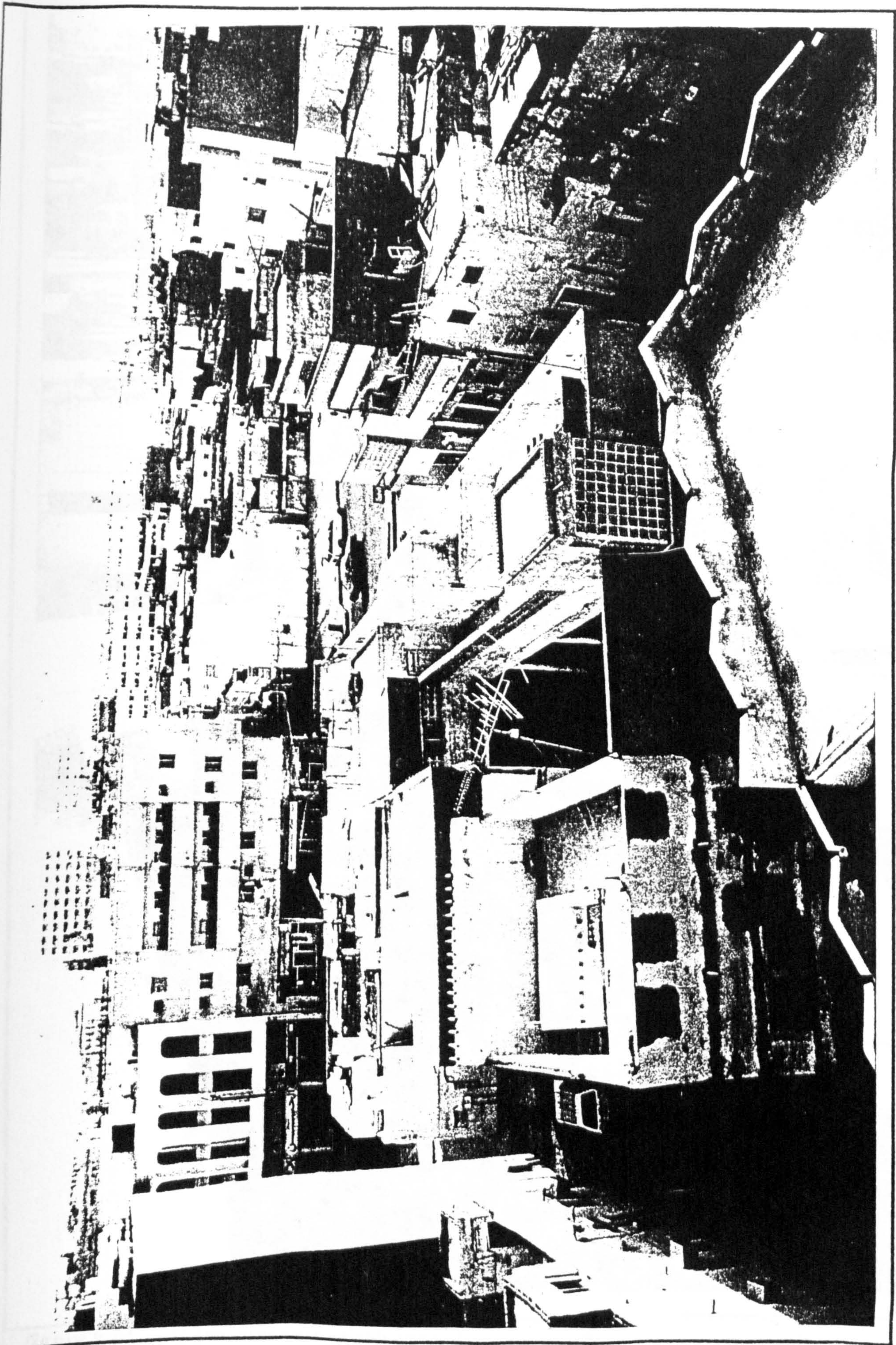


figure 9.15 Al-Dawaser west existing condition of the house.

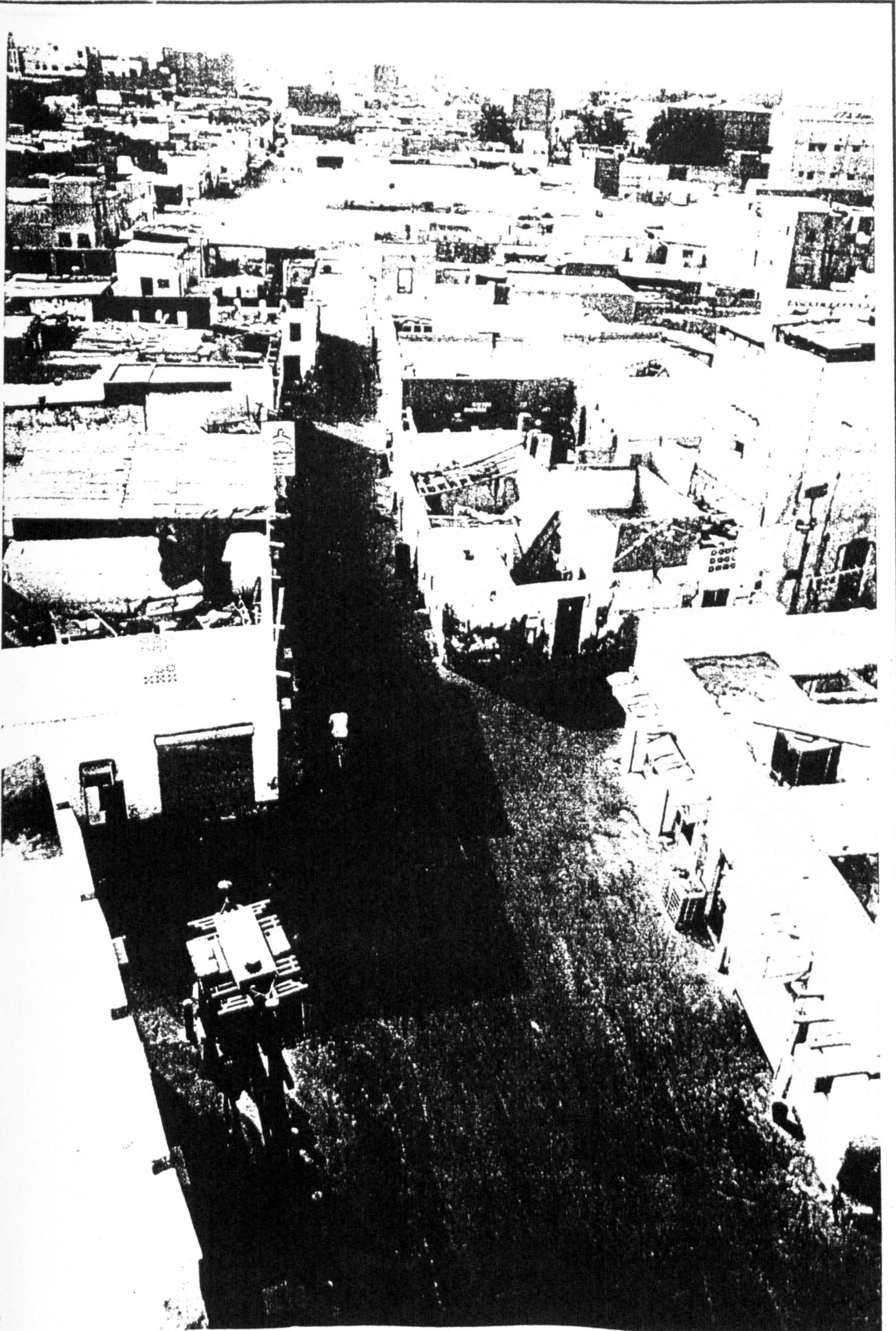
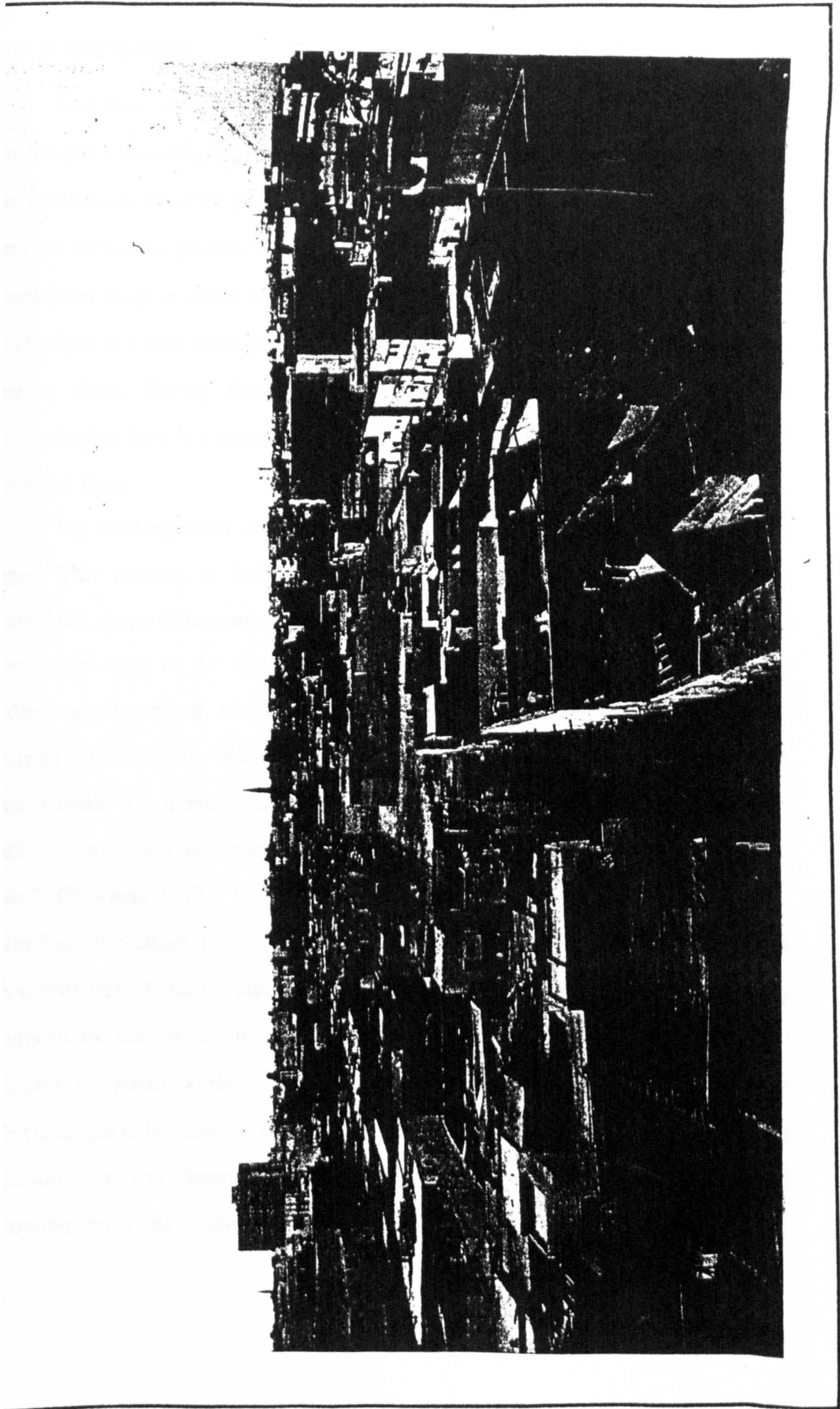


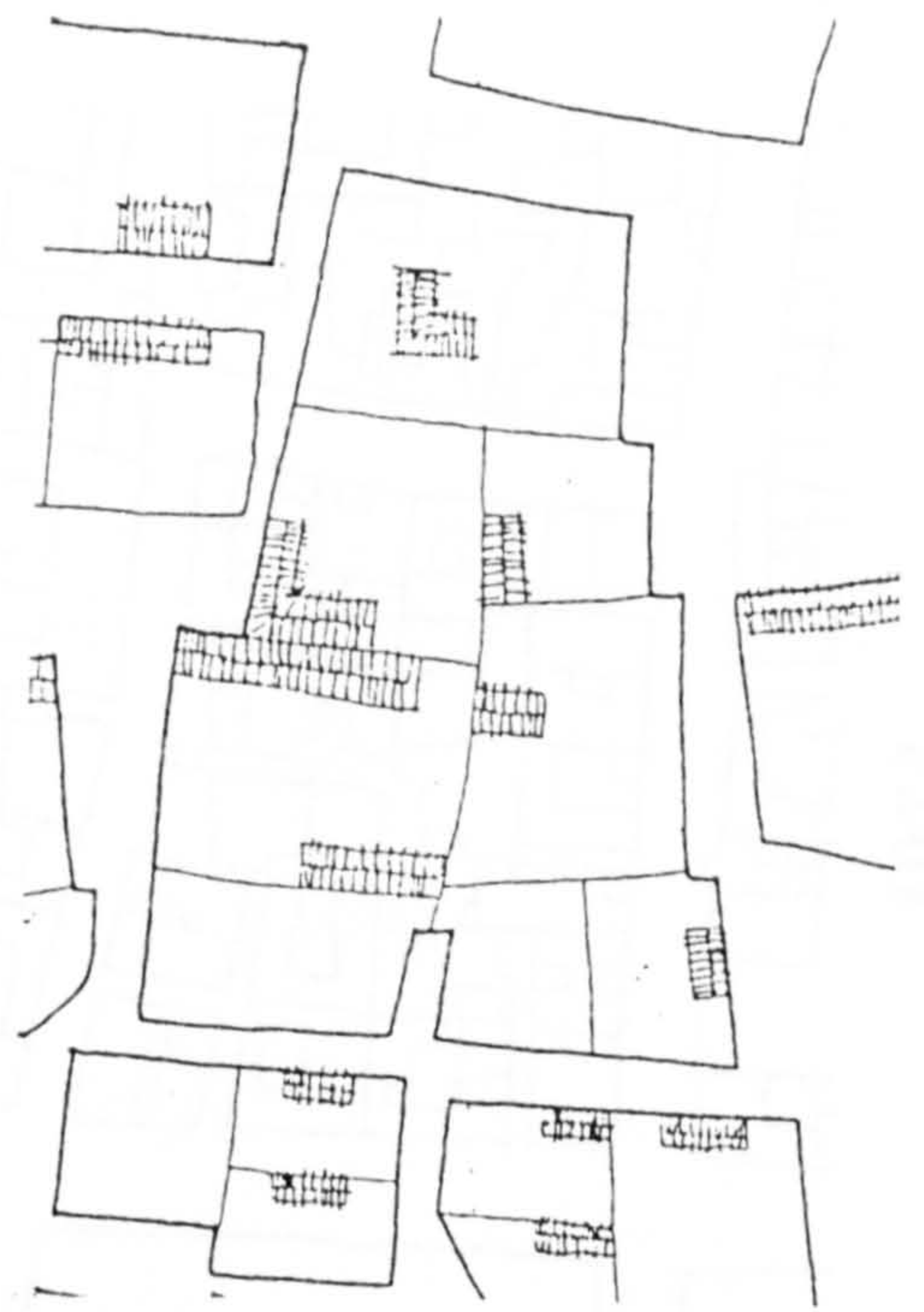
figure 9.14 Al-Dawaser west neighbourhood existing condition.



9.3 FINDINGS

Dammam core area is considered as a useful example of the traditional Arab-Muslim built environment *territorial behaviour*, and formation and transformation. The availability of aerial photos of the core area reduced the amount of speculation about its formation process. The city has passed through the *primitive* stage into the *transitional* stage in about two decades. Its *consolidate* stage lasted for only twenty years which is a very short period in comparison to the usual centuries in other Arab-Muslim cities. During these stages the traditional built environment and its accompanying laws is a representation of the residents dynamic territorial behaviour in a given time.

The *contemporary* stage was in parallel to the *transitional* and *consolidate* stages. This resulted in freezing Dammam's traditional urban pattern into early *consolidate* stage. Dammam's traditional urban pattern is a representation of the early *consolidate* stage of the Arab-Muslim built environment transformation. For the studied neighbourhood, one can easily say that its formation and transformation occurred following an "open-ended-design" approach. It started with a primitive street pattern which resembles the Hillier concept of "against enclosure", (Hillier 1985), transformed into *consolidate* stage following Newman's concept of "defensible space", (Newman 1972). Today one of the problems of the neighbourhood is the technological changes, and its residents' socio-cultural and economical changes. The users/designers of the neighbourhood have not predicted these changes. The main results are the mass demolition of the urban fabric, and the replacement of its original residents by Asian workers. The contemporary stage street pattern started with defensible space, became an "offensive space", ended by Hillier's proposal of "against enclosure" through demolition. The neighbourhood is formed and transformed following "*recycling of the city*" approach but not its applications.



1935



1947

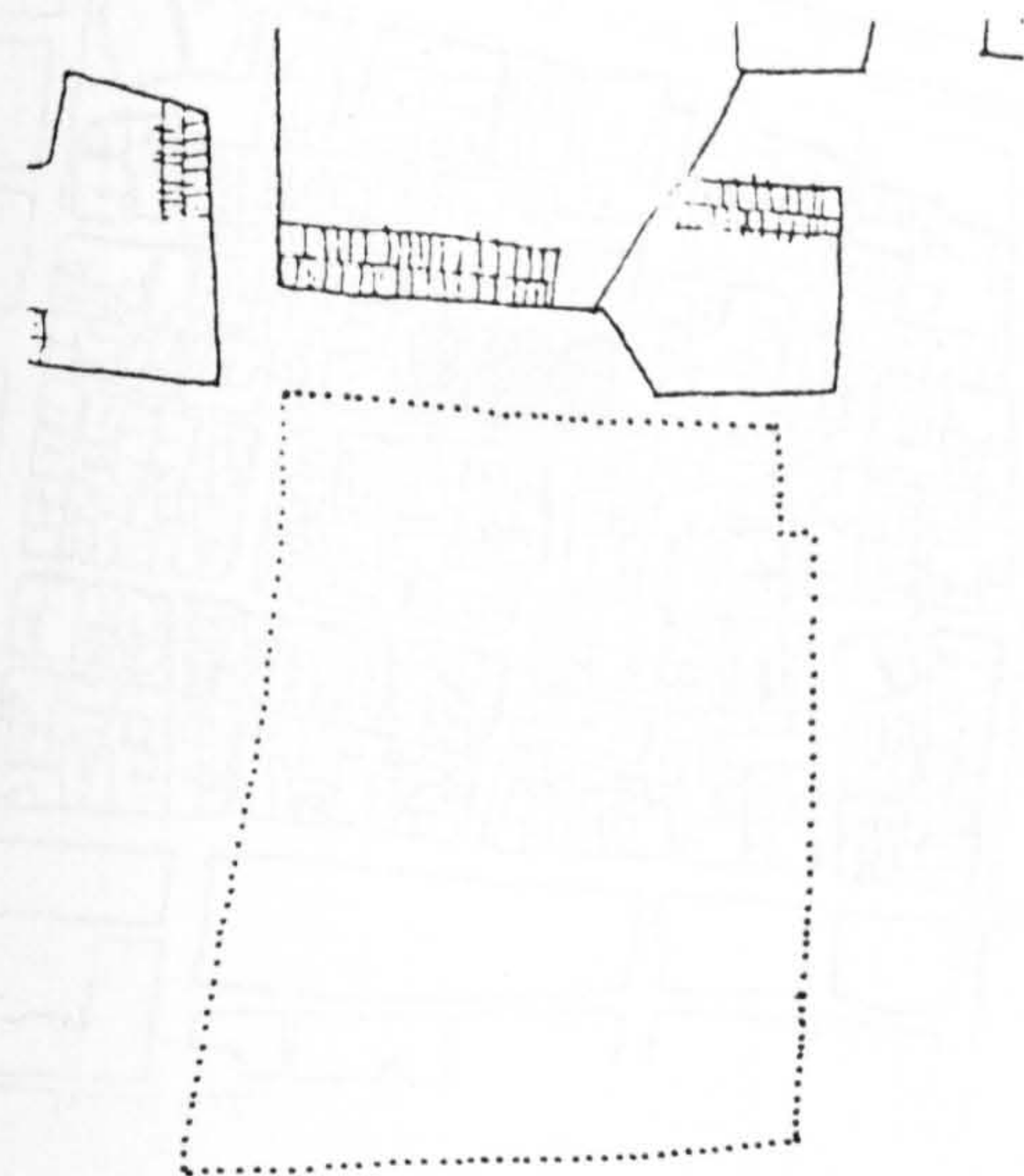


1973

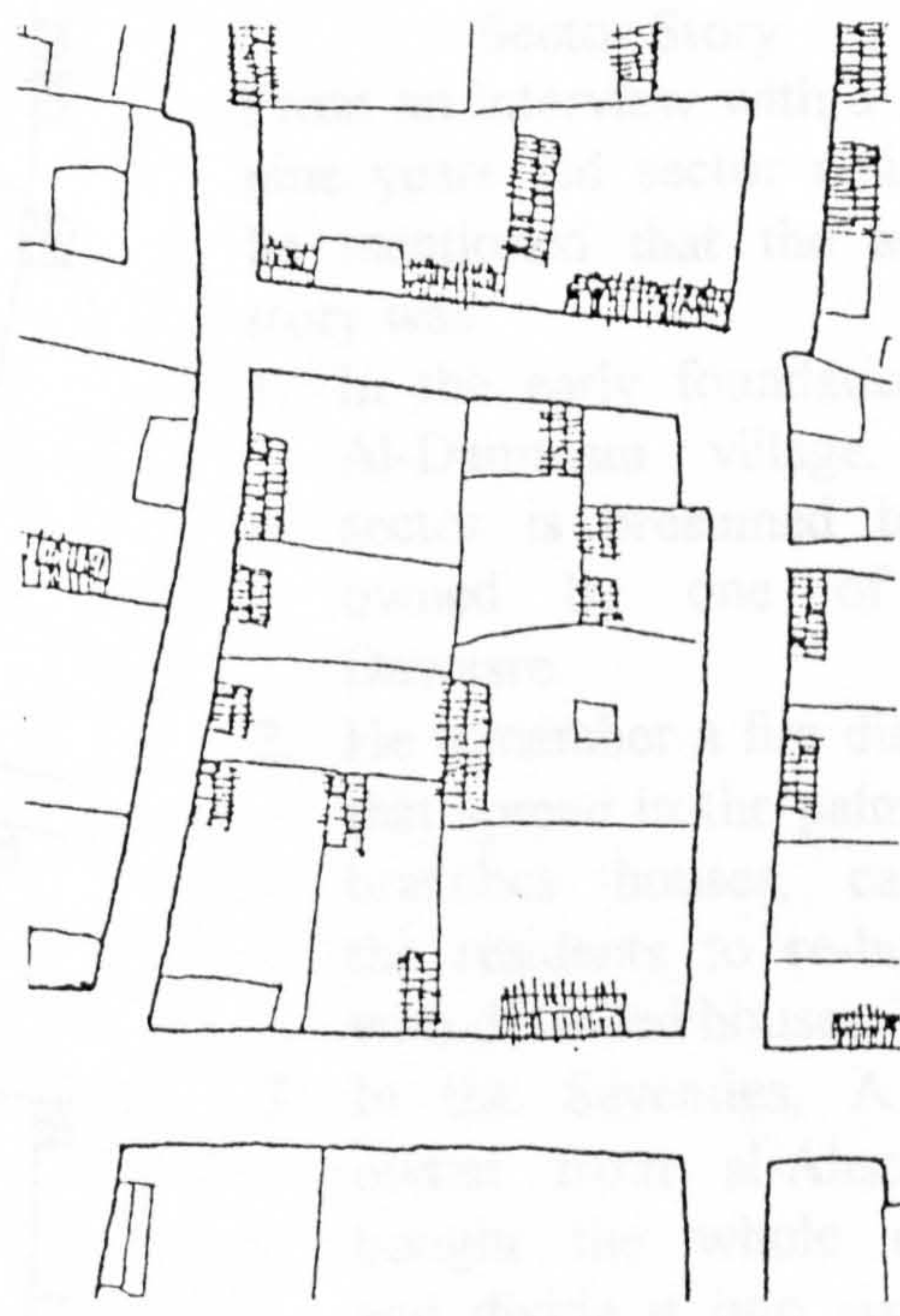
figure 9.17 Sector formation and transformation.



1935



1935

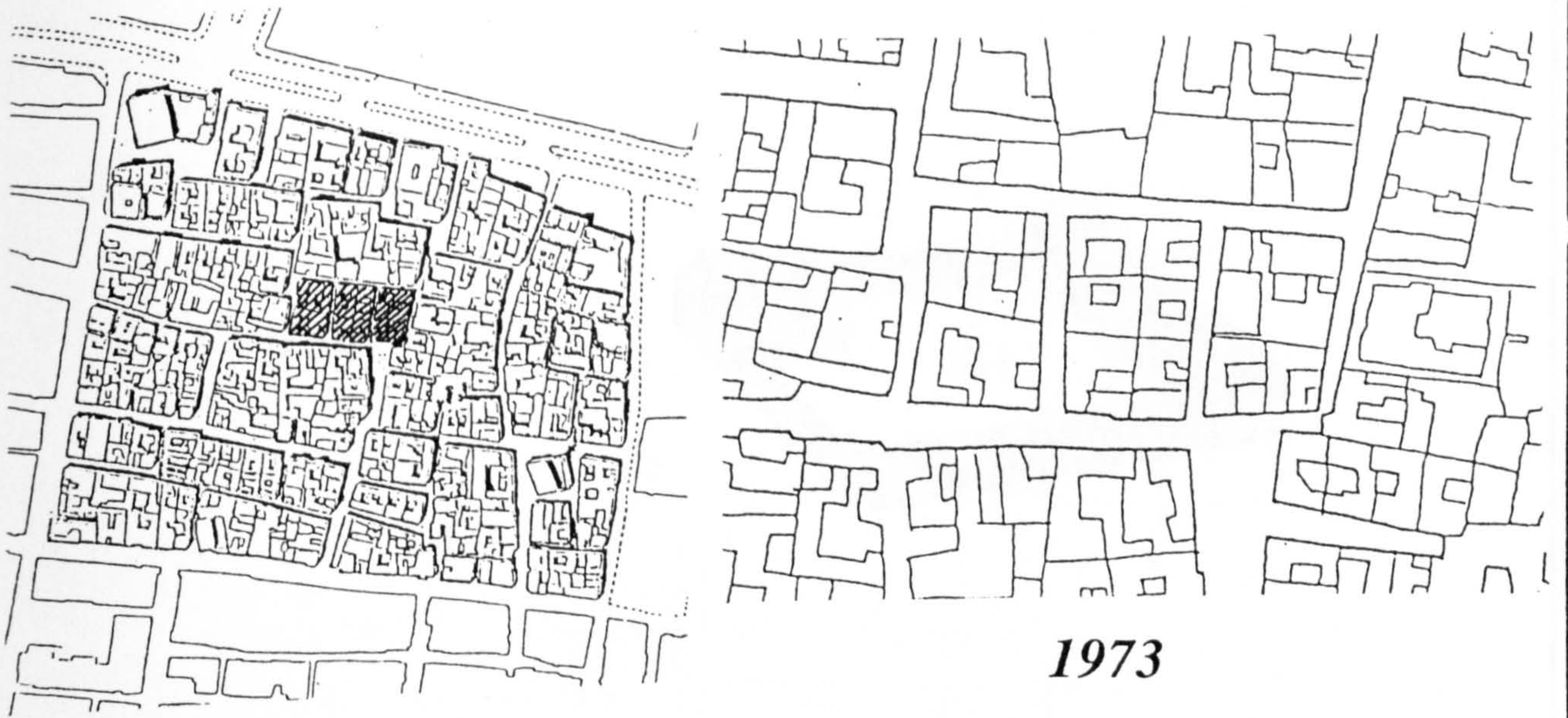


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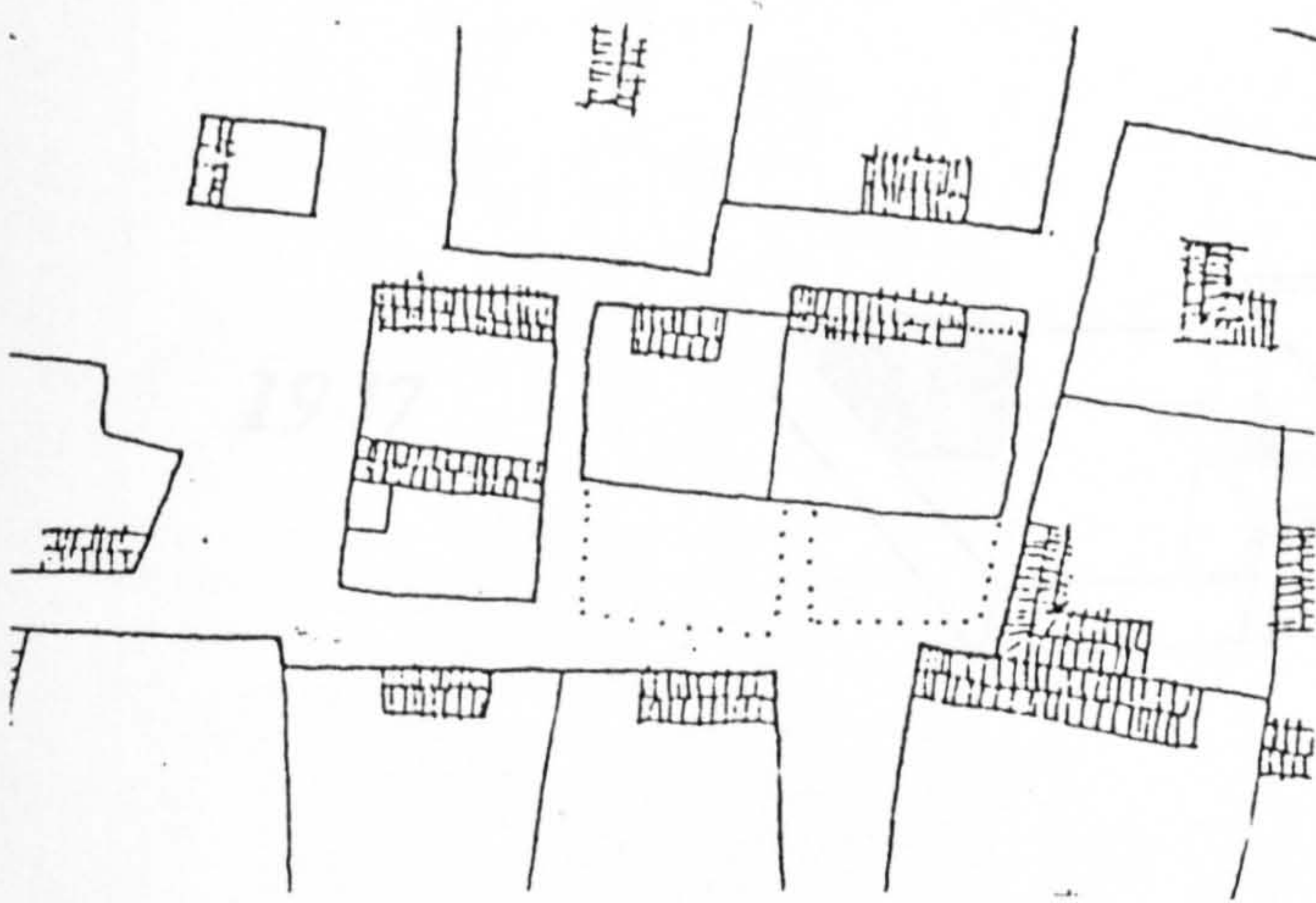


1973

figure 9.18 Sector formation and transformation.



1973



1935



1947

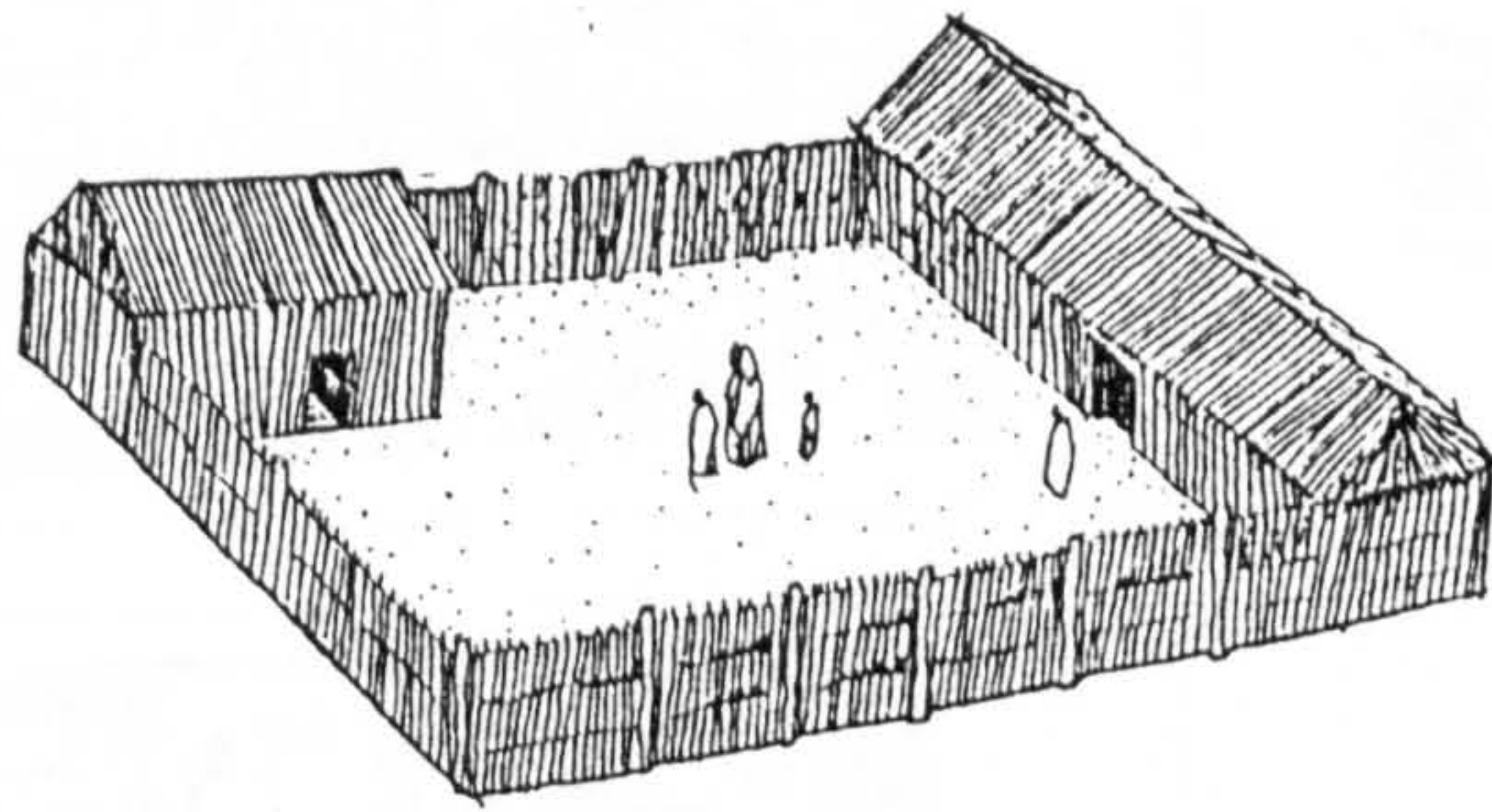
Sector Story

From an interview with a forty nine years old sector resident, he mentioned that the sector story was:

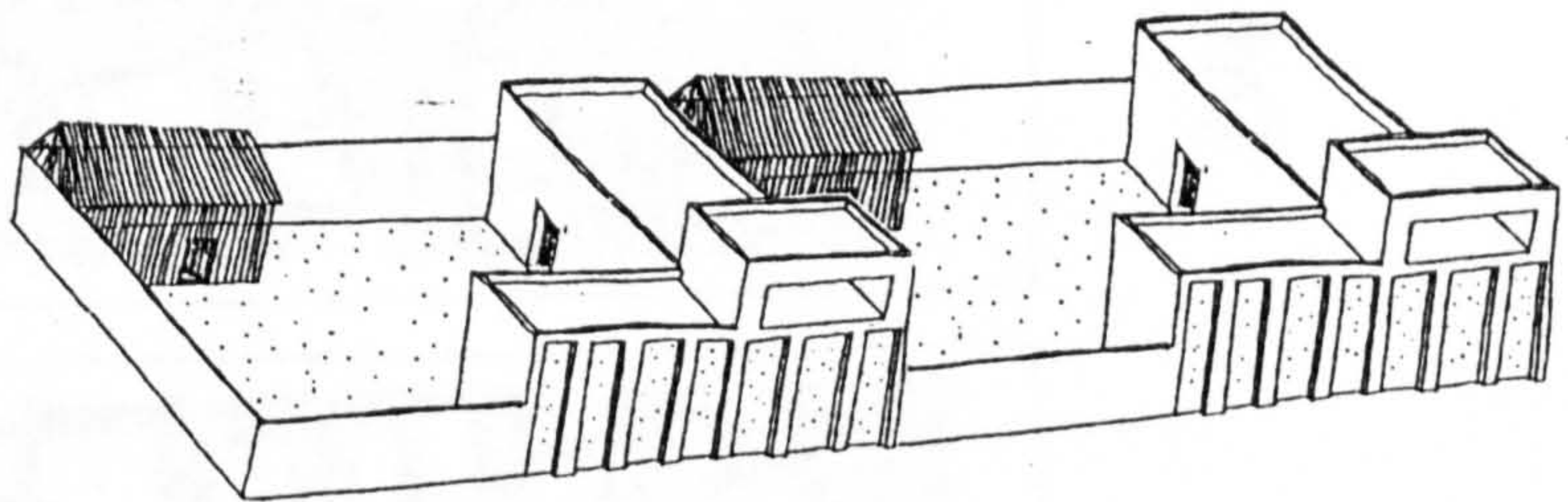
1. In the early foundation of Al-Dammam village, the sector is presumed to be owned by one of the Dawasre.
2. He remember a fire disaster that spread in the palm tree branches houses, causing the residents to re-built it with detached houses.
3. In the Seventies, A new owner from al-Ahsa has bought the whole sector and divide it into six lots. He sold some after rebuilding them again.
4. Now there are ten houses in the sector, one of them is an endowment for orphanages.

figure 9.19 Sector formation and transformation.

1935



1947



1973

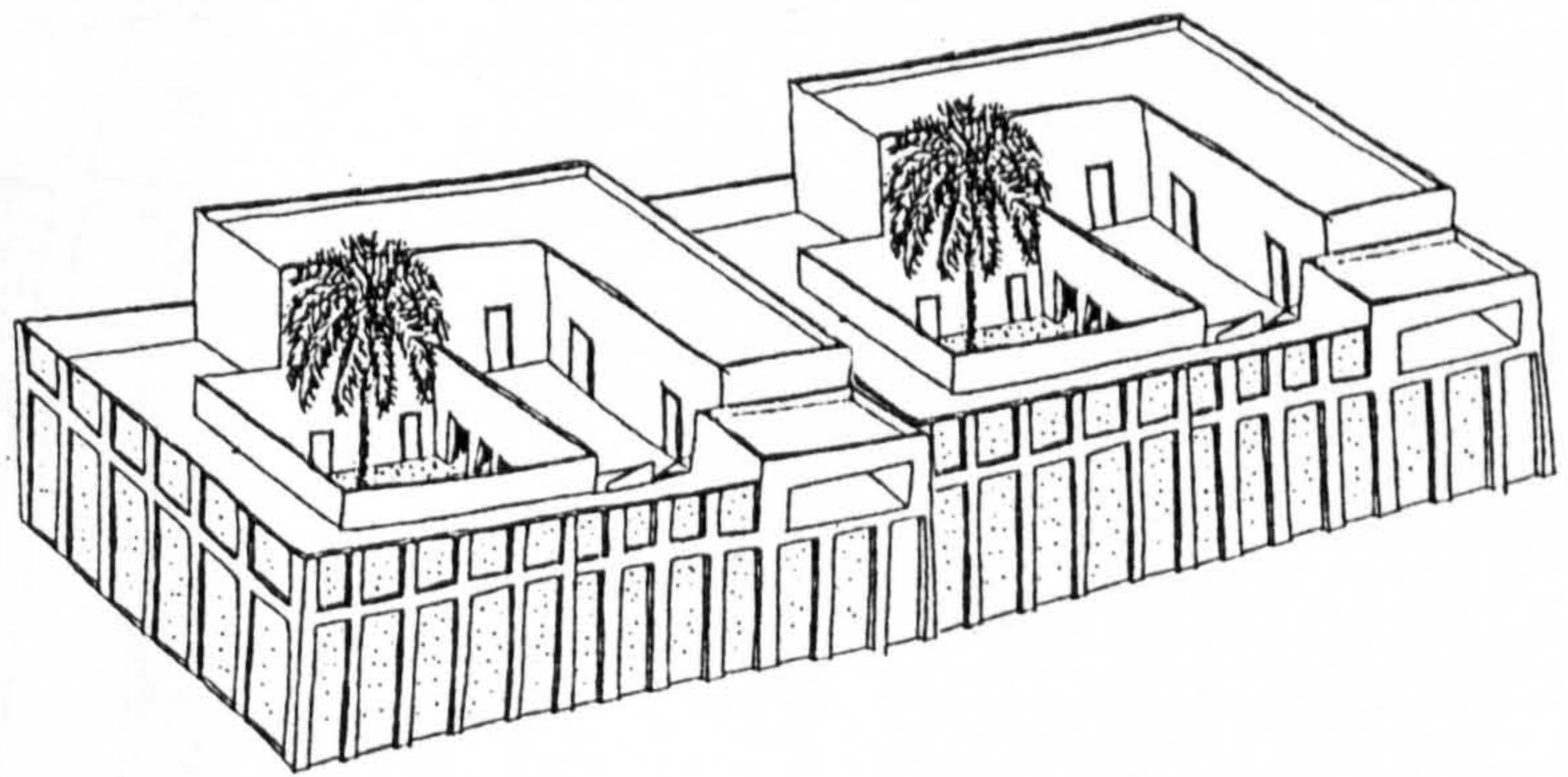
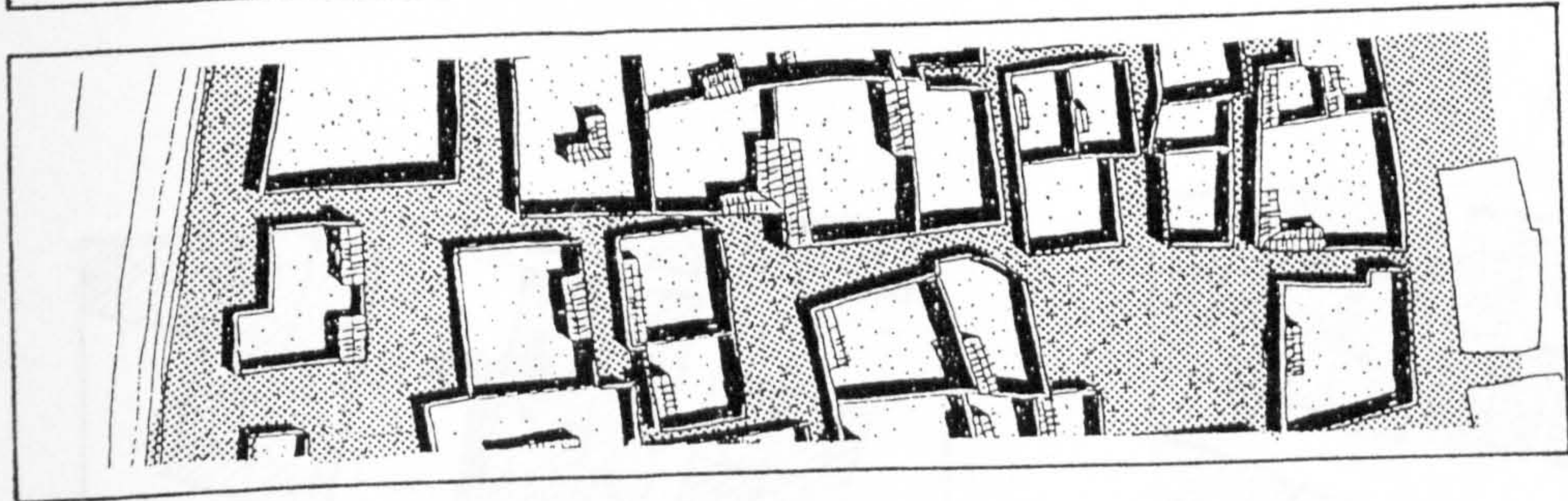
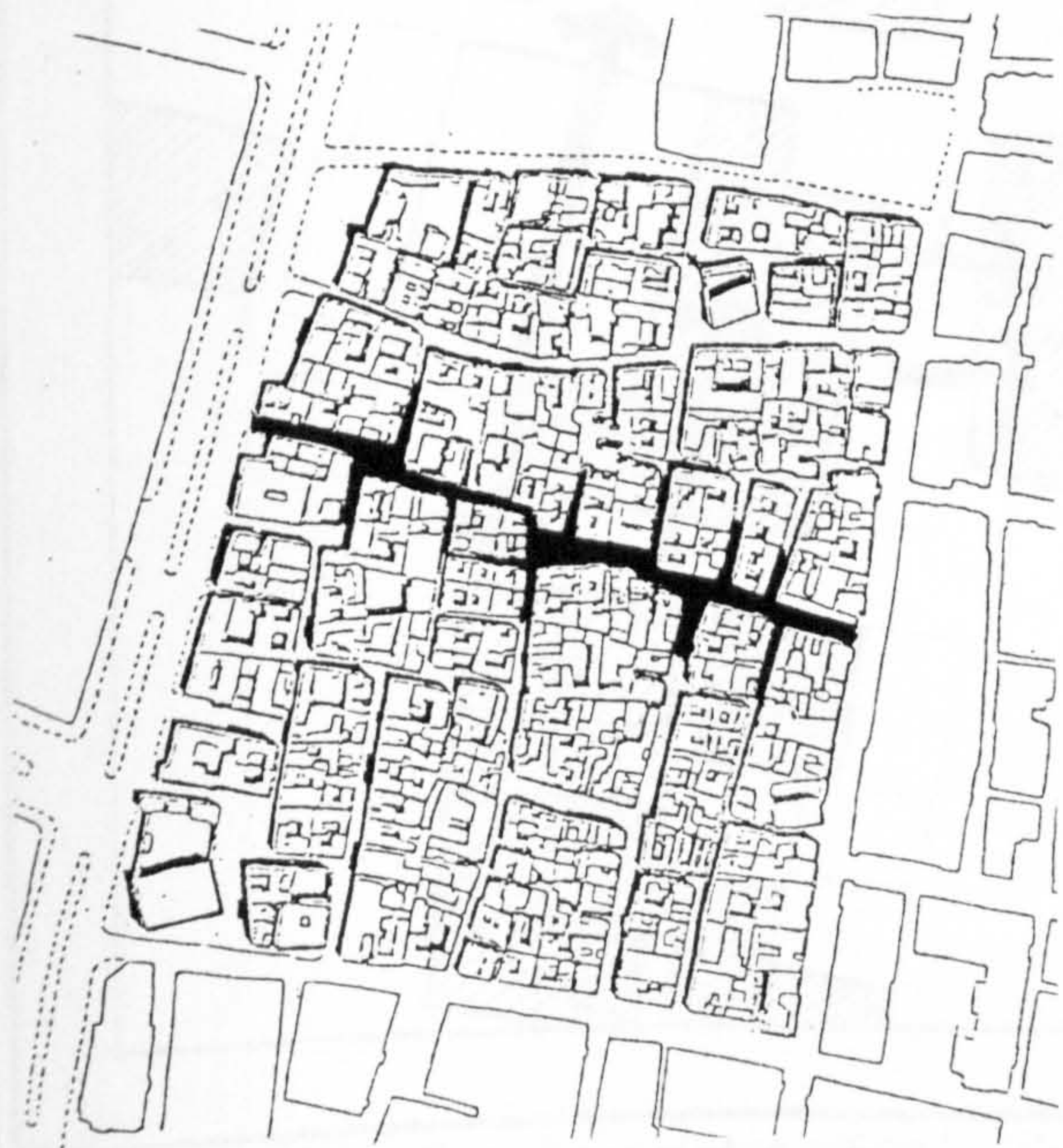
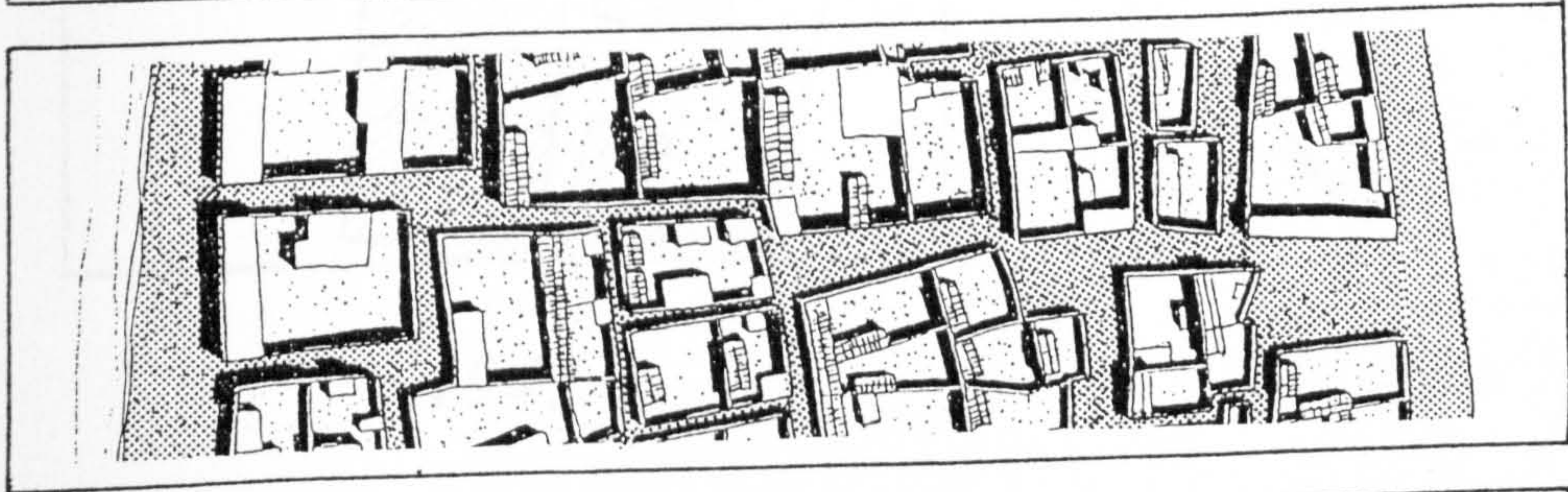


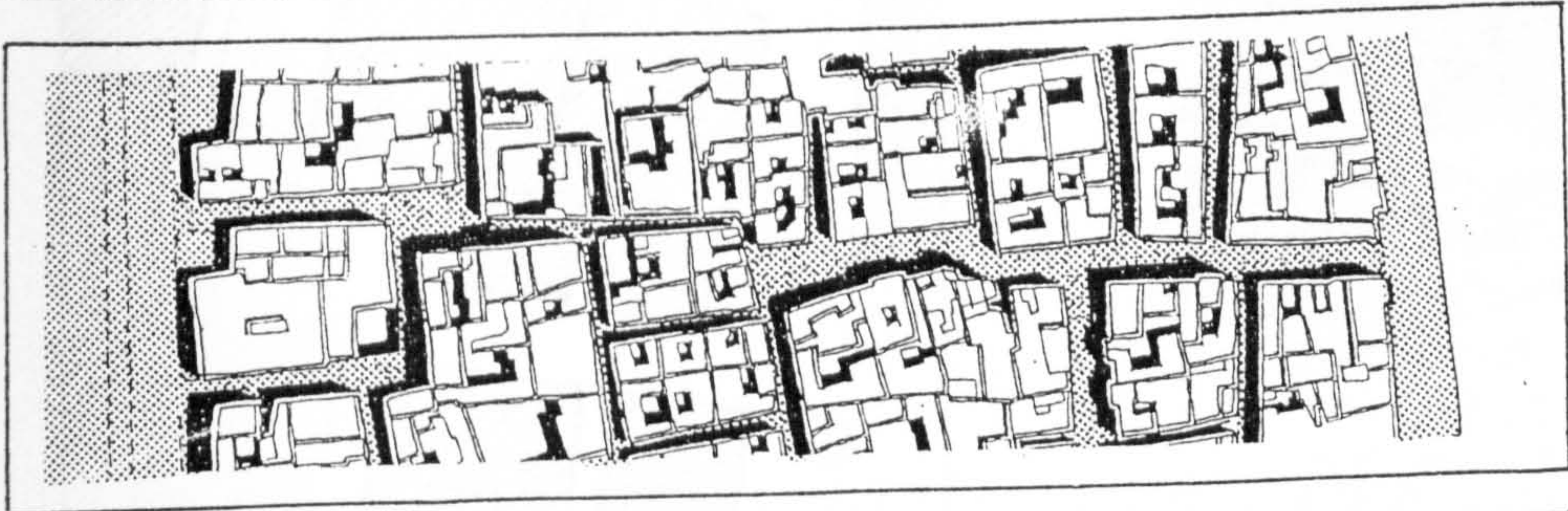
figure 9.20 Al-Dawaser west house formation and transformation.



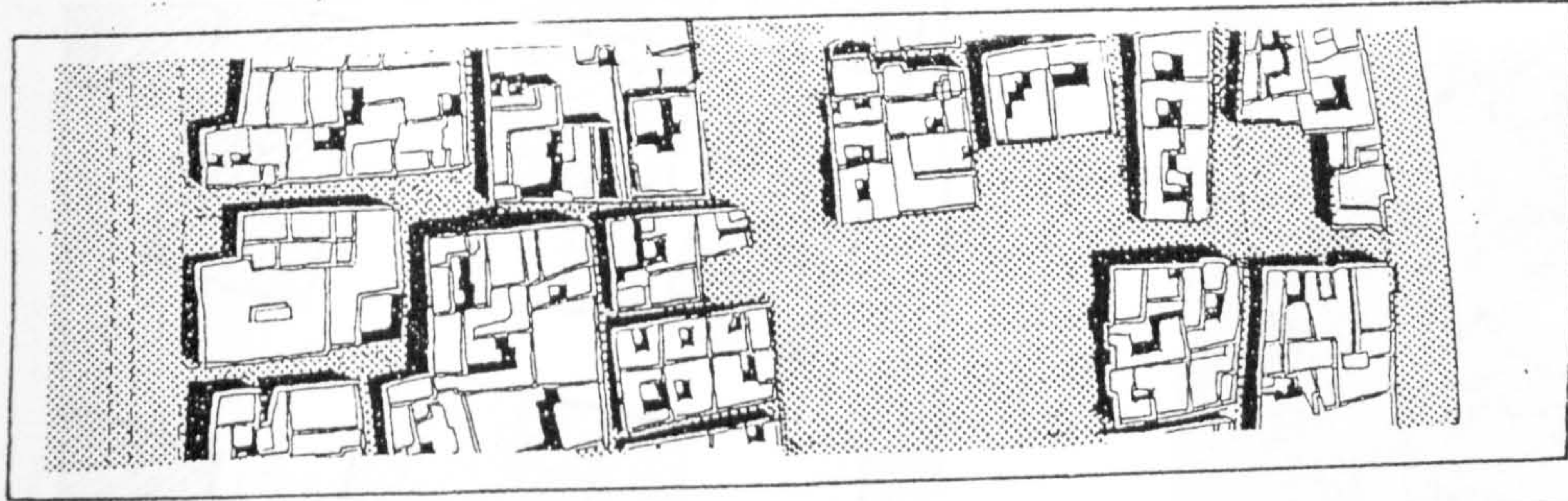
1935



1947

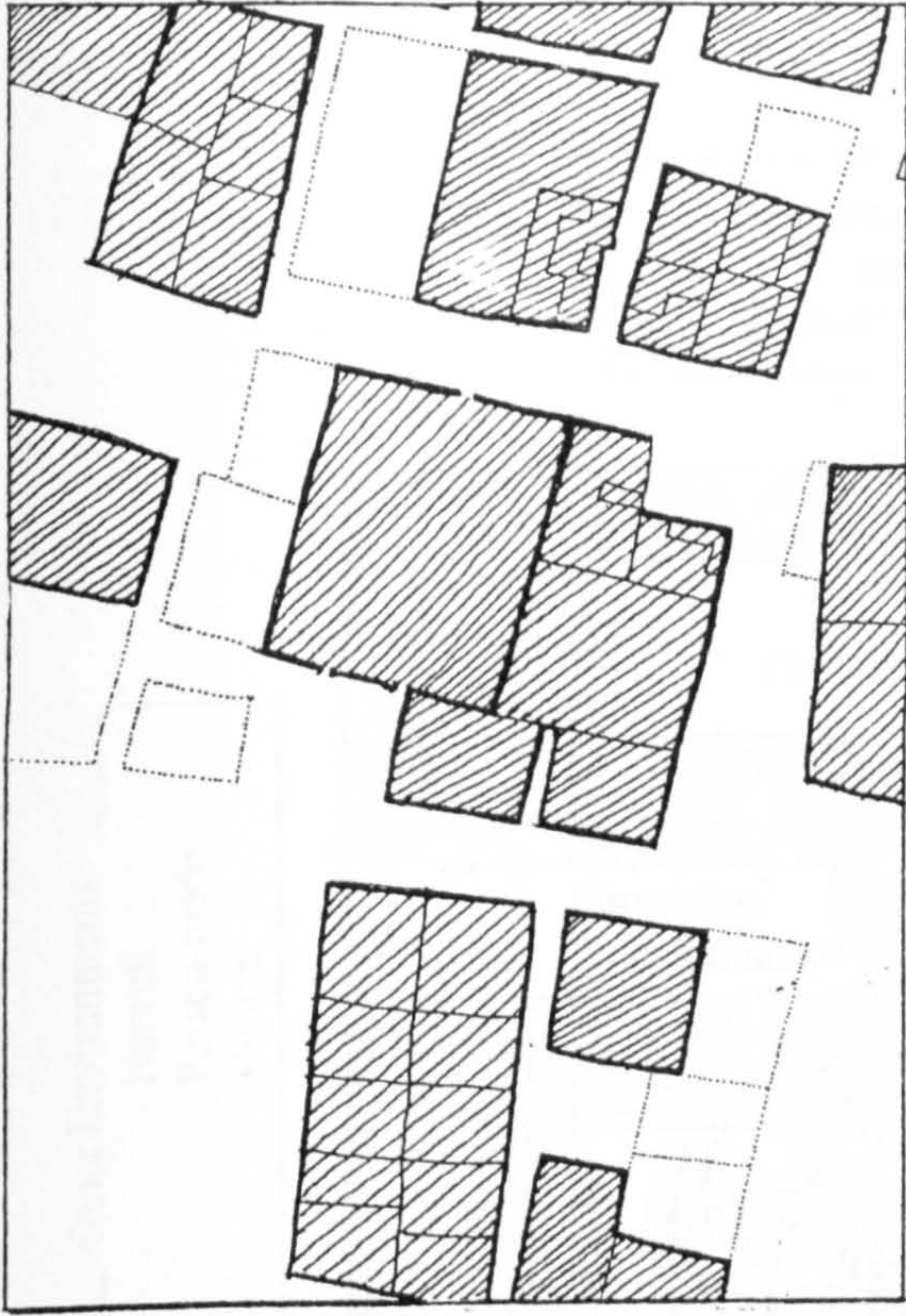


1973



1991

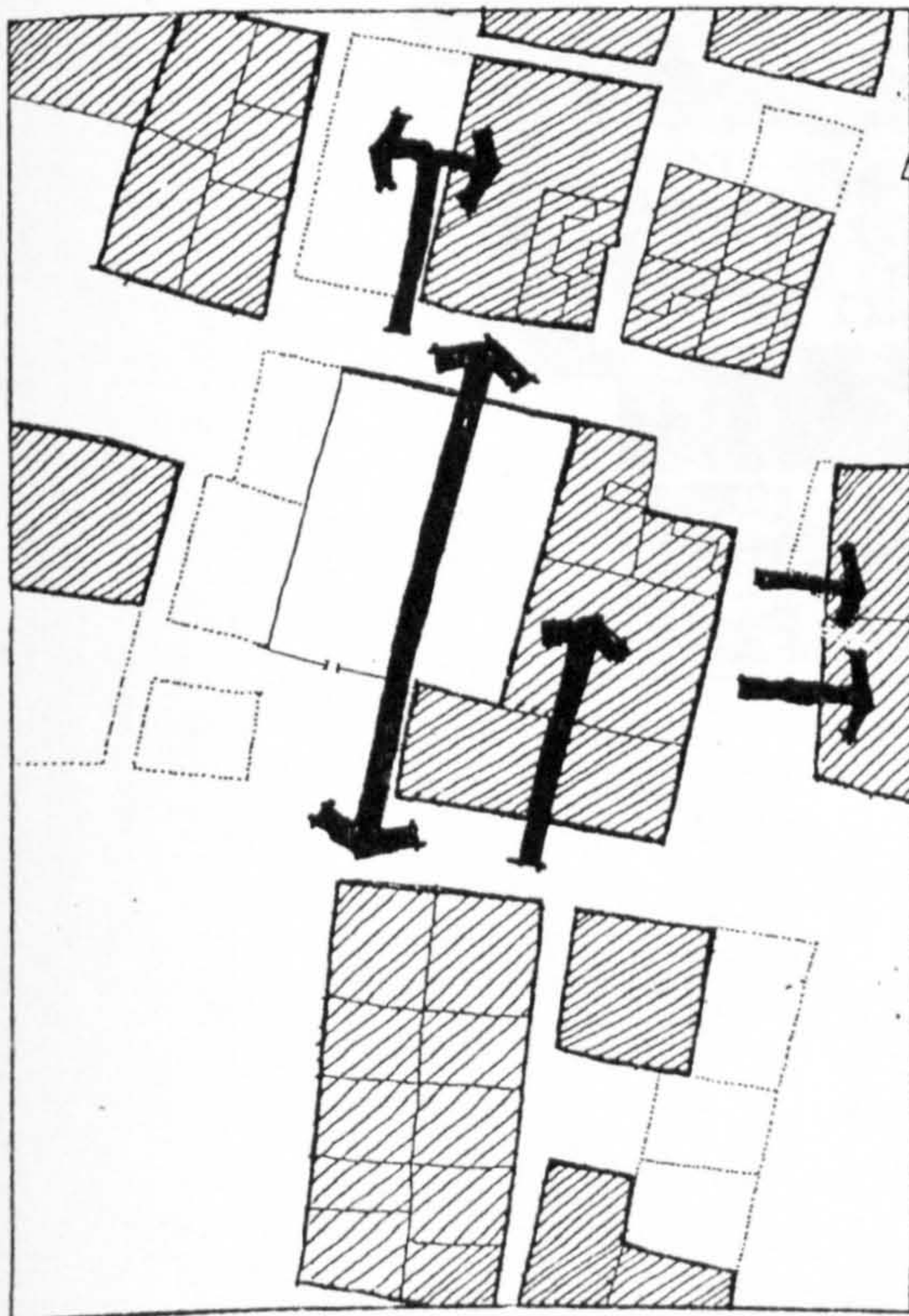
figure 9.21 Al-Dawaser west street formation and transformation.



1947



1947



1973

figure 9.22 Easement rights effect on Dammam street pattern.

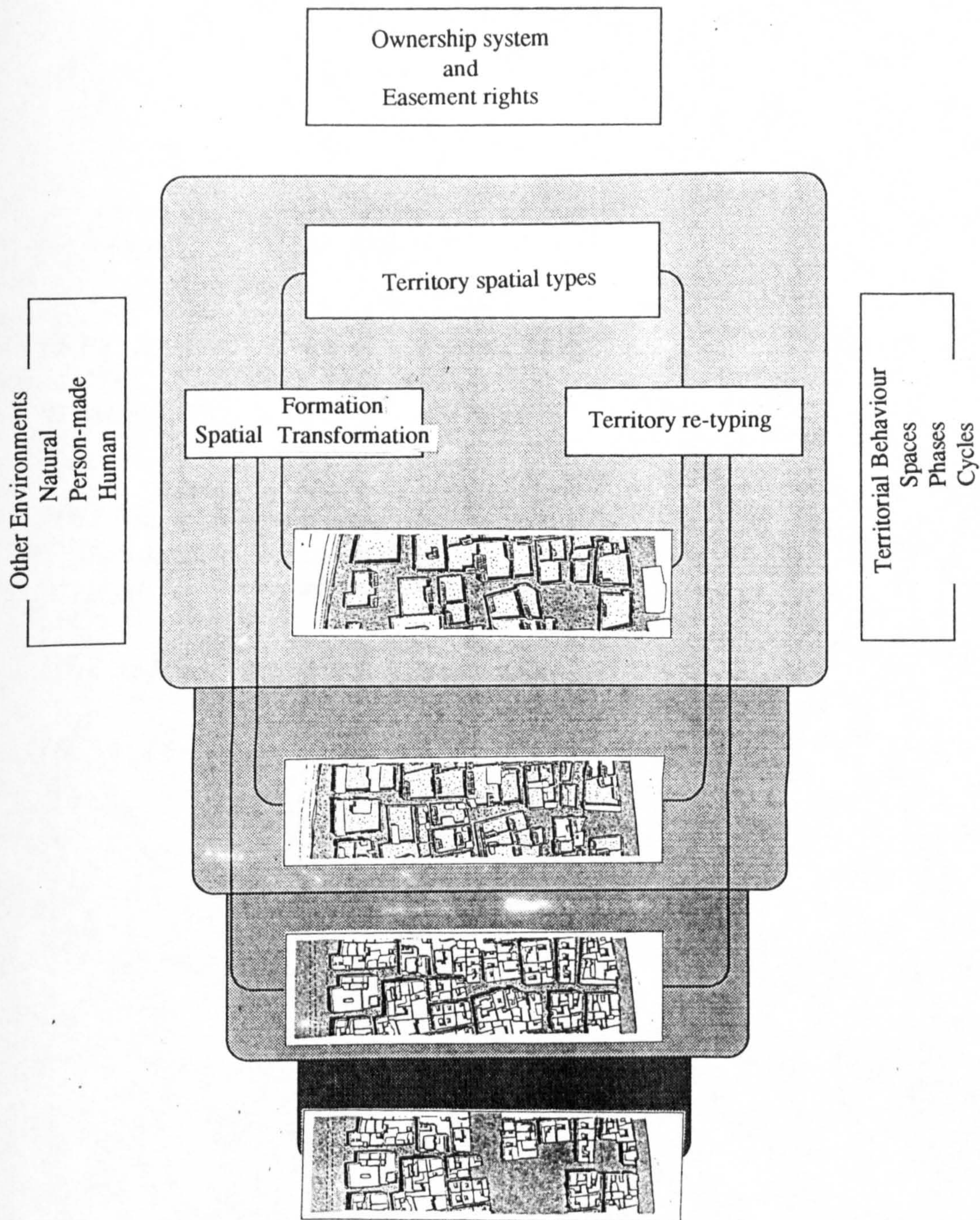


figure 9.23 Al-Dawaser west neighbourhood street formation and transformation: the primitive, transitional, consolidate, and contemporary stages. source: author.

CHAPTER TEN

THE CONTEMPORARY BUILT ENVIRONMENT AL-MALAZ NEIGHBOURHOOD RIYADH CITY

10.1 Building regulations of Al-Malaz neighbourhood

10.1.1 The written rules

10.1.2 The un-written rules

10.2 Al-Malaz neighbourhood territoriality

10.3 Findings

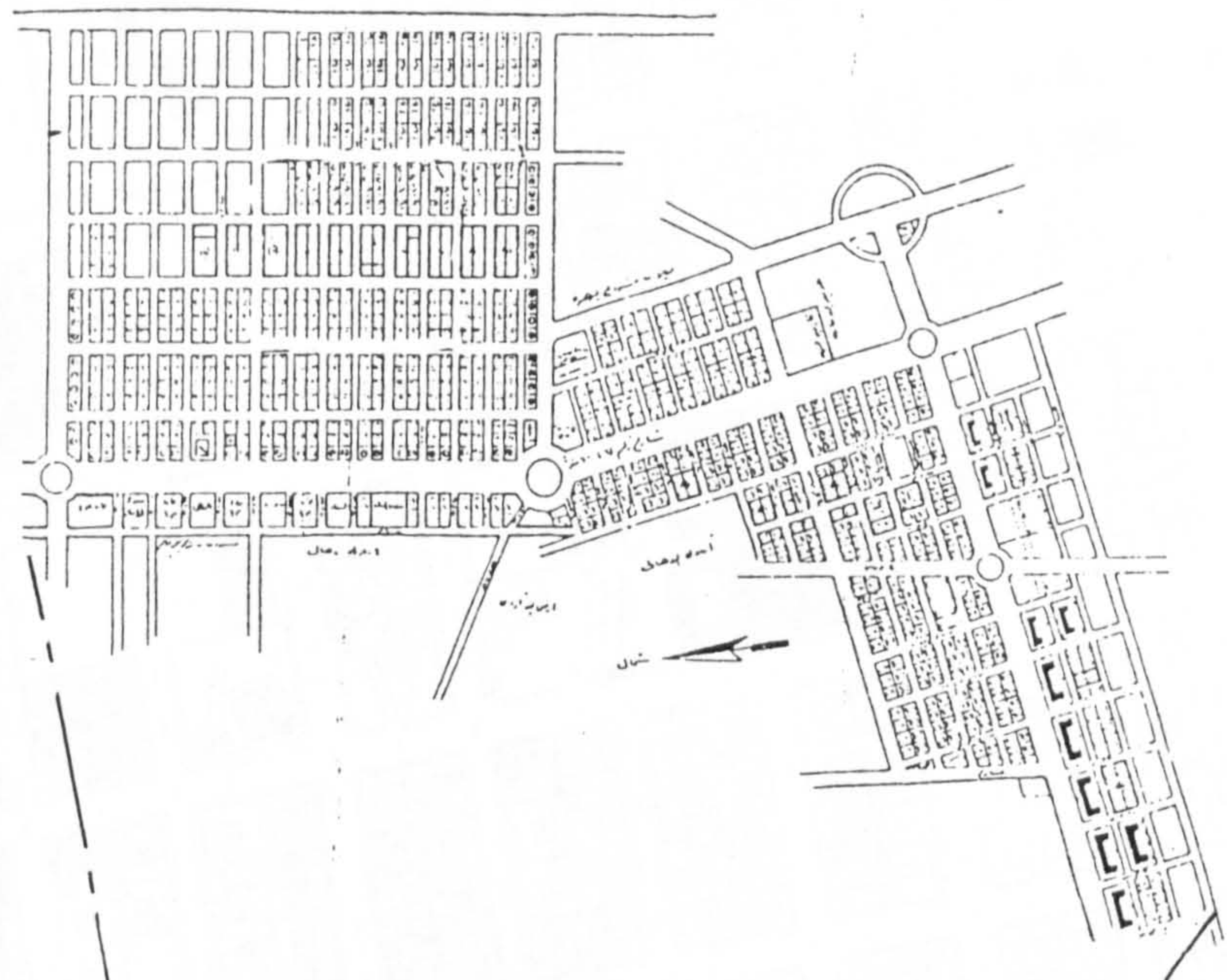
CHAPTER TEN
CONTEMPORARY BUILT ENVIRONMENT
CASE STUDY: AL-MALAZ NEIGHBOURHOOD, RIYADH
CITY

To show the new trends in Saudi cities planning and regulations, the Al-Malaz neighbourhood 4.5 km north east of Riyadh city centre is chosen, (fig10.1). This neighbourhoods' physical appearance and regulations formation and transformation represents a typical modern Saudi neighbourhood in any city.

The project was planned in 1373/1957 due to the moving of government head quarters from Makkah to Riyadh. It was intended to accommodate the transferred government workers and their families. The project was financed by the Ministry of Finance and consists of 754 detached dwellings units (villas) and 180 apartment units located in three buildings, (Faden 1983). Al-Hathloul (1981) considered Al-Malaz neighbourhood as "a model to be reproduced in future developments in Riyadh and elsewhere". He related this to the fact that: the project was sponsored by the government as an authoritative statement on how modern neighbourhoods should be; Al-Malaz was seen as a symbol of modernity in planning and building material in sharp contrast with the traditional; and the neighbourhood residents are part of the Saudi public and highly regarded by other segments of the society, (Al-Hathloul 1981).

Al-Malaz neighbourhood was planned following a gridiron plan with a hierarchy of streets, rectangular blocks, and large lots which in most cases are square in shape, (fig 10.2). The main thoroughfares are 30 meters in width, secondary streets 20 meters, and minor streets or access streets of 10 and 15 meters. The block areas are 100 50 meters. The typical lot size is 25 25 meters, with some variety of 25, 37.5, and 50 meters in width and 25 meters in depth. The neighbourhood density target was 60 p/h, and the built up private areas was 53% served by 45% public areas.

استعمال الارض 1977
LAND USE 1977



Riyadh, Government Employees Housing
Housing Project (Malaz Public Housing, General
lay-out.
Source: Department of engineering, Ministry
of Finance and National Economy.

figure 10.1 Al-Malaz neighbourhood location.





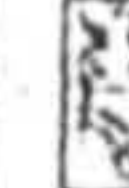
- 
 متلاصقة تقليدياً
 Traditional Attached
- 
 متلاصقة
 Attached
- 
 مختلطة متلاصقة ومتلاصقة
 Mixed Detached with Attached

figure 10.2 Al-Malaz neighbourhood location.

10.1 Building regulations of Al-Malaz neighbourhood

After Al-Malaz foundation in 1377/1957, the Saudi cities in general and Riyadh in particular experienced the formulation of the contemporary planning and building regulation. The Al-Malaz neighbourhood foundation occurred as a physical representation of how the ideal planning should be from the government point of view. After its construction was finished, the neighbourhood became a model for the Saudi neighbourhood. The regulations are divided by the thesis into two parts: the written rules, and the un-written rules.

10.1.1 The written regulations

1357/1937 Statute of the Makkah Municipality and Municipalities which was issued under the order No. 8723, and stated:

The municipality of Mecca [Makkah] and [other] municipalities are [the bodies responsible] for the supervision of the towns' organisation, their beatification, and the work needed to result in their having an enhanced scenic setting. [The municipalities also] have the authority of general supervision for the public interest and for the betterment of utilities and services according to the limits stated in this statute, (, Al-Anzimah, vol. 1, p. 11, Cited in Al-Hathloul 1981).

1358/1938 : Kings' Abdulaziz's order to found Al-Khobar city, (Al-Subaii, 1987, pp.146-7)

1360/1941 Roads and building statute was prepared by the administrative console of Makkah municipality. Articles of this statute stated :

It is not permitted to use any building in the residential area as a shop or workshop for any purpose related to marketing or any malodorous craft.

It is not permitted to use any building in the markets and bazaars as a workshop for any malodorous craft.

It is not permitted to use residential buildings as substitute for public buildings and vice versa...

It is not permitted to construct any building, be it temporary or permanent, in these districts except with a clear written permission from the building authority, (Nizam al-Turuq wa al-Mabani, pp. 5-6, Cited in Al-Hathloul 1981, p 193).

For the different buildings set back requirement the statute, article 24 introduced these instructions:

It is permissible for the building authority to establish a building line with a maximum of fifteen meters from the organisation line [the street limit], on the condition that establishing such a line would in no way prevent the construction of buildings that are suitable for the status of the district.

When building line is established in any residential district, then no building should be erected beyond this line, except for the fence.

When a building line is established in a street or in a part of a street related to markets and bazaars, then no building could be erected beyond this line, except for arcades and balcony projections.....(Nizam al-Turuq wa al-Mabani, Article 24, pp.9-10, Cited in Al-Hathloul 1981, p.193)

Concerning the size of the lot and its dimensions, article 28 stated:

It is not permitted to erect dwellings on any lot from land designated for building inside any new district unless it complies with the following conditions:

(a) that the area of the lot from land designated for building is not less than 175 sq. cubits [98.45 sq. m.] according to the decision of the building authority.

(b) that the dimension of the lot's frontage width on any street is not less than one-third of the lot's length perpendicular to that street, and it should in no way be less than nine meters or twelve cubits.

(c) the conditions stated in paragraph (a) of this article do not apply to any lot in market or bazaar districts if it is not used as a room or a building for human habitation.....

(d) the building authority does not have to adhere to either all part of the conditions stated in paragraph (a) of this article.(Article 28, p.11, Cited in Al-Hathloul 1981, p. 194).

For the right of way, the statute recognises the need for widening some of the existing streets and stated:

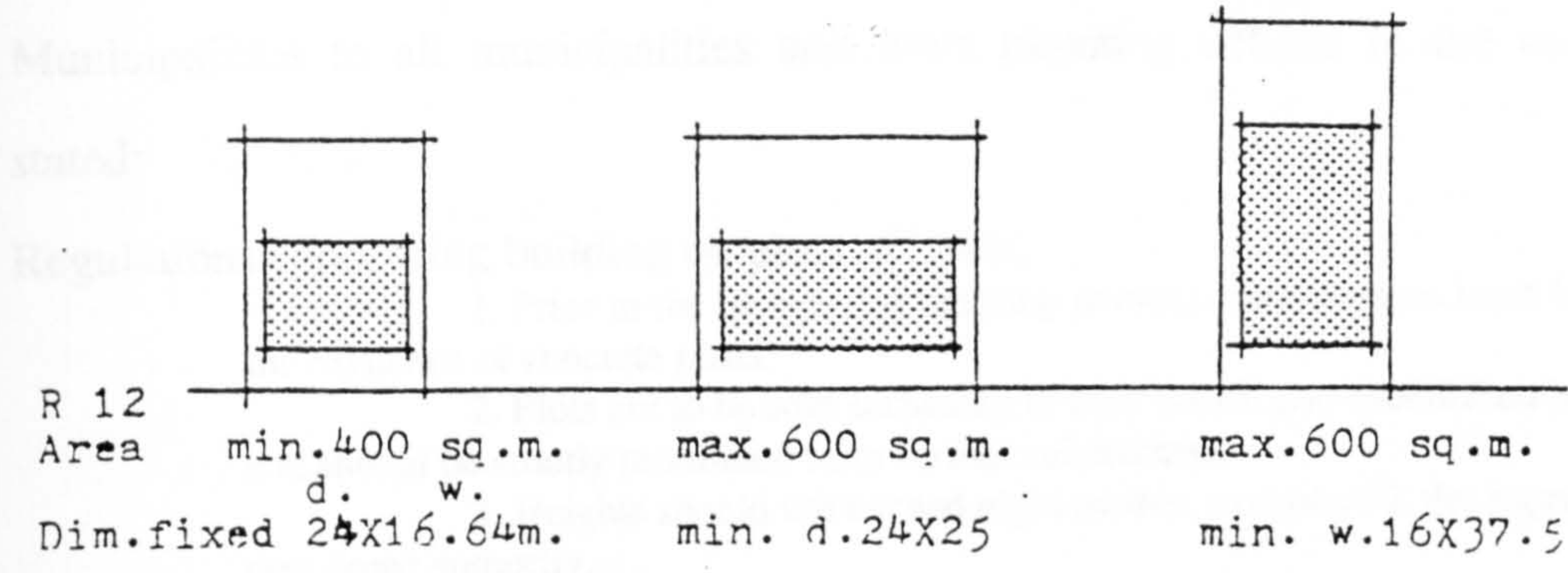
The straightens of roads and their design are to be designated according to the map.....(Article 7,p.6, Cited in Al-Hathloul 1981, p194)

Roads are to be planned according to the approved design, on the condition that this design be gradually implemented either when reconstructing dilapidated buildings or when constructing new ones. To be exempted from this are buildings whose removal is required by the public interest...(Article 8, p.6, Cited in Al-Hathloul 1981, p.194).

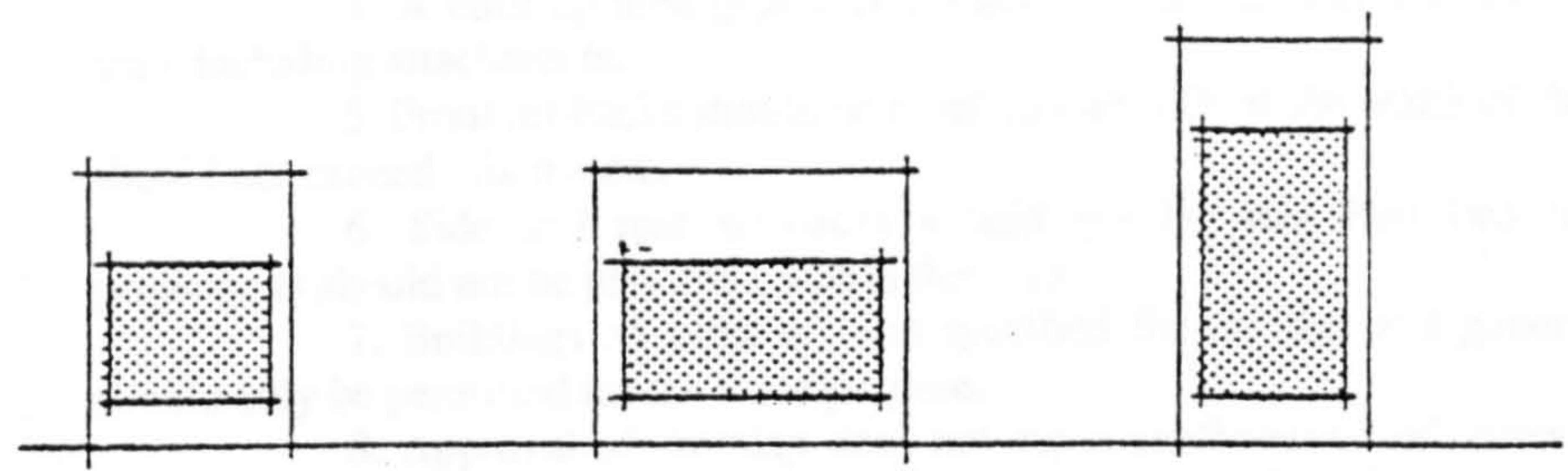
Existing streets are to maintain their present condition unless public interest requires their widening according to the approved design in the town's map, on the condition that these newly opened streets do not exceed the following widths: main streets, not less than 15 m.; secondary streets, not less than 8 to 12 m.; and lanes, not less than 4 to 6 m.(Article 23, p.9, Cited in Al-Hathloul 1981, p194).

1371/1951 ARAMCO Home ownership plan and the introduction of villa type house to Saudi Arabia, (Al-Hathloul 1981, Faden 1983).

1373/1953 -1377/1957 Al-Malaz neighbourhood construction was initiated.(Al-Hathloul 1981, Faden 1983).

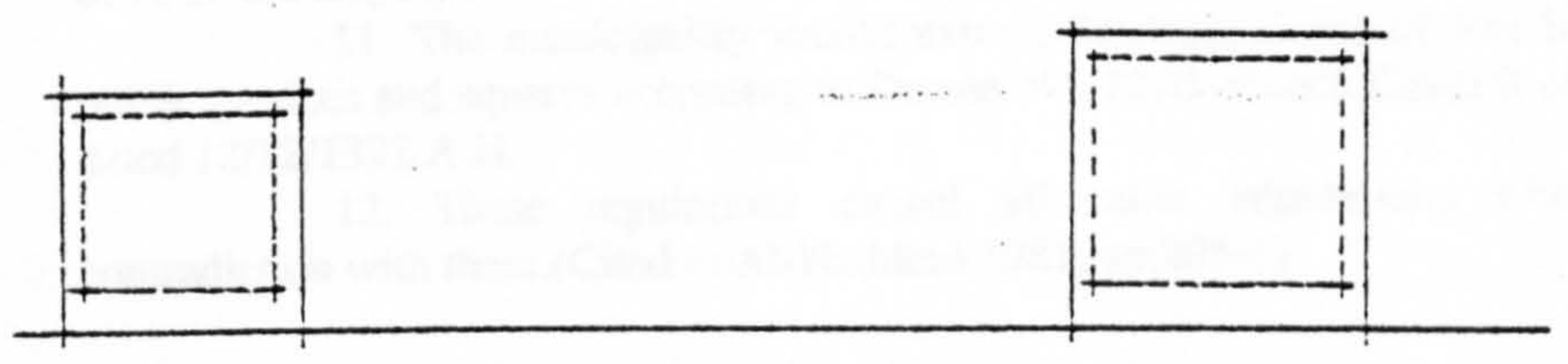


R 12
 Area min. 400 sq.m. max. 600 sq.m. max. 600 sq.m.
 Dim. fixed d. w. min. d. 24X25 min. w. 16X37.5



R 13
 Area min. 400 sq.m. max. 600 sq.m. max. 600 sq.m.
 Dim. fixed d. w. min. d. 24X25 min. w. 16X37.5

Built up area 0 10 50m



R12, R13 as implemented in Riyadh, 15m. streets width assumed.
 Area 400 sq.m. 625 sq.m.
 Dim. 20X20m. 25X25m.

Area where the building is to be located, provided other requirements were satisfied.

Riyadh-Doxiadis Master Plan
 Setback Requirement
 (upper) Requirement for R12 district.
 (middle) Requirement for R13 district.
 (lower) R12 & R13 actual implementation in Riyadh.

figure 10.3 The residential unit building regulations.
 source: Al-Hathloul 1981

1380/1960 The issue of a circular by the Deputy Ministry of Interior for Municipalities to all municipalities and town planning offices in the country. It stated:

Regulations concerning building on plots of lands:

1. Prior to the issuance of building permits, confirmation must be made of the existence of concrete posts.
2. Plots are to be sold according to their drawn and established boundaries, and should be strictly prohibited from further subdivision.
3. Heights should not exceed eight meters, except with the approval of the concerned authority.
4. A built-up area generally should not exceed sixty percent of the land area, including attachments.
5. Front set-backs should be equal to one-fifth of the width of the road and should not exceed six meters.
6. Side and rear set-backs should not be less than two meters and projections should not be permitted within this area.
7. Buildings on plots of land specified for utilities and general services should only be permitted for the same purpose.
8. Approval of the plan does not mean confirmation of ownership limits [boundaries] and the municipality should check the legal deed on the actual site.
9. The owner should execute the whole approved plan on the land by putting concrete posts for each plot of land prior to its disposal either by selling or building.
10. Irregular plot cuts should be extracted according to Circular No. 4855 of H. E. the Deputy Minister of Interior, dated 22/12/1389 A.H.
11. The municipality should extract the legal deeds of lots intended for public gardens and squares according to Decree No. 1270 of each Council of Ministers, dated 12/12/1392 A.H.
12. These regulations cancel all other stipulations which are in contradiction with them. (Cited in Al-Hathloul 1981, pp.205-6)

1390/1970 Doxiadis master plan of Riyadh has confirmed the set-back requirements appointed in 1380/1860.

1395/1975 The establishment of The Ministry of Municipal and Rural Affairs.

1400/1980 SCET international/SEDES of Paris revised Riyadh master plan done by Doxiadis and prepared an Execution and Action Master Plans and developments studies. The plan was accompanied by a document entitled "Planning regulations". Part of this document stated:

.....visual privacy is the most important factor determining the design of private homes in Saudi Arabia. Zoning regulations should provide a legal framework for

safeguarding the privacy of each home and ensuring the full use of property by its owner, in accordance with Saudi traditions and jurisprudence.

..... In most R & C districts the owner can elect to build to the side property line... The elimination of side set-backs in residential districts allows the design and construction of greater variety of housing types more suited to local climate and social customs.

..... Rear set-backs are optional in R districts, but mandatory in RS and C districts.....(SECT/SEDES, no.911, p.4)

1409/1989 The approval of Saudi cities " Urban boundary" by the Council of ministers after three years study was prepared by the Ministry of Municipal and Rural Affairs.

The above listing of the written regulations showed that Al-Malaz neighbourhood urban pattern is a reflection of the Saudi contemporary built environment transformation from the traditional unselfconscious process to the contemporary self-conscious process. Prior to its foundation the traditional ownership system and easement rights were in full practice. The municipality statutes in 1937 has officially shifted the planning and designing of neighbourhoods from its users to the municipality. Consequently, the different neighbourhoods zoning, street layouts, and house expansions are no longer a by-product of its users needs, but rather a planned one. Al-Khobar city planning, and Dammam city future expansion layouts which were proposed by ARAMCO's engineers in 1937 were the first to introduce the grid-iron plan into the contemporary Saudi cities. ARAMCO was also the first to introduce the villa type house to the average Saudi through its home ownership plan in 1951. In other words the message to the future neighbourhoods was clear: municipality controls, grid-iron street layout, and a villa type house.

The contemporary pattern message was officially translated into Al-Malaz neighbourhood pattern. It was for the average Saudi, constructed by the government in a contemporary way. Not only that, but the issuing of the Ministry of Interior circular in 1960 to all the Saudi municipalities was in confirmation of the reproduction of Al-Malaz neighbourhood plan and design all over the country through clear stated regulations. This circular is the turning point in Saudi Arabian

contemporary built environment physical pattern and regulations. It requires planning of the land, subdivision with cement poles, obtaining an approval for this from the municipality, prohibited further land subdivision, controlled the height of the buildings, the square lot ratio of the built, require set backs, and clearly confirms that "these regulations cancels all other stipulations which are in contradictions with them".

Doxiadis 1970 Riyadh master plan has little effect on the Al-Malaz neighbourhood. It dealt with the planning of new Riyadh neighbourhoods, and confirms the 1960 circular regulations. SCET's 1980 proposal for the new master plan of Riyadh has revised Doxiadis' master plan and only recommends the abandonment of the set back requirements in some of the city neighbourhoods.

The 1989 city urban boundary is only three years old, and therefore its affect on neighbourhoods' built environment is a matter of predictions. But today one can easily notice the sharp increase of land prices inside the city boundary because of the availability of infrastructure and services. The land outside the city boundary, even though only a few hundreds meters distance, are lower priced in the knowledge that their infrastructure and services are not in the immediate plans of the municipality.

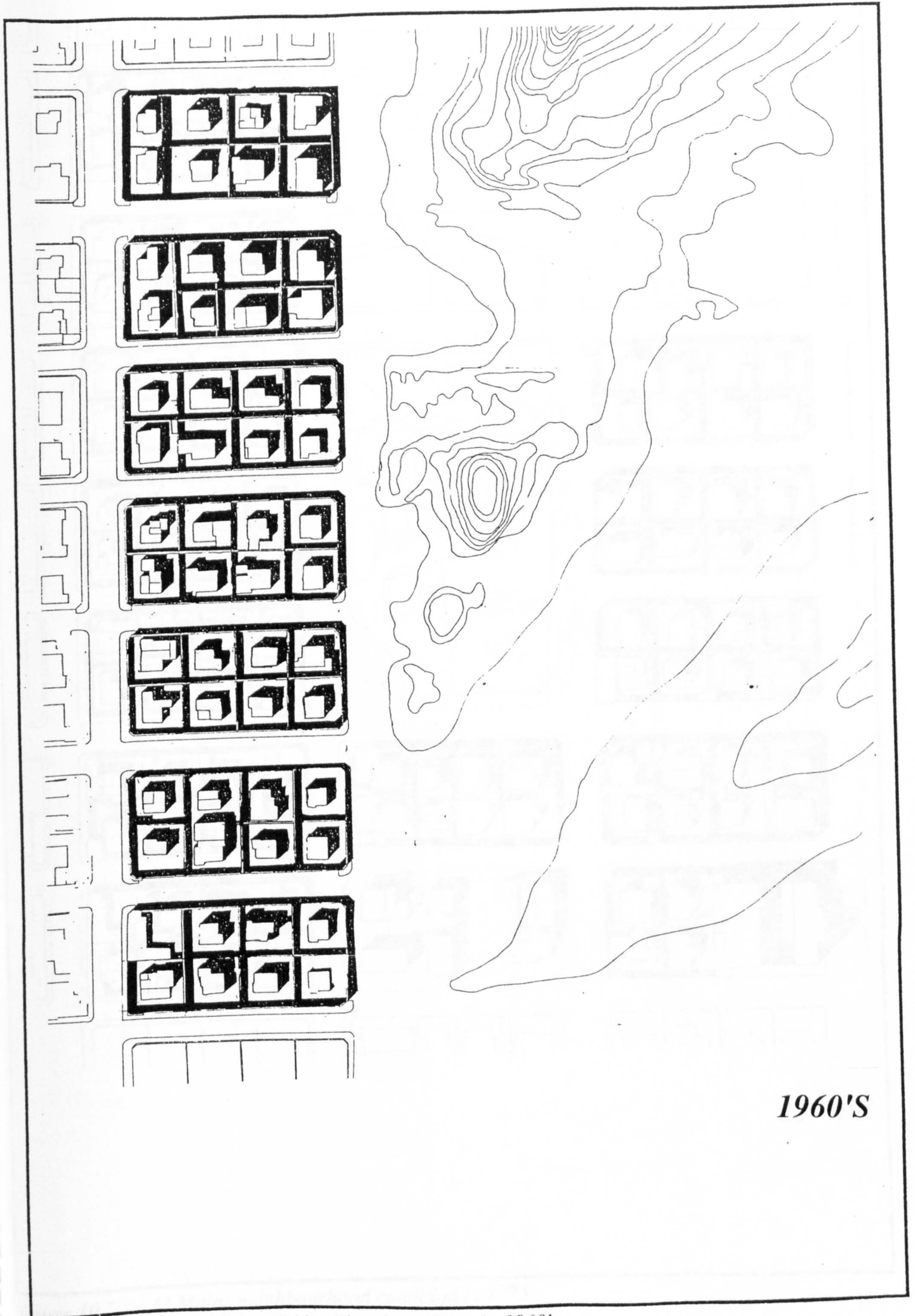
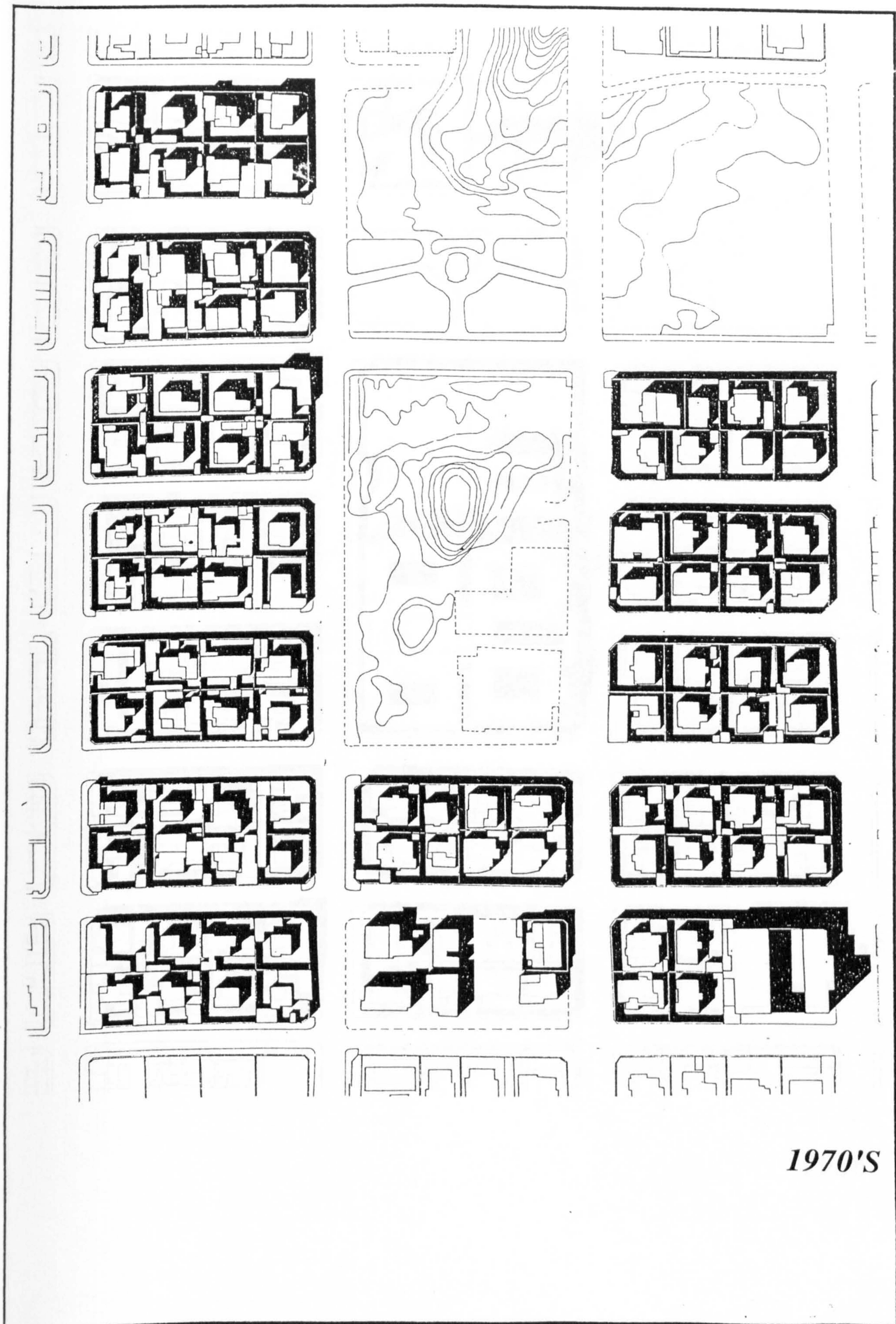
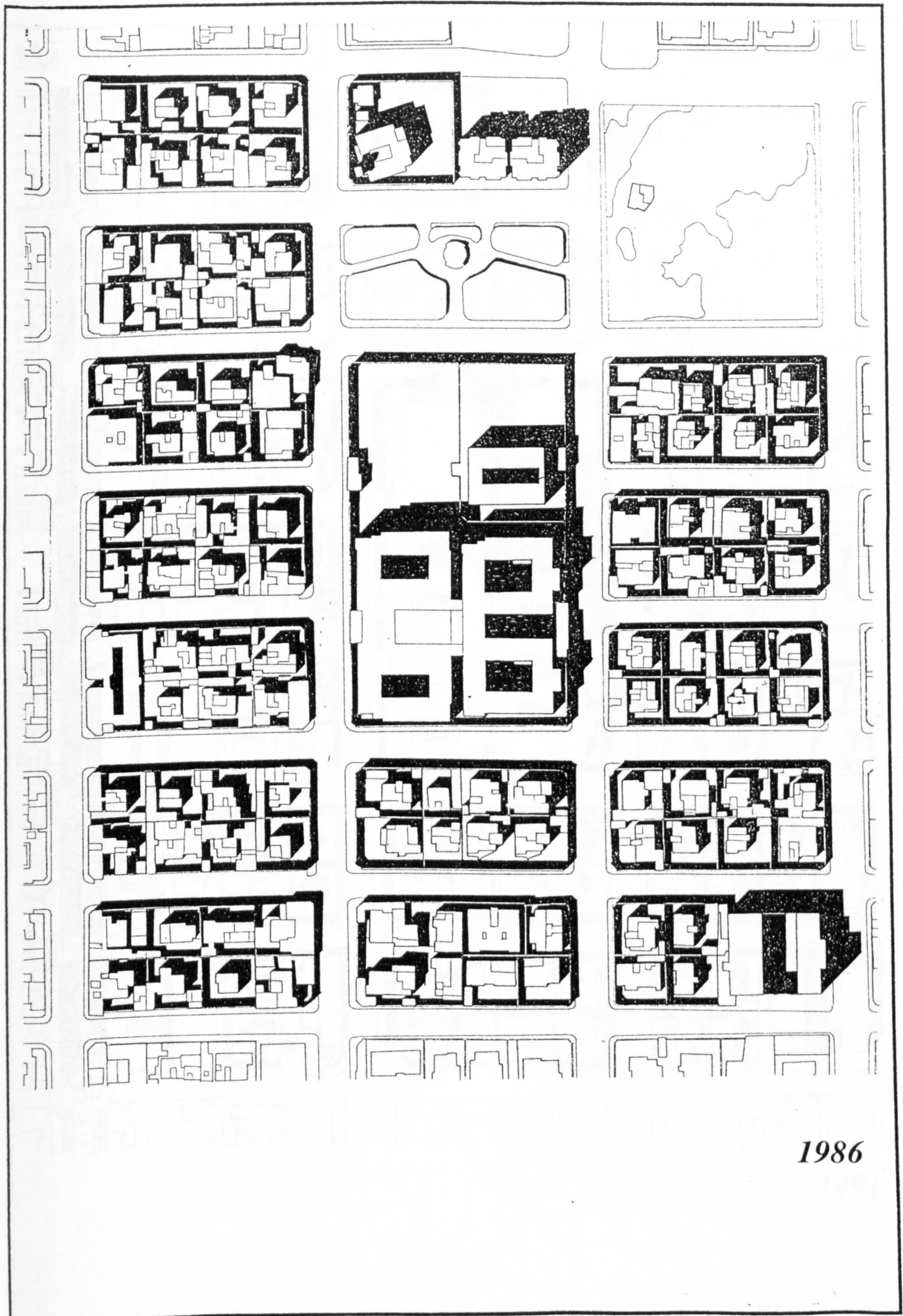


figure 10.4 Al-Malaz neighbourhood condition in 1960's.
 source: authors' survey.



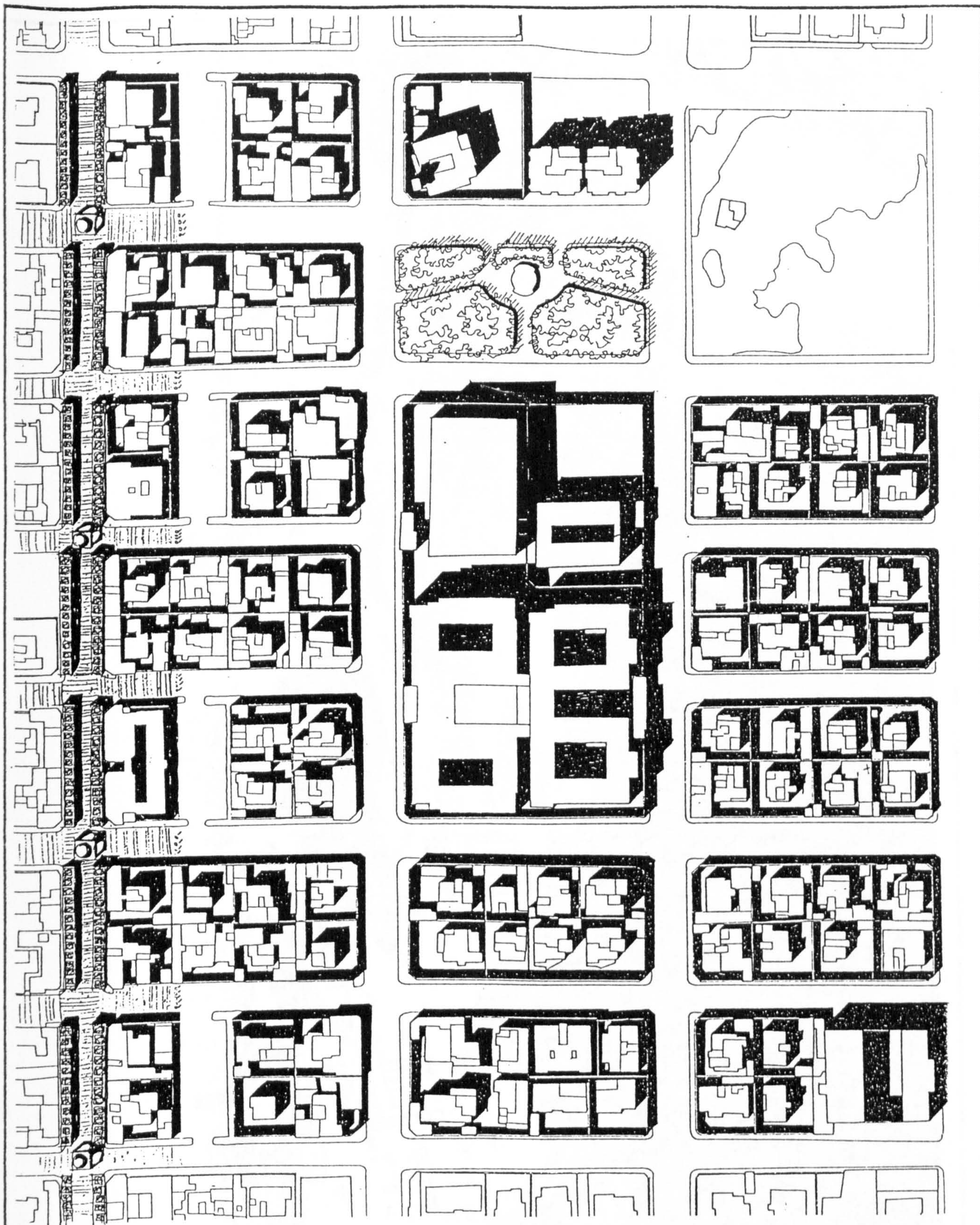
1970'S

figure 10.5 Al-Malaz neighbourhood condition in 1973.
source: after Doxiadis.



1986

figure 10.6 Al-Malaz neighbourhood in 1986.
source: after SCECT.



1991

figure 10.7 Al-Malaz neighbourhood existing condition.
source: authors' survey.

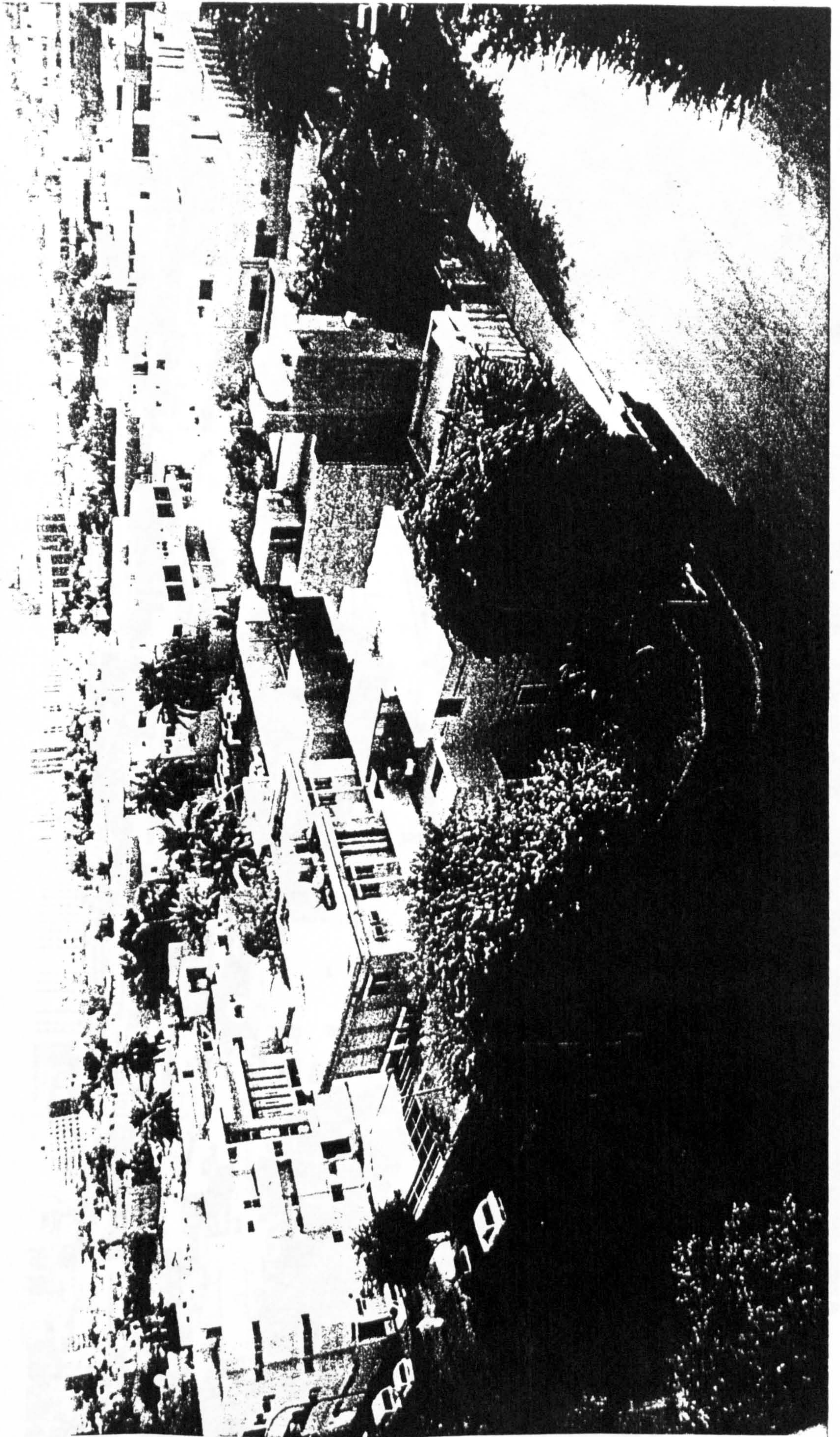


figure 10.9 View of Al-Malaz neighbourhood.

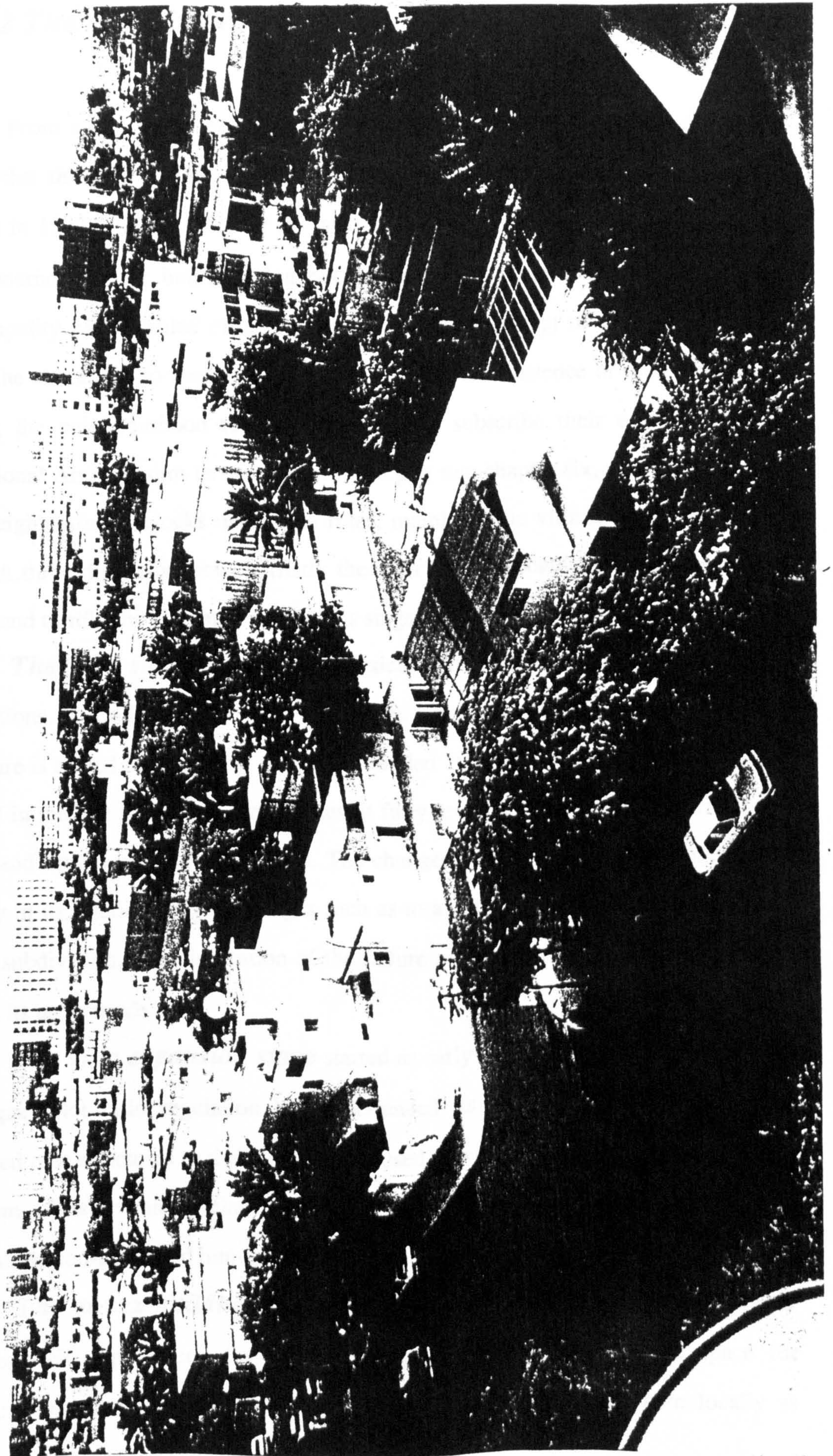


figure 10.8 Al-Malaz neighbourhood existing condition.

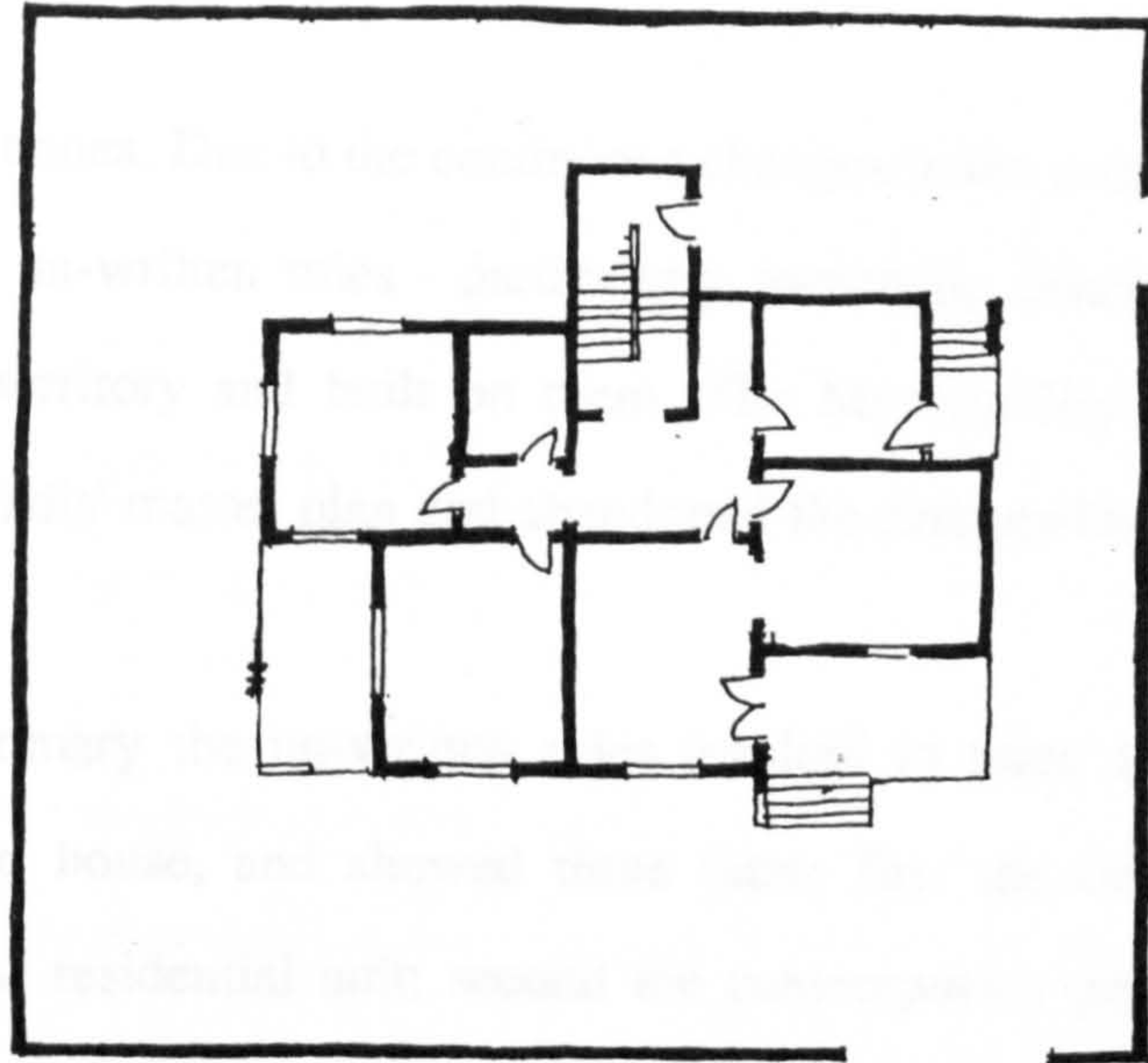
10.1.2 The un-written rules

From a look at the existing neighbourhood pattern (fig 10.7), one can easily notice that the written rules have been altered to produce Al-Malaz neighbourhood pattern in 1992. The alteration of the written rules have had a great influence on the neighbourhood block buildings but not on its streets. This can be related to the Municipality written rules' clear and highly protected concept of street organisation line. The alterations to the block pattern are due to the existence of un-written rules among the neighbourhood residence. Rules that subscribe their existence to the Traditional Arab-Muslim territory types, (see part two chapter six, seven, and eight). The neighbourhood blocks un-written rules, mainly in the villa house, have passed through three distinctive stages: firstly the villa stage, secondly the villa expansion stage, and thirdly the villa annex buildings stage, (fig 10.10).

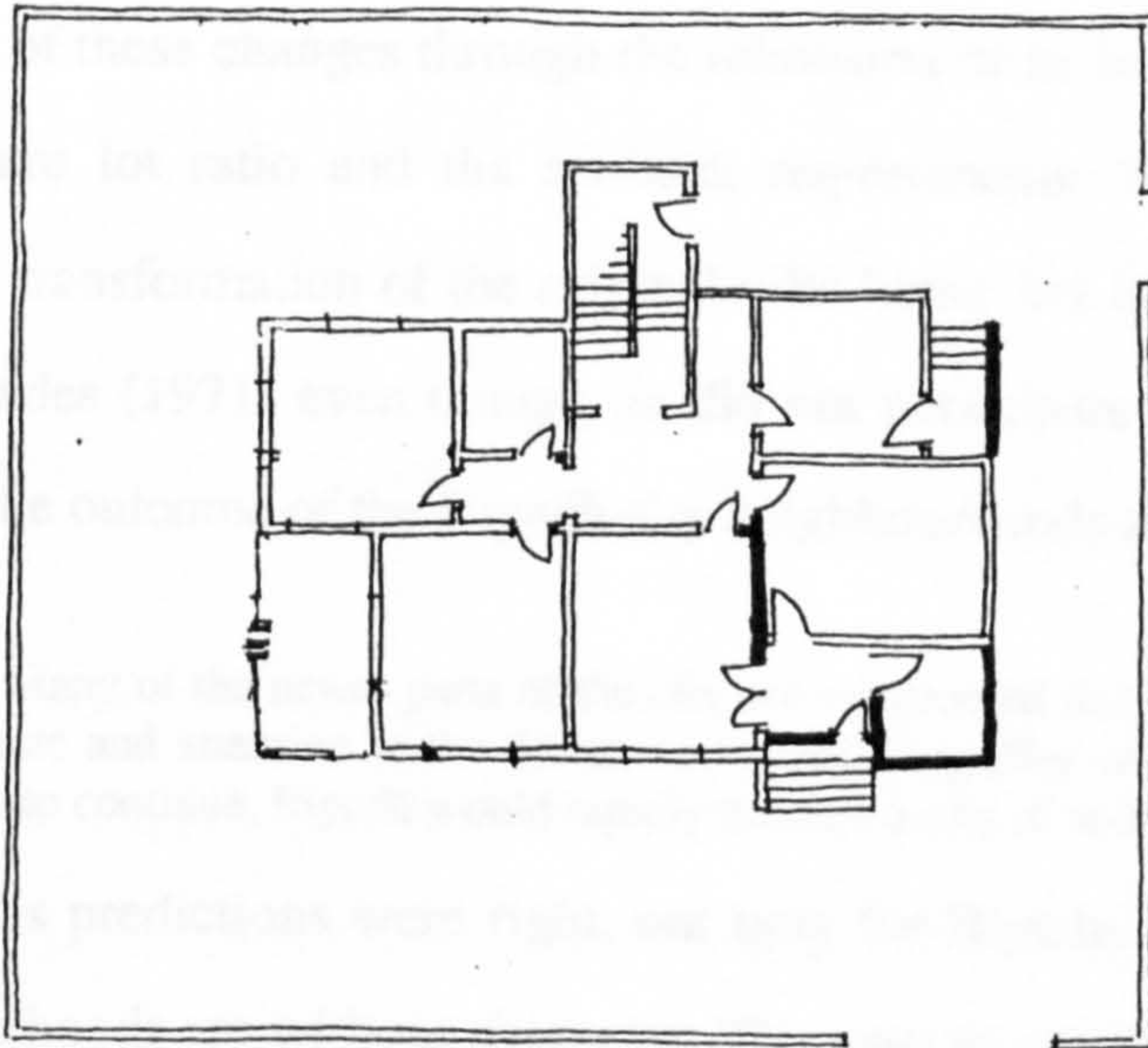
The villa stage is the house physical pattern as intended by the building regulations. It resulted in the villa type house known all over the world. The villa structure is nested in a set-back space, surrounded by a three meter fence. This phase started in the late fifties and early sixties, it fully respects the building materials, set-back, and square lot ratio regulations. The changes that occur in the villa pattern are mostly in its interior spaces. Changes such as to a door position, room function, and space subdivision, as an indication of the failure of the initial villa interior design to match its users needs.

The villa expansion stage started as early as the mid sixties. In this phase the square lot ratio regulation has experienced its first challenge. Villa owners attached new structures to their villas and closed down the balcony space to use them as rooms. This act can be related to the changes in the villa users' needs in relation to natural, person-made and human environments.

The annex building stage was clear in the early seventies. In this phase the set-back requirements are challenged through using the set-back space for building new rooms alongside the fence wall. These structures known locally as



The Villa stage



The Villa expansion stage

The Annex building stage

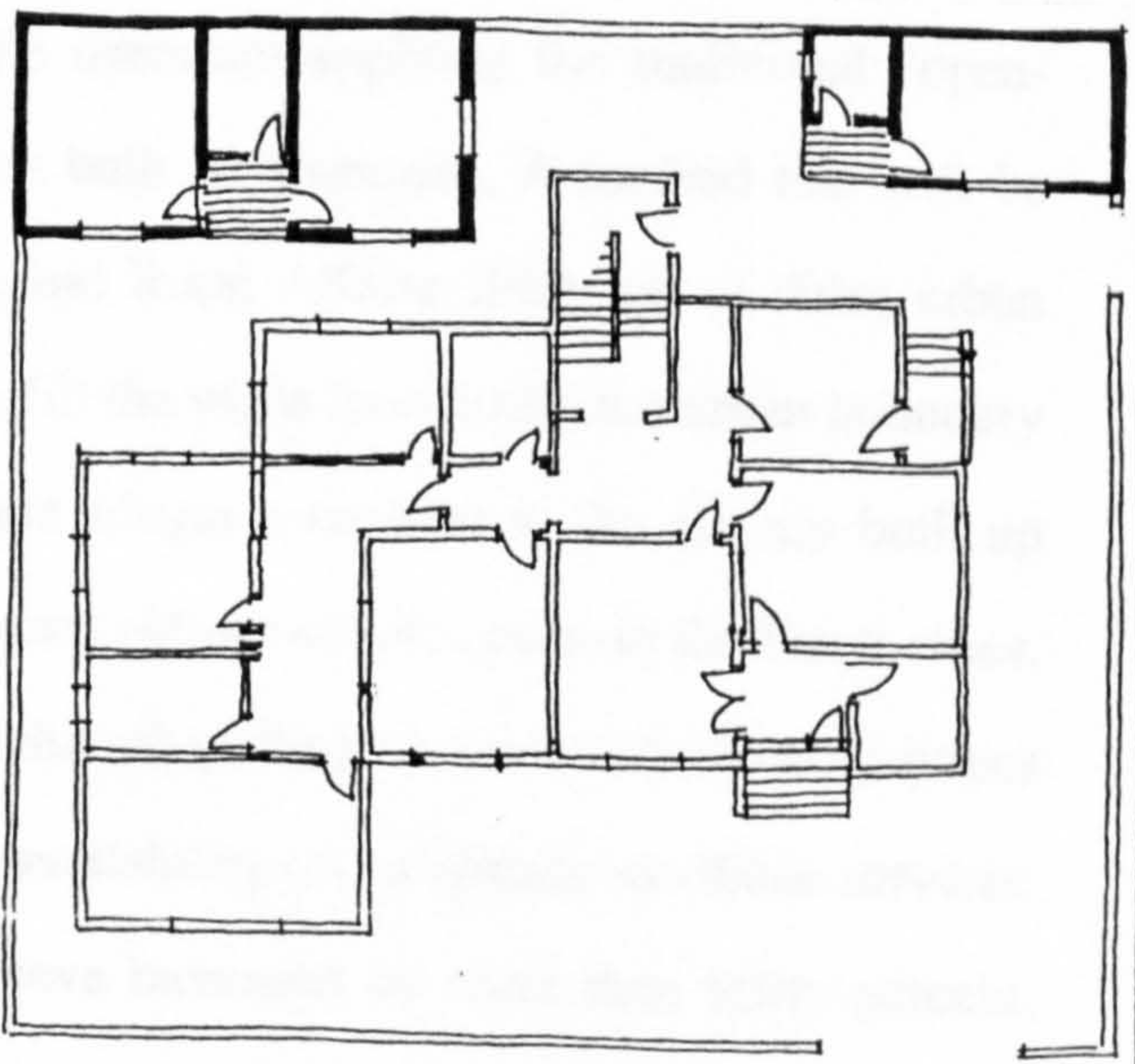
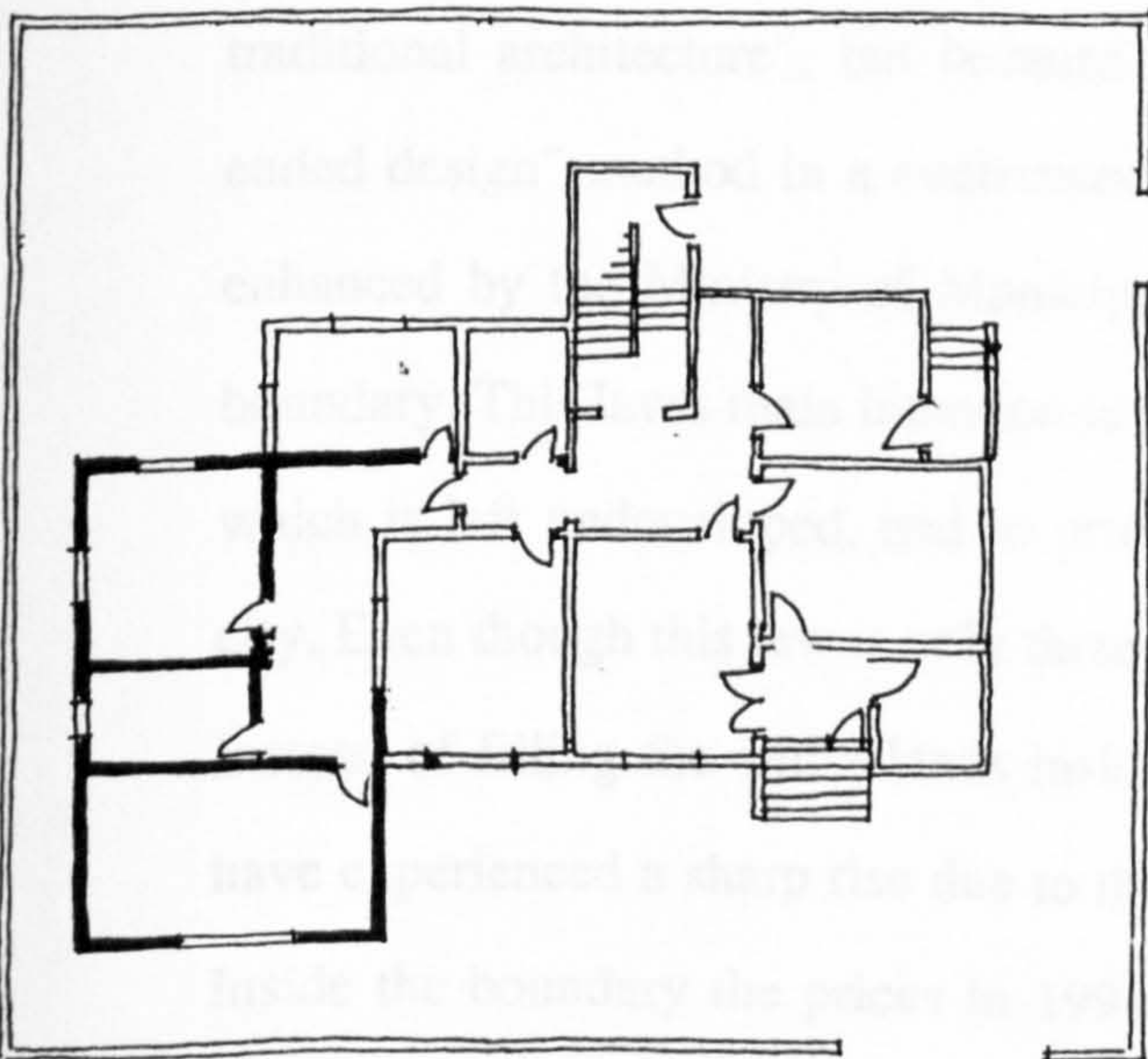


figure 10.10 The villa formation and transformation.
source: authors' survey.

(Mulhaq) or annex. Due to the continuous changes in the users needs, they went back to traditional un-written rules - particularly ownership concept - to re-type the set-back spaces territory and built on them. The Municipality has realised this when revising Doxiadis' master plan and abandoned the side set-back regulations in SECT master plan.

In summary the un-written rules resulted in three stages of the Al-Malaz neighbourhood house, and showed three facts: first the certainty of the physical changes on the residential unit; second the contemporary physical changes concept reflects the traditional territory type concept; and third the municipality partial understanding of these changes through the relaxation of its building regulations such as in the square lot ratio and the set-back requirements. These three facts have resulted in the transformation of the original villa house but not the street spaces and patterns. Doxiades (1971) even though he did not participate in this transformation, has predicted the outcome of the Riyadh city neighbourhoods and said:

Many of the newer parts of the city are constructed in a manner that has paid very little tribute and attention to the design and aesthetic quality of traditional architecture. If this were to continue, Riyadh would rapidly become a city of no character.

Today, Doxiadis predictions were right, not only for Riyadh city but also all Saudi cities neighbourhoods are without character. The reasons are not as Doxiadis thought of it "paid very little tribute and attention to the design and aesthetic quality of traditional architecture", but because the users are applying the traditional "open-ended design" method in a contemporary built environment. A method that will be enhanced by the Ministry of Municipal and Rural Affairs 1989 law of cities urban boundary. This law's main intention is to fill the white land inside the urban boundary which is left undeveloped, and to provide adequate services to the already built up city. Even though this law is only three years old, its affect is clear in the Saudi cities. Instead of filling the white lands inside the urban limit as intended, the land prices have experienced a sharp rise due to the availability of, or already available services. Inside the boundary the prices in 1991 have increased by more than thirty percent,

while the land prices outside the boundary have decreased. One can say that the city urban boundary has functioned as the traditional city wall. Whatever is outside it is temporarily worthless. Whatever is inside it, will face the same problems of its traditional ancestors traditional city, mainly utilisation and consumption of every single available space through the continuous territorial typing and retyping.

10.3 Al-Malaz neighbourhood territory

The neighbourhood has two forms of territory type: the official one as seen by the municipality of Riyadh, and the non-official one as seen by the neighbourhood residents, (fig 10.11).

The official territory type reflects the written building regulations and divided the neighbourhood into two main domains: private ownership and public ownership. The private ownership is the neighbourhood different blocks that are owned by private individuals. The main element of these blocks are the residential lots of 25*25 meters built mostly in a villa type. The villa structure is private territory, while the set-back spaces are semi-private territories because of the building regulations imposed on these spaces. The public ownership is the streets and the neighbourhood garden -municipality ownership, the mosques -Ministry of Pilgrimage and endowments ownership, and the girls college -General Agency for Girls Education. There is a clear highly protected organisation line between the street space and the different blocks' ownership. This can be seen in the prevention by the municipality of any sort of residents "encroachment" on the street space.

The non-official territory type is mainly in practice only in the residential lot - the villa- and reflects the way residents change territory type as a sign of residents territorial behaviour secondary cycle existence. The residents see the lot including the villa and the set-back spaces as private territory. This vision is reflected in the challenging of the written rules/official territory types that are trying to transform these spaces private territory into other types such as semi-private. The fence is built as a spatial container of three meters height, and in some cases eight meters in height.

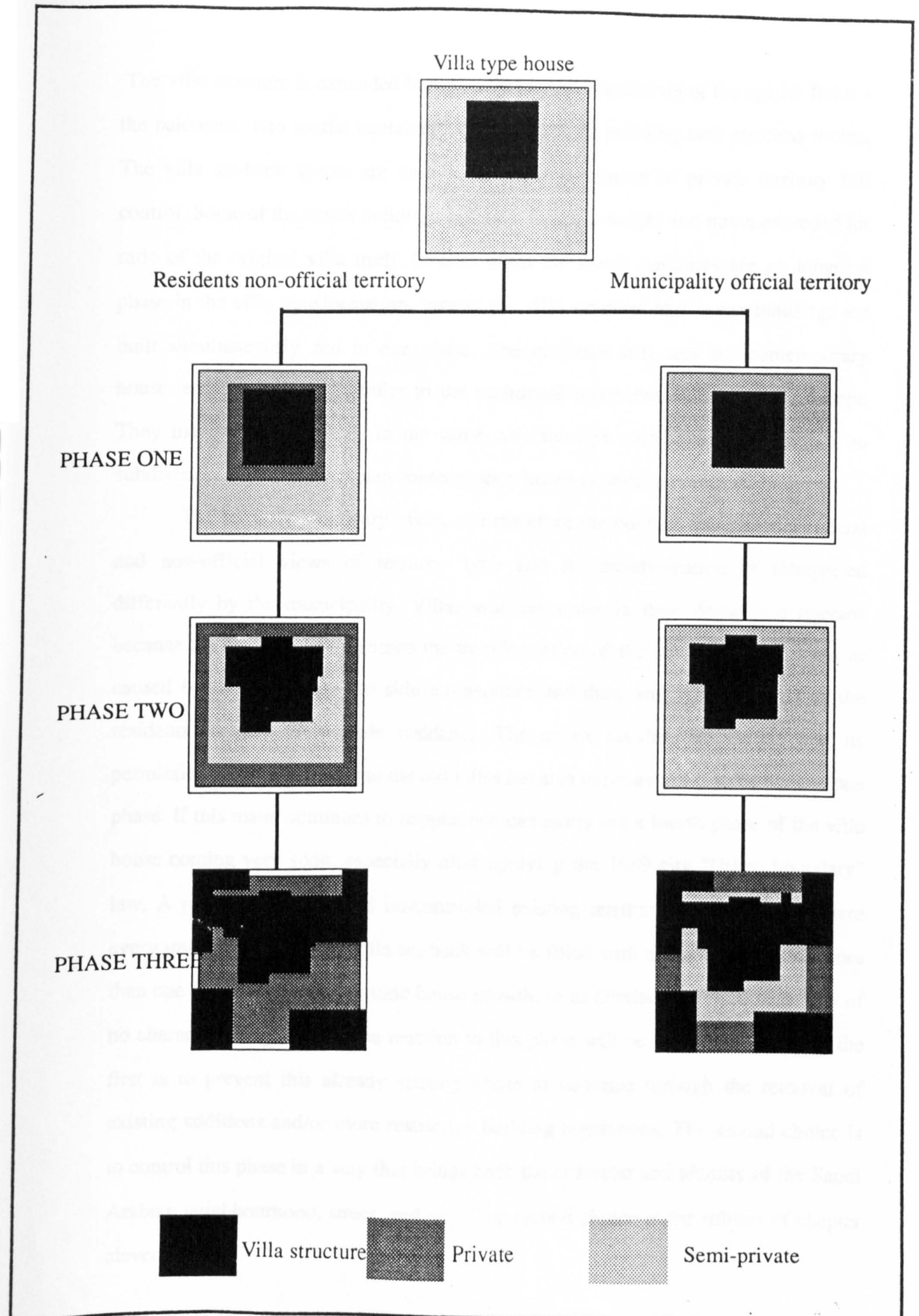


figure 10.11 The villa territory formation and transformation.
source: author.

The villa structure is expanded horizontally through transforming the spatial fields - the balconies- into spatial containers -a new room, or building new attached rooms. The villa set-back spaces are built in as a demonstration of private territory full control. Some of the annex buildings are three floors in height and much exceeded lot ratio of the original villa itself. In later times the annex buildings are no longer a phase in the villa transformation, instead the villa structure and annex buildings are built simultaneously and in one phase. The residents still sees the contemporary house territory in a way similar to the traditional house but with no Fina concept. They manipulate its spaces in the same way through continuous addition but no subdivision. The Saudi Arabian contemporary house is never completed.

The territory secondary cycle, and therefore the conflict between the official and non-official views of territory type and its transformation is interpreted differently by the municipality. Villas with balconies in their design are rejected because the municipality assumed the transformation of the balconies into rooms as caused by climatic -high out side temperature and dust, and privacy needs of the residents -mainly the female residents. The annex building is noticed and its permission is given not only to the old villas but also to future villas to be built in one phase. If this mater continues to happen one can easily see a fourth phase of the villa house coming very soon, especially after applying the 1989 city "Urban boundary" law. A phase of random and un-controlled existing territory types retyping where every un-built space in the villa set-back will be filled with annex buildings of more than one story. A phase of chaotic house growth, or as Doxiadis referred to it "city of no character", (fig 10.12). The reaction to this phase will be one of two choices: the first is to prevent this already starting phase to continue through the removal of existing additions and/or more restrictive building regulations; The second choice is to control this phase in a way that brings back the character and identity of the Saudi Arabian neighbourhood, street, and city. The second choice is the subject of chapter eleven.

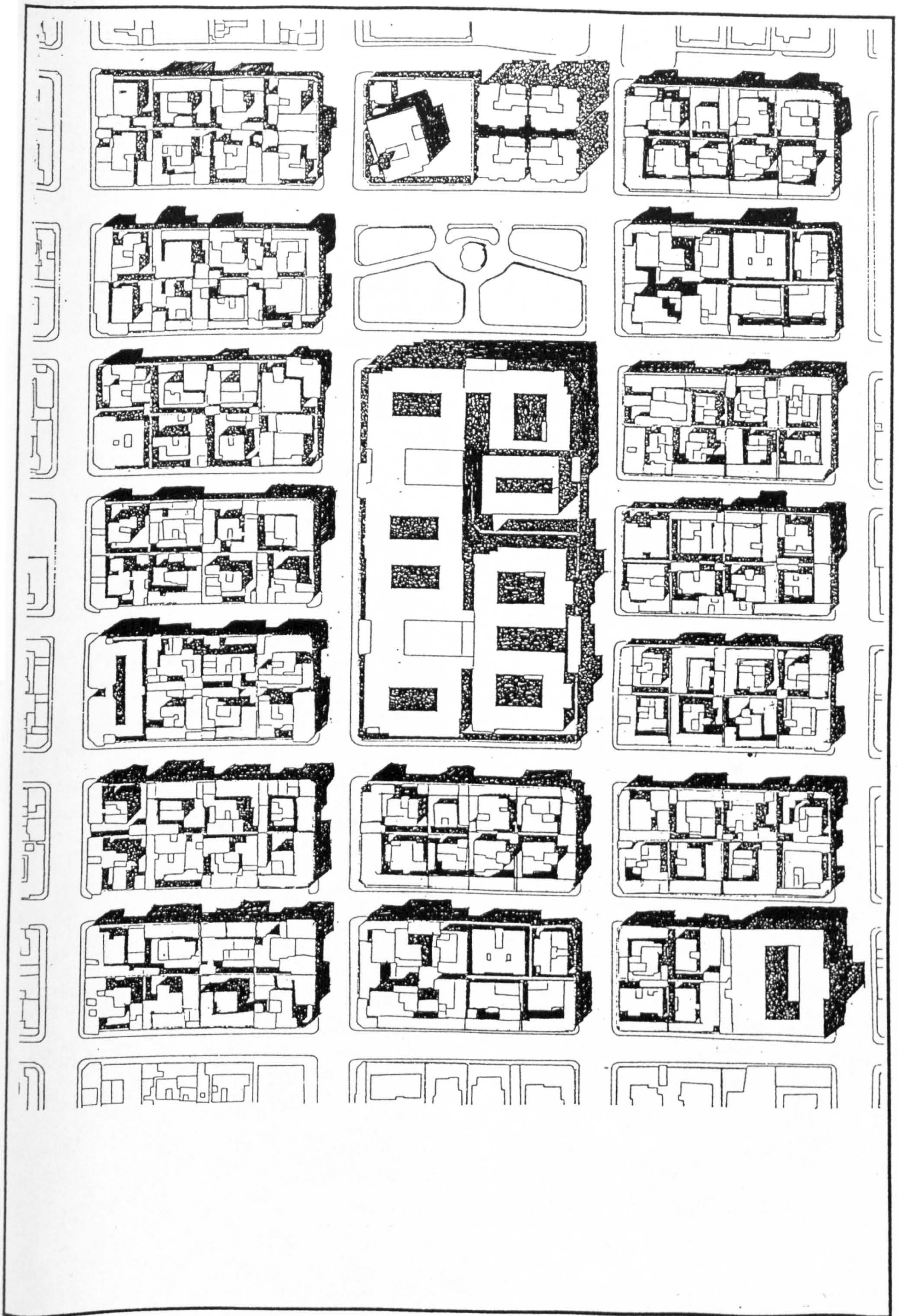


figure 10.12 The un-controlled future of Al-Malaz neighbourhood.

CHAPTER ELEVEN

CONTINUITY BETWEEN THE TRADITIONAL AND THE CONTEMPORARY, AL-MALAZ NEIGHBOURHOOD DESIGN WORKSHOP

11.1 Problem identification

11.2 Design goals

11.3 Design participants

11.4 Design principals

11.4.1 The street zone

11.4.2 The Fina zone

11.4.3 The residential unit zone

11.5 The design Image

11.6 The projected territoriality

CHAPTER ELEVEN
CONTINUITY BETWEEN THE TRADITIONAL AND THE
CONTEMPORARY
AL-MALAZ NEIGHBOURHOOD DESIGN WORKSHOP

11.1 Problem Identification

Al-Malaz neighbourhood is suffering from problems concerning its built environment, and problems concerning its residents territorial behaviour. These problems are occurring at the residential unit scale, and the neighbourhood street scale.

For the built environment at the residential unit scale, the residents are continuously transforming their villa house as an individualistic un-self conscious act. Every resident makes his own decisions concerning his own houses' well-being. At the street scale, the streets were designed in 1370/1957 averaging twenty meters in width. Even though it is estimated that there is one car per two persons in Riyadh city today, (Al-Riyadh newspaper 1992), the street widths are still seen as excessive and over spacious for residential neighbourhood requirements. This in return adds to the streets lack of climatic protection and dull appearance.

In the territory of the neighbourhood, and after thirty five years, there is an obvious conflict between the residents vision of their units territory type and the types imposed by the municipality regulations. This conflict resulted in chicanery from the residents side in order to achieve their desired *territorial behaviour the maintenance* phase, and is reflected through the gradual transformation of the villa set-back spaces territory types from semi-private to private. The scale of these territorial re-typing are in complete contrast to the street scale. This contrast is due to the decision for the plots being individual and for the street municipal.

In summary the problem of Al-Malaz neighbourhood is the scale and co-ordination between the built environment transformation and territory re-typing of the residential unit and the street.

11.2 Design goals

The design goals are to allow for the residents' territorial behaviour in the development maintenance phase to transform the existing neighbourhood built environment from spaces of "against enclosure" stage to "defensible space" stage in a cyclic manner. This implies controlling, co-ordinating, and integrating of the neighbourhood villa set-back spaces and the street excessive spaces. These goals are divided into two groups:

Design goals for the neighbourhood built environment

- a) maintaining the continuity between the traditional and contemporary Saudi built environment through the re introduction of the Fina concept as an integration space between the residential unit and the street spaces.
- b) co-ordinating the already existing transformation of the house pattern with the street pattern.
- c) controlling the transformation of the residential unit (villa) from an individualistic un-self-conscious act to communal self-conscious act.
- d) recycling the villa and the street excessive spaces as field for integration, co-ordination, and control of the future phase of the neighbourhood built environment.

Design goals for the neighbourhood territoriality

- a) understanding the dynamic nature of Al-Malaz neighbourhood territorial behaviour especially in the development maintenance phase, through the re-typing of the existing territory types in order to match the phases of its built environment.
- b) integrating the private and public territories through providing the semi-public and semi-private territories by using the traditional Fina concept.
- c) the encouragement of residents participation in re-typing the territories through their effort and finance to assure their development maintenance phase.

11.3 Design participants

In order to achieve the neighbourhood built environment and territorial goals, various participants must play certain roles. These participants are: the designer, the residents, and the municipality.

The designer's role is to take the existing condition of the neighbourhood as a stage in its design. From that many tasks are required such as: gathering the necessary data about the neighbourhood and its residents; designing the next phases of the neighbourhood which will be composed from permanent and temporal objects; and co-ordinating the future phases design with the city, neighbourhood, and residential unit scales.

The residents role is in co-ordinating their house transformation with the adjacent neighbours. This implies the existence of neighbourhood community authority that function as a link between neighbour and neighbour, neighbour and community, and community and the city.

The municipality role is to co-ordinate the regional, city, and neighbourhood development. At the neighbourhood scale the municipalities role is to assign designers, and discuss the designs phases with designers, community authority, various engineers, lawyers, and so on. Approving the designs various phases must be accompanied by written legal regulation that govern, among other things, the time duration of every phase. The municipality is expected to assure the proper execution of the approved design phases with the assistance of neighbourhood community authority, and designers continuous evaluation of the design phase following open ended design principals.

11.4 The general design parameters

11.4.1 the street zone, (fig 11.1).

11.4.1.1 The street right of way

a) the street centre line is: in the middle, to the right, to the left, or zigzagged.

- b) the street vehicular movement width: one way and one lane, one way and two lanes, two ways two lanes.
- c) the street, on street parking: vertical, horizontal, or angled, in one or two sides of the street.
- d) pedestrian walkways: width, pavement, lighting, signs, and other street furniture.

11.4.1.2 The street air right

- a) height: sufficient for vehicular movement defined in 11.5.1.b
- b) Natural air and light penetration
- c) building permission

11.4.2 The Fina zone, (fig 11.2)

- a) Fina zone is located in: one side, or two sides of the street in the ground floor level only, upper floor only, the ground and upper floor together.
- b) Fina zone width
- c) Fina zone building permission: in the ground floor only, in the upper floor only, in the ground and upper floors together.
- d) The time duration of granting the Fina zone to the residential unit, i.e. 5,10, 15, 20 years.

11.4.3 The residential unit zone, (fig 11.3)

The residential unit space consists of two major spaces: the first is the existing residential unit space defined by the lot fence. The second is the Fina space added to the residential unit (see section 4.2). The residential unit space design principals are:

11.4.3.1 The residential unit solid spaces:

- a) the existing villa structure seen as permanent objects.
- b) the added structures seen as temporary objects, and has the characteristics of:

- complete filling of the void spaces
- partial filling of the void spaces in the ground and/or upper floor level.
- the amount of temporal objects attachment to the existing villa permanent structure.

11.4.3.2 The residential unit void spaces

a) building density in the neighbourhood, and can be governed by building envelop and/or floor ratio planning regulations.

b) natural air and light penetration to every room in the residential unit.

- courtyards on the rear and side set-backs minimum area
- courtyards on the front set-back space and Fina zone space minimum area.

c) privacy requirement for the residential unit to the side or across the street.

THE STREET ZONE

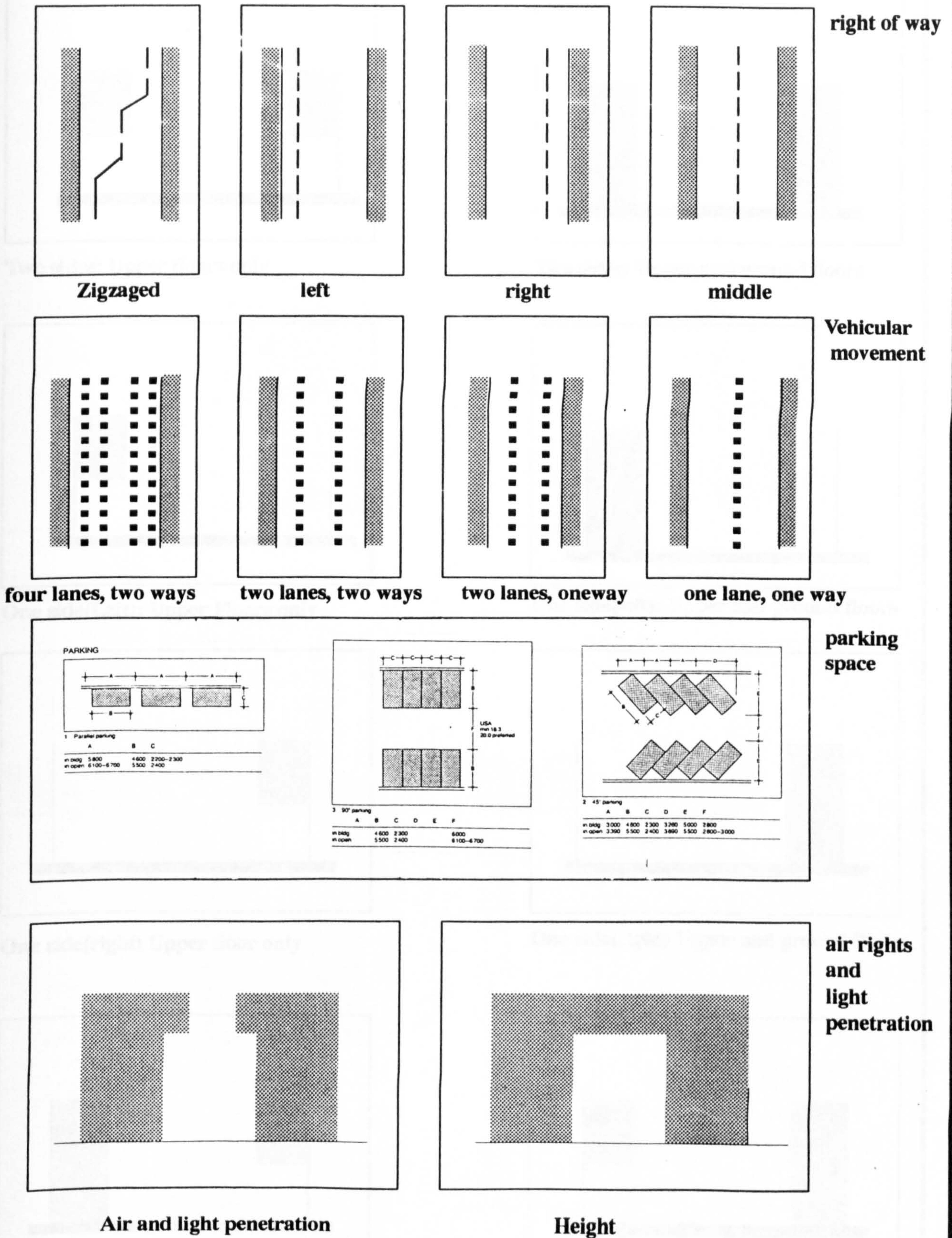
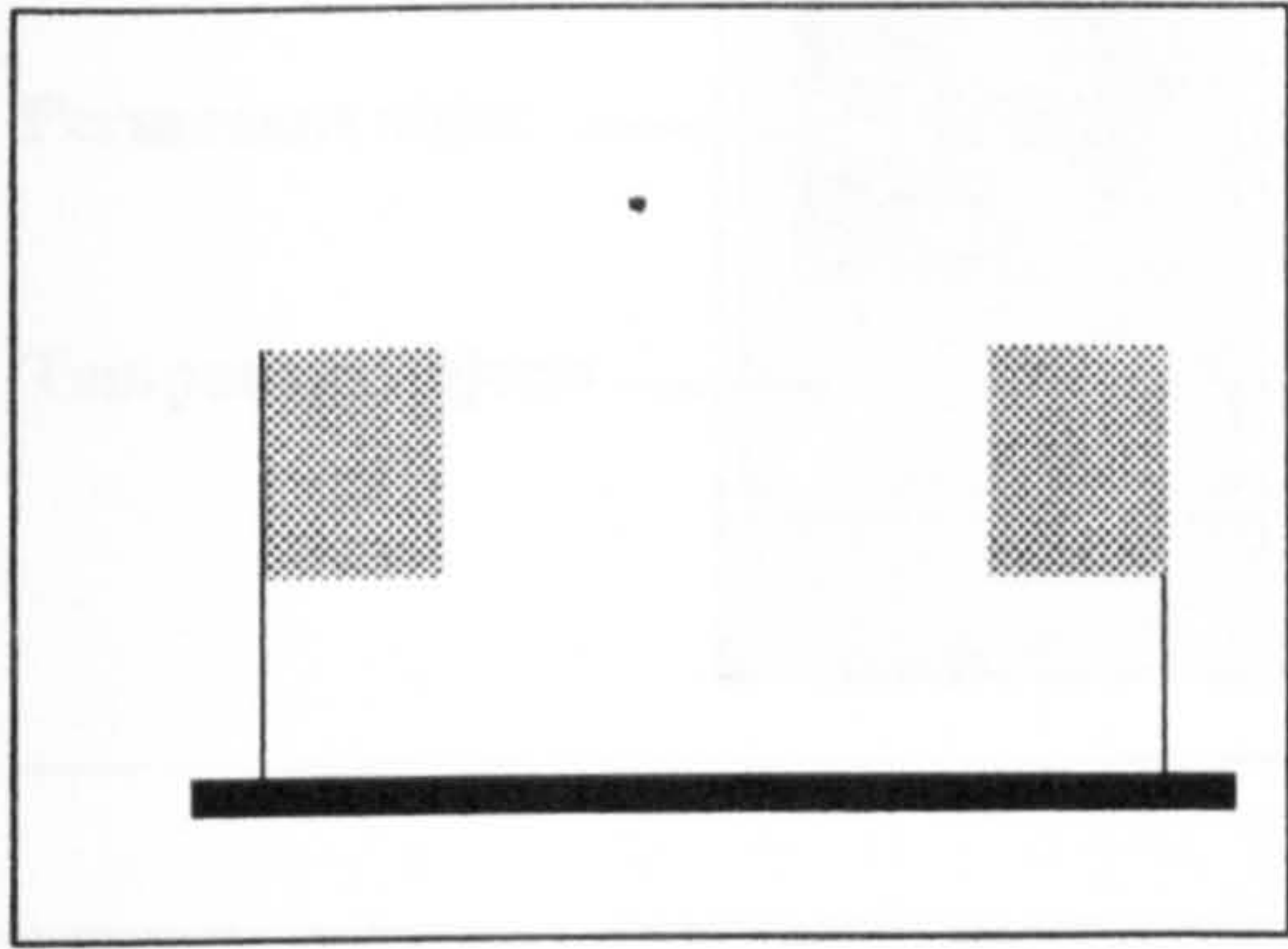
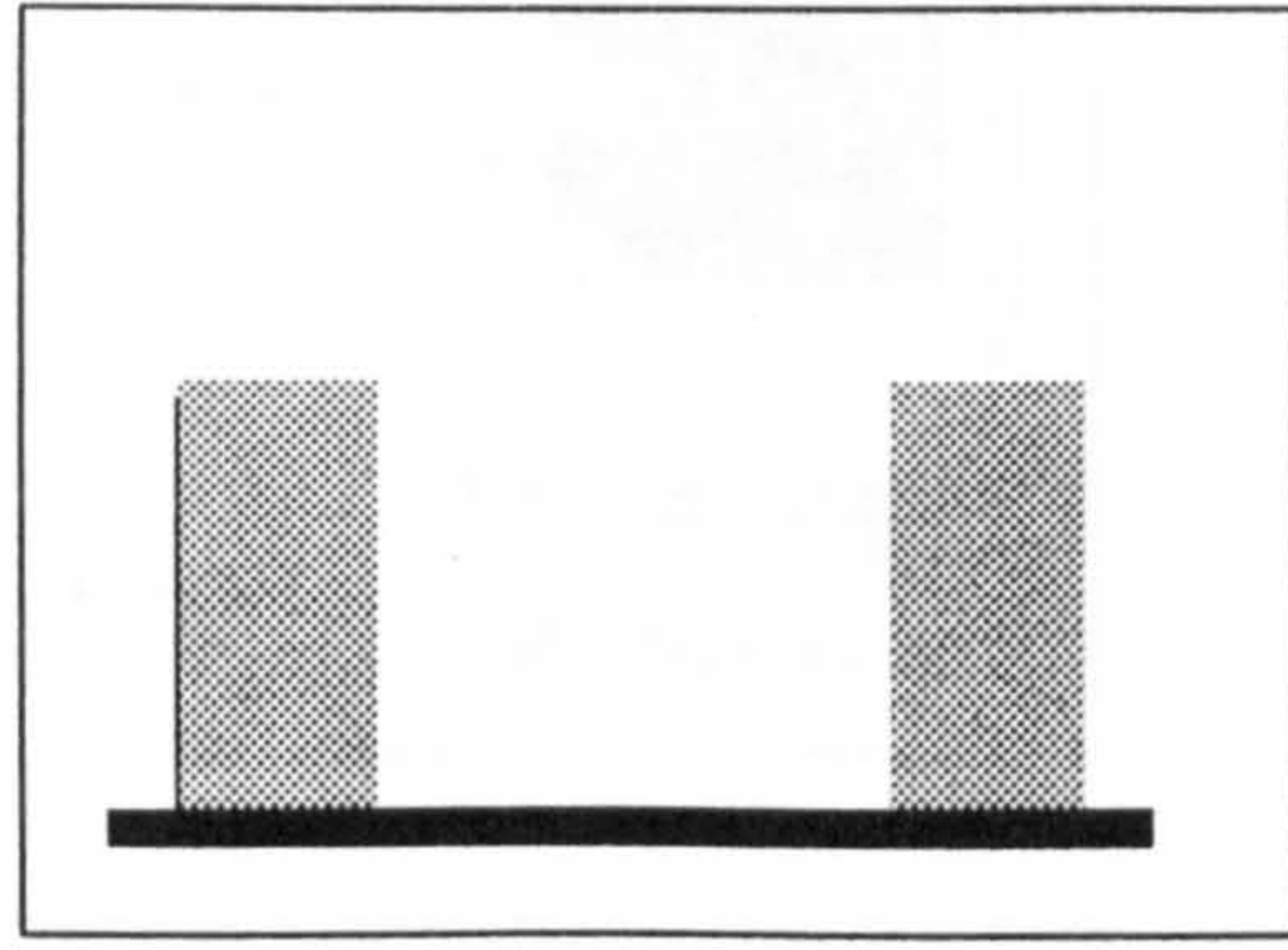


figure 11.1 The street zone general design principals.

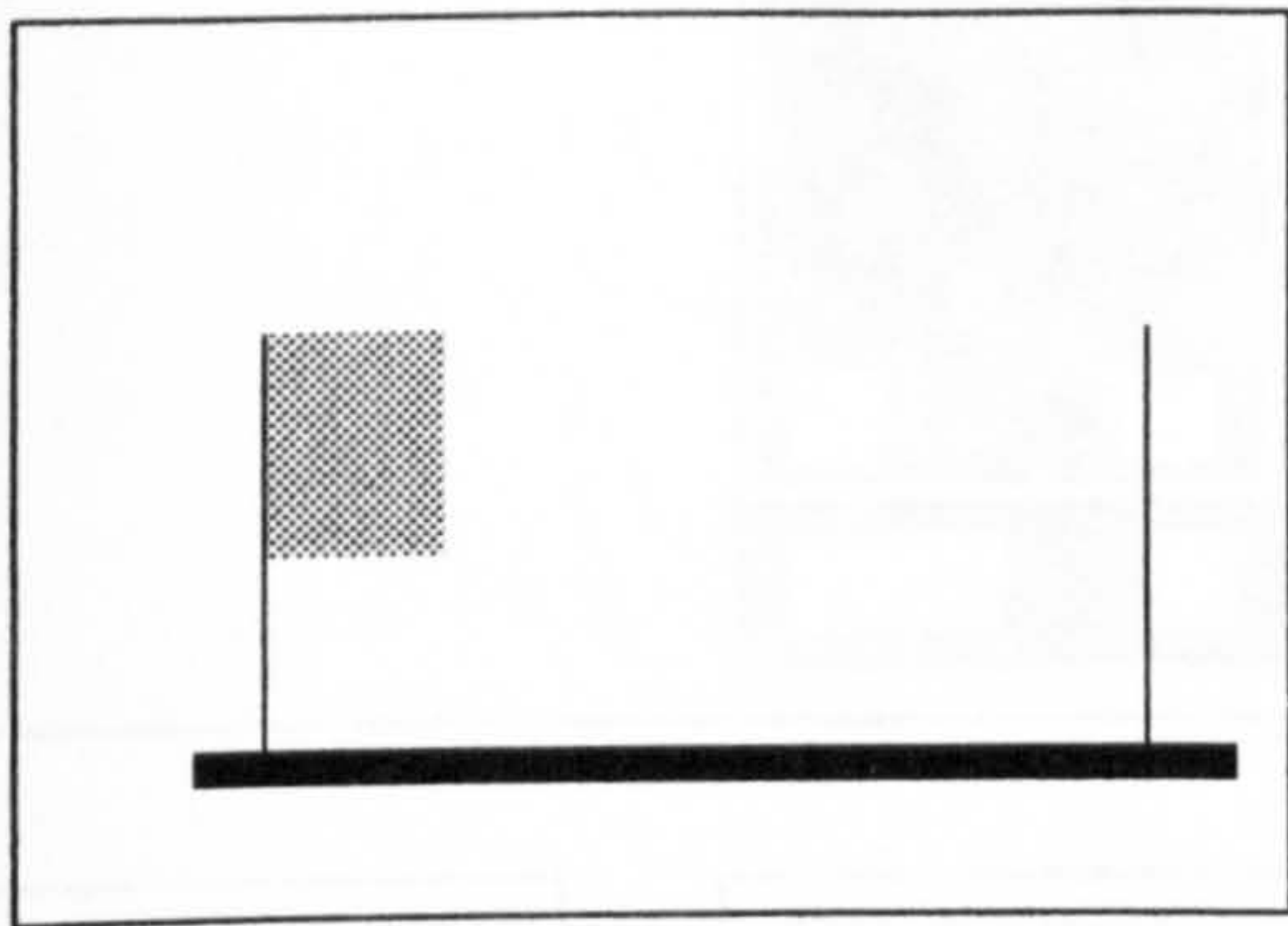
THE FINA ZONE



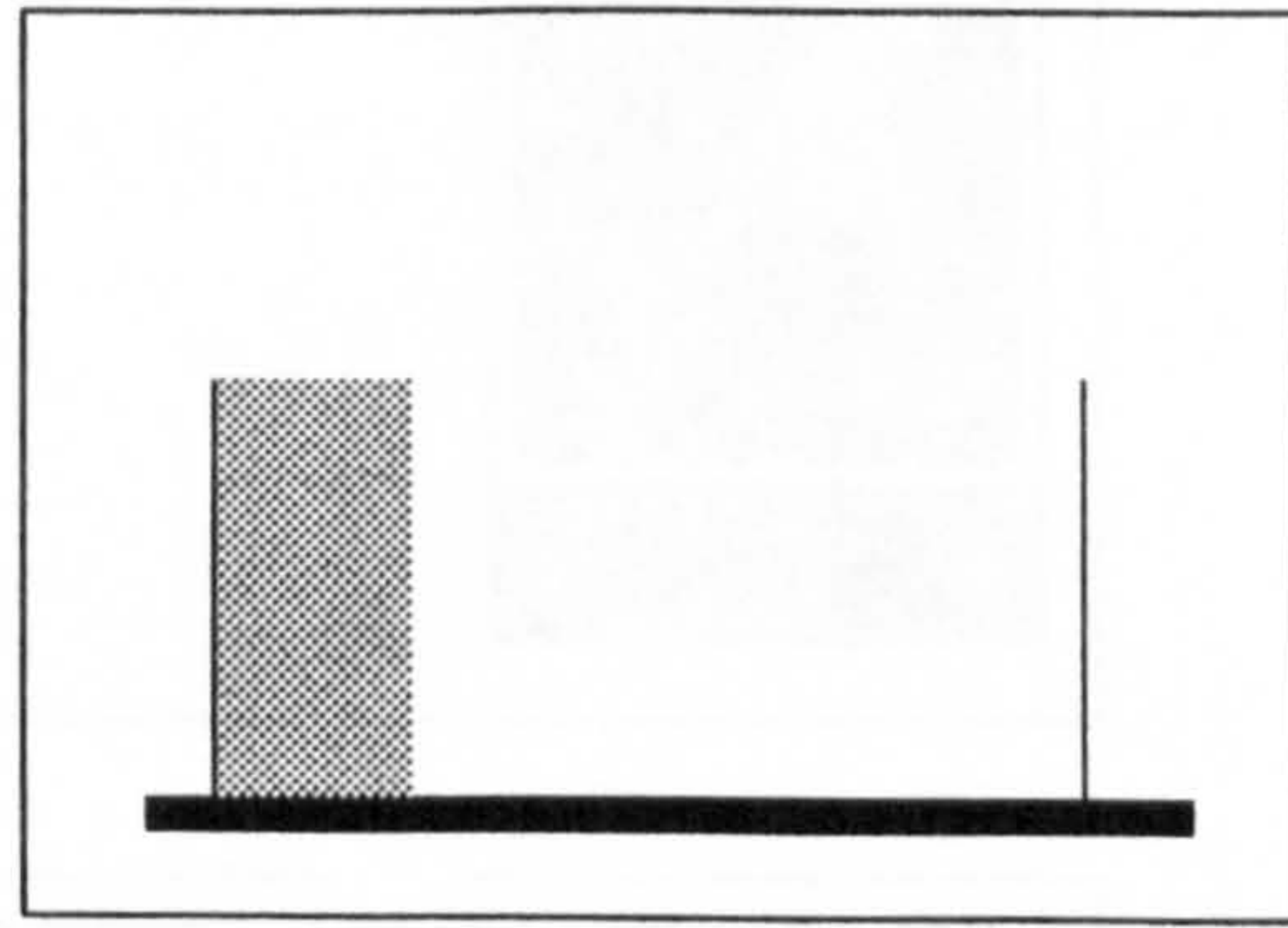
Two sides: Upper floors only



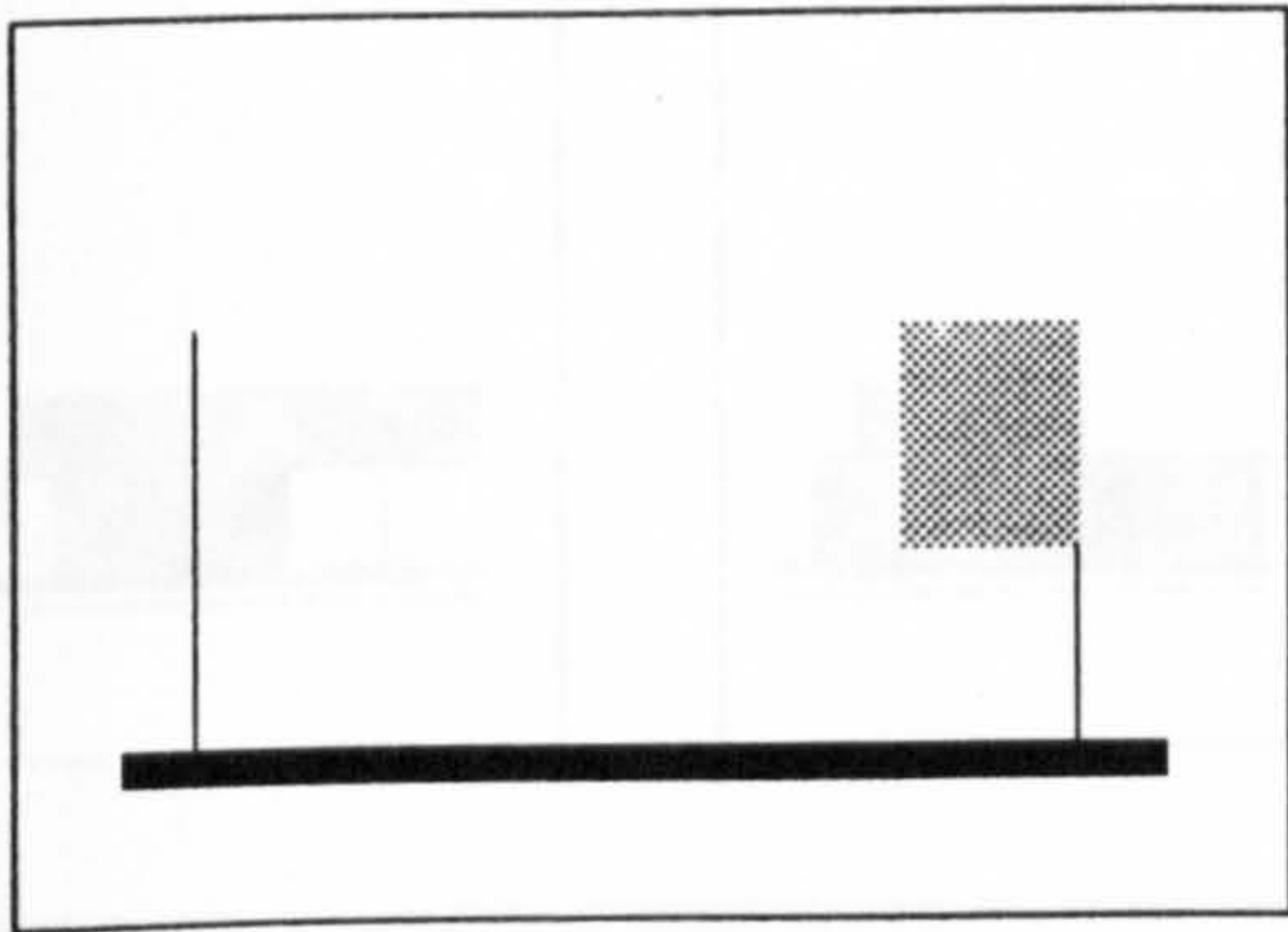
Two sides: Upper and ground floors



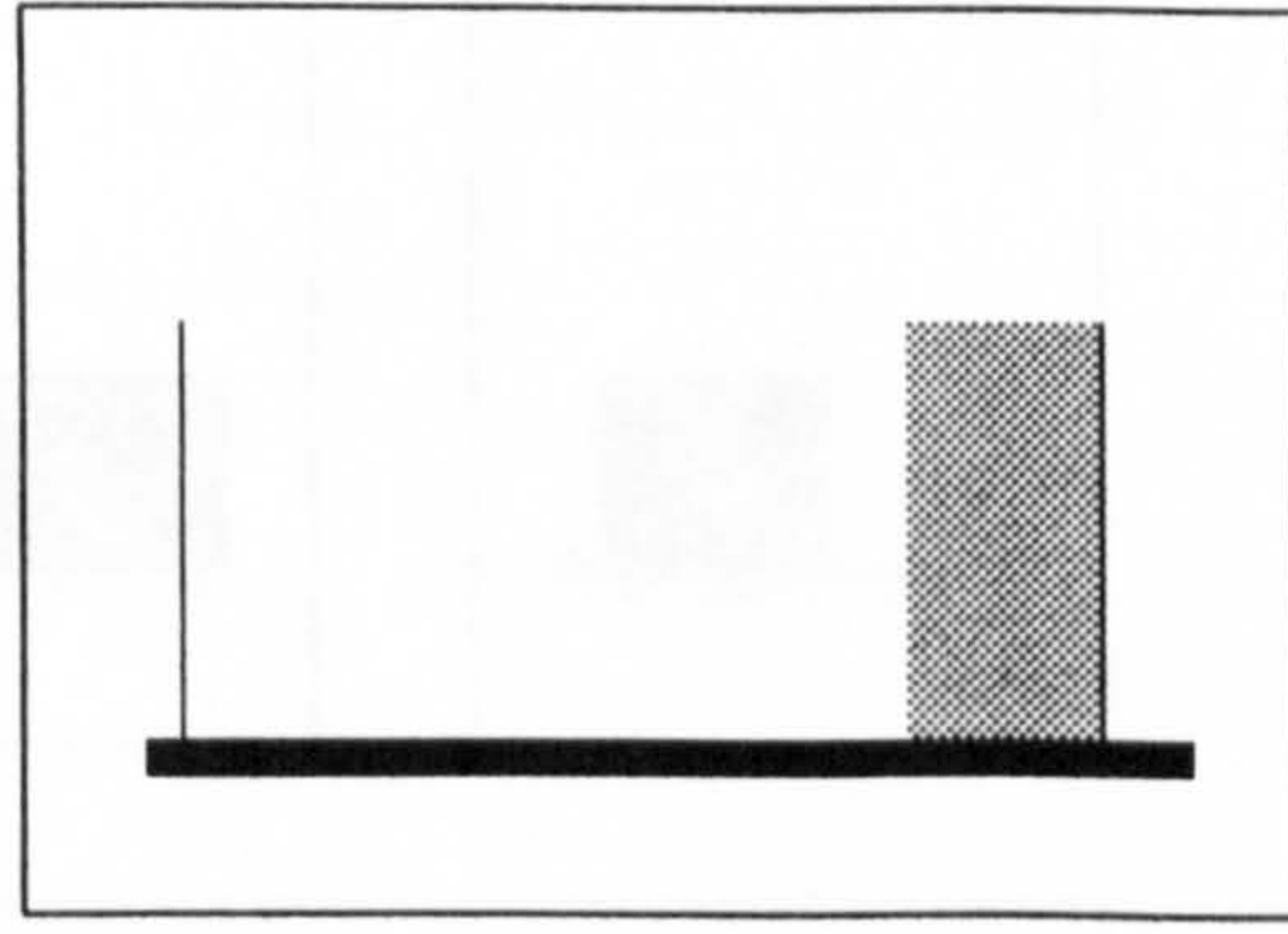
One side(Left): Upper Floors only



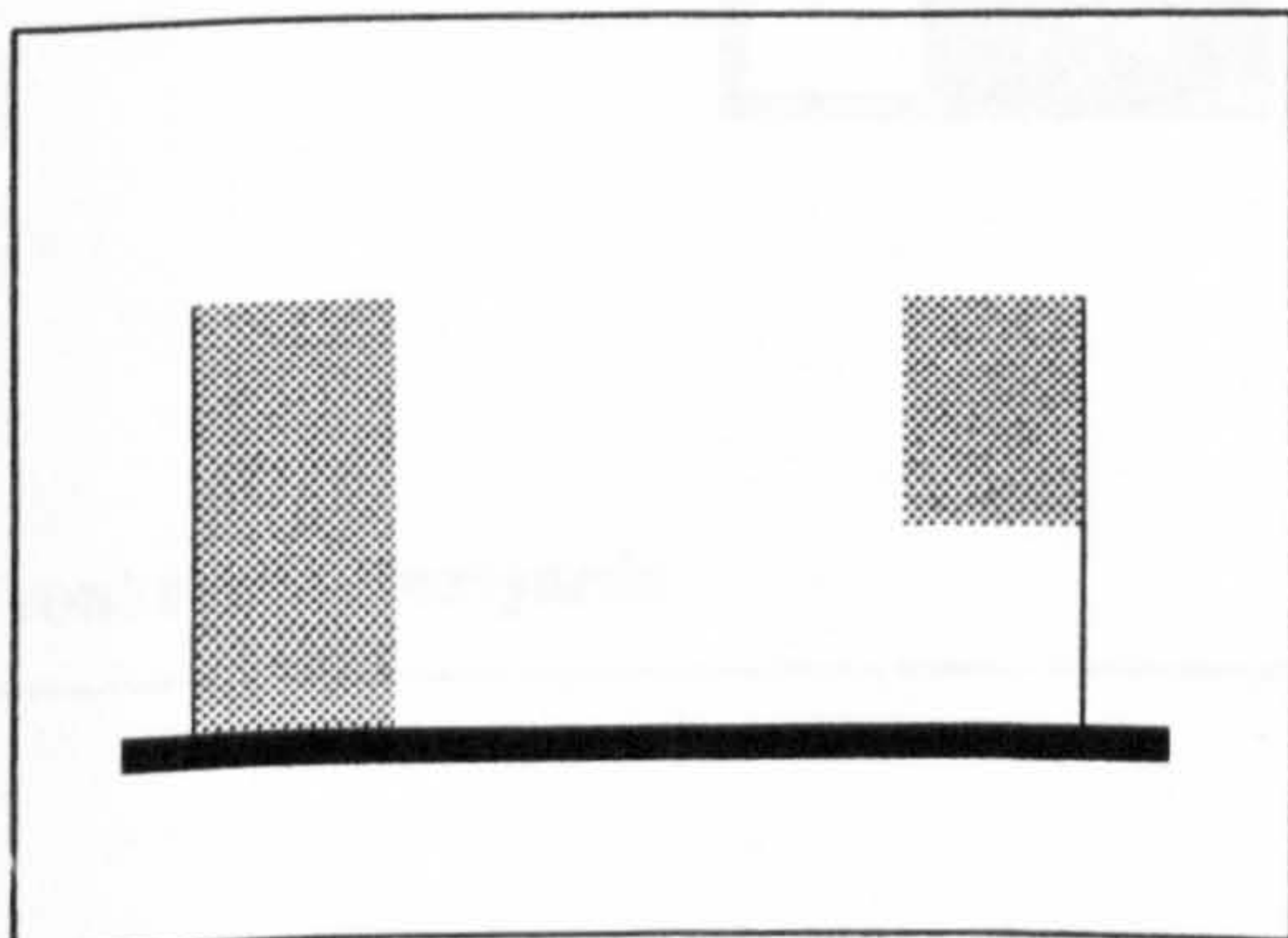
One side(left): Upper and ground floors



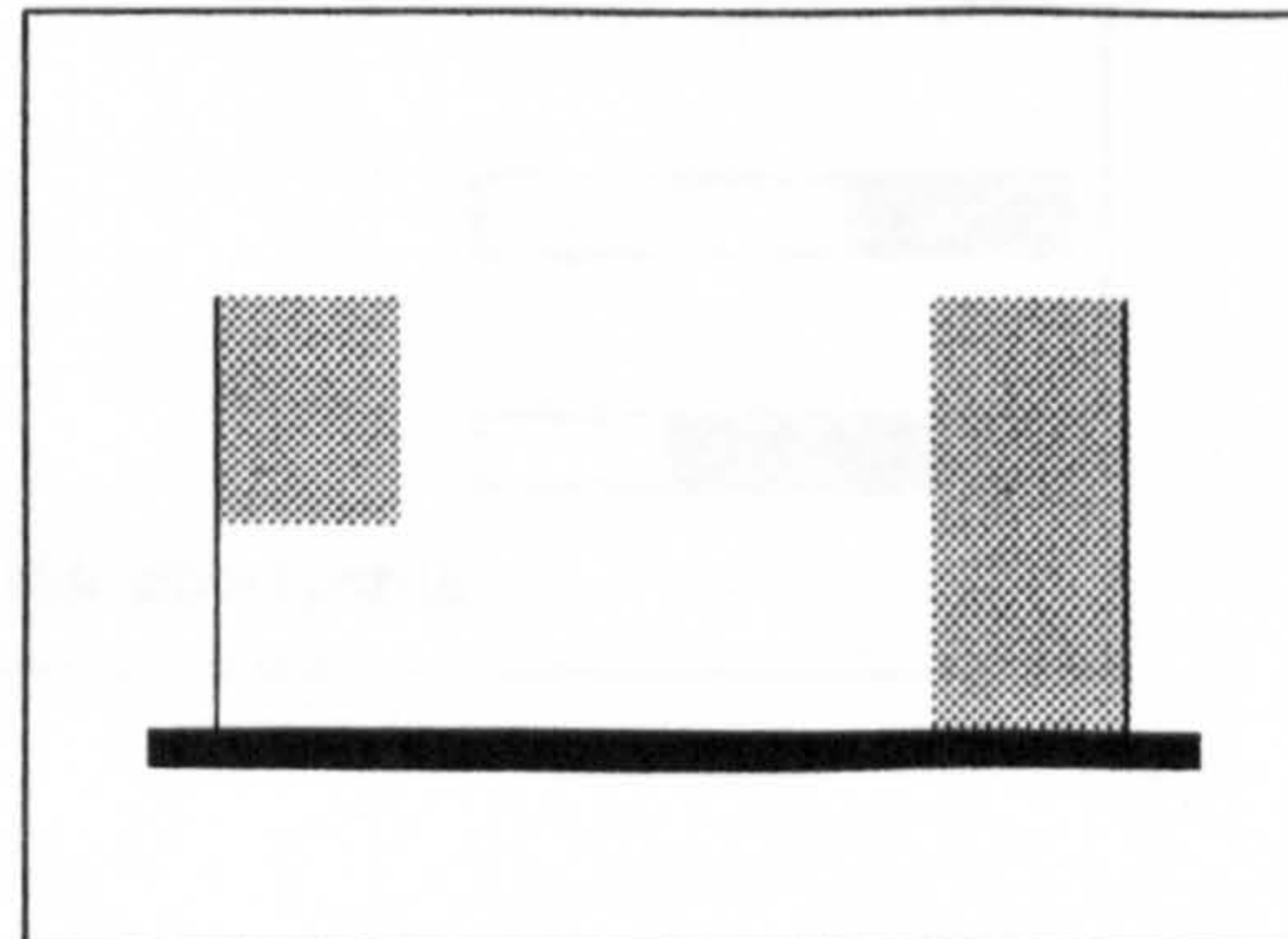
One side(right) Upper floor only



One side(right) Upper and ground floors



Combination



Combination

figure 11.2 The fina zone general design principals.

THE RESIDENTIAL UNIT ZONE

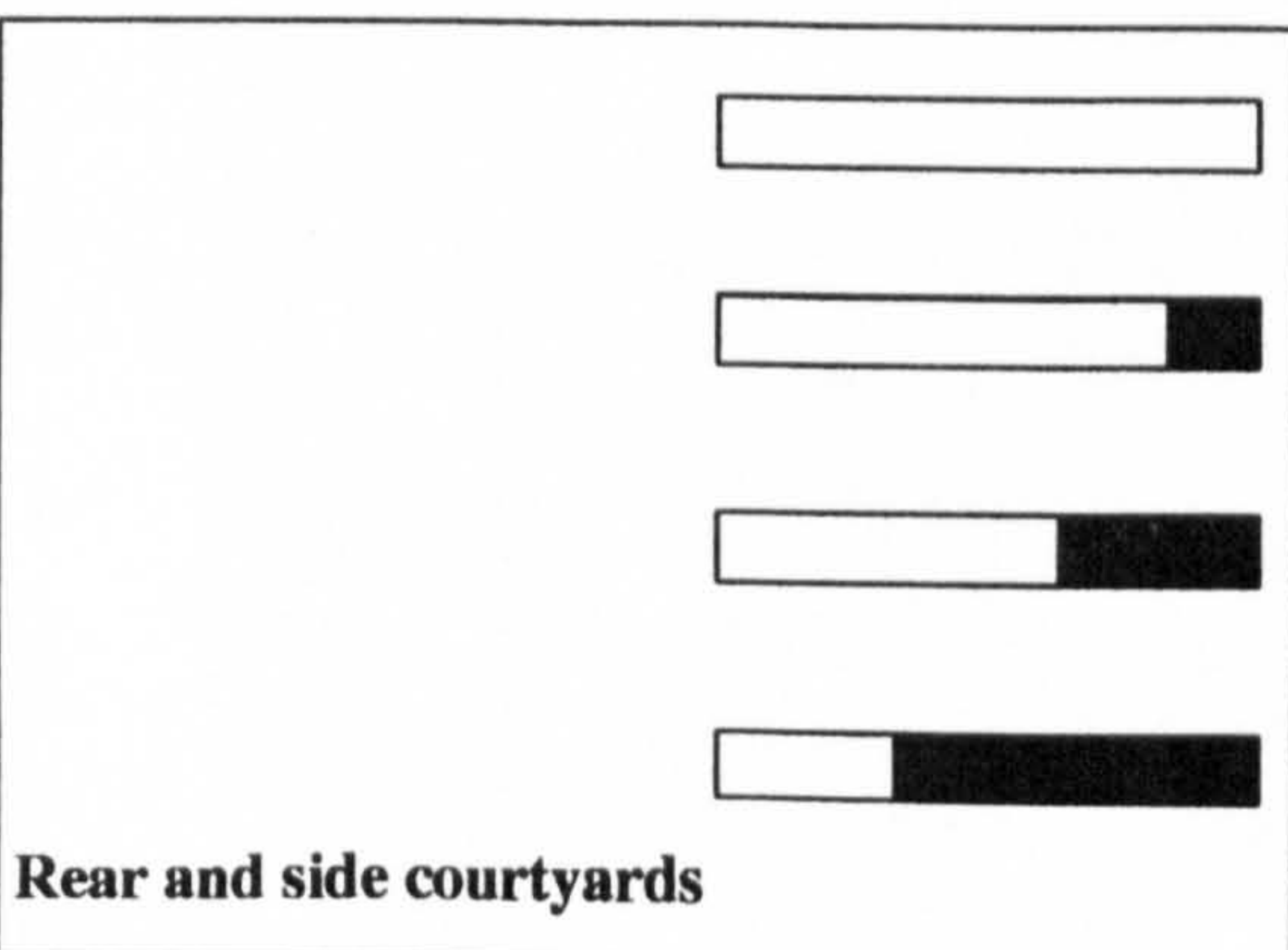
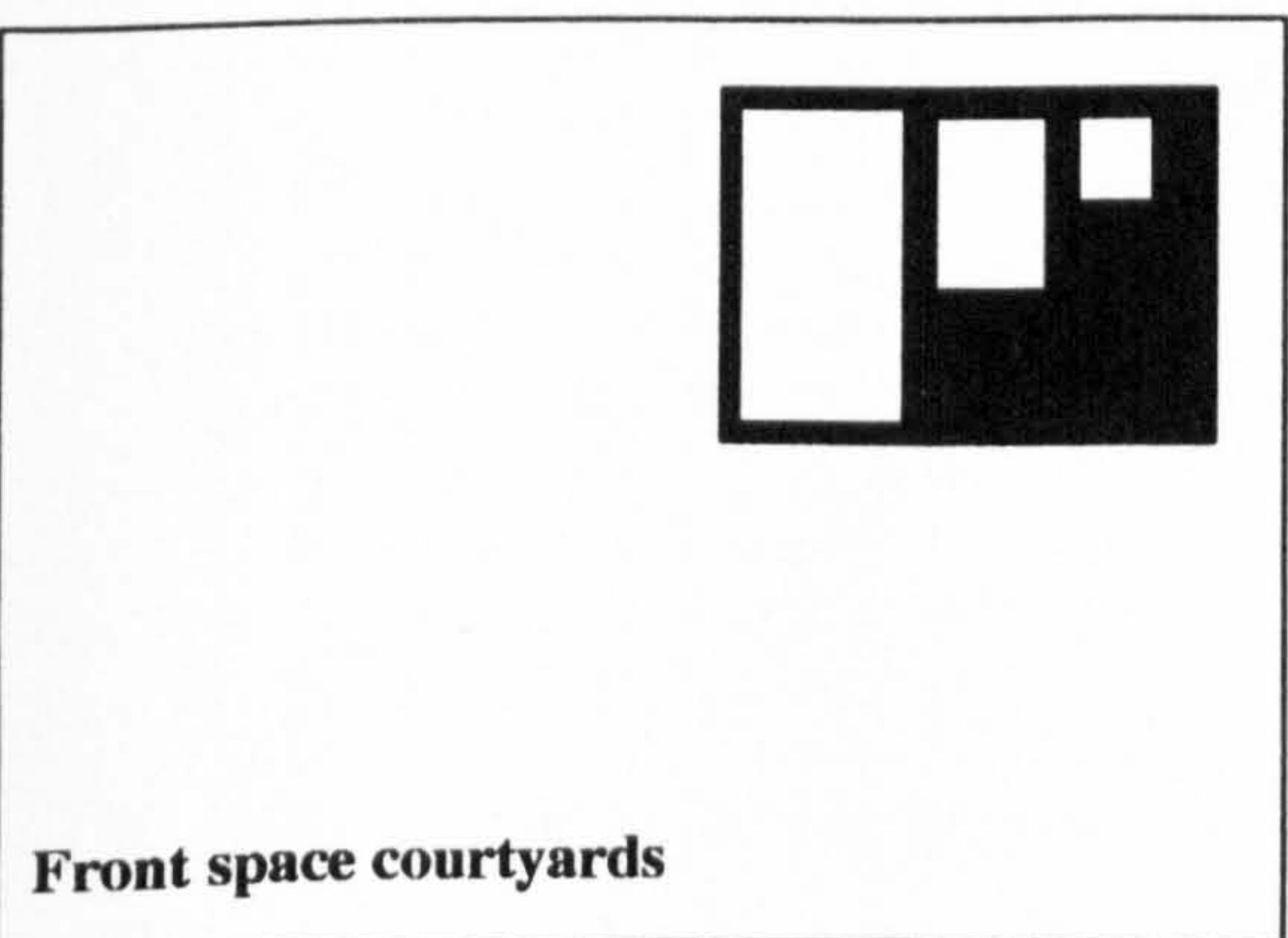
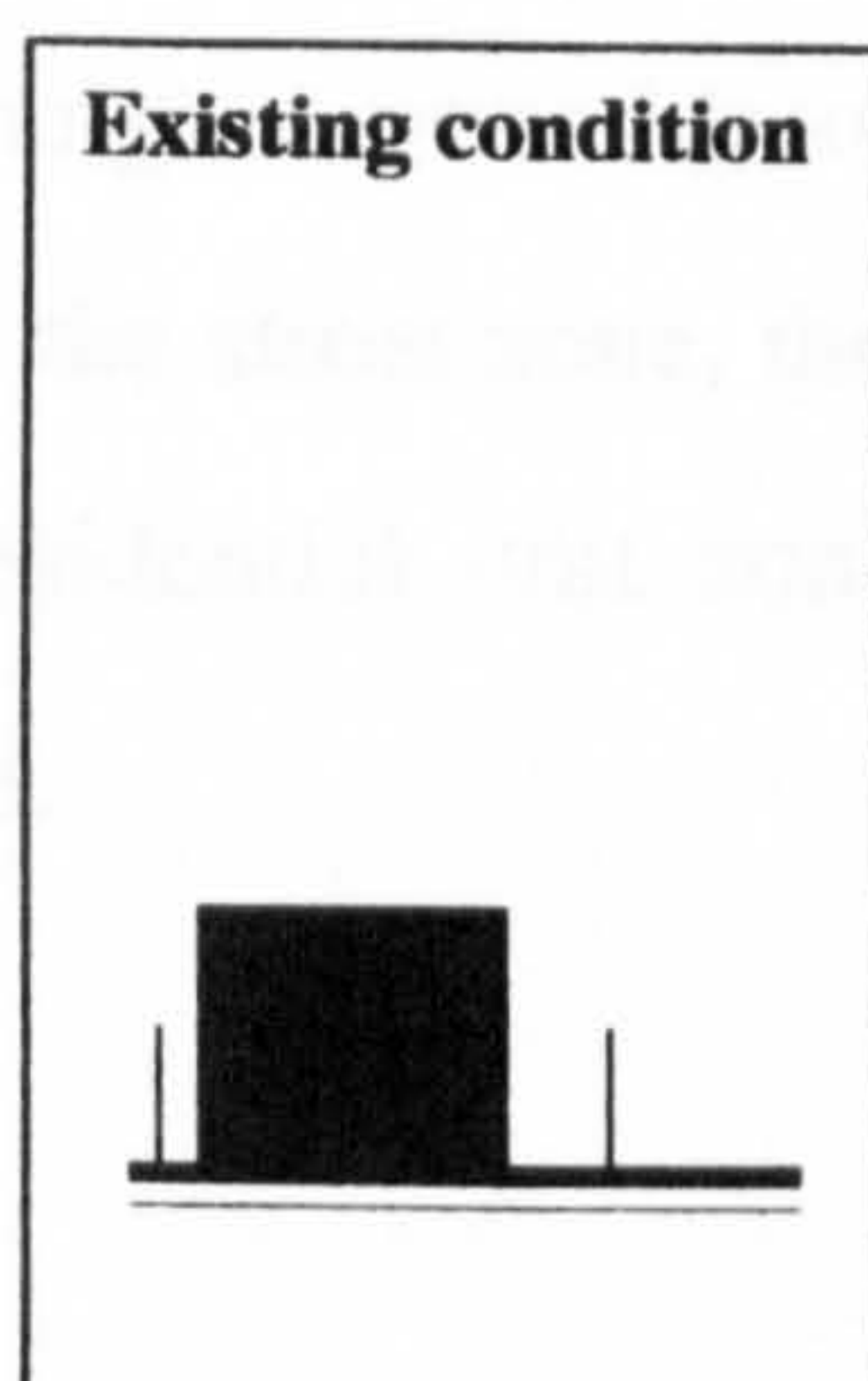
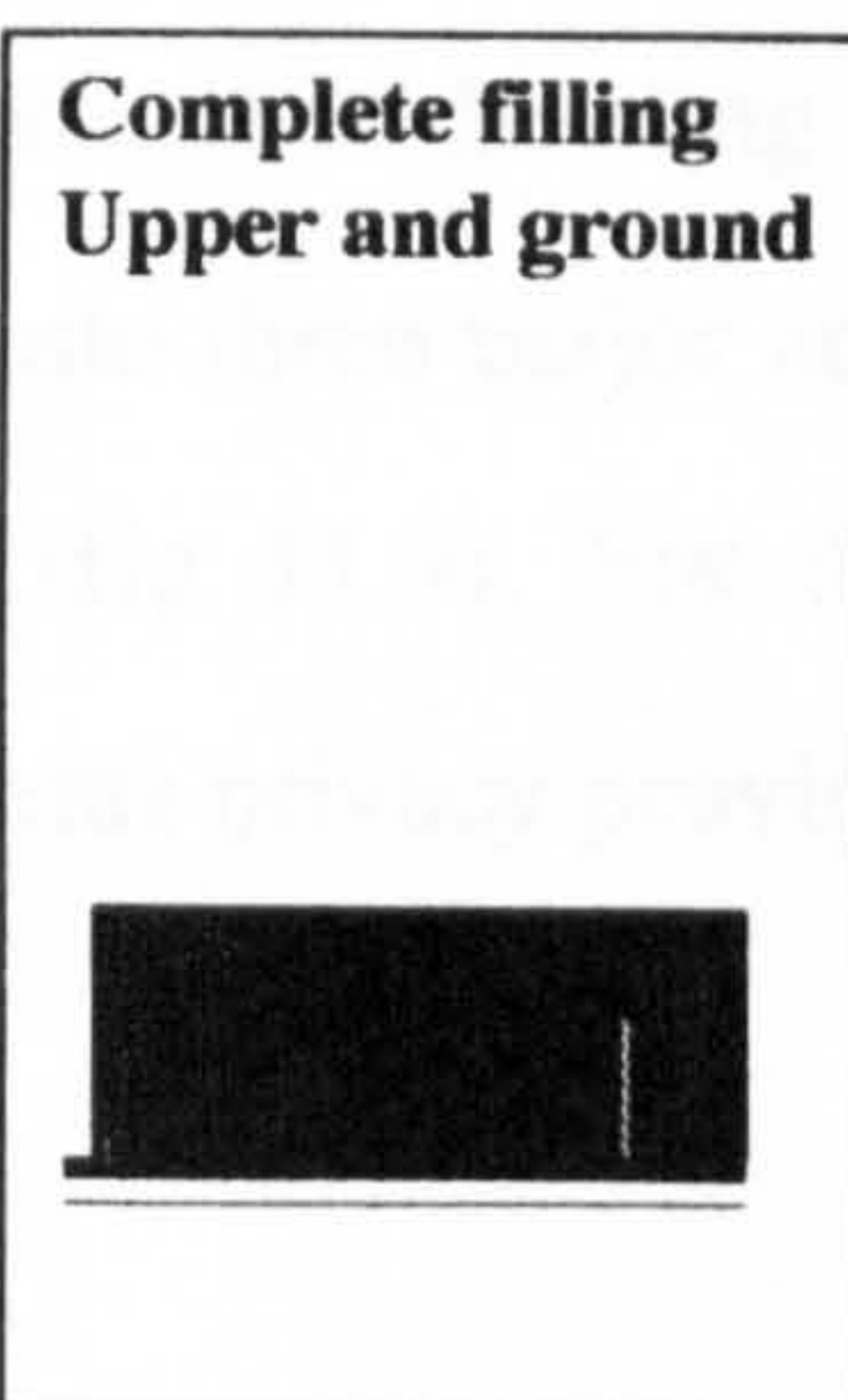
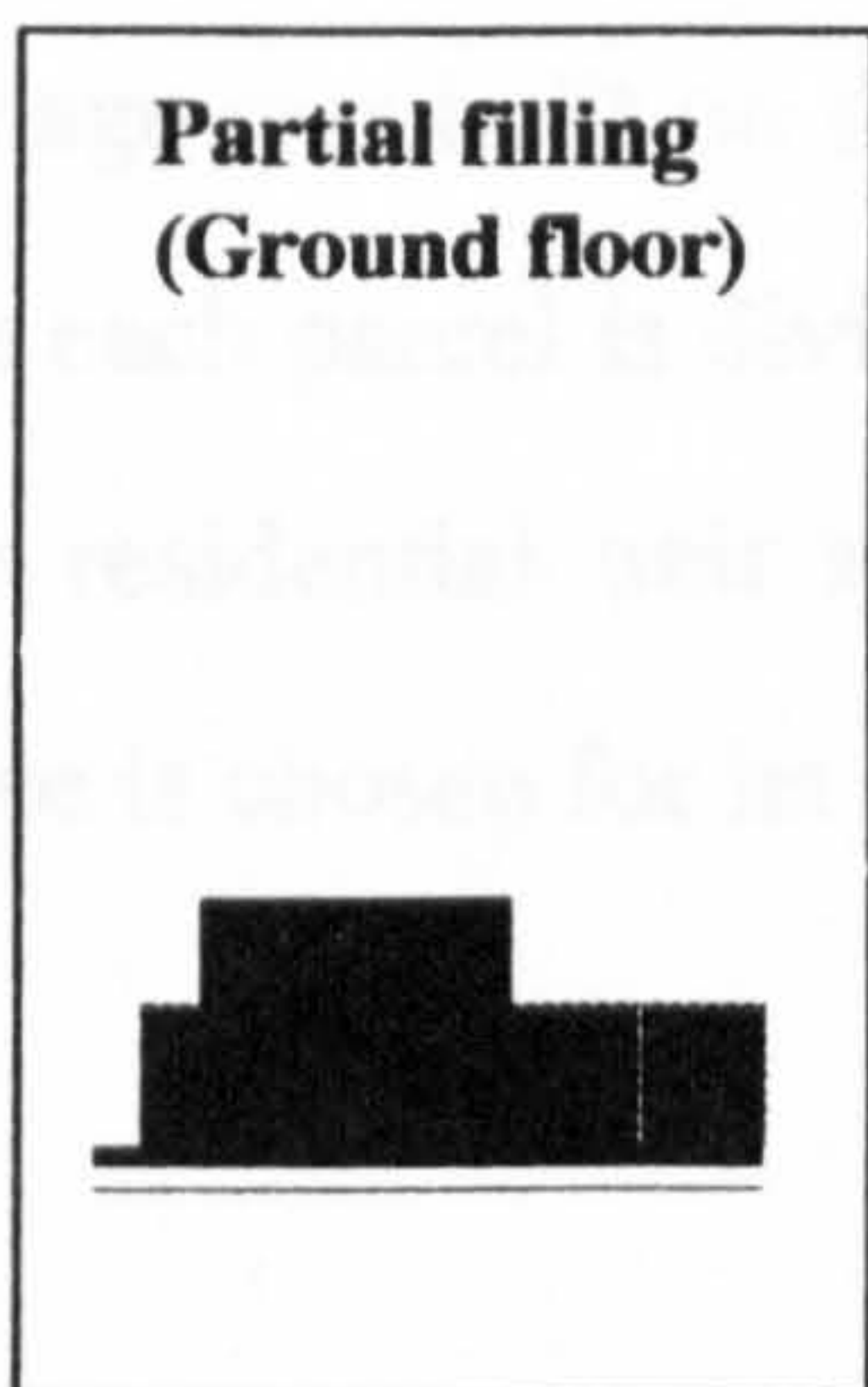
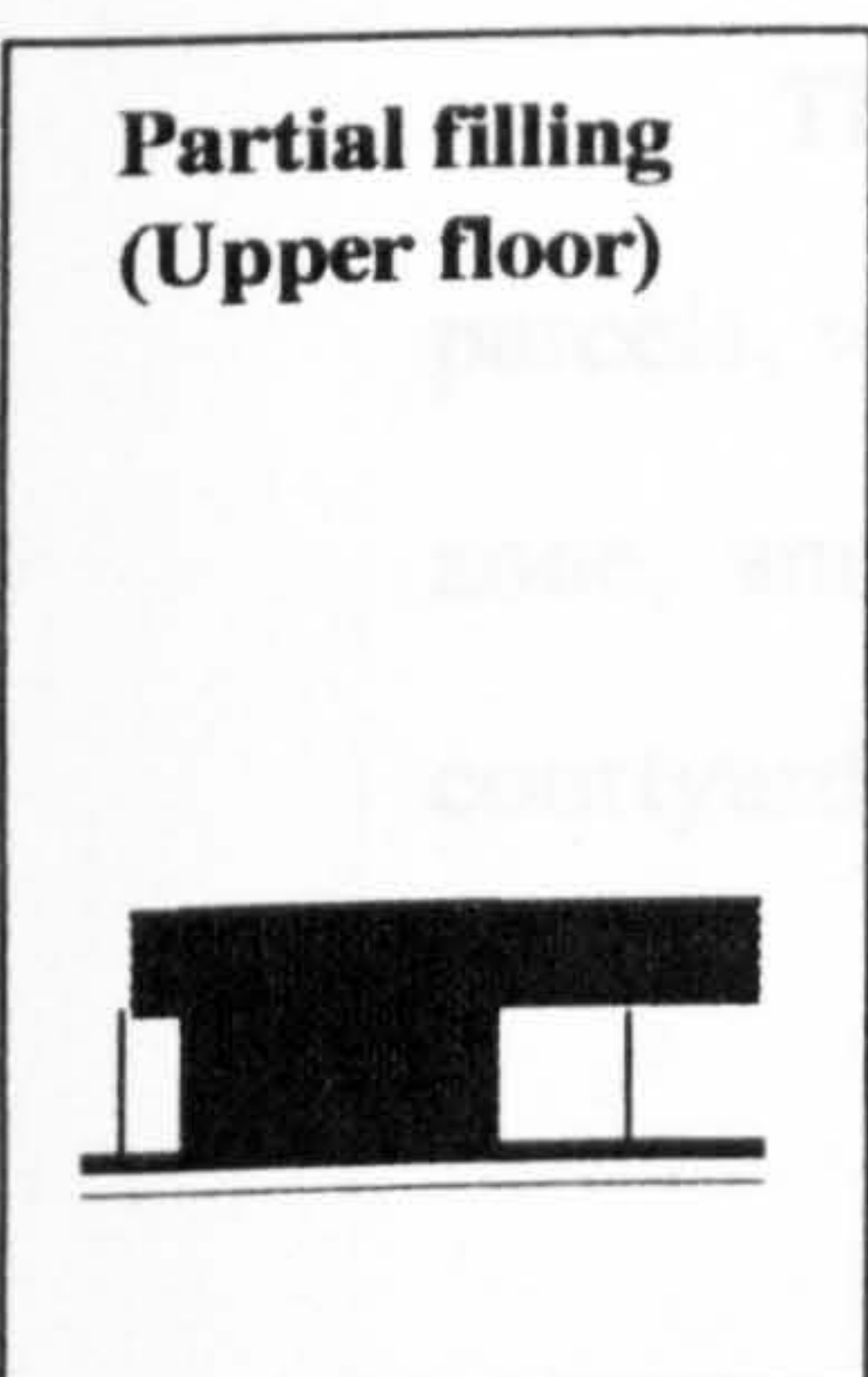
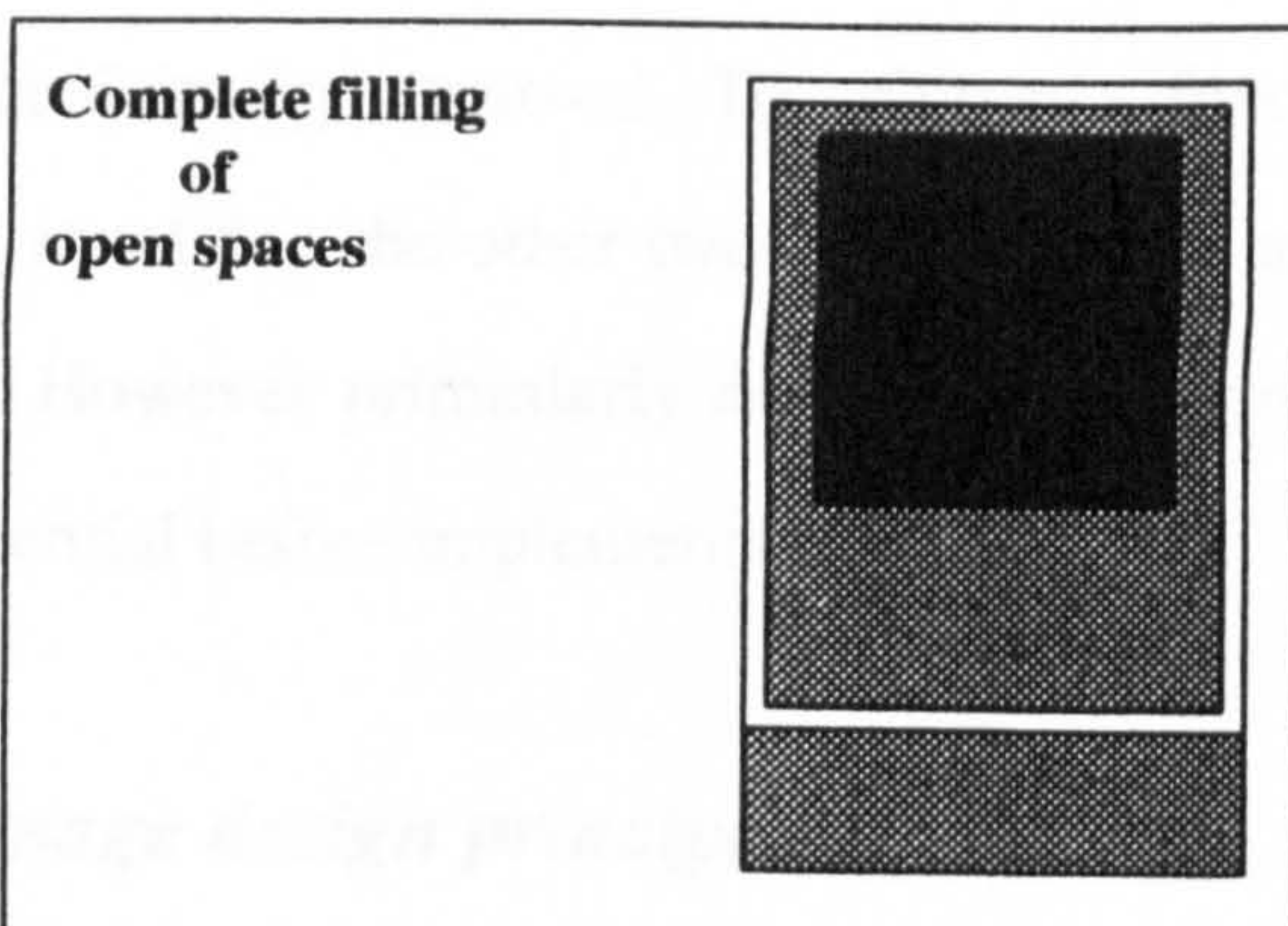
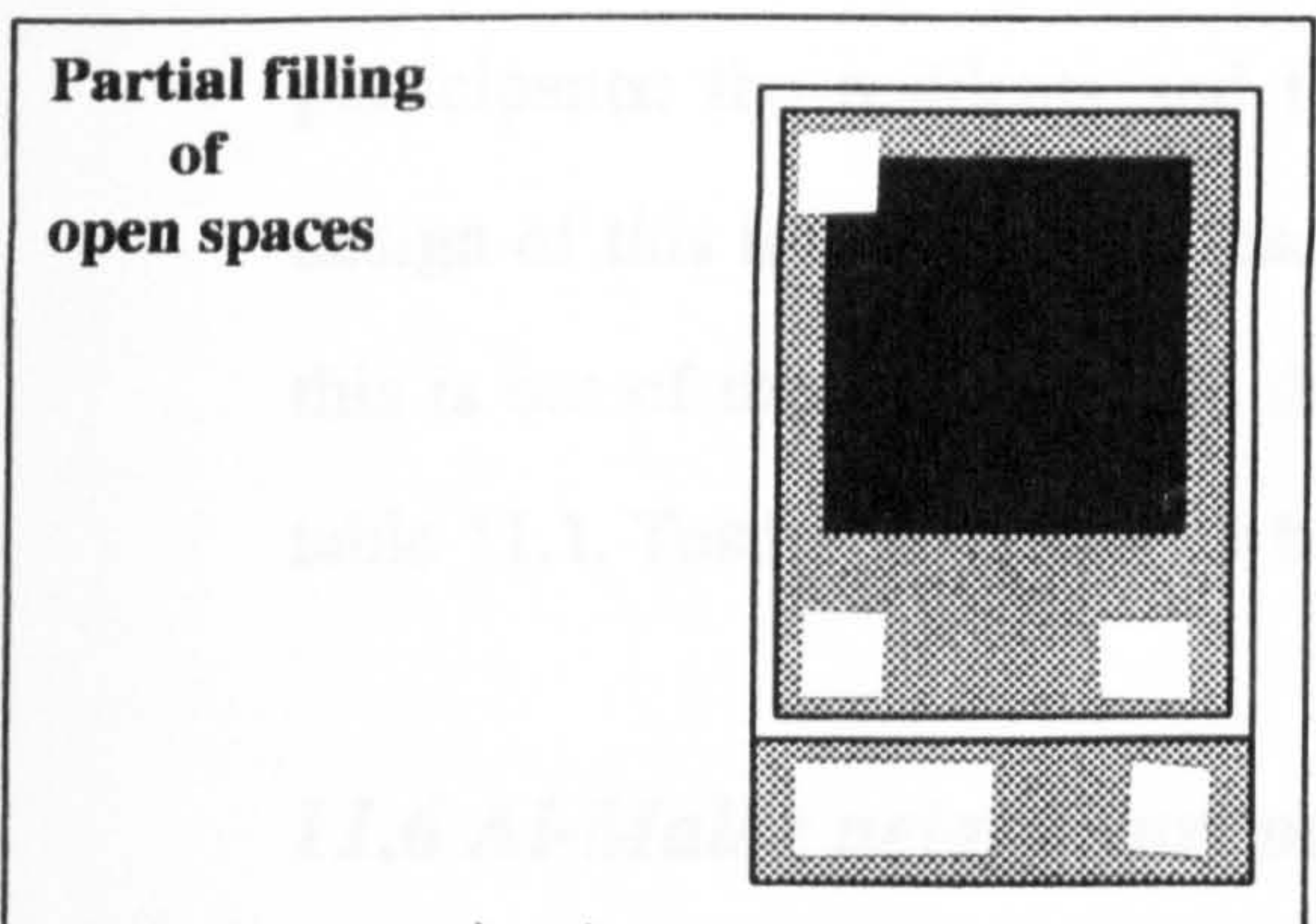
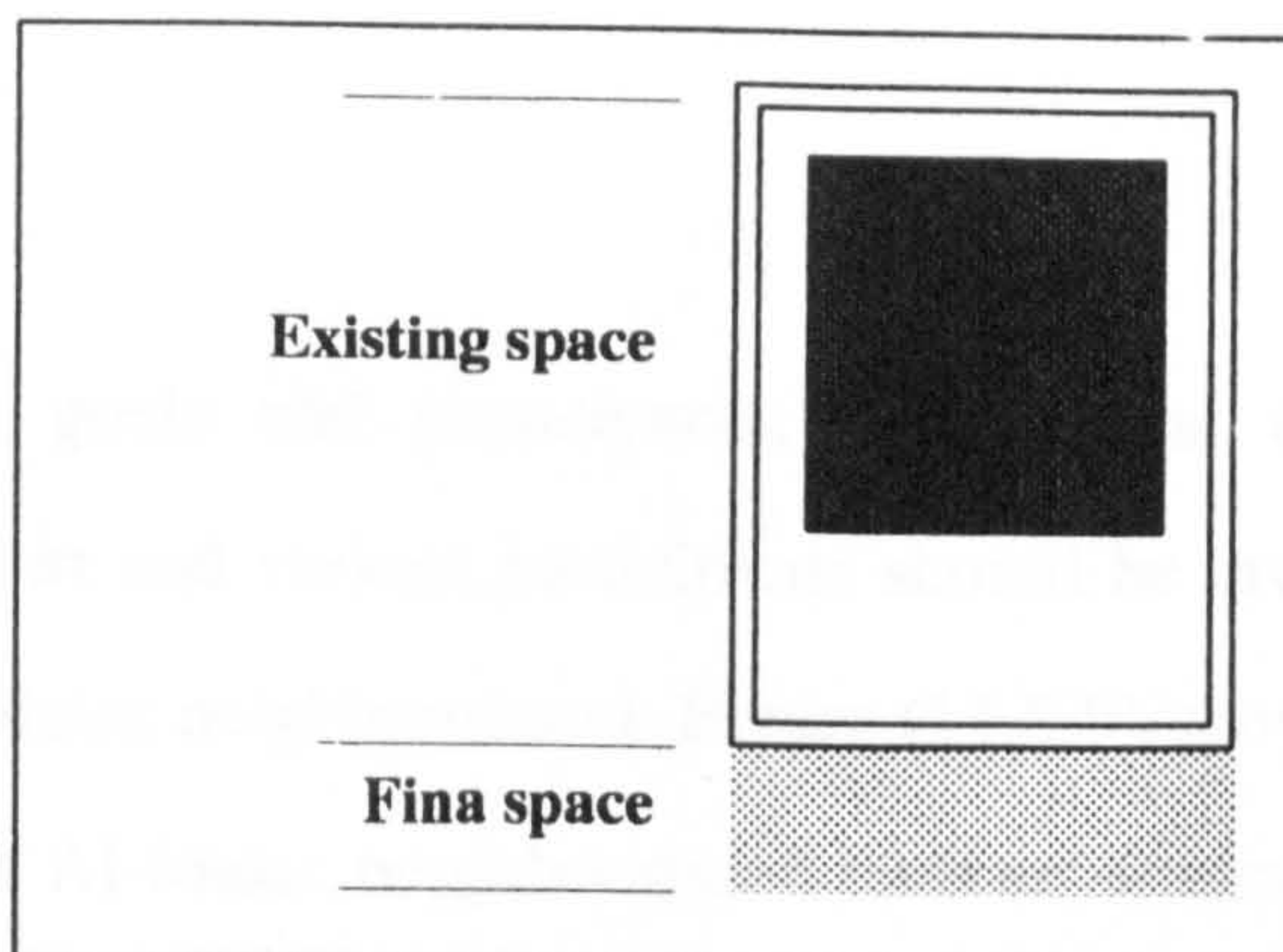
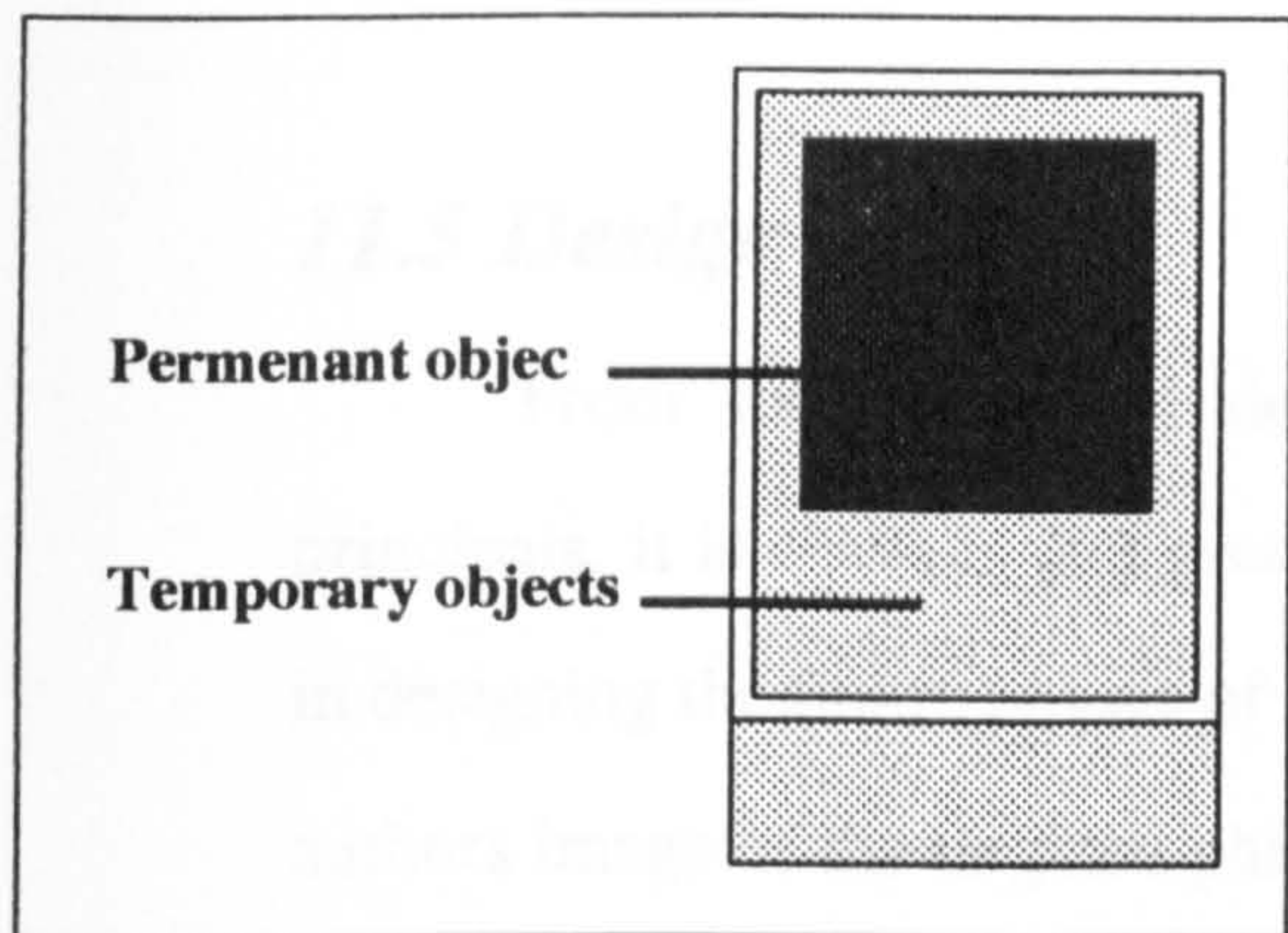


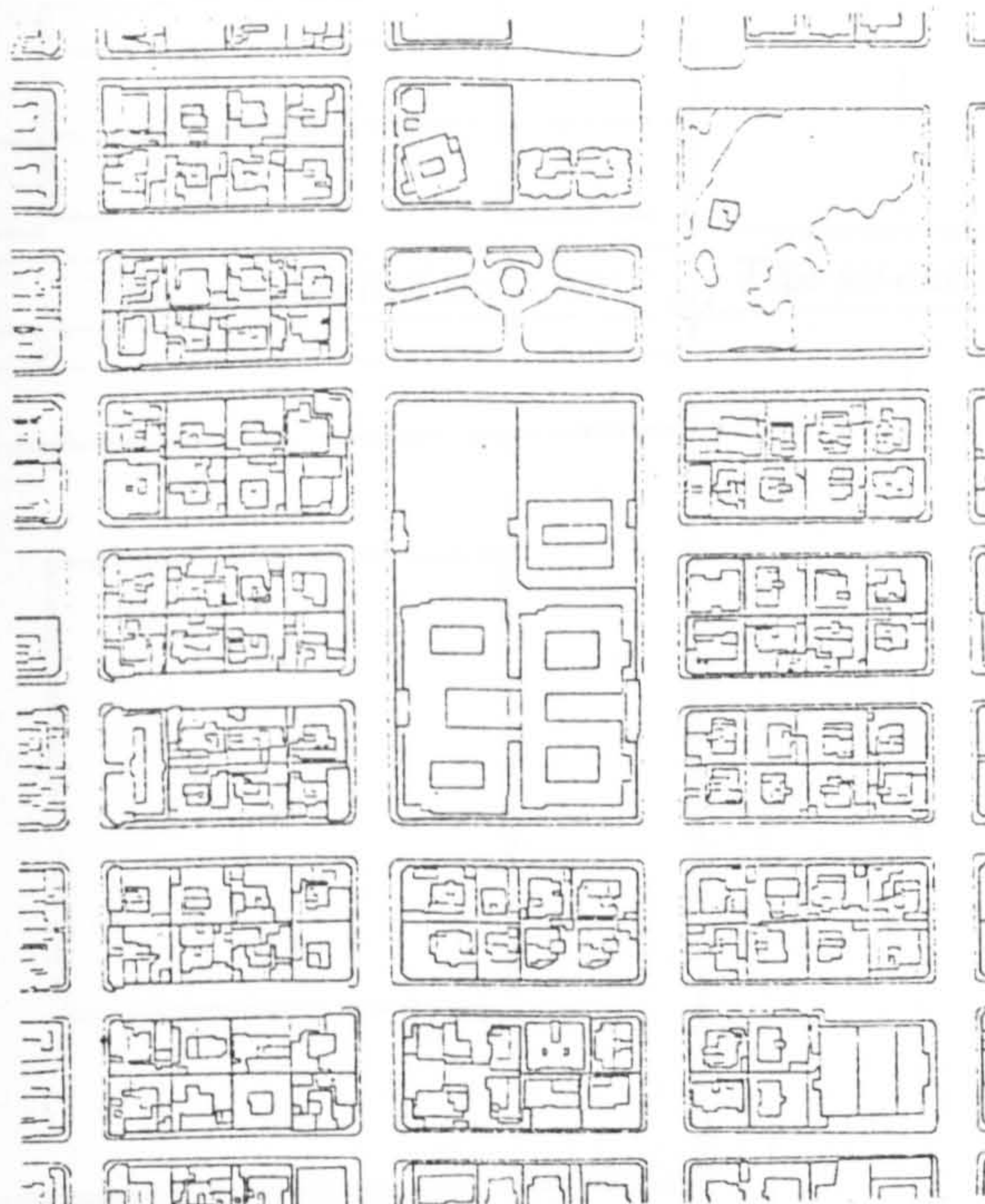
figure 11.3 The residential unit zone general design principals.

11.5 Design image

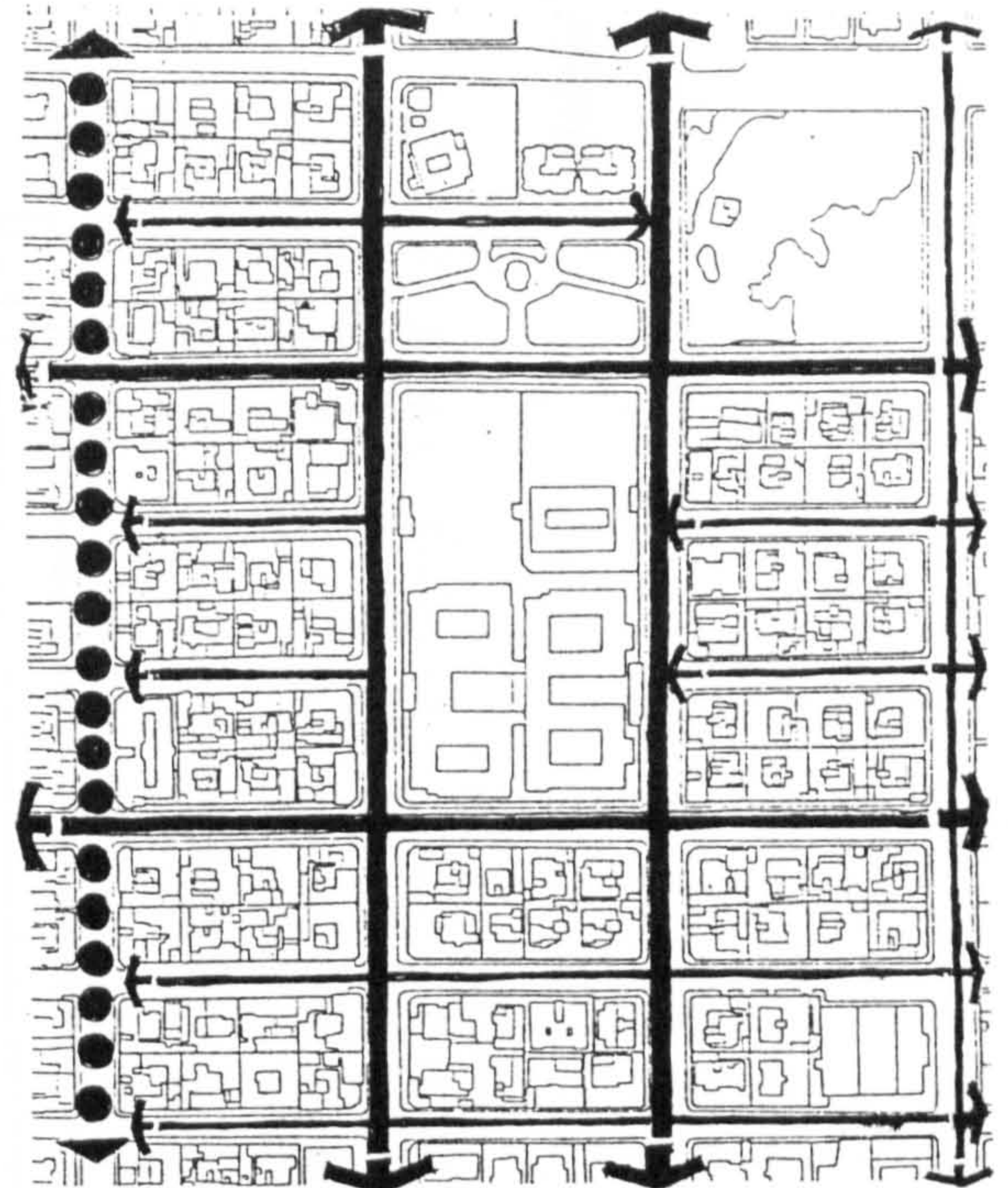
From the mentioned design goals and participants, and general design principals, it is obvious that great effort and various participants should be involved in designing the future phases of Al-Malaz neighbourhood. Figure (11.5-9) shows the authors image of the targeted phase of Al-Malaz neighbourhood built environment. It has to be mentioned that this design image is done with the absence of the other two participants: the residents and the municipality approval. To achieve a functional design of this image, further research involving the other two participants is needed, this is out of the scope of this thesis. However primarily design data are given in table 11.1. Testing of these will be essential before implementation.

11.6 Al-Malaz neighbourhood image design principals

The image was built on the concept of dividing the neighbourhood into three parcels, where each parcel is divided into three major zones: the street zone, the Fina zone, and the residential unit zone, (fig 11.9). For the residential unit zone, the courtyard house is chosen for its residents privacy providence.

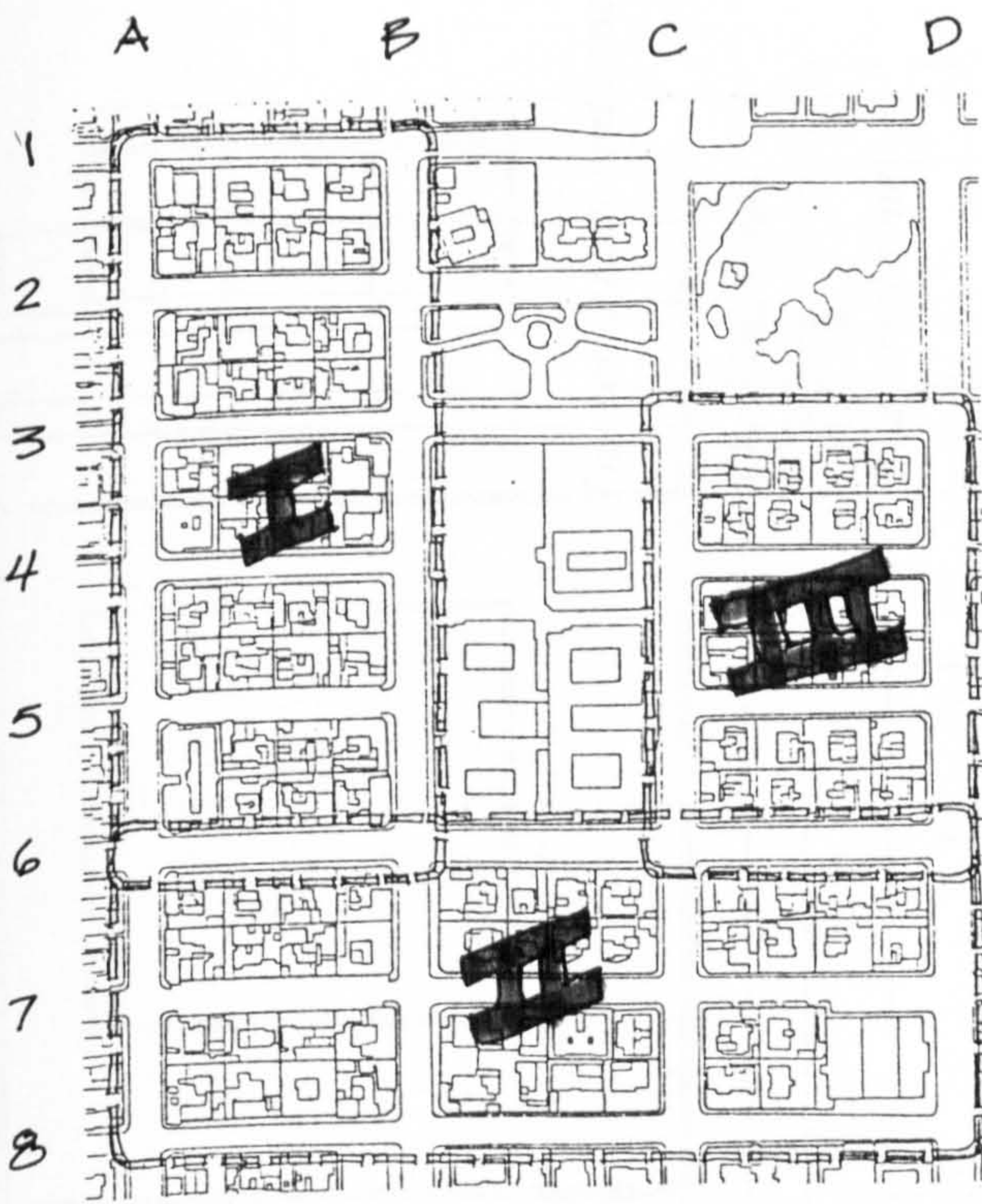


The studied neighbourhood

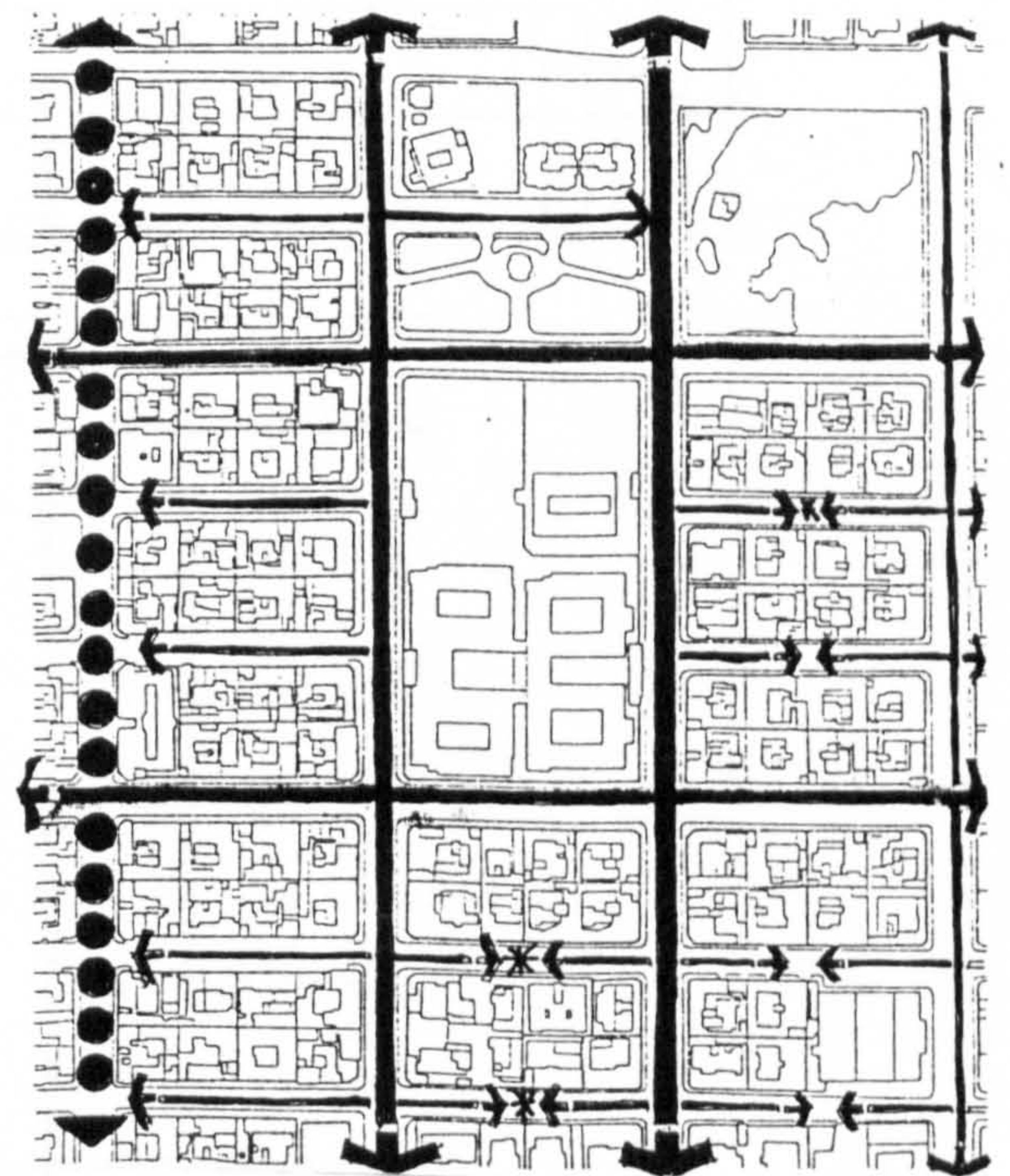


Traffic direction

figure 11.4 The design existing condition.



Parcel



The proposed traffic flow

figure 11.5 The Image parcels and traffic flow.

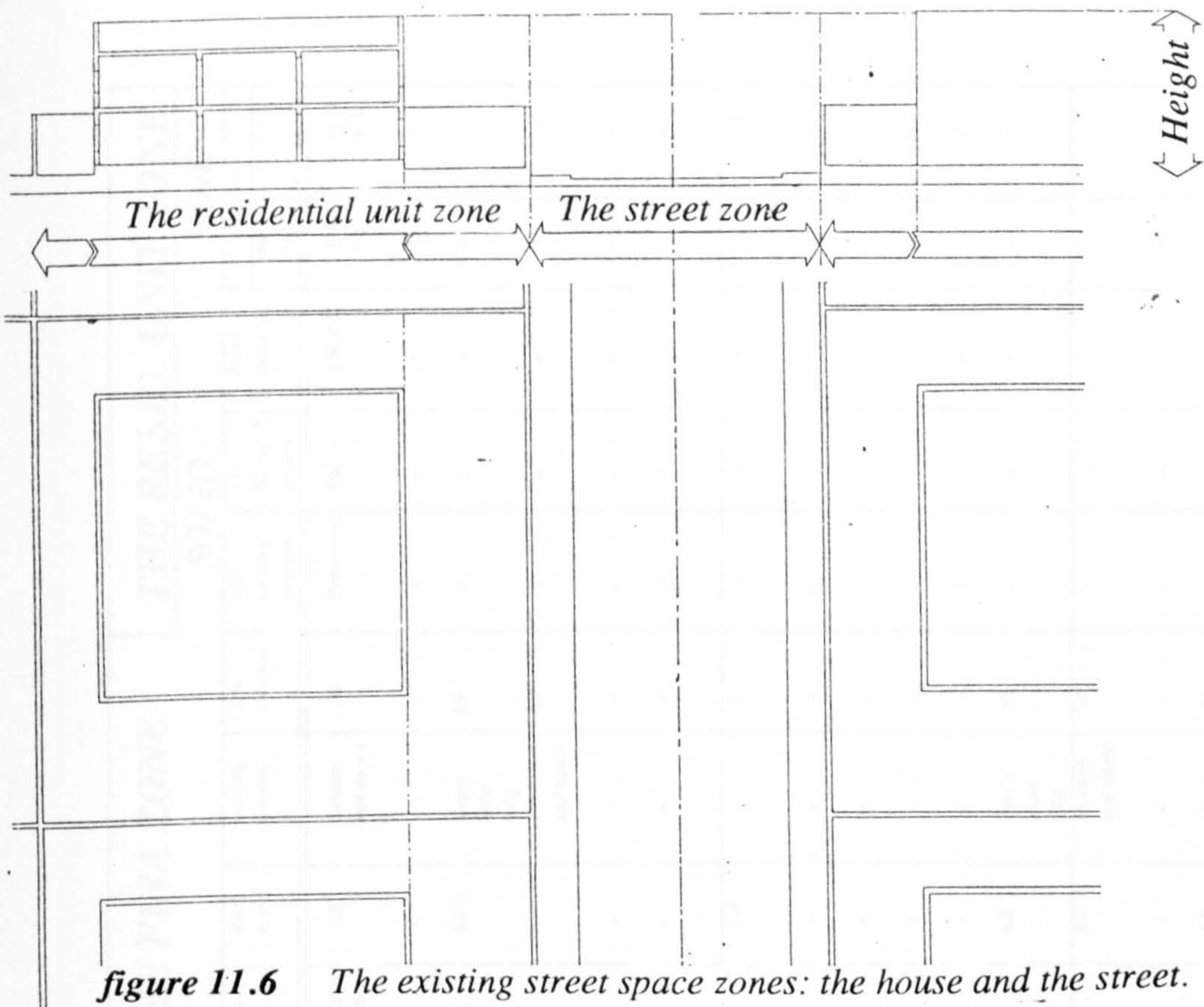


figure 11.6 The existing street space zones: the house and the street.

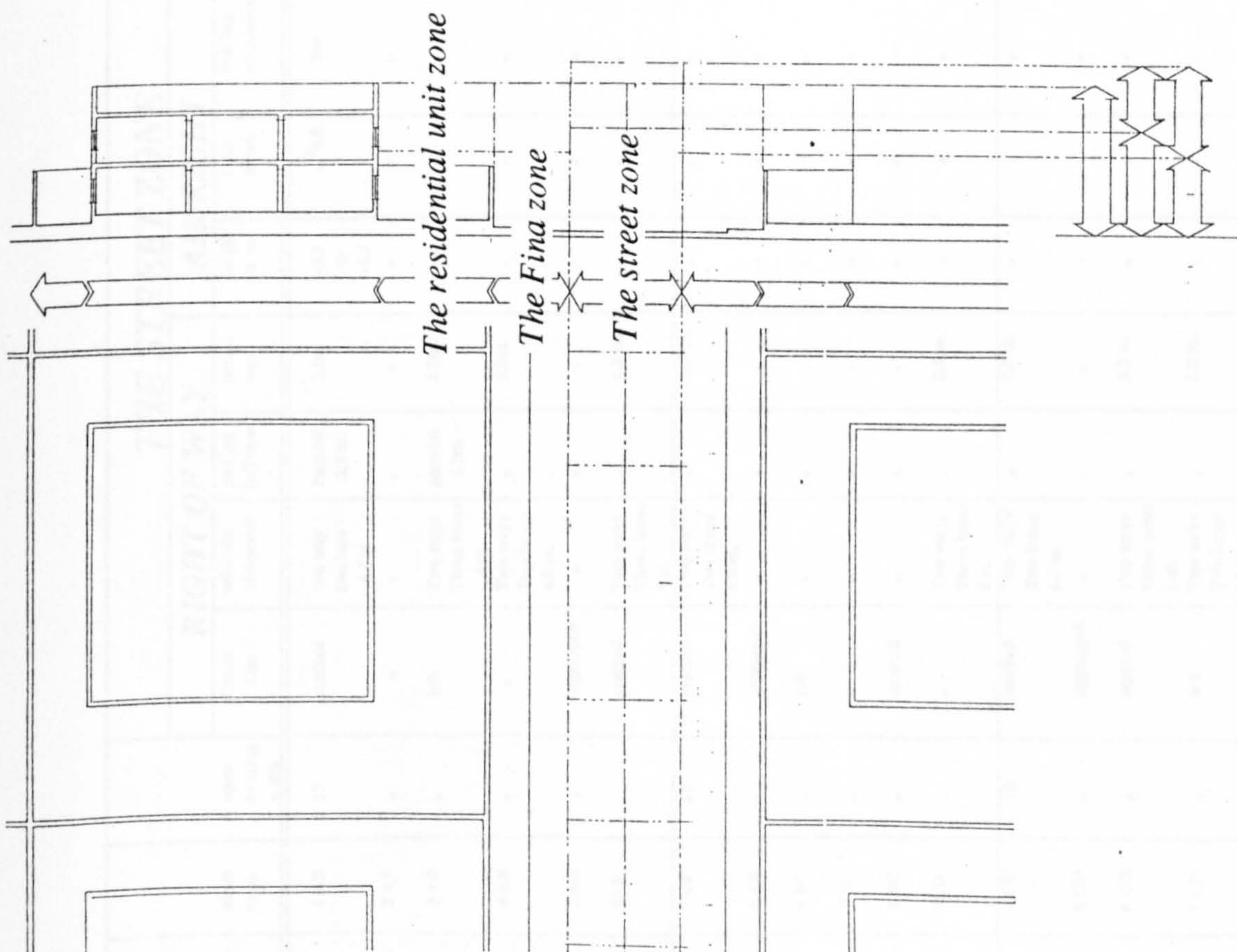


figure 11.7 The image street zones: the street, the Fina, and the residential unit.

parcel	street name	street existing width	THE STREET ZONE										THE FINA ZONE					THE RESID. UNIT ZONE				
			RIGHT OF WAY					AIR RIGHT					VOID					SOLID				
			Centre Line	vehicular Movement	parking (off street)	pedist. way	height in m.	court dimen.	building permission	location on street	width in m.	building permission	time duration	villa existing structure	villa filling of spaces	Street density	courtyard rear (m.)	courtyard front (m.)				
I	1 AB	15	centred	two way two lane 4.8 m	Parallel 2.3 m	2.8m	+5.5 to +8.5	12 x 4.8	Yes	Two side two floor	5.1	Ground and upper	25	Permanent	Partial	120/P/H	10 M x 2 5	20 M x 4 5				
	2 AB	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"				
	3 AB	"	left	Two ways Three lanes 6 m.	parallel 2.3m.	2.2m.	"	"	"	"	4.8 m.	upper floor only	20	"	"	"	"	"				
	4 AB	"	"	Two ways Two lanes 4.8 m.	"	2.8m.	"	"	"	"	5.1	Ground and upper	25	"	"	"	"	"				
	5 AB	"	zigzagged	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"				
	6 AB	"	centred	Two ways Three lanes 6 m.	"	2.2 m.	"	"	"	"	"	"	"	"	"	"	"	"	"			
II	7 AB	15	centred	Two ways Two lanes 4.8 m.	"	2.8 m.	"	"	"	"	5.1	"	"	"	"	"	"	"				
	8 AB	"	zigzagged	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"				
	6 BC	"	left	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"				
	7 BC	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"				
	8 BC	"	centred	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"				
	3 CD	"	"	Two ways Three lanes 6 m.	"	2.2 m.	"	"	"	"	4.5	Upper Floor only	20	"	"	"	"	"				
III	4 CD	15	centred	Two ways Two lanes 4.8 m.	"	2.8 m.	"	"	"	"	5.1	Ground and upper	25	"	"	"	"	"				
	5 CD	"	zigzagged	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"				
	6 CD	"	centred	Two ways Three lanes 6 m.	"	2.2 m.	"	"	"	"	4.8	Upper floor only	20	"	"	"	"	"				
	7 CD	"	left	Two ways Two lanes 4.8 m.	"	2.8 m.	"	"	"	"	5.1	ground and upper	25	"	"	"	"	"				
	8 CD	"	centred	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"				

		THE STREET ZONE						THE FINA ZONE				THE RESID. UNIT ZONE					
		RIGHT OF WAY			AIR RIGHT							SOLID			VOID		
		Centre Line	vehicular Movement	parking (off street)	pedest. way	height in m.	court dimen.	building permission	location on street	width in m.	building permission	time duration	villa existing structure	villa filling of spaces	Street density	courtyard rear (m.)	courtyard front (m.)
A	P	E	D	E	S	T	R	I	A	N	S		O	N	L	Y	
B	25	right 8.75	Two ways Four lanes 13.5 m.	45% on right Parallel on left	2 m. right 4 m. left	between +6 and +12	none	none	one side left only	4 m.	upper floor only	15	3 floors	20%	140	12 m 2 6	25 m. 5 5
C	"	left 8.75	"	Parallel on right 54 on left	4 m. right 2 m. left	"	"	"	one side right only	"	"	"	"	"	"	"	"

Table III, Al-Malaz neighbourhood design principals

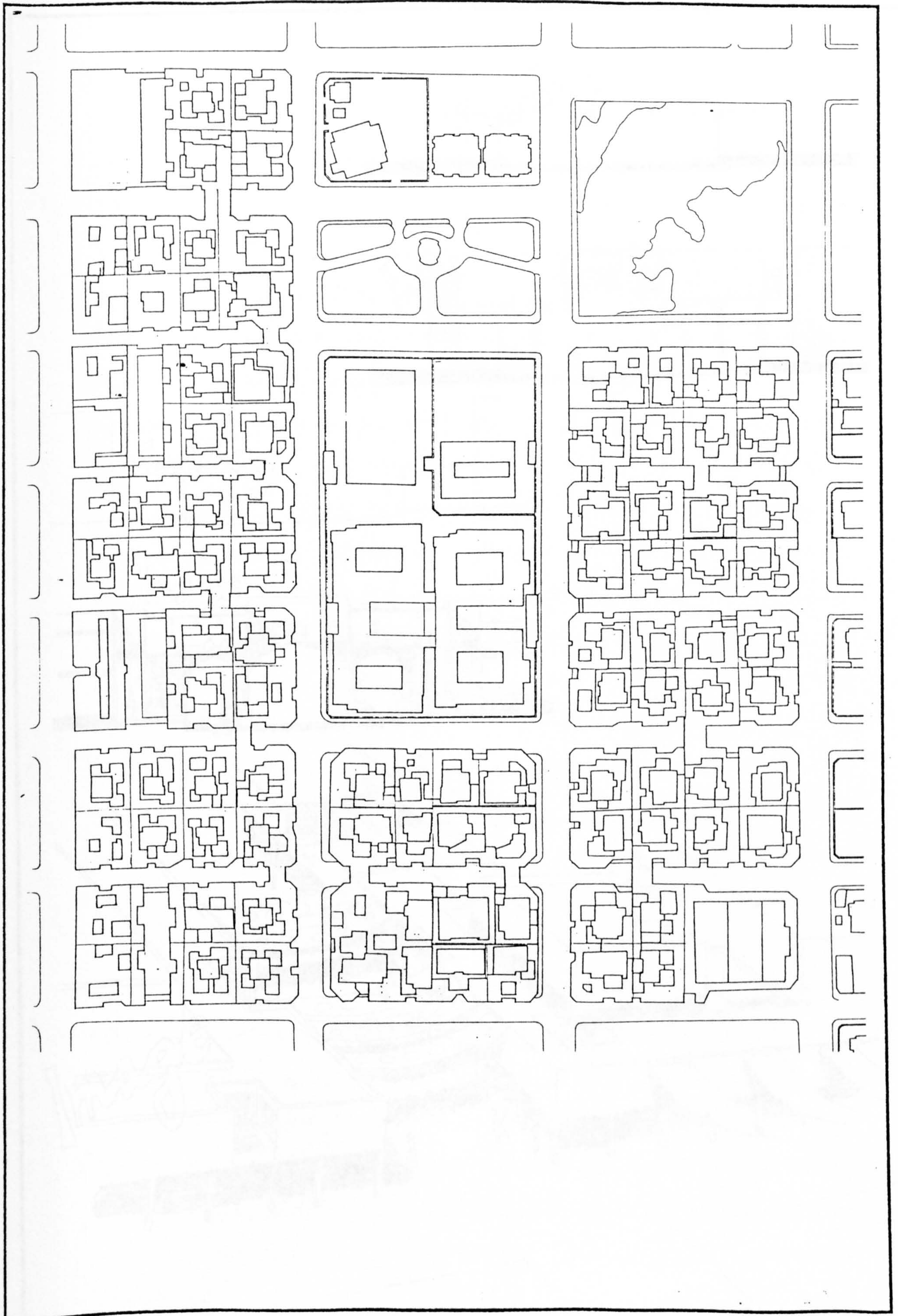


figure 11.10 The Al-Malaz neighbourhood next phase image.

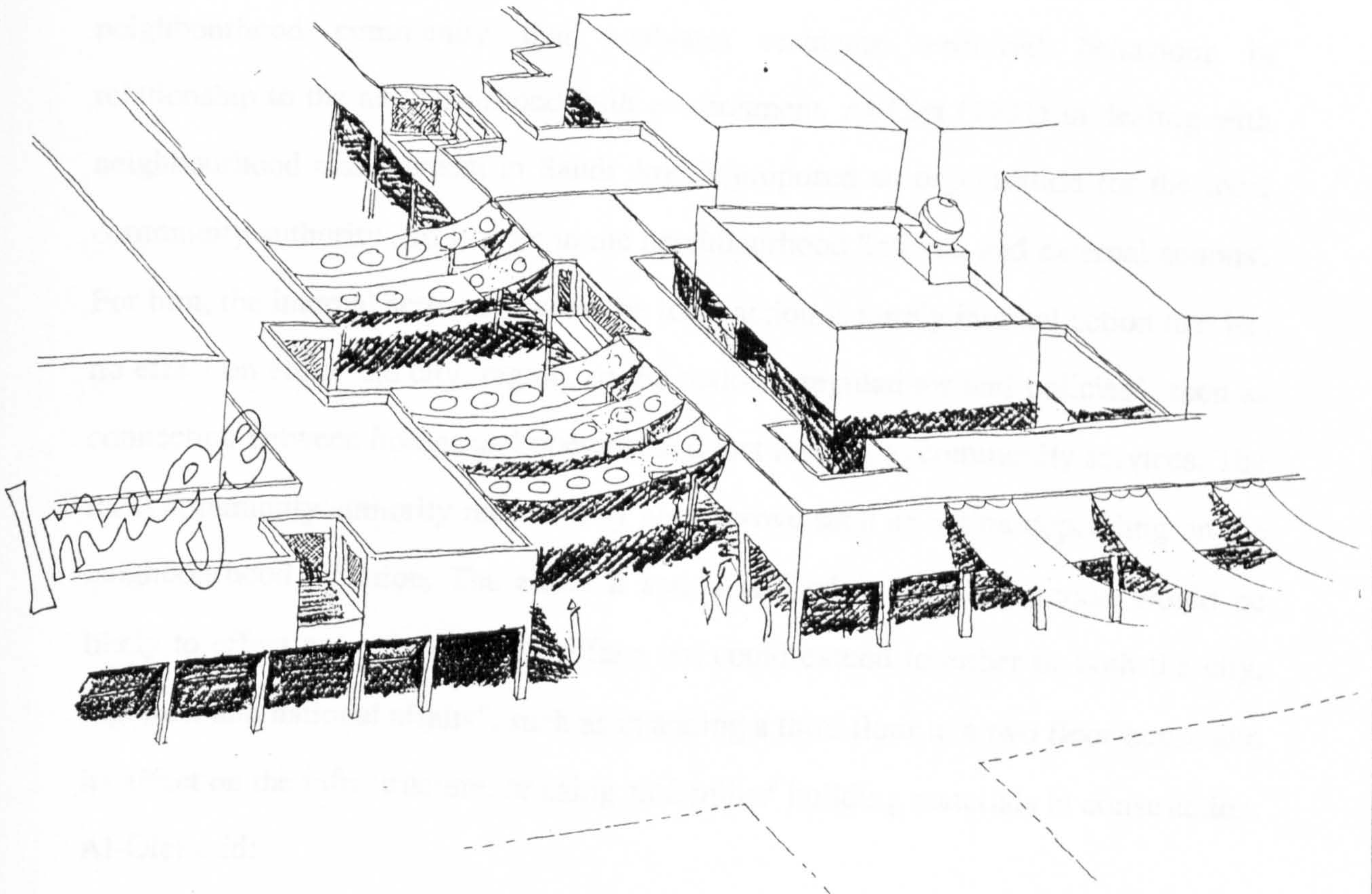
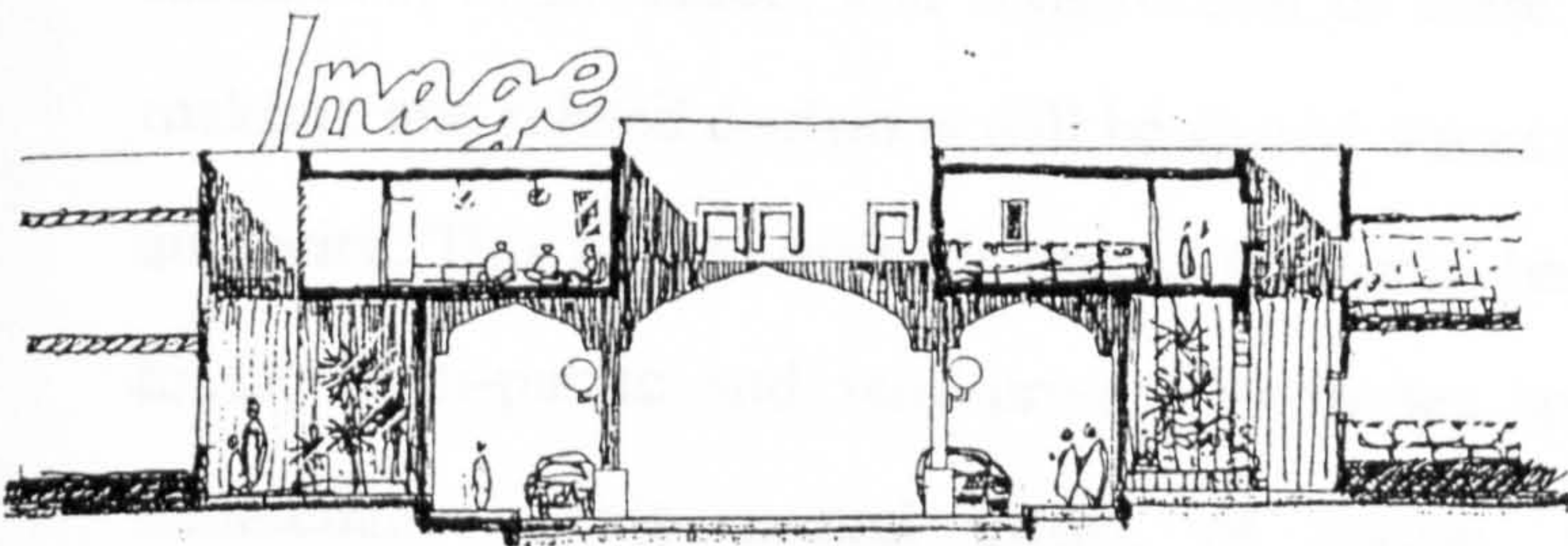
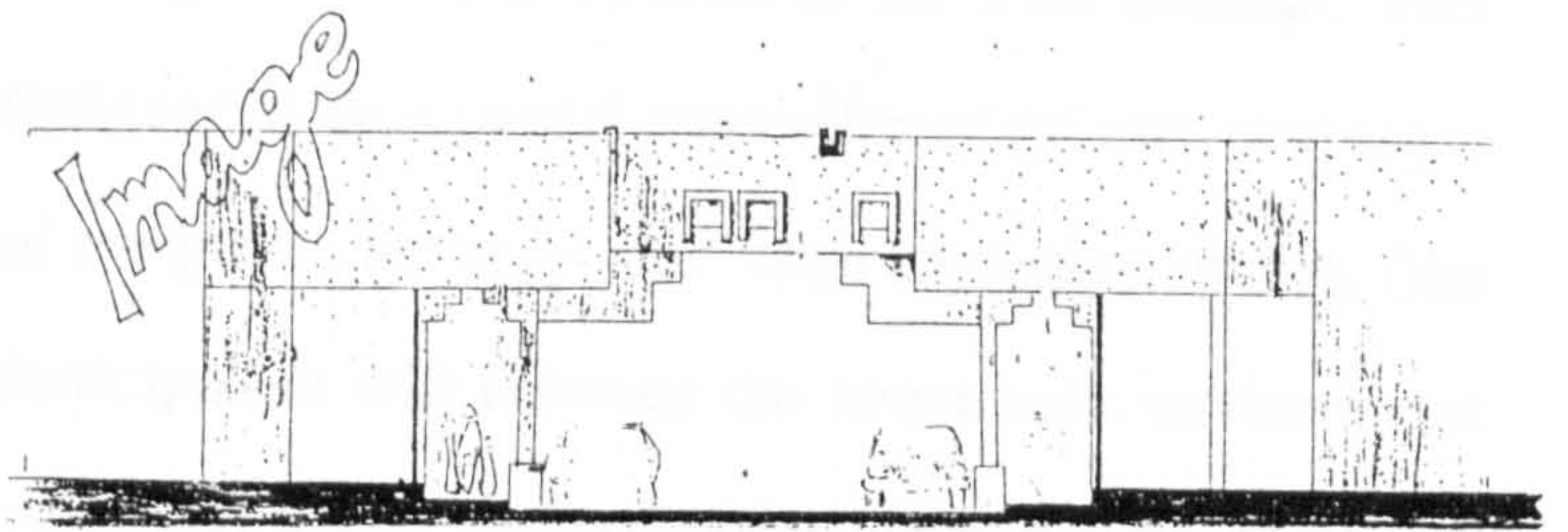


figure 11.9 The design images.

11.7 The projected territoriality

The recycling of the city, in the case of Al-Malaz neighbourhood has two aims: the first is to bring back the lost character of the Arab-Muslim street built environment. This is achieved through the re-introduction of the Fina concept. This new introduction requires the designer to be a partial controller of private territory - the villa house- appropriation of the public territory -the street excessive spaces, (the Fina). The private controlled participation will enhance the street built environment quality through the providing of street shade for pedestrians and parked cars, and increase the rich complexity of the street urban pattern in general. The second aim is to encourage the creation of semi-private and semi-public space within the street public realm. This is achieved through the residents economical participation into the formation, organisation, and construction of these spaces. These spaces ownership, making, and related decisions will be shared issues between the residents and the city authority. This mutual effort is one of territorial behaviours lost ingriediance related to the semi-public and semi-private territories spaces allocation, attainment, and maintenance. This mutual effort, of course, needs the establishment of a neighbourhood community that evaluates residents territorial behaviour in relationship to the neighbourhood built environment. Al-Olet (1991) in dealing with neighbourhood management in Saudi Arabia proposed an organisation for the local community authority and its role in the neighbourhood 'internal and external actions'. For him, the internal action is "when the local action is purely internal action that has no effect on either the city, region, or the national regulations and policies", such as connection between houses and opening of doors leading to community services. The local community authority may or may not approve such an action depending on the neighbourhood situation. The external action is " when the local action would be likely to effect not only the local affairs but could extend to either or both the city, regional, and national affairs", such as in adding a third floor to a two floor house and its affect on the infrastructure, or using 'unfamiliar' building materials in construction. Al-Olet said:

The problem should be transferred by the local community authority to the municipality for it to be evaluated according to both regional plans and the regional office of the Ministry of Municipal and Rural affairs regulations and policies. If there is no clear statement which can solve the problem, then the problem should be transferred to the co-ordination committee through the ministry of Municipal and Rural Affairs to determine its legality through the co-operation with other ministries. If the action is rejected at the national, regional, or city level then the action has to cease, but if the action is approved at the national, regional, or city level then it has to be evaluated at the local level according to the various principals in order to issue the final decision regarding approval or rejection", (Al-Olet 1991, pp. 367-8).

Recycling Al-Malaz neighbourhood does not imply the rejection of the abandonment phase in its decision makers territorial behaviour. For instance the owners, local authority, city authority, and national authority may chose to abandon the added spaces for several reasons. For instance, the owner due to his social, cultural, and economical changes may chose to abandon the added spaces and demolish them. The city authority may chose to revise the city master plan and propose the reinstatement of the original street width. The national authority may chose to reduce the amount of defensible spaces because they became offensible spaces and start to be crime settings. These decisions, regardless of their validity, may exist and the demolition decision can take place, (cf. Dammam city contemporary phase). The recycling of Al-Malaz neighbourhood is not aimed toward reducing the financial cost of the socio-cultural and built environment changes, instead it is aimed toward spreading these costs in time and space. It helps in reducing the urban man need to move in space and time due to built environment problems which are mainly territorial problems. It chooses to reduce the time and quantity of users' territorial behaviour secondary cycle, and therefore the abandonment phase. It recognises that if the users believe that their stay in a place will be longer, their care and responsibility may be more effective. They will nest the semi-private and semi-public territories in the spaces they participated in making. It is a vision of territory as defined by Pastalan (1970), when he said:

a territory is a delimited space that a person or group use and defends as an exclusive preserve. It involves psychological identification with a place, symbolised by attitudes of possessiveness and arrangement of objects in the area.

THESIS CONCLUSION

Understanding human territorial behaviour and its affect on shaping the Arab-Muslim built environment is a three fold task: firstly concerning the theoretical background of the human territorial behaviour phenomenon; secondly, concerning the nature of Arab-Muslim built environment mainly the traditional; and thirdly, the relationship between the human territorial behaviour phenomenon and the nature of the Arab-Muslim built environment traditional, contemporary, and future.

First the definition of the Arab-Muslim territory types is needed. It was found that among the existing territorial organisation models, none of them is individually capable of satisfying the meaning and dynamic nature of the Arab-Muslim built environment spaces. This is attributed to two facts: firstly the essential differences between the meaning that these models territory types denotes, and the meaning of it in the Arab-Muslim culture. For example, in the reviewed models 'public territory' means the users use of the space but not necessarily its ownership, while 'public ownership' in the Islamic legal system (Shari'ah) may mean the user's use and ownership of the space. Secondly, all the reviewed models described the territory types of one case of the built environment spatial organisation (i.e. *nesting, clustering, or stringing*). If the described case is transformed to another case in stages, the model can not properly be applicable. In other words none of the reviewed models can singly satisfy the meaning and the dynamic nature of the Arab-Muslim built environment spatial formation and transformation. To find out why this is the case, simple but powerful terms have to be defined such as: environment, behaviour, spatial behaviour, and human territoriality and its function, characteristics, organisational models, and its affect on shaping the world-wide built environment. This thesis found out that there is still more to be contributed to the existing body of knowledge about human territorial behaviour phenomenon and its affect on shaping the built environment.

The thesis has contributed to this phenomenon in several ways:

- It presented a general framework diagram for the relationship between environment components, needs, and behaviour -mainly spatial behaviour. This framework showed the location of human territorial behaviour in relationship to the built environment and space design.
- It presented a graphical language for space design vocabulary such as formation, transformation, organisation, and depth.
- It defined the human territorial behaviour phases (*allocation, attainment, maintenance, and abandonment*), and territorial behaviour cycles (*primary and secondary*) and relates them to the built environment cases (*nesting, clustering, and stringing*).

These contributions have clarified the theoretical confusion surrounding the human territoriality theoretical base. It clarified the difference between the human territorial behaviour phases and the built environment cases seen as stages in its design development. For instance it assumed that Oscar Newman's concept of "defensible space" and Bill Hillier's ideas of "against enclosure" are two built environment cases used to meet residents *territorial behaviour phases* in order to keep the designed spaces in a *primary cycle*.

To establish the effect of human territorial behaviour on shaping the Arab-Muslim built environment, one notices that the traditional built environment has some difference's as compared to the contemporary. The traditional Arab-Muslim built environment has started from the time of the prophet Muhammed (p.b.u.h) migration from Makkah to Madinah, and continued until the beginning of this century. Its formation and transformation have been the subject of many writings by designers and non designers. The traditional built environment elements are defined, and speculation made in their territorial types. Building on this speculation, serious facts and theories have been drawn such as claiming that there is a conflict between various jurists legal opinions regarding their roll in the built environment disputes and, therefore, the traditional built environment is a resultant of its residents continuous encroachment on the available public open spaces. The reader of the

existing literature about the traditional built environment is faced with two choices: the first is to agree with the commonly shared belief that the Arab-Muslim built environment is truly a resultant of its inhabitants continuous territorial encroachment upon available urban spaces when ever they have the chance, and the jurist of the four Sunni schools of law (Maliki, Shafi'i, Hanafi, and Hanbali) have to reason with this fact through softening their legal opinions when disputes among built environment residents occurred. The second choice is that there is more to the subject than simply accepting the common miss-understanding about the territorial system in Islamic Shari'ah and its effect on shaping the built environment. This thesis takes the second choice and took the task of verifying it.

- It defines the Arab-Muslim original ownership system in general, and built environment easement rights in particular. The thesis presented the four Sunni schools of law (Hanafi, Malki, Shafi'i, and Hanbali) judges historical legal opinions regarding the traditional built environment.
- It defines the traditional built environment territory types (*public and jurisdictional, semi public, semi private, and private and personal space*).
- It showed the dynamic nature of the traditional built environment and its Islamic laws (Shari'ah) resulting in the ability of the system to accept changes to meet the residents requirement as far as is reasonable. This has resulted in staging the built environment cases to meet its residents territorial behaviour desired phase.
- It clarified the confusion about the legality of the built environment transformation from one stage to another as a legal act of appropriation and not illegal as encroachment upon the public spaces.

This thesis put forward that the traditional built environment has five territorial aspects that govern its types meaning, and its formation and transformation. First: even though the traditional neighbourhood appears to be one spatial unit, each house stands as an independent territorial element in terms of its utilities and facilities decisions. The house has a relationship only to the neighbouring houses that are only directly attached to it, or within the direct contact of its users' senses mainly seeing,

hearing, and smelling. Second: as a consequence of the first aspect, the decision of any individual to change his environment is seen as affecting only those in his immediate environment as defined in the former except on the question of access. The street functions as an element for the houses easement rights mainly sufficient passage and natural air and light penetration. The decision of the neighbourhood territorial types formation and transformation is shared by owners and those who are directly attentive to these changes such as the close-by neighbours and passers-by. One of the Muhtasib roles is to assure that the passers-by are not affected negatively by the decision of built environment changes. Third: the small urban design scale of decision of territorial transformation is supported by a flexible legal system (Shari^h) of ownership and easement rights. Disputes occurred mostly among relatives, direct neighbours, or passers-by, and jurists rulings are within this scale. Fourth: There is a cultural similarity and homogeneity amongst residents of the same neighbourhood. This can be related to the economical and technological nature of the traditional environment time. Fifth: the use of short-life building materials in the neighbourhoods primitive stages of construction. This allows for a trial and error system for the built environments' formation and transformation, and territory typing possible several times before reaching the consolidated stage. Due to these five aspects, the residents of the traditional built environment practised an easy flexibility on forming and transforming their various spaces and their territorial types throughout the primitive, transitional, and consolidate stages. The authors traditional neighbourhood formation and transformation (mentioned in the introduction) is a typical case of these five aspects representation.

The contemporary Arab-Muslim built environment has been criticised for its climatic, social, and cultural un-suitability for its residents. Many attempts have been made to find design principals that are rooted in the traditional built environment, and sometimes even simply copying the traditional pattern. The areas where the contemporary built environment differs from the traditional in five major respects: Firstly, even though the contemporary house appears to have physical independence

from the neighbourhood physical pattern, it functions as one unit of the whole city in terms of its services, utilities, and facilities. The house is one unit in the composition of the city's' overall systems of transportation and communication, sewage, electricity, etc. Secondly, the decision regarding the residential unit formation and transformation is carried out at two scales, the owner in the first place, and the city representative (the municipality) in the second place. The neighbours are distanced from these decisions. The street scale decision is left entirely to the municipality to carry on, excite, and protect. Thirdly, these two scales are translated into general, equitable, and sometimes demanding building regulations applied for all of the city and all its residents regardless of the residents' preferences. Fourthly, due to today's economic and technological advancements, the neighbourhood has become multi-cultural with a variety of available choices for its residents within the city regulations. The city dwellers may chose the house and the neighbourhood if they can afford it. Fifthly, the economic and technological advancements have produced long-life building materials. Design is required it is no longer economic to use a trial and error approach. Due to these five aspects, the residents of the contemporary neighbourhood are faced with new and considerable difficulties in transforming their various spaces and typing their territories by themselves as in a traditional manner.

This thesis has contributed to understanding of the contemporary built environment. These contributions are:

- It pointed out that critics of the contemporary built environment are putting forward a one sided view, based heavily upon the *formal* pattern of the built environment, neglecting the *cognitive* side of its new residents psychological and sociological changes in the past fifty years, as well as the effect of changing technology which is in itself desirable.
- It suggested the *recycling of the city* approach as the future for the Arab-Muslim built environment, which understands' the built environment as occurring in *stages* and the adaptation of a more dynamic building regulations system that

allows for the next stages to occur in order to keep the residents territorial behaviour in *maintenance phase*, and in *primary cycle*.

Having revised the theoretical ground of human territoriality phenomenon, and explaining its affect on shaping the Arab-Muslim built environment, the thesis took two case studies in Saudi Arabia. The first was Al-Dawaser west neighbourhood in Dammam city as an example of the traditional built environment, and the second was Al-Malaz neighbourhood in Riyadh city as an example of the contemporary built environment. This thesis mainly relied on the analysis of the neighbourhoods aerial photos, dating back to 1935. This analysis left little room for speculation about the formation and transformation of Saudi Arabian built environment.

In the last twenty years, the Saudi Arabians municipalities have realised that the contemporary building regulations have their positive and negative aspects in dealing with Saudi culture. It gave the building regulation a special consideration and evaluation. This resulted in abolishment of the set-back requirement in some areas of the cities, and the allowance for the building of annexes (Mulhaq) in the already existing villa's set-back spaces. The problem, as seen by the thesis is in the conflict between the traditional and contemporary system of territory spaces typing, and the scale that the built environment transformation was allowed (the residential unit only). The decision is only carried out by the owner for his residential unit well-being, in neither the traditional nor the contemporary system. On one hand, the owner is given most of his rights in a traditional sense, but when it comes to the adjacent neighbours (those who attend the residential unit directly through seeing, hearing, and smelling), the adjacent neighbours have little influence on the owner practising his rights. On the other hand the municipality as the representative of the large scale decision, does not take the neighbourhood as a unit of decision in its development. The establishment of Saudi cities' urban boundaries will escalate the contemporary to traditional system conflict.

The proposed design perimeters for the Al-Malaz neighbourhood accepts five aspects: First, the future residential unit is neither independent nor dependent in its formation and transformation decisions. It is a residential unit representing its owner as part of the neighbourhood, which is part of the Riyadh city. Second, The built environment transformation decision is carried out by the owner, the neighbourhood community, and Riyadh municipality. The designers (architect, urban designer, and city planner) are the co-ordinators of this transformation. The third, the perimeters understand the present heterogeneity of Al-Malaz neighbourhood, and hopes that urban man's spatial mobility will be replaced by allowing him to stay longer in one neighbourhood and contributing to its space's transformation. Fifth, the proposed solution recognises the long-life nature of today's building materials (reinforced concrete), and divides the residential unit zone into two main situations: permanent and temporary. The permanent parts are expected to last longer in residents *primary cycle* of their territorial behaviour phases, while the temporary elements will last for a shorter time and may have to be removed.

This thesis's contributions to the Saudi Arabian built environment are:

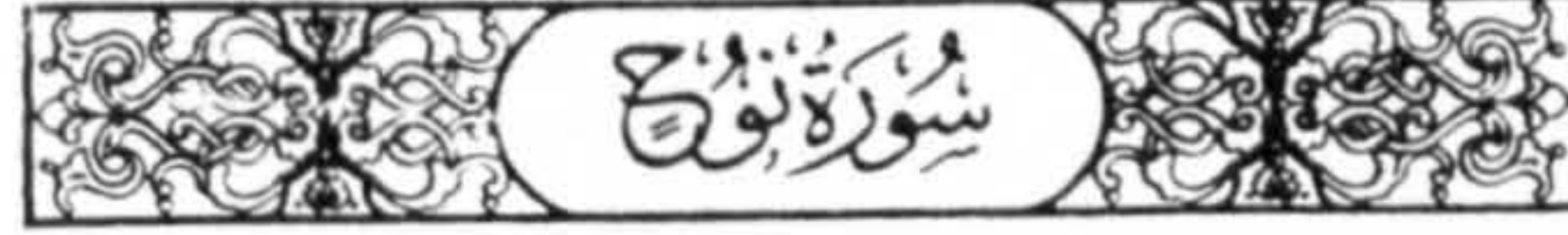
- It documented the physical formation and transformation of the Al-Dawaser neighbourhood from the time of its foundation in 1935 until now.
- It reduced the speculation about the formation and transformation of the traditional built environment mainly the street and the house, through aerial photographic analysis.
- It showed the *stages* of the traditional built environment as a response to its residents' *territorial behaviour phases*.
- It showed that the *stages* are still occurring in the contemporary built environment but in the residential unit scale and not in the street scale due to the new building regulations.

- It proposed a continuation between Saudi Arabia's traditional, contemporary, and future built environment through the *recycling of the city* concept, in the case of Al-Malaz neighbourhood.

These thesis contributions to the subject of human territorial behaviour and its affect on shaping the Arab-Muslim past, present, and future built environment is an attempt to adapt an Organismic/Transactional philosophical approach toward the human to environment relationship in a way similar to the Quran when said:

Nūh, or Noah.

In the name of Allah, Most Gracious,
Most Merciful.



بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

13. " 'What is the matter
With you, that ye
Are not conscious
Of Allah's majesty,

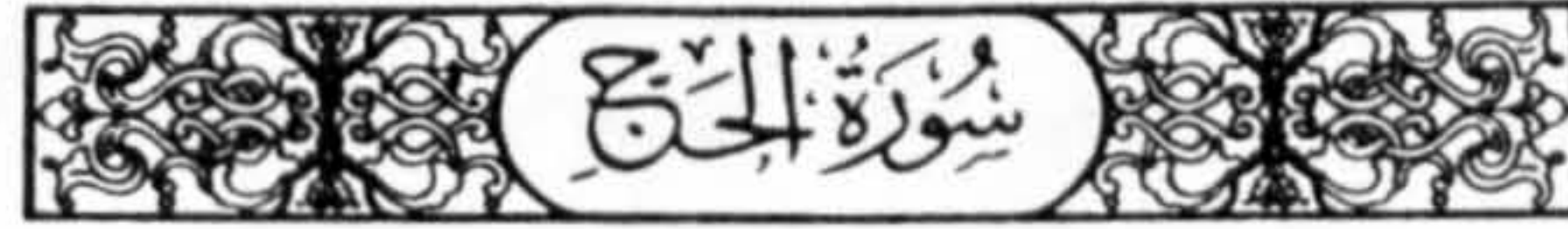
مَا لَكُمْ لَا تَرْجُونَ لِلَّهِ وَقَارًا ﴿١٣﴾

14. " 'Seeing that it is He
That has created you
In diverse stages?

وَقَدْ خَلَقَكُمْ أَطْوَارًا ﴿١٤﴾

Al-Hajj, or The Pilgrimage.

In the name of Allah, Most Gracious,
Most Merciful.



بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

5. O mankind! if ye have
A doubt about the Resurrection,
(Consider) that We created you
Out of dust, then out of
Sperm, then out of a leech-like
Clot, then out of a morsel
Of flesh, partly formed²⁷⁷⁴
And partly unformed, in order
That We may manifest
(Our power) to you;
And We cause whom We will
To rest in the wombs
For an appointed term,
Then do We bring you out
As babes, then (foster you)
That ye may reach your age
Of full strength; and some
Of you are called to die,
And some are sent back
To the feeblest old age,
So that they know nothing
After having known (much).
And (further), thou seest
The earth barren and lifeless,
But when We pour down
Rain on it, it is stirred
(To life), it swells,
And it puts forth every kind
Of beautiful growth (in pairs).

يَأْتِيهَا النَّاسُ إِنْ كُنْتُمْ فِي رَيْبٍ مِنَ الْبَعْثِ فَإِنَّا
خَلَقْنَاكُمْ مِنْ تُرَابٍ ثُمَّ مِنْ نُطْفَةٍ ثُمَّ مِنْ عَلَقَةٍ
ثُمَّ مِنْ مَضْغَةٍ مُخَلَّقَةٍ وَغَيْرِ مُخَلَّقَةٍ لِنُبَيِّنَ لَكُمْ
وَنُقَرِّفِي الْأَرْحَامِ مَا نَشَاءُ إِلَىٰ أَجَلٍ مُّسَمًّى
ثُمَّ نُخْرِجُكُمْ طِفْلًا ثُمَّ لِتَبْلُغُوا أَشَدَّكُمْ
وَمِنْكُمْ مَنْ يُؤَفِّقُ وَمِنْكُمْ مَنْ يُرَدُّ
إِلَىٰ أَرْدَلِ الْعُمُرِ لِكَيْلَا يَعْلَمَ مِنْ بَعْدِ عِلْمٍ
شَيْئًا وَتَرَى الْأَرْضَ هَامِدَةً فَإِذَا أَنْزَلْنَا عَلَيْهَا
الْمَاءَ اهْتَزَّتْ وَرَبَتْ وَأَنْبَتَتْ
مِنْ كُلِّ زَوْجٍ بَهِيجٍ ﴿٥﴾

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