THE TRANSFORMATION AND CONTINUITY OF THE TRADITIONAL DWELLING IN SUZHOU, CHINA

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Abstract

This thesis is a brief study of factors influencing the transformations of traditional housing and neighborhoods in the context of social change. It aim at clarifying permanence and change in the built environment and identifying the ways in which people express themselves in transforming their place of residence. This thesis examines how the residents of Suzhou transform their traditional courtyard house because of socio-economic change and modernization and yet retain some spatial and social patterns which are important to them. My purpose is to examine the neighborhoods with a positive eye, trying to select the good points and not just looking at what is wrong with it. How can creative involvement in the built environment be supported in the future? How can indigenous design solutions be encouraged.

The courtyard houses in Suzhou have undergone many changes during the last four decades. The traditional courtyard house in Suzhou is a type of house that had slowly developed over more than two thousand years. At the beginning of the twentieth century it was still untouched by influences of the West and the industrial revolution. Though the first transformations of the Suzhou courtyard house occurred at the beginning of this century, the most important transformation happened during the last few decades. Due to socio-economic factors, such as the Cultural Revolution, the severe housing shortage, the courtyard house, once inhabited by one extended family, had to be shared among several families. New shelters had to be built in the traditional compound. Building materials and construction techniques also changed. The resulting living environment seems disordered at first sight. But underneath the messiness, the deployment of new additions and people's living patterns show some continuity of the traditional ways. The case study might reveal the traits that have continued to survive in the physical form and social patterns, despite all the complex changes in the society that time has inevitably caused. The case study exemplifies the continuity and transformations of the traditional dwelling environments in Suzhou. An attempt is made at the same time, to identify some basic principles and directions by which the architectural language of housing and urban form in such a study can be considered.

Thesis Supervisor: Ronald B. Lewcock
Title: Visiting Professor of Architecture

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Thanks to my dear friends.

This thesis is dedicated to my wife and my parents for their unconditional love

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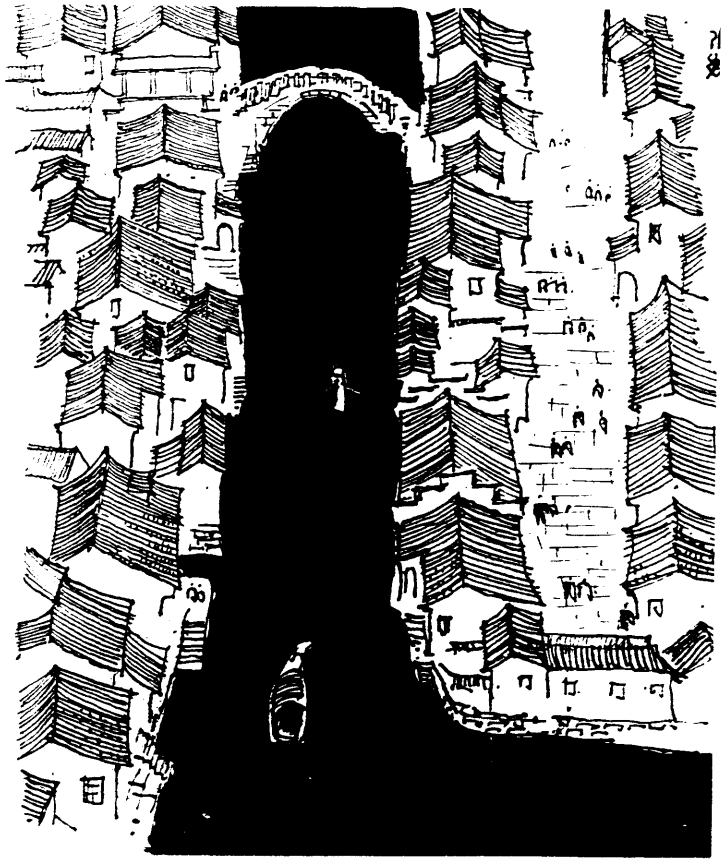

Introduction

"In the transformation and growth of all things, every bud and feature has its proper form. In this we have their gradual maturing and decay, the constant flow of transformation and change".[1] **Chuang Tzu**

Scope and Format of the Thesis

This study was generated by my growing interest in neighborhoods of the old cities in China, in particular in how these neighborhoods had proved able to adapt successfully to rapidly changing lifestyle, economic circumstances, and technological breakthroughs. The successful revivals of housing in the old city show that the traditional courtyard house, double storied town house and garden house could be manipulated to receive new household.

Transformation is an intrinsic aspect of the built environment, its purposes and its meaning. Architecture must develop institutions, values, methods and techniques which accept change as the natural state of the environment.

The Object of the Investigation

It is aimed to analyze the evolution of the traditional houses in order to clarify the links between socio-economic forces and the transformation of physical form. It is hoped that this investigation will provide an insight into the circumstances and processes which allow a group of people to upgrade their living conditions, both socially and economically, with minimal formal intervention. The thesis also attempts

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[1]Chuang Tzu, Tao Te Ching, Chpt. 13

to clarify informal linkages and networks that evolve to form a crucial part of the process of upgrading in the context of the urban setting.

My goal was to understand and explain residential transformations over the course of thirty years of development. From the origins in old city of Suzhou identify the physical changes it has undergone during its lifetime, and to consider their meaning and relevance.

The case studies used as the basis for this study are a characteristic type of traditional house in Suzhou. The traditional housing has been undergoing extensive changes due to various forces such as rapid urbanization, alterations in the social structure and in the technological status of the society.

Urbanization has resulted in increased densities and the effect is felt in streets which were originally designed for pedestrians, but now take vehicle traffic, resulting in problems of crowding.

The alterations in social structure include the breakup of the extended family into a nuclear one. A residential dwelling was originally occupied by an extended family, but due to changing trends and the need for privacy, people have left the area in search of independent family dwellings. This has sometime resulted in part of the dwelling being let to outsiders, by poor families in order to supplement their income. The people share the courtyard. Lack of infrastructure facilities have left the residents no choice but to convert the washing areas into toilets.

This kind of emergency measure has become a permanent solution. Through on-going occupation and adaptation such projects have been made increasingly viable by their inhabitants. In the face of current unprecedented growth and chronically limited resources, it is becoming increasingly evident that the

traditional housing is full of potential for the accommodation of change.

I examine performance and change in the built environment to identify the ways in which people express themselves in transforming their places of residence. The study also shows how the traditional housing was used as a reference by its inhabitants and how it could constrain or, alternatively, support everyday activities.

Why Suzhou?

Suzhou seemed a particularly appropriate subject for an investigation of change in neighborhood architecture. The traditional roots of the city are still strong in some areas, seemingly untouched. In others, change is detectable, even overwhelming. The city has undergone major redevelopment: its central commercial district has been rebuilt and new hotels and apartment complexes can be found in many places.

Suzhou enjoys an environmental quality that goes beyond its well-publicized buildings and gardens. As such, it provided an excellent normative context for my study. Above all, the care and sophistication that many people involved brought to neighborhood design, preservation, and renovation created for me a veritable neighborhood laboratory.

The Organization of the Thesis

The thesis is broken down into four parts: The first part of the thesis will deal with relevant theories and prior researches. This section will also set up a research frame work and the structure of the case study.

The second part will give an overview of the traditional Suzhou houses and explore the principles of arrangement and the pattern of use.

The third part is a case study to show the linkages and conditions under which the people upgrade their physical environments and how residents of Suzhou use their courtyards and streets to create a sense of "place".
In the fourth part, the analysis is expected to reveal links between socio-economic forces and their impacts on the transformation of physical form, the patterns of behavior as reflected on the built forms and other constant factors in the living environment. From the analysis of these transformations and constants, principles of development could be outlined.

Tradition and Transformation

Understanding the context of the study is of importance for both the researcher and the reader, in terms of evaluating the method of inquiry and building a possible systematic explanation.
Progress is made by standing on the shoulders of predecessors; by building on certain traditions and rejecting others. The growth of knowledge therefore take place through criticism, which destroys, changes, and alters earlier myths and beliefs. This does not mean that new myths or believes cannot be formulated.
As Karl Popper wrote: "You may create a new theory, but the new theory is created to solve those problems which the old did not solve." [2]
Popper goes on to explain that the emergence of traditions in society has a role similar to scientific theories; they bring order and rational predictability into the social world we live in. They give us clear idea of what to expect and how to proceed. The origin and propagation of traditions therefore lies in our need to introduce

[2]Popper, Karl. Towards a Rational Theory of Tradition: conjectures and refutations, p.129, 132

structure and regularity into our natural and social environment.

"Our social life is only possible when we can have confidence that certain aspects of our society must be or act in this wise and not otherwise. Out of these needs, traditions arise."[3]

Furthermore, social traditions not only help in creating social structures but are also subject to criticism and change. The continuance of traditions in a society renders them above criticism; had they ceased to be valid they would not have persisted. Their survival in a society is thus based on an in-built mechanism of criticism, whereby those that remain pertinent continue, while others are deleted. Thus the issue involved seems more an acceptance of their validity and identification of their presence through critical analysis, rather than testing their validity through criticism.

A society is in a constant state of evolution and transformation. As it is confronted with forces of change through time, it may accept and accommodate those it considers suitable and reject those totally against its norms and values. The survival of certain customs against all odds proves their continued validity and requires appraisal of the prevalent attitudes of disregard, if not total rejection.[4]

Throughout, in the debates outlined above, traditions seem to be dealt with as rational, intellectual issues, rather than products resulting from complex social processes. But traditions are heavily dependent on the unpredictable and often irrational human nature which often makes them difficult to explain. Though it be recognized that in their case, criticism and the choice of

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[3]Anderson, Stanford. Architecture and Tradition that Is'nt "Trad. Dad", History Theory and Criticism, p.80

[4]Anderson, Stanford. Critical Conventionlism: the History of Architecture. Midgard 3, Journal of Architectural Theory and Criticism, vol, no.1

alternatives takes place through acts rather than rational analysis; they are based on what happens in practice more than what is thought of in theory. Moreover, they comprise patterns of behavior established over time, and do not lend themselves to intellectual questioning.[5]

In spite of all the upheavals that time, or a particular incident, may cause, and all the changes that a society undergoes, there are certain attributes and traditions that stubbornly persist. At times their persistence may manifest itself and be visible. Yet the shifts in a society that directly influence traditions may be momentous. In spite of fundamental changes that a society experiences, one finds recurrent behavioral patterns which cannot be explained or predicted on the basis of particular norms professed as part of the ideology of the respective society. A close look shows them to be stemming from values that are currently claimed to be outdated and therefore inapplicable.

Any attempt to understand the role of tradition in the architecture of a society is a complex task, for tradition seems such an unquantifiable element to discern, measure, and analyze. One possible way to tackle the issue is to study traditions as they are manifested in the living patterns of a society through time, and, in doing so, to try to discover in them the common traits that have continued to survive, in spite of all the complex changes in a society that time inevitably causes.

Built form and its use occur within a cultural context. Therefore, it is important to understand the relationship between the physical environment and human behavior. While there seems to be flexibility in the adaptation of behavioral patterns to their given environments, there

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[5]Lambert, Richard O.Society and its Physical Environment, The Annuals of the American Academy of Political and Social Science, vol. 389, p.46

may be limits to this flexibility. Beyond these limits, it is the environment that needs to adapt. The recurrent behavioral patterns seem to be manifestations of some consistent underlying values. These values may not be consciously safeguarded, but neither can they be deliberately replaced, for they are internalized and invaluable to its people.

The physical environment stabilizes behavior not simply by the way it constrains action but also by the way it symbolizes past actions, events and feelings. Past, present and future, then, are created together and influence on another. Their span and content are affected not only by external factors such as the stability and success of the past experiences, the symbolic security of the perceived environment, the pressures of the present on future expectations, but also by internal habits of mind, by symbolic abilities, by the sense of self and by the strength of motivation.[6]

Although certain types of behaviors and attitudes towards the built environment are influenced by structural conditions in a society, social structure does not in itself determine the consciousness of individuals, but that the relationship between consciousness and structure is proved to be highly complex.

Transformation is an intrinsic aspect of built environment, its purposes and its meaning. Architecture must develop institutions, values, methods and techniques which accept change as the natural state of the built environment.

From the point of view of a theoretical treatise on the relationship form and change in the built environment, John Habraken's book Transformation of the Site makes important contributions to the observation and

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[6]Lynch, Kevin. What time is this place. p.219

understanding of the processes of change in the built environment. It treats of the important relationship between spatial orders, spatial rights and the concept of territory as integral factors in all processes of change in man-made environment. It also introduces theoretical consideration of "territories" and "boundaries". These definitions provide a very useful theoretical base for my study.

A second important class of theoretical study into the relationship between form and processes of transformation are the researches of Peter Cowan. Cowan's work derives from empirical studies of growth, change and aging in various building types.[7] Alexander has also written on adaptive design in various of his works.[8]

Finally, an interesting historical and typological study of additive growth as a form of transformation in the urban environment has been done by Leon Krier and Perez de Arce. In "Urban Transformations and the Architecture of Additions". Perez de Arce proposes the use of transformation through additions as a means to modify or transform the character of existing urban pattern.[9]

Each of the works above shares the recognition that growth and change are characteristic processes in architectural and urban systems and that the built environment must be conceived of as in a state of transformation, rather than as something static and composed.

The analysis of the relevant literature helped me in maturing initial thoughts regarding the relationship of

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[7]A series of research papers on growth and aging in buildings were published by Cowen in the Transactions of the Bartlett Society. (vol. 1, p.53-84; vol. 3, p.63-88)

[8]Alexander, Christoph. Note on the Synthesis of Form, Harvard University Press, Cambridge, MA., 1964

[9]Arce, Perez de. "Runcorn Transformed" in International Architect, vol. 1, no.4, 1981

spatial and social transformations. This process can be further strengthened by objectively discussing the traditional context of the case studies.

The Method of Study

This thesis is focused on a description of the dwelling's performance, that is, the actual use and form of dwellings in concrete situations.

The intention here is to provide an explicit analysis of dwelling's performance rather than to evaluate such a performance. It is obvious that the typical dweller in the old city of Suzhou has a strong set of limitations(economical, social, cultural, technical). Regardless of the magnitude of these limitations, however, the dweller transforms his dwelling in a process which mixes and expresses step by step his expectations and resources.

Thus, this part attempts to specify what the dweller has actually done and the mechanisms which determined these actions, rather than his statements about what he does and the reason why.

The classification and organization of observations will give us patterns from a corpus of observed dwellings, which will be described as "dwelling habits" or " dwelling structures".

Such a study may produce a corroboration of a hypothesis from a physical point of view. Most of the work which has so far been written on the topic of traditional housing from a physical point of view has focused on description and evaluation at the urban level. Relatively little attempt has been made to link the physical forms to the life patterns, beliefs, and desires of the culture of those who have made it and their way of life. Rather than try to understand such relations, there has usually been an attempt to evaluate such an environment by making generalizations in terms of efficiency and cost-benefit

analysis. Without rejecting these approaches, which can be very useful, we must realize that they do not help us to understand the relationship between occupants and physical changes in their dwellings. Criteria about density, land use, land tenure, land cost, utilities, services etc. are not enough to understand and to evaluate the complicated process of growth and change of the traditional settlements. These environments must not be seen as static, but rather as dynamic phenomena. Such dynamic views can help us understand the patterns of change and variation which exist between use and form.

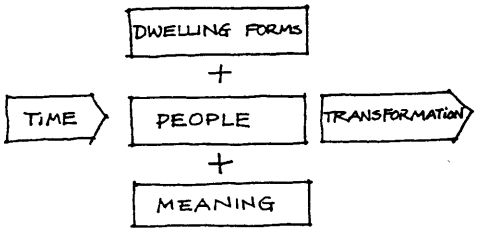
The method has two components. The first one is to describe in a systematic way the most important physical characteristics of a group of dwellings. The second methodological component is to describe the physical and social changes of that group of dwellings through time. The first objective deals with variations on space, the second objective deals with transformations of space and people through time.

The method is based on three kinds of aspects of analysis:

1. dwelling forms
2. the pattern of living
3. meaning

These analyses are based on the assumption that dwellings in Suzhou have an order in their way of growth and change. They don't appear randomly, but they follow certain agreements that are implicit in the mind of building user.

This is not the place to discuss what makes such a system appear or why it exists. The main point here is to find the system and to make it explicit. This may help us to answer questions as to why these environments are as they are and what the people think and expect of them.



1 Diagram of the framework

Framework

The process of transformation can be broken into a few essential components in order to understand its dynamics. The diagram illustrates this process.

Dwelling Forms

Dwelling forms, given in plan, is the fundamental document that establishes the physical transformations of the household for the purpose of the case study.

The Pattern of Living

An in-depth understanding of people's behavior is essential in the transformation process. This is achieved by "knowing who the people are" intimately through observations and interviews.

The Meaning of House

Traditions are manifested in the living patterns of a society through time, therefore the attempt is to discover, in these social patterns, common traits that have continued to survive, in spite of all the complex changes in a society that time inevitably caused.

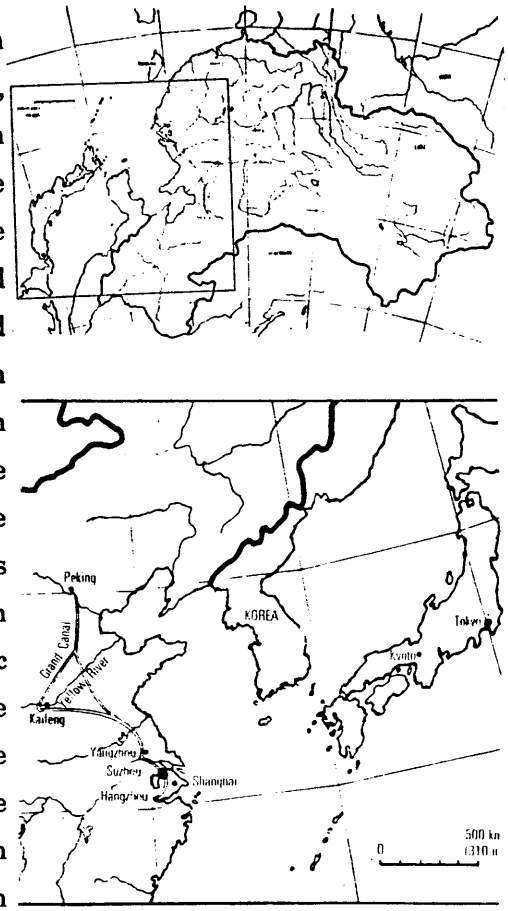
History and Situation of Suzhou

History

" Sugin is a very large and noble city... They have enormous quantities of silk. They live from trade and crafts. They make many yards of silk for their clothing. There are important merchants and very rich inhabitants. The city is so large that it measures approximately forty miles around the periphery... And, you would say that most likely there are six thousand

stone bridges in that city, under which a galley or two could easily pass."[10](Marco Polo)

Suzhou is situated in Jiangsu province, between Nanjing and Shanghai. Its history stretches far back, indeed so far that in 1985 they celebrated the 2500th anniversary of the city's creation. Five centuries before Christ it was the capital of the Wu kingdom, during the Springs and Autumns period. Suzhou always benefited from its location on the Grand Canal, constructed during that very early period in order to supply northern China with cereal and other commodities originating in the south; the Canal was further developed around the year 600 by the Sui and redesigned again in 1300 by the Mongols. In spite of its position well inland, it was nonetheless an important commercial port, linking with Japan and Southeast Asia thanks to the hydraulic engineering that allowed sea-going ships to arrive by the bay of Hangzhou. Moreover, occupying the center of the silk-producing region, Suzhou could be considered the starting point of the famous Silk Route even though customarily one assumes that it began at Chang'An (Xian) further north, capital of China at that time, where the silk from the south was collected.



2 Location of Suzhou

Suzhou is a city on the delta, a city on water and hence subject to the unexpected changes and wanderings of great river, the Yangzi River. Suzhou is at the center of a vast region of lakes, marshes, and canals between Tai Hu Lake, the river and the sea, a zone where the sea has receded yet water is ever-present. The site reveal the extraordinary determination of mankind to transform difficult natural conditions into more favorable ones by means of controlling the waters. The work undertaken in Suzhou included changing the rivers' course,

[10]Marco Polo, The Travels, (New York Orien Press). This is a translation of a fourteenth-century manuscript in the collection of the Bibliotheque Nationale, Paris

3 A part of Suzhou

draining the marshes, building a large canal supplemented by a highly regular system of perpendicular secondary canals.

Suzhou's climate and charm attracted highly educated civil servants, writers, poets and artists of the Empire who continued to build prestigious residences and renowned gardens there. Influential also due to her thriving silk industry, Suzhou was termed the "legislator of Chinese taste, fashion and language" in the 17th century by a member of Lord Macartney's expedition.

Suzhou, the most famous cultural center of the south, contains the most and best-preserved gardens in the entire country. It is one of the oldest towns in the Yangtse delta, founded in the sixth century B. C. by the chieftain Ho Lu, who made it capital of his state. In 315 BC the town became part of the large southern state of Ch'u, and, after the country was united under the autocratic Ch'in Dynasty, Suzhou became a base in the colonization of the rich southern lands by the peasants leaving the overcrowded Yellow River basin to the north. When the Grand Canal was built in the Sui Dynasty, the population grew even more dense, and Suzhou continued to develop in the T'ang and Sung dynasties. A number of the temples and gardens date from these early times.

The prosperity of Suzhou owed a great deal to Fan Chung-yen (989-1052), that great Confucian administrator who initiated many drainage projects and encouraged agriculture. Fan was known for his unorthodox manner of solving problems: whenever something stymied him, he would go into his garden and climb an old pine, on which he had built a teahouse, and sit there until illumination dawned. Fan began the annals of Suzhou history and is famous for his saying "May I be the first to take up the world's sorrows, and the last to enjoy its

pleasures," the epitome of the Confucian ideal of public service.

When the Jurchens conquered the north and the Sung court fled to the south in 1127, Suzhou expanded, reaching approximately the size that it is today. Walls surrounded the town, and canals permeated the length and breadth of the urban area, feeding into the nearby Grand Canal. The city became famous for its silk industry. Even the Mongol invasion following the collapse of the Sung was unable to dim its splendor: Marco Polo said of the citizens of Suzhou that "they are... not men... used to the exercise of arm; but I tell you that they are clever ... merchants and cunning men of all crafts, and also there are very wise men called Sages, like our philosophers, and great natural physicians who know nature very well. Moreover I tell quite truly that there are quite six thousand bridges of stone in this city. "[11]

In the Ming Dynasty, Suzhou became known for its high level of education. It was said that everyone was a scholar and calligrapher in Suzhou, and a disproportionate number of candidates for the imperial exams came from this region. Most of the great gardens date from the Ming, and continued to thrive during the eighteenth century under the Manchus. Suzhou was not spared during the wars and rebellions of the nineteenth century, but the city fathers made valiant efforts to rebuild and conserve after each depredation. Today, the city is making a concerted attempt to restore the great monuments of its long and illustrious history.

Today the municipality of Suzhou, under the provincial government, contains a population(1982) of 673,308 persons on its 119.12 sqkm area, of which the inner city takes a share of only 28 sqkm with 566,161 people. The total built-up area covers 29.33 sqkm, just twice as much

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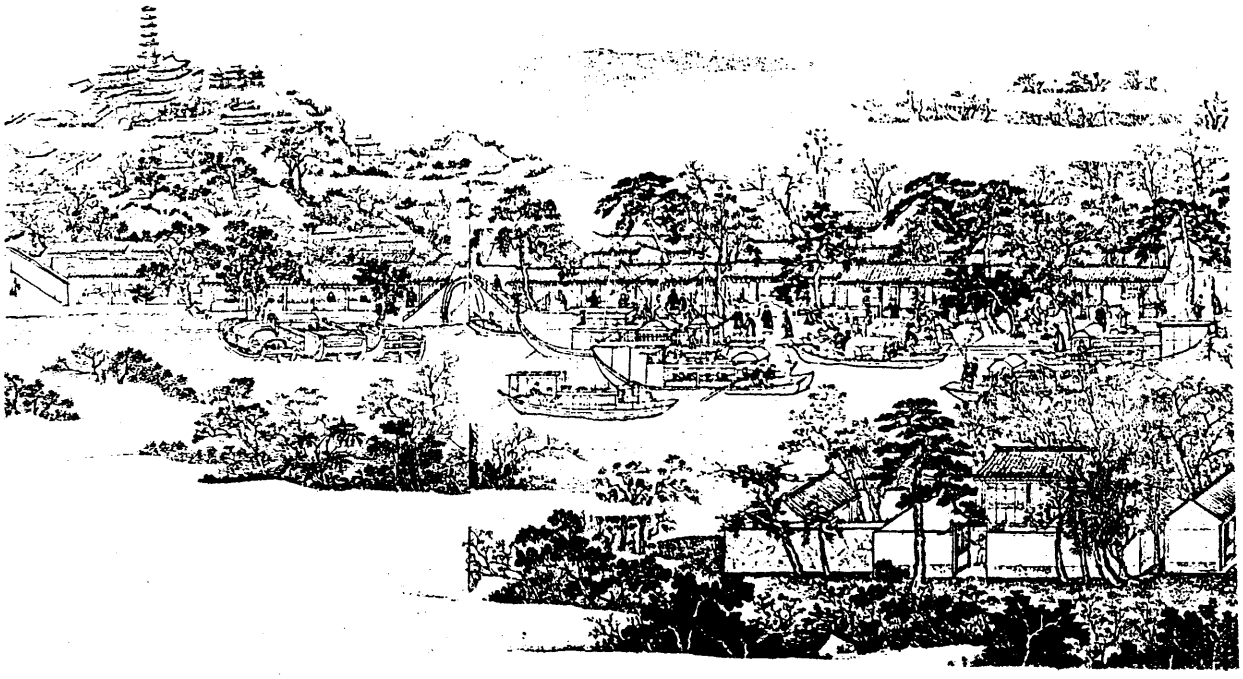
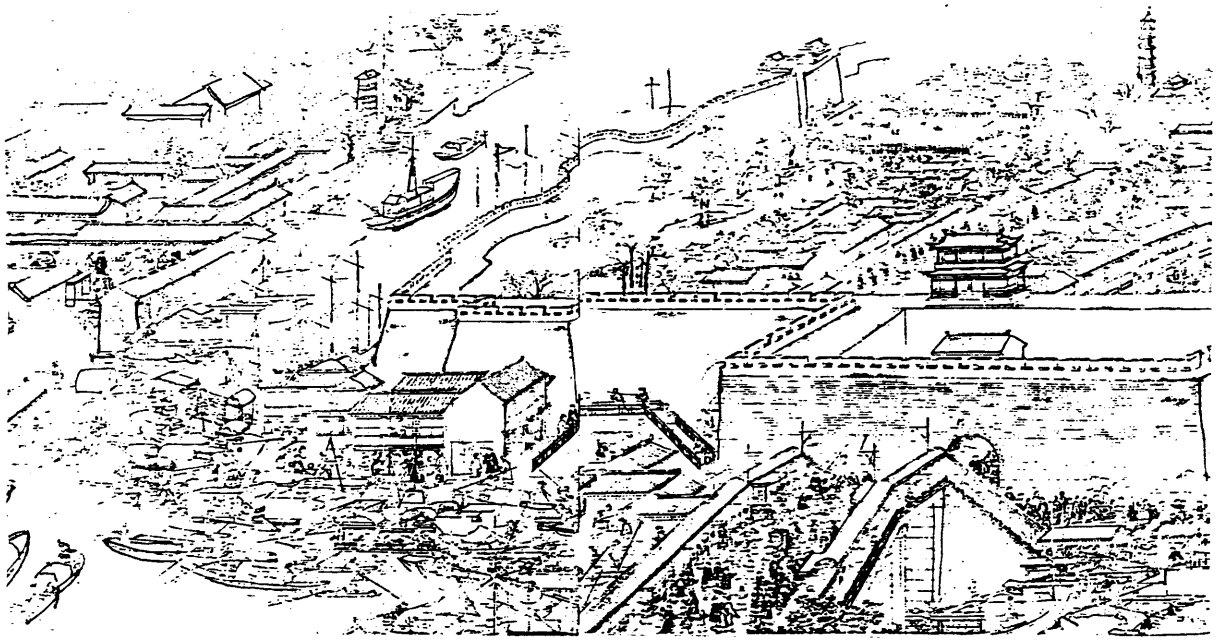
[11] ibid., p.136





4 Suzhou (Ming Dynasty)

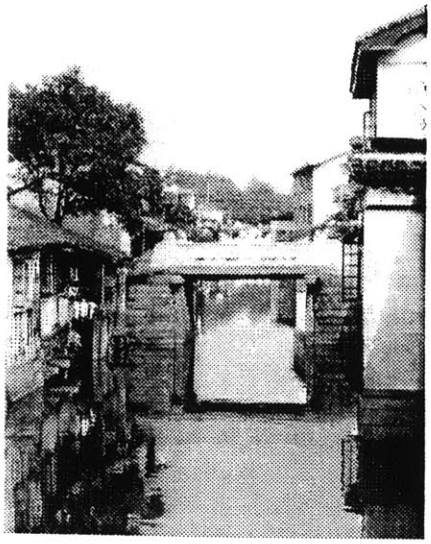
as the old walled area. This gives an overall urban density of 20,220 pers/sqkm and a rural density of 1,176 pers/sqkm. The latter seems rather high, but is not atypical for the closeby hinterland of cities. The seemingly low urban density appears in a different light, if the land use pattern is considered. Only 13.68 sqkm or 46.6% of the built-up area are designated as residential and contain the residential quarters, green spaces, and public facilities for the neighborhoods. Without non-residential land uses the residential density rises to about 41,377 pers/sqkm, which is rather high, but again not atypical for the region.[12]

Suzhou is the seat of a local administration (at the prefecture level, now dissolved) and of the municipal government. The administration of the surrounding county is also located in the city center, although it is not incorporated into the municipality. The city is divided into three urban and one suburban district. In the city there are 27 hotels, four of which are of a high standard for foreign tourists. Educational facilities include the Suzhou University, three other institutions of higher education, 51 intermediate and 180 primary schools. There are 14 hospitals.

In February 1982 Suzhou was selected by the state council of China as one of 24 cities and towns throughout the whole country listed as a culturally important place. The idea behind this goes beyond the concept of placing cultural relics such as old buildings and monuments under state protection for restoration and preservation. In Suzhou this applies mainly to the many formerly private gardens and homes of the old salt merchants. The new concept refers to each town and city as a whole and intends to preserve a part of the traditional urban scene, not only for the enjoyment of tourists, but also for

[12]Information for the background of Suzhou is based on the survey done by the Suzhou Development Authority.

the protection of the Chinese of urban districts with a traditional atmosphere. Most of the inhabitants in areas like this, some of them even owners of the houses still today, are not in a position to pay for proper upkeep and maintenance. Many of these often very beautiful old houses have been neglect be added to raise living standards and sanitary conditions. The most typical feature in the traditional towns cape of Suzhou were canals, the remaining ones are still used as transportation lines within the city and connecting the surrounding countryside with the city. Their integration together with the beautiful old bridges into the fabric of a modern city is one of most interesting projects in the new redevelopment schemes. But it is somewhat alarming to hear of new building regulations for Suzhou which say that"... in order to preserve the traditional atmosphere in the old city, new buildings should not exceed seven-stories in height".[13] Consider the height of the traditional houses of no more than two stories and the delicate scale of the gardens and their partitions, and compare this to somewhat dull, gray, concrete, seven-storied apartment buildings.ed, even to the degree of utter dilapidation. However, they are still living quarters for hundreds of thousands of families. Therefore, it was considered more reasonable to employ a rehabilitation program for these areas rather than whole scale destruction and reconstruction with new and somewhat unattractive social housing blocks.

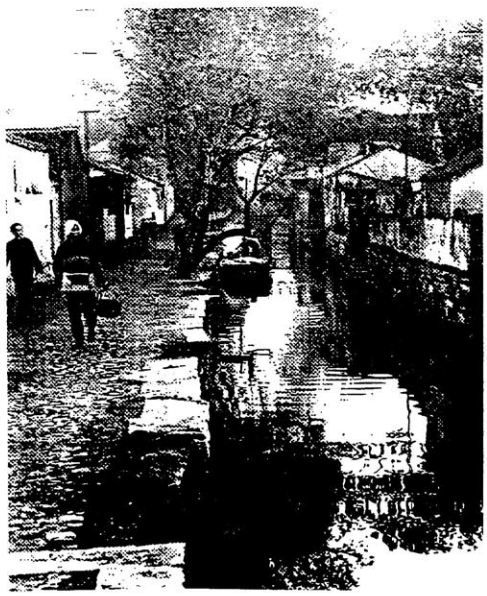


5 A canal

As a result about 7.0 sqkm of the former inner city, what is almost half of the old walled area, has been placed under special regulations in Suzhou. Several design schemes have already been prepared for the rehabilitation of the old areas which have not yet been touched much by the modernization. Unfortunately, in

[13]The Development Guideline of Suzhou, Suzhou Urban and Rural Construction Department. 1985

this modernization process canals were filled in, streets widened, multi-storied building constructed; and in several places the whole urban scene was changed beyond recognition. The rehabilitation schemes are now based on the principle of readjusting the haphazard deviations from the old settlement pattern and of adapting the old building complex to new socio-economic conditions, to make the living quarters of the formerly large families useful for today's small families. Furthermore, new neighborhood facilities and public utilities have to be added to raise living standards and sanitary conditions.The old city has undergone a series of special interventions: building activity following the urbanization started from the turn of the century, and since the 1960s, the construction of freeways through the city and the recently modernization movement.

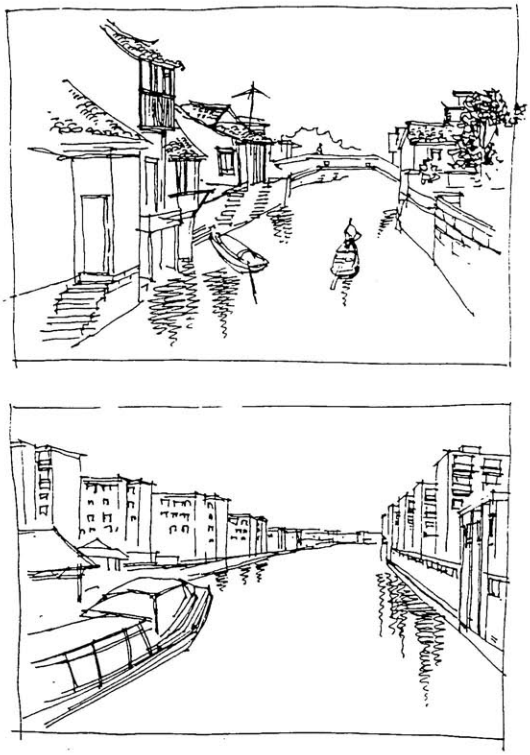


6 A canal in Suzhou, and a small parallel lane

Walking and Observing

A walk through the old city block and its surroundings has the quality of a walk through time. The eye is first drawn to the handsome courtyard houses lining Baoya and Wangsima streets; along Baoya Street, particularly, the houses are so striking they from a city landmark known as "postcard row" Tangjia and maojia streets give us a variation on courtyard theme with lines of narrow, tight buildings, built to respond to the narrow land along the canals.

In walking these streets, we are struck by the fact that rows of traditional houses are often interspersed with modern constructions not immediately observable. Often the traditional houses have themselves been transformed beyond recognition. In the courtyards are many divided gardens exhibiting a healthy disorganization. And whenever the blocks have alleys, the tiny yards almost invariably serve as additional storage for discarded construction materials, mops and



7 Old and new constructions

brooms, children's playthings, and the like. At this level of detail, the area appears all variety.

We can see the city has undergone drastic mutation. In the old city we can see canals replaced by a highway, and the traditional neighborhoods invaded by matchbox high-rise buildings. The architectural language of the city is very much perturbed but not in the least wasted forever. Though the official interventions were and are, more often than not, very much influenced by foreign ideas, and create great discontinuity, new policies can still be adopted to improve the situation.

8 "Postcard row"

Part II The Traditional Houses and Neighborhoods

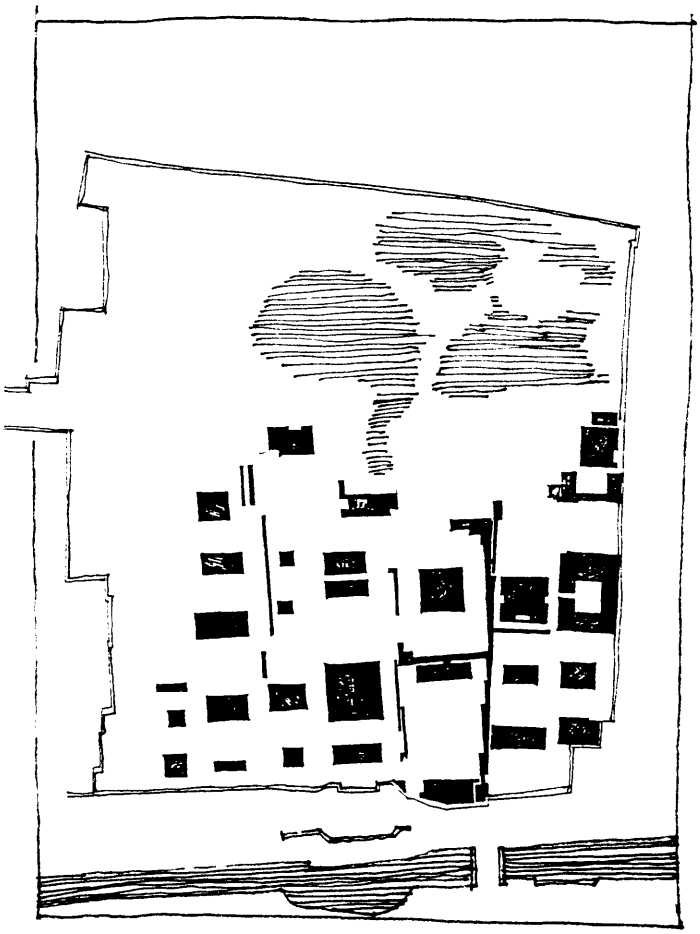
The Background of the Traditional Houses

The Principles of Arrangement

The Patterns of Use

The Symbolic Meaning of the Traditional House

The Urban Forms of Suzhou



The Traditional Houses and Neighborhoods

The Background of the Traditional Houses

To understand the traditional houses in China, one must always keep in mind the Chinese view of man as being at the center of society and as enclosing space around him. In an examination of the Chinese house one finds all the basic elements which can be found in the Chinese city, and finally in the city of Suzhou. The notion of Chinese society as being an extended family or the idea of a Chinese city as being an extended house is an adequate description of Chinese culture. Certain basic architectural elements, such as the wall, the courtyard, and the gate can be found in Chinese architecture at every level. In addition, the principles of vertical and horizontal axiality, north-south orientation, concentricity, and the use of symbolic geometry (the circle being used for religious structures, and squares and rectangular used for domestic and public buildings, as well as gates) are all applied quite consistently.

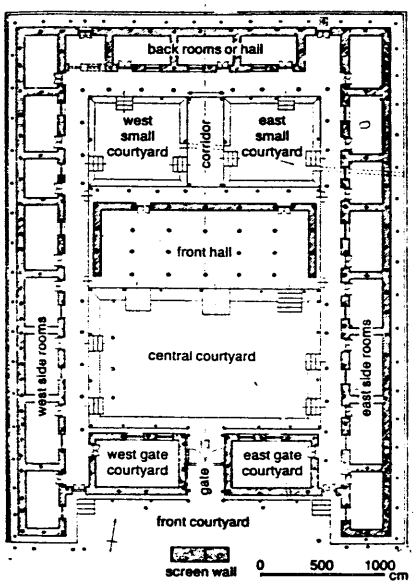
The Chinese house is a reflection of the social stratification which can be found in the Li Chi, or the Book of Rites, a Han dynasty compilation of accumulated source materials in which one is taught social etiquette or how to humble oneself, in order to honor others. Therefore, the Chinese house reflects a dual nature in its concern for ceremony and human relationships and on the other hand its concern for functionality.

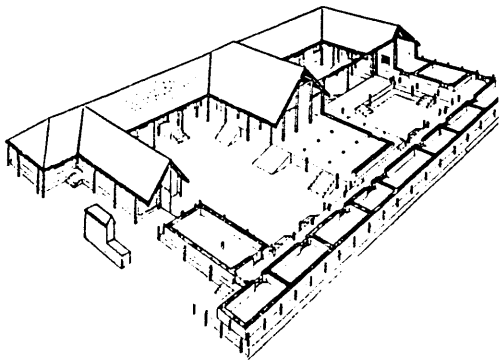
The traditional courtyard house served as the prototype for the Chinese city. Essentially the house was a walled enclosure composed of one or more courtyards, each with lesser and lower buildings on the east and west sides of each courtyard.

The courtyard house is the most pervasive and influential dwelling type in China. Houses which use the courtyard as the center to form 'four-closed courtyard' had their roots in Confucianism and in the rather rigidly feudalistic family tradition, which has also been influenced by Confucian philosophy. One of the essentials of Confucianism is "harmony"--harmony within a family, inner harmony of one's self, and the ethical concept of deference to the older. "In building a palace, the dwelling halls should be placed as close to each other as possible. Then there will be a close relationship and an intimacy between the members, and the house functions well. In order to make all the halls close to each other, a four-closed courtyard evolved. A four-closed courtyard house has halls facing north, south, east and west which all focus on the central courtyard. This is not only the easiest way, but the most expedient and attractive" [14]

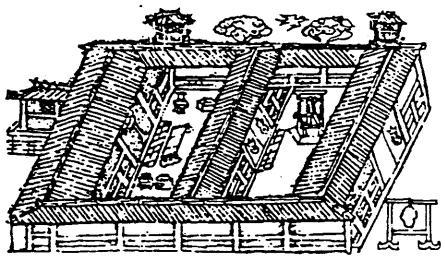
The moral code of Chinese traditional society was rigidly patriarchal. In the hierarchy of the family, the older generation has precedence over the younger, and the head of the family was always the male of the oldest generation.

In the housing design, hierarchy and protocol were strongly reflected in the strict observance of a code that determined the arrangement and the use of materials in accordance with the official status of the user. During the whole period of "bureaucratic feudalism" the family structure of society remained uniform. The dominant and as it were, 'ideal' form, could be fully realized only among peasants and artisans' family. Based on Confucian principles and rather rigidly patriarchal, this consisted, in its complete form, of parents, their





9 A standard layout of residence in Zho Dynasty

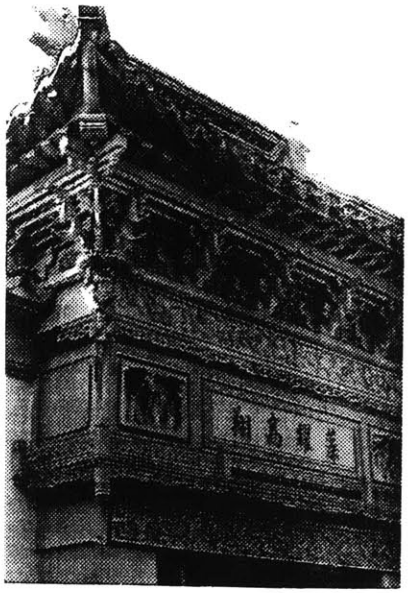


10 Courtyard house, from a Han painted brick

[14]Wang Guowei, Guan Tan Lin Ji, Ming Tang Jin Dian Kao (A General Study of School and Imperial Residential Halls), Heritage Publish, Hong Kong 1972. p.53

children, their married sons with their wives and families.

11 Typical street entry to a house. the plainness of the exterior contrasting with the intricate decoration of interior side



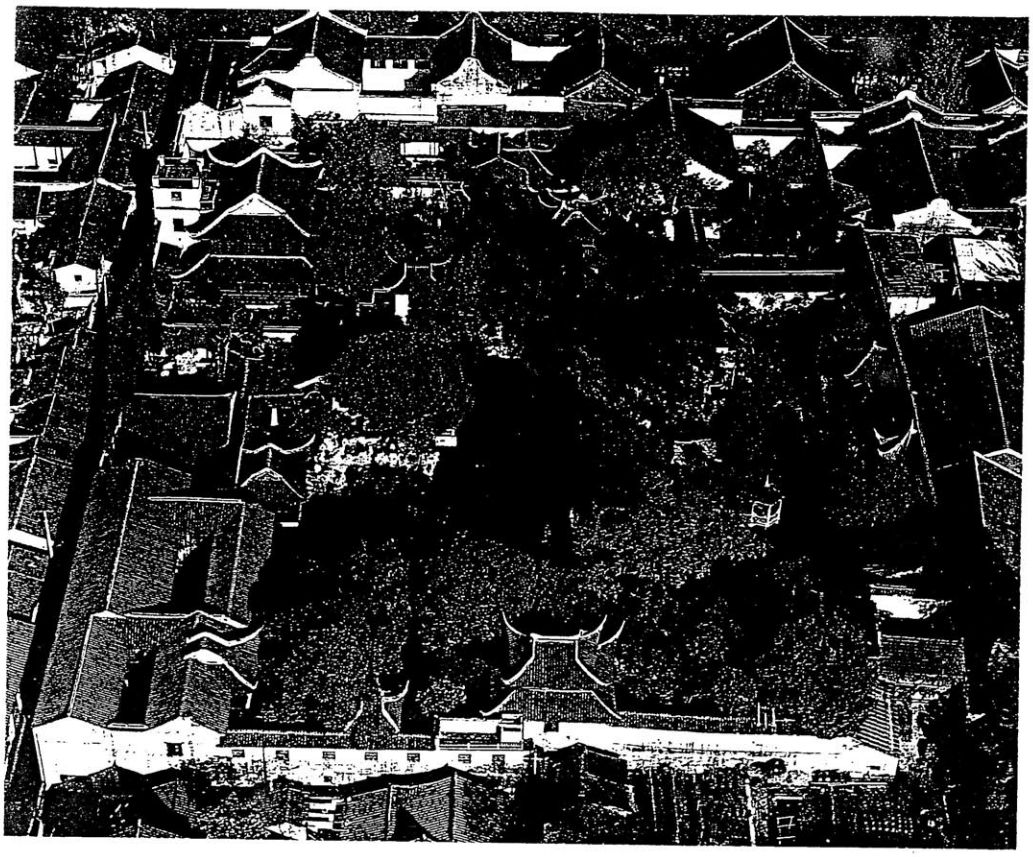
12 Detail of the interior facade of an entrance portal

The South China Traditional Houses

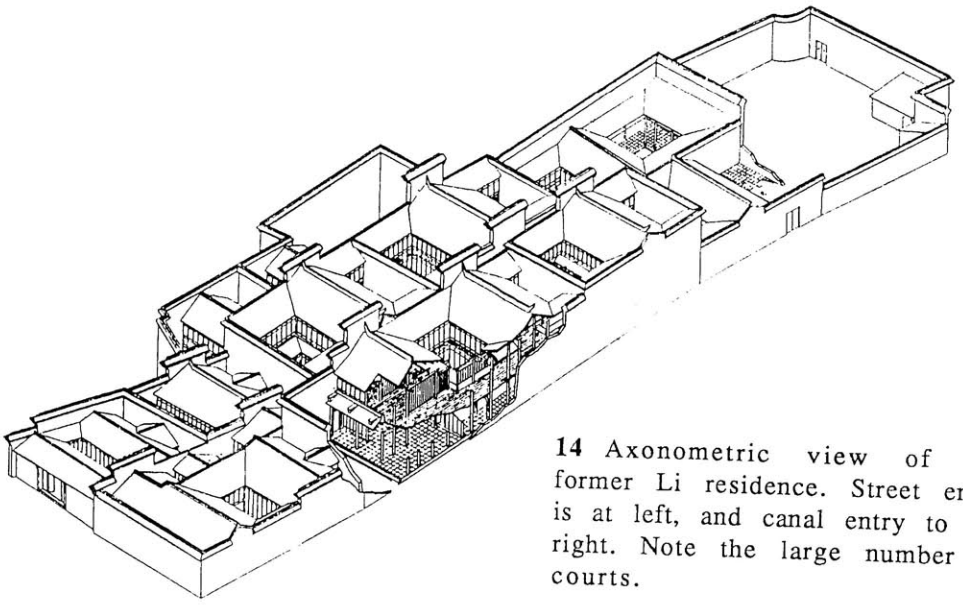
The courtyard house, garden house and row house are three most common type that characterize the Suzhou traditional dwelling. The courtyard house is the prototype of all the traditional houses.

A typical block in Suzhou is a priori defined geometrically by the orthogonal divisions of the canals and the paths that follow them on land. These establish a predominance of long rectangular lots among an east-west axis, bordered on the south by a street alongside the canal, which in turn gives access to those perpendicular, north-south lots, where the next canal allows for secondary service access from the rear.

Within the blocks which have been divided into long narrow lots, dwellings were built which respect the two unchanging principles regulating the Chinese house: the entrance should face to the south, and principal buildings facing the entry should be placed in a transversal manner to the main axis; buildings are situated in such a way as to form a succession of courtyards as one moves towards the rear of the elongated lot. Architectural elements are located along the principal axis following a strict order: first of all, the porch and entrance building to the house-protected by a " wall shadows", which is considered a screen against bad influences, This ensemble of the entrance, made up of shelters, courts, small service rooms and arrival hall for palanquins, precedes the "building for men"; the latter has a main reception room opening onto the garden and several annexes. Then comes the " building for women", with its reception rooms, followed by buildings for the family, the employees, and utilities, giving onto the canal behind.



13 A large courtyard house



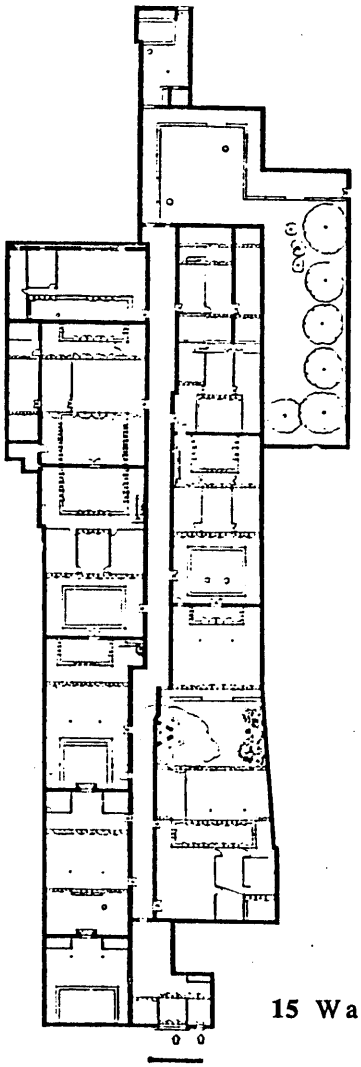
14 Axonometric view of the former Li residence. Street entry is at left, and canal entry to the right. Note the large number of courts.

An alley-way inside runs the whole length of the complex along one side, giving access to all these units without having to cross through each one. Most units are only one-story high, although the family dwelling itself may have a second story.

Houses in Suzhou have enclosing walls that obstruct the view from outside so that one sees only roofs and end-walls. gray tiles, and brick painted white or black, give this domestic architecture both unity and austerity.

Any opulence is to be found only on the interior of the dwellings in Suzhou. A visitor discovers this upon entering the reception rooms and turning around towards the entrance. Refinement exists inside the courts and gardens surrounding these houses, for which Suzhou is today renowned throughout the world. The dwelling have been created, in juxtaposition to the rigorous architectural aspect, softly poetic surroundings composed of ponds, streams, rock gardens, artificial mountains, and plants as well as bridges, kiosks and pavilions...

Public spaces defined by buildings are absent from the city, except occasionally where there is a public well.



15 Walls

The Principles of Arrangement

The Elements

The Walls

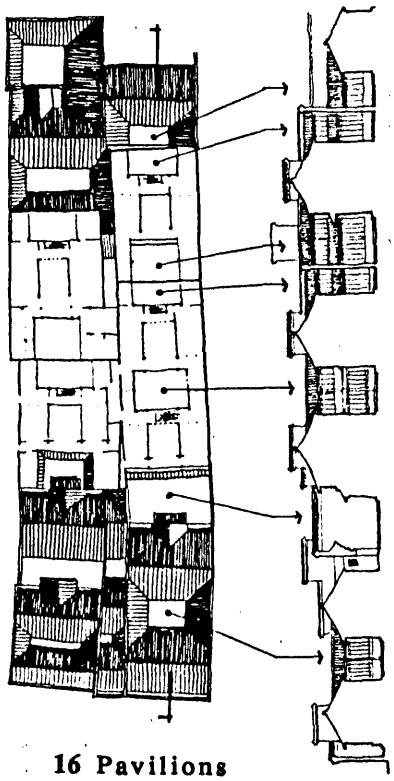
The urban fabric of Suzhou is composed of systems of walls and timber framing. Interior spaces and courtyards are defined by a combination of both.

However, the walls have a greater importance in the creation of space: the wall system is primary, and the framing system is secondary to it.

The walls are predominantly continuous and in the north-south direction(thus forming a directional field). Spaces therefore tend to relate in a linear manner, more or less so being dependent on the density of the field. The walls are often distanced one building dimension apart, in which case the spaces alternate between building and courtyard in a linear sequence, with only the minimal connections against the field in an east-west direction.
The wall are continuous planes: they do not fold or change directions. This causes territorial boundaries to be abrupt and movement to be well defined. Within the building complex, however, the planar character of the walls is not sensed because the wall transforms the system of walls to become a system of screens. One's visual focus never rests on the wall but is drawn to the layer behind, giving considerable depth of perception.
Within a traditional urban block, two complexes are separated by a service access. Here the planar and continuous quality of the walls can truly be sensed, and is indeed accentuated by the close distance between the walls. These access spaces are real corridors, severe and claustrophobic in a way, yet also exhilarating in the extreme sense of movement and ability to realize a longer dimension, the full length of the walls.

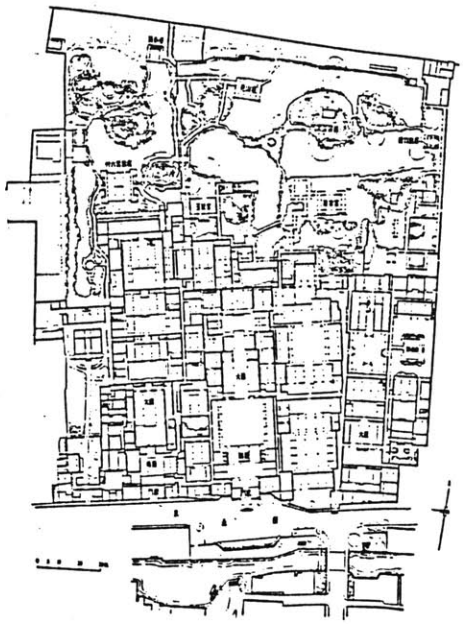
Pavilions

The walls provide the direction, and the pavilions (that is, the framing, roof and infill) act against that direction, defining the place.
The end result is a dense system of buildings and courtyards, the buildings having a maximum of southern exposure and retaining their individual scale since they do not add end on end to give a larger dimension.
In terms of building construction, the framing system is dependent on the walls mainly for stability. If the



16 Pavilions

construction system is transformed so that the framing system could be stabilized within itself, then it would be independent of the walls, and hence result in a tremendous amount of freedom in the articulation of both walls and framing.

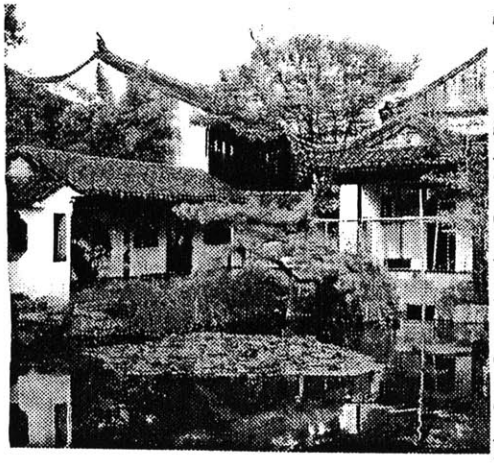


17 A large garden house

Courtyards

The courtyard is the basic unit in the traditional houses. This element has remained unchanged since the Han period because it is perfectly adapted to social conditions of Chinese life. The Chinese house intended to be common dwelling place of a very large family, and the several collateral branches of the family each inhabited a separate courtyard, a system which combined a necessary separation of possible incompatible relations with the ruling ideal of unity under the paternal sway of the family head. This plan is applied to all scales from one courtyard dwellings to palace cities. The courtyard unit can be multiplied and enlarged.

Garden and House



18 Wanshi Yuan, a garden house

The traditional Chinese garden is extremely private, a place of seclusion for meditation. Unlike the western garden, there is no visual connection between the buildings and the garden. While the built part of the complex, one is unaware of the presence of a garden, so that one stumbles upon it with surprise.

Because the gardens are most often to the north of the complex, they occur as summations of the major direction of movement. The procession is ended, however, not by the garden but by a space within the built, and then, after an obstacle or two, one discovers the garden in its full splendor.

The Spatial Arrangement

Arrangement of elements:

To understand the arrangement of the traditional dwelling we take a "model" that we call here the basic unit. The purpose of choosing a basic unit that is composed of arrangements of elements and spaces is to understand how the compounds are laid out in the block. We define a basic unit as:

1-an enclosure. Whatever the shape is, big or small the compound will always be surrounded by a wall.

2-a symmetric composition along the north-south axis.

3-a set of elements and space composed of four or two pavilions enclosing a courtyard.

4-an introverted space. There will be no opening toward the outside, all pavilions will be opened toward the center.

5- the south is the preferred orientation.

6-a hierarchical structure. The highest building will be the most important, the lowest will be the least important. The closer the pavilions are from the public space, the less private they are. The deeper in the compound, the more private they will be.

7-an equilibrium between indoor and outdoor spaces will be respected.

8-all pavilions will be built on a platform.

The Patterns of Use

Territoriality

The traditional dwelling displays a strong sense of territoriality which has developed over time. One would believe that its boundaries were created due to there being a closely knit society with each dwelling having a number of people living together as an extended family,

19 The spatial arrangement

consequently there being many common areas and few private ones.

Generally, it is an extended family that lives in the entire dwelling consisting of two to three courtyards. The various spaces are connected by courtyards, to provide access to the commonly used areas, such as the kitchen, the living area, the ancestor prayer hall, and the toilets. The rooms are primarily used for sleeping or storage. Thus within the family dwelling, one could consider each room as being private to its user/s, the other areas being shared by the residents.

There are different territorial limits to the people outside the immediate family which varied depending on one's social status and familiarity with the dwellers. An acquaintance would be entertained in the room towards the front end of the dwelling while a guest of the family would be asked into the hall passing through the "shadow wall". In case where there is no physical distinction between the room and the court area, it is the court that is understood as being the divider of the two public/private domains.

The exists a definite hierarchy of spaces between the street and the dwelling unit, which can be categorized as follows: the public-street; the semi-public front court and raised plinth; and the private-dwelling.

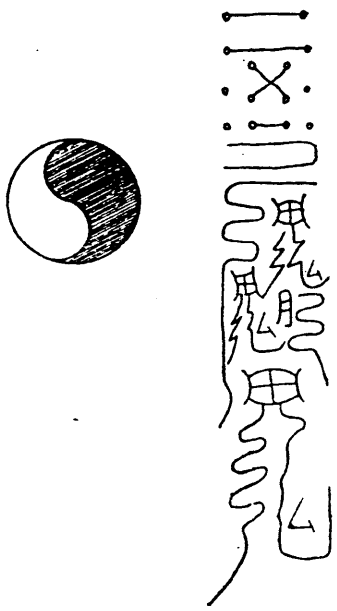
Due to infiltration of commercial activities in the residential zone, part of the plinth is used as a shop area, thereby making the plinth a public area. This is seen by the resident as an infringement of one's privacy as one is confronted by a public zone on stepping out of one's dwelling.

One observes that the change in the social structure has inevitable repercussions on associated activities, resulting in one having to make compromises and adjustment in an attempt to maintain the earlier existing congenial environment.

Hierarchy

Strict hierarchy existed in the traditional society. It was also reflected in the house form in various ways, which ranged from the layout, the character of the elevation and the choice of colors and materials.

The Symbolic Meaning of Traditional Houses



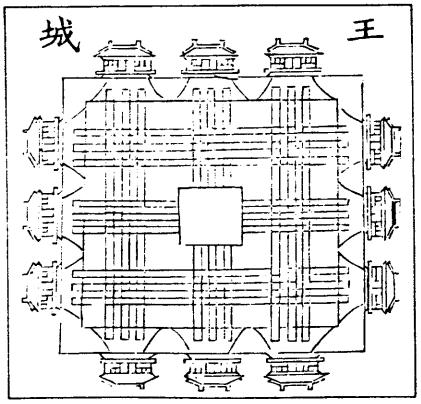
20

Auspiciousness of Houses

The house forms and the corresponding street and canal pattern in Suzhou obey the ideal model: The basic arrangement is facing south in an "armchair model". A number of methods were applied to form this model. The major concern is the relationship of house and streets, canals, doors, wells and drainage due to the concept of ch'i. For example, the various directions of entrance, which are usually bent or split where the gate appears cleaved in two and pushed apart, to reveal a blank wall in front; and as evil spirits can only move in straight lines they cannot enter the dwelling.

Taboo, Charms and Decoration

In Suzhou the people use Feng Shui and its charms to control taboos and to maintain the social order. For example, mirrors above the doors which serving to drive evil spirits away, are in use even today.



21 The principle

The Urban Forms of Suzhou

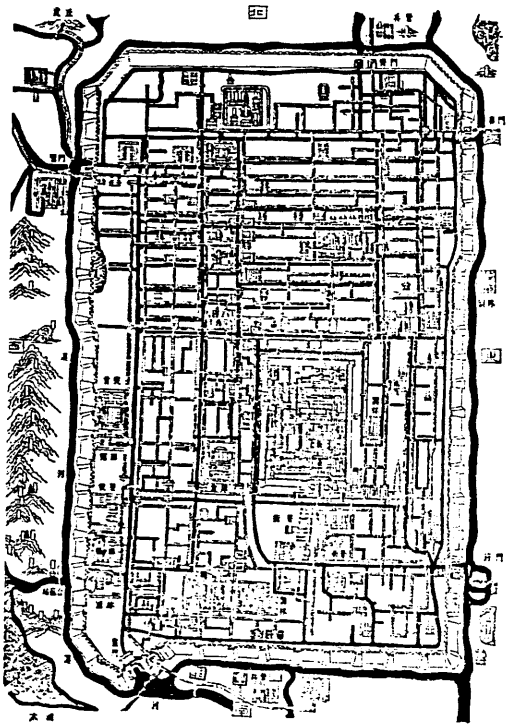
Urban Forms

Suzhou was laid out using a compass and a cord; such a plan fits into a long Chinese tradition of systematic regular town-planning projects. Chinese city planning is based upon a few simple principles and practices, that appear in a range of applications from a little

homestead, the layout of a temple, of a palace to that of a city ensemble. The principles are: (a) walled enclosure; (b) axiality; (c) north-south orientation; and (d) the courtyard. The city is first of all a rectangular enclosure, measuring 4.5 by 3 kilometers; it is protected by fortifications and encircled by the Grand Canal and its secondary tributaries. The ramparts enclose a fixed amount of land, including agricultural land which amounts to a reserve of terrain for urban development in the future.

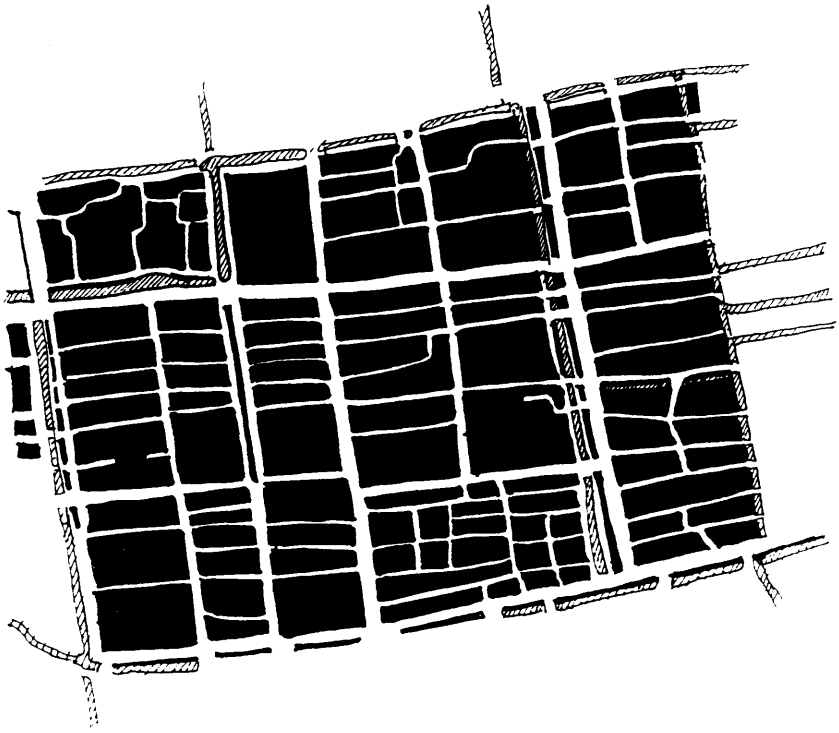
Suzhou is oriented according to the cardinal points of the compass, with major axes cutting the city east-west and north-south and thus forming strictly-defined plots. Such urban planning by the authorities for their capitals is part of a long tradition of agricultural land development based on a quadrangular division of regions and longtime mastery of hydraulic techniques using orthogonal canals. Hence, Suzhou fits in perfectly with the regular layout of the surrounding countryside.

This overall project, which the present-day plan of the city has retained on the same site, dates from the Song dynasty. The city, pillaged and destroyed in 1128, was rebuilt during the twelfth century. Its long life is revealed by a truly exceptional document, one that makes Suzhou a " prodigious urban artifact".[15] Its plan was engraved in 1229 on a large stone measuring 1.98 meters by 1.34 meters, preserved right up to the present, and now displayed at the Museum in Suzhou. In spite of certain deformations of the plan, due to excessive expansion northwards and southwards and enlargement of the former administrative city (now gone) at the center, this carved document provides us clearly with the basic elements for reading the town's morphology, which has endured for centuries.



22 Plan of 13th Suzhou taken from the engraved stele, For purposes of illustration the heavy black lines here represent the canal system, particularly the Grand Canal which encircles the city outside the ramparts

[15]Schinz, Alfred, Cities in China, p.251

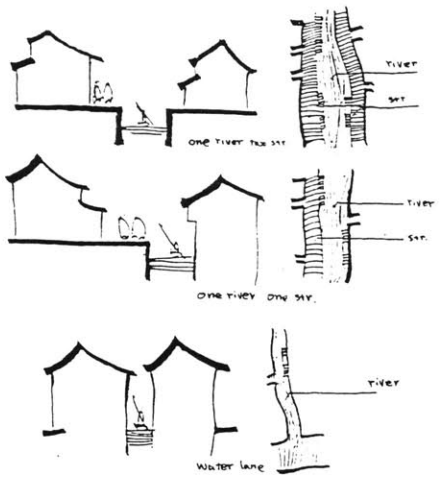


23 Levels of hierachy

24 The block

The foremost factor in the city is undoubtedly the presence of water: there is a majestic grand canal, forming the principal traffic artery, a waterway and a port; there is a multitude of secondary canals; boats suddenly appear in the midst of a dense urban fabric; chains of bridges carry on a lovely dialogue between waterways and pathways. These involve detours, parallel courses, junctions and spans that constitute rhythmic sequences wherein pedestrians and boatmen seem to be playing hide-and-seek.

In Suzhou there is a triangular orientation system formed by two pagodas and a temple on the top of hill, which makes the urban image become clearer and easier to remember. The bridges intersecting the rivers are repeated on the way. Their stone pavements and carts assert an urban contrast and offer views of the city.

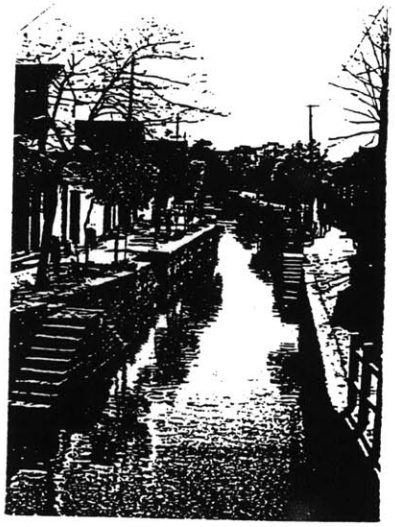


25 Arrangement of rivers and streets

Streets, Canals and Blocks

The primary order of Suzhou results from the overlay of the topography of canals with streets. This complex order appears at many scales. At the urban scale: it is handled in a variety of ways: there is the grand canal, a principal traffic artery, water way and port, and a multitude of secondary canals, where streets and buildings align to form shared spaces. There are three typical arrangement of rivers and streets: one river and one street; one river and two streets and the water lane.

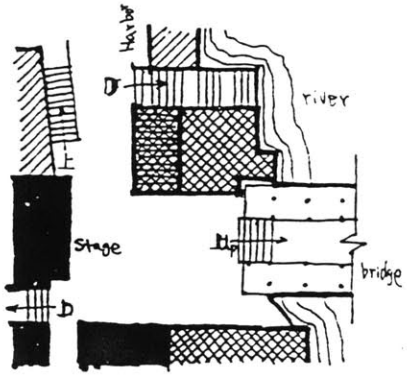
A typical block in Suzhou is a priori defined geometrically by the paths that follow the canals on land. These establish a predominance of long rectangular lots along an east-west axis, bordered on the south by a street alongside the canal, which in turn gives access to those perpendicular, north-south lots, where the next canal allows for secondary service access from the rear.



26 One river two streets

Within, the blocks have been divided into long narrow lots.

Before Ming dynasty, the city blocks were independent. The city was built out of a series of different sizes of clusters that could be closed at any moment. Composed of the agglomeration of introverted elements, these clusters were linked to each other by the bustling street and canal activities. At night the gate of each block were closed. As a result small groups of blocks were separated from the rest of the city and forming larger blocks. After the Ming dynasty, the closable block gradually disappeared due to commercial growth. But the cluster was still defined by means of the gates, which now took on a symbolic function.



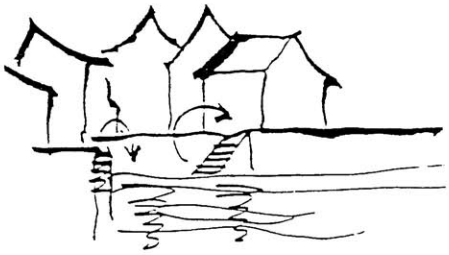
27 A public harbor

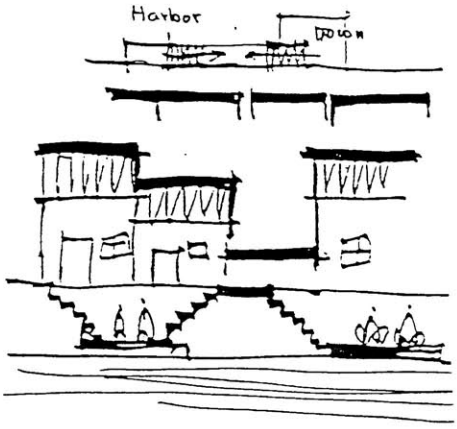
Neighborhoods Life

Suzhou had streets paralleling the network of canals and therefore had a clear underlying order. Each neighborhood was divided by canals. Personal encounters happened along the banks in a particular way. The public harbor was a center of each neighborhood. There were various activities: washing, bathing, bargaining and drinking. On Sunday, market day, a stage was set up on the stone-paved harbor-side for the performance of local drama, the spectators siting or standing on the bank, on carts, on bridges or on their boats. The streets were used not only for transportation but also for exchange of goods, ideas, and services. Public space became a communication ground.

The sub-center of each neighborhood was around the well where women washed, prepared food and gossiped. At a smaller scale, a more intimate neighborhood was formed among 4 to 5 families, where their back small harbors were close and could talk to each other within an audible distance.

Suzhou had a unique urban lifestyle, with deep relationships to the water: from boat-shops to Suzhou food and rice wine, from inhabitation on the canal to the style of the Suzhou boat. Some of these are centuries old. Though sometimes the appearance of thing has changed, the patterns remain fundamentally the same. Even when cities change in form, the people, their daily needs and their basic activities continue. Because the new is created from the old there is something powerful in the familiar that must be respected. The people make an effort to retain their old built environment based on their social norms and values.





28 Activities alone canals

Part III Transformations of the Built Environment

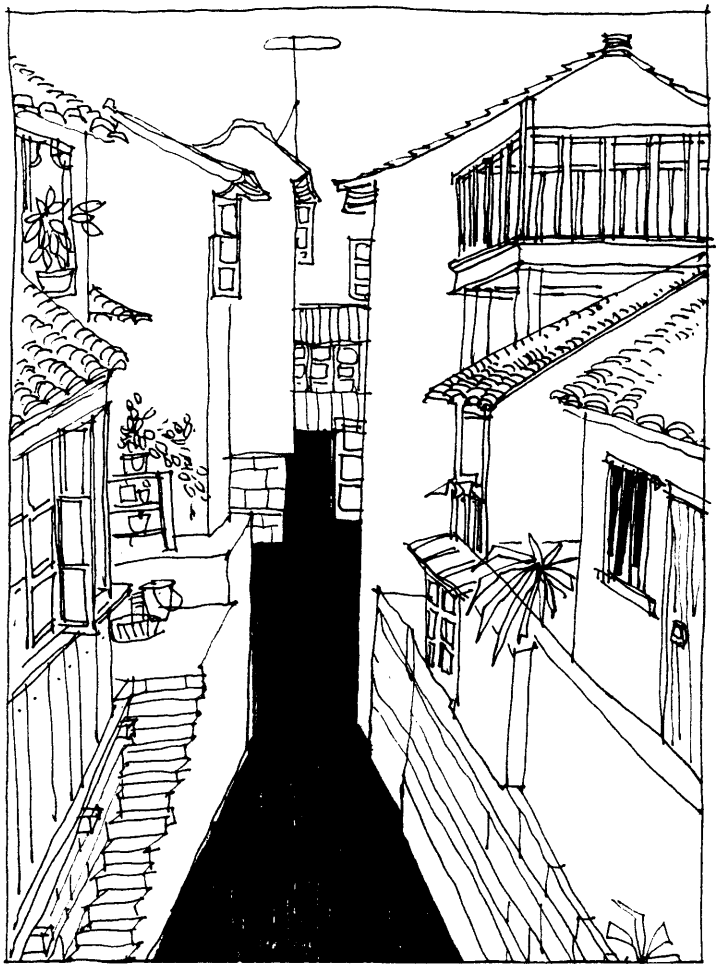
Background

Dwelling Forms

The Pattern of Living

The Meaning of the Houses

The Urban Structure



"If provision of shelter is the passive function of the house, its positive purpose is the creation of environment best suited to the way of life of a people" [16]

Amos Rapoport

Background

Progressive development is essentially the traditional procedure of construction of dwellings in Suzhou. The objective of this part of my study is to apply my method of analysis to three representative cases in order to describe what I will call "dwelling transformations."

Social changes bring about physical transformations in the built environment. In our country the long and very homogeneous development of the traditional dwellings is broken. The coming of industrial revolution had an important impact. The social structure was weakened with the fall of the feudal system. The changing social body had to influence the built environment. Poverty made it difficult for a family to build its own garden house. People commonly shared courtyards and rented out rooms. This type of sharing began before the Liberation and went on increasing during the sixties and seventies.

After the Liberation, in China, most people relied on their government work-units or firms to provide them with housing. Most of the residents of the old city are laborers who have little opportunity to get a job in good or wealthier work-units (state or local government) which can afford housing for their employees. This situation is aggravated by an overall tight housing supply. Presently, most housing is owned by the city which lacks the fund to maintain old housing or build new. Developers who build housing districts in the suburban

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[16]Rapoport, Amos. House Form and Culture. Prentice-Hall, Inc. 1969. p. 71

areas of Suzhou have stayed away from the old city because the city government imposes density and height controls which are too low for financially viable projects. These municipal controls are part of an effort to preserve the historic character of Suzhou. The developers sell most of what they build to government work-units or firms. This development model, without government subsidy, does not help alleviate the housing problems in the old historic area. New constructions, called here operations, were then erected in order to provide more indoor space within available land. In order to grow, the traditional dwelling required more land. This growth was done by means of bringing about an equilibrium between indoor and outdoor space, that is open and built-up space. On the other hand operations had to be deployed within existing boundary.

In the preceding chapter, we introduced the traditional dwelling and the way it was built. Operations are made of different materials, and more importantly, the materials are fixed together in different configurations. The techniques of construction are different. Some new materials have appeared. Cement, corrugated metal sheets, tar roof paper, red bricks (opposed to traditional gray ones) have become common. Wood has become more rare and unaffordable. All traditional building materials have become difficult to buy, not only because they are expensive but also because they are impossible to find. Retail sales are very rare because the building material industry is largely under the state control. It is for these reasons that in most dwellings today, there are piles of second hand bricks and planks of wood. Most families keep all these materials in order to be able to build other additions for sons or daughters who will soon be married and will not be able to get an apartment from their working units. These operations are built to be inhabited for short periods of time, while the occupants

wait for an apartment in the state's new housing projects. But these periods of time may turn out to be years.

The Case Studies

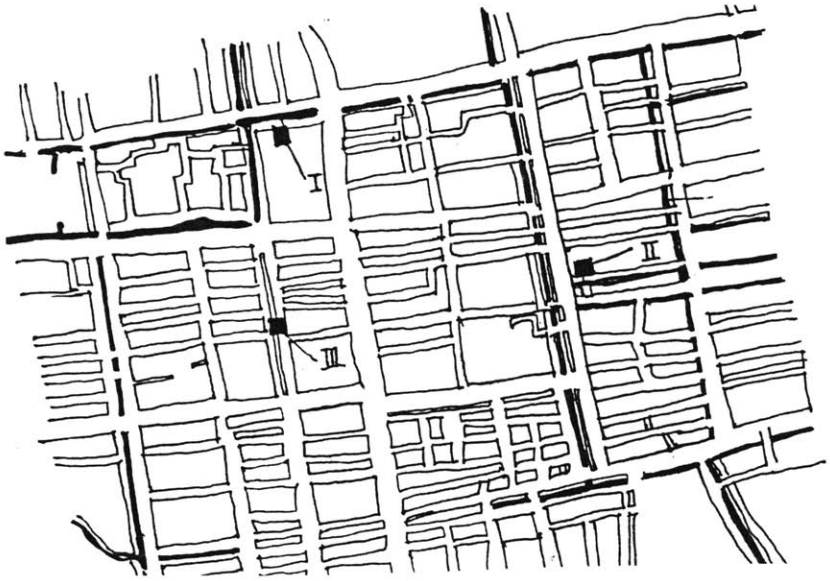
We will concentrate our case studies in the central area of Suzhou. This area is bounded by Yintian Street in the north, Wangma Street in the east, Guanqian Street in the south, and Lonlin Street in the west. It contains these major elements: The old quarter, gardens, and canals

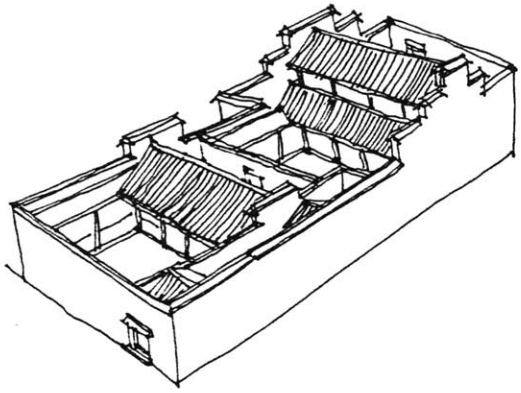
I chose this area to locate my case study for the following reasons:

First, it is the heart of the old city and therefore, must be organized carefully in order to make the whole city work properly. Second, It contains the oldest area which has special values and needs which should be studied. Third, a great deal of transformations have happened within the dwellings of this area.

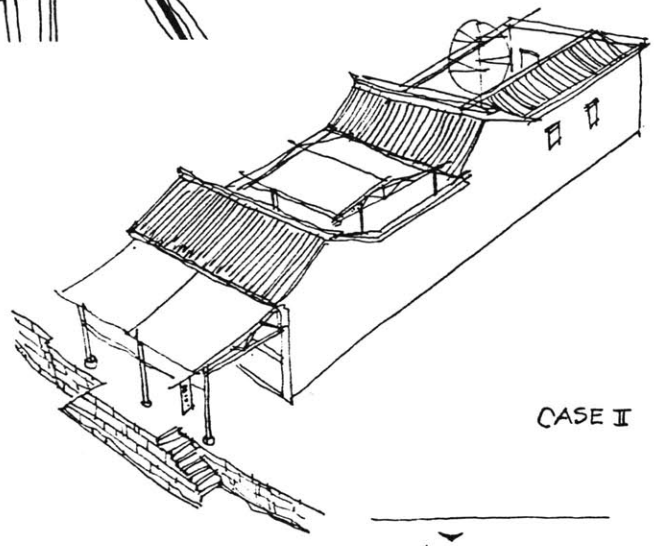
In this section I will deal in a systematic way with the different alternatives of how a type of traditional dwelling can be transformed. I will describe these dwellings under three headings: dwelling forms, the pattern of living and the meaning of the transformation. each system has its own elements. Elements once identified (door, room, etc.) have position and dimension. By position we mean the relationship of each element to the others and to the site. By dimension we mean two aspects: "relative dimension" of the element (the minimal and maximal possible dimensions, as related to the other elements and the site, and its "specific dimension" which means the real dimension of an element in a specific case.

Each house is presented in the stages in which it was built as was described to me by the dwellers. I have analyzed the basis, the building organization, the circulation principle, the territory/social group and the

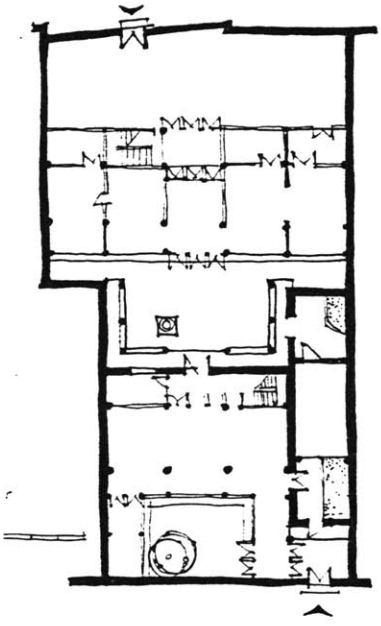


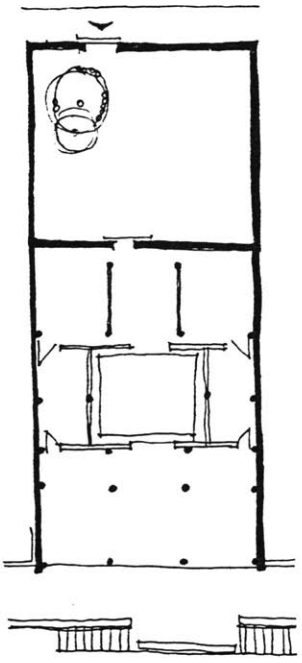


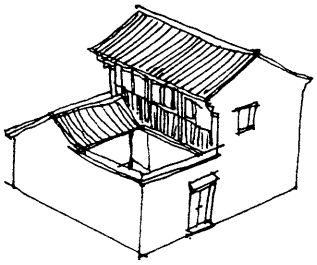
CASE I



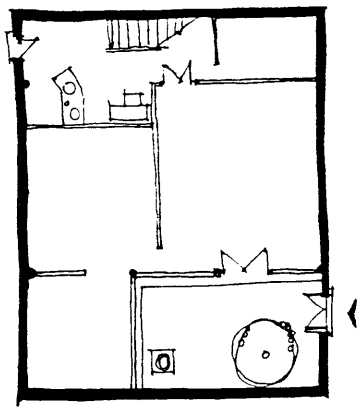
CASE II







CASE III



activities. In each case I describe the particular characteristics of the transformation which occur through the stages of construction.

Dwelling transformation may be defined as any change which modifies at least one of the variations of one dwelling.

We may understand that transformations in this sense have a dynamic meaning and that they are happening constantly. There are some types of daily changes in the use of open space--for example, uses vary from morning to afternoon to night. However this can not be called transformation because it is part of a main pattern which accepts these changes within itself.

The stage of transformation in a dwelling is reached when there is a change in its building organization.

I had used stages of transformation as a reference in describing such other transformations as the functional, social and construction ones.

Generalizations made from the case studies can be used to describe the dwelling transformations in cases similar to those we find in Suzhou. At this moment it is premature to construct hard fast patterns or rules.

Operations

All changes in building organization (transformation stages) in a dwelling are generated by at least one of the following operations

Addition--A new building is added to the old ones in a dwelling.

Subtraction demolition--Old or temporary buildings are demolished in order to create new spaces. Most of the time there is a replacement of an old or temporary building for a new or permanent one. Thus, these two operations usually follow one another.

Division--Existing buildings or spaces are divided internally. This operation could also be seen as the

addition of new elements--partition walls and/ or fences.

On the basis of our variation's models we can detect the following types of transformations:

a) Basic transformation--There is a basis transformation in a dwelling when a change modifies its basic form. (zone)

b) Building organization transformation--There is a building organization transformation in a dwelling when a change modifies its building organization. (rooms)

c) Circulation principle transformation--There is a circulation principle transformation in a dwelling, when a change modifies its circulation principle.

d) Territory social/ group transformation-- There is a territory/ social group transformation in a dwelling when a change modifies its territory/ social group variation.

e) Territory/ activity transformation---There is a territory/ activity transformation in a dwelling when a change modifies its territory/ activity variation.

Before introducing three dwellings as examples, it must be noted that there are some significant differences between the conditions surrounding these residents and the residents of depressed areas of western cities or those of slums surrounding third world cities.

Unlike the occupants of those areas mentioned above, residents in old city Suzhou have secure tenure. They cannot be moved unless they are provided with alternate accommodations. They are nearly all employed, both men and women; pay very low rent (less than 5% of their income); enjoy free education for their children; receive

basic medical care for almost no charge; benefit from large food and fuel subsidies; and , perhaps most importantly, they live in a convenient location near the city center, mass transportation, shopping and entertainment centers

Dwelling Forms

Basic Forms

The basic forms of transformation do not lead themselves to generalization. There is not one definitive and unique pattern of growth.

The diagrams which I have included show possible trends of growth of buildings within the lots. They are mainly conceptual models.

Example:

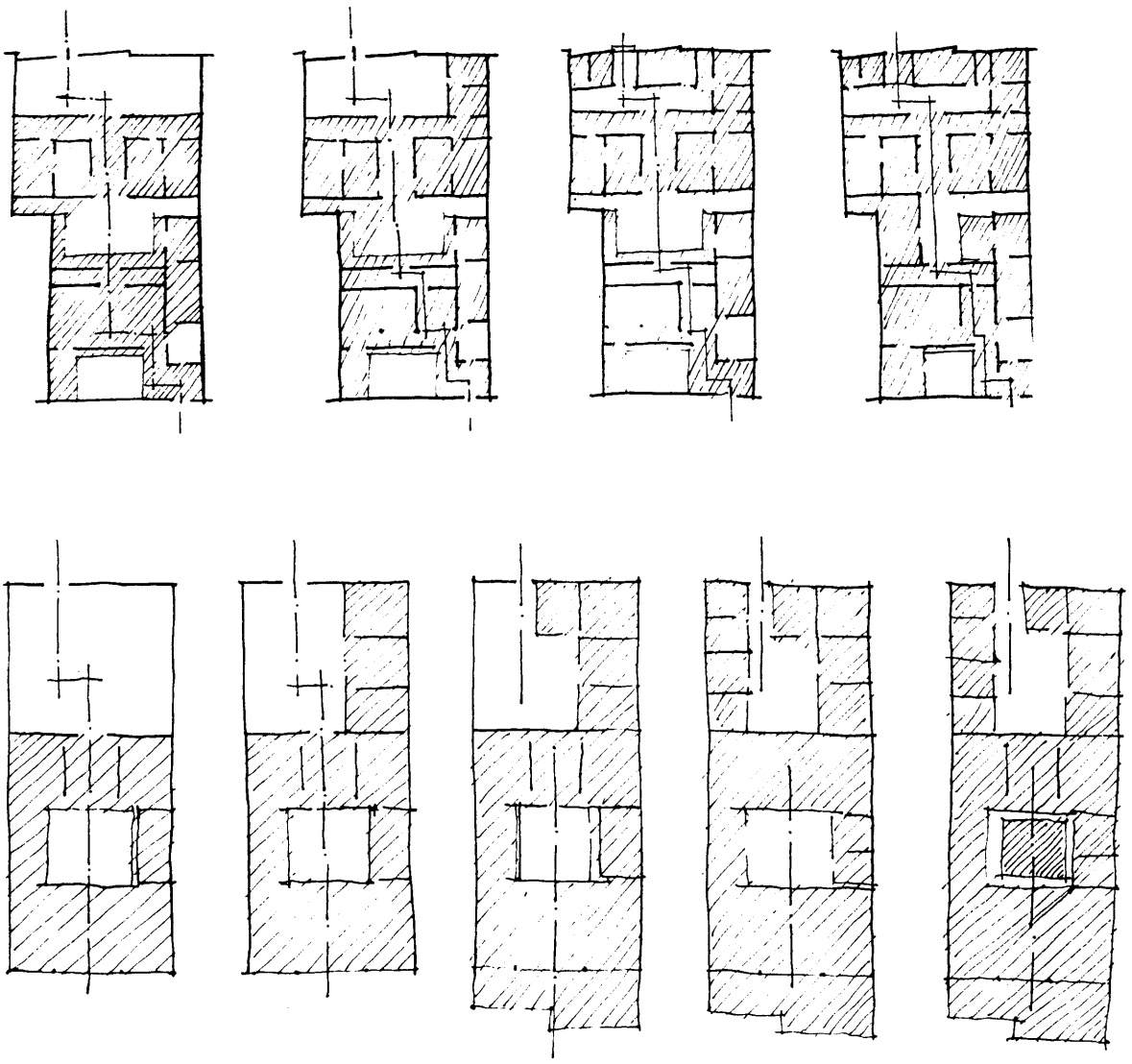
Case I: This is a house with four stages of construction; its basic form is three courtyards with two entrances. The basic form has remained constant during the four stages of transformation. The circulation axis has remained perpendicular to the street.

Case II: is a dwelling with five stages of transformation; its basic form is two courtyards with a centered entrance. The scheme had generate a two separate yard houses with a new entrance on the back.

Case III: is a dwelling on the street and canal. The basic form is a two story town house with a front yard. The entrance is in the corner. The circulation axis is perpendicular to the street and canal circulation axis.

Dwelling Organization

The transformed dwelling still offers privacy and supports a variety of functions and activities that need to



30 Basic form

be physically separated. However, they vary substantially in size according to specific function. Rooms typically house only one activity, such as cooking or dining; sleeping for a couple or for a single person usually commands rooms of different size. Circulation space become very efficient.

Case I:

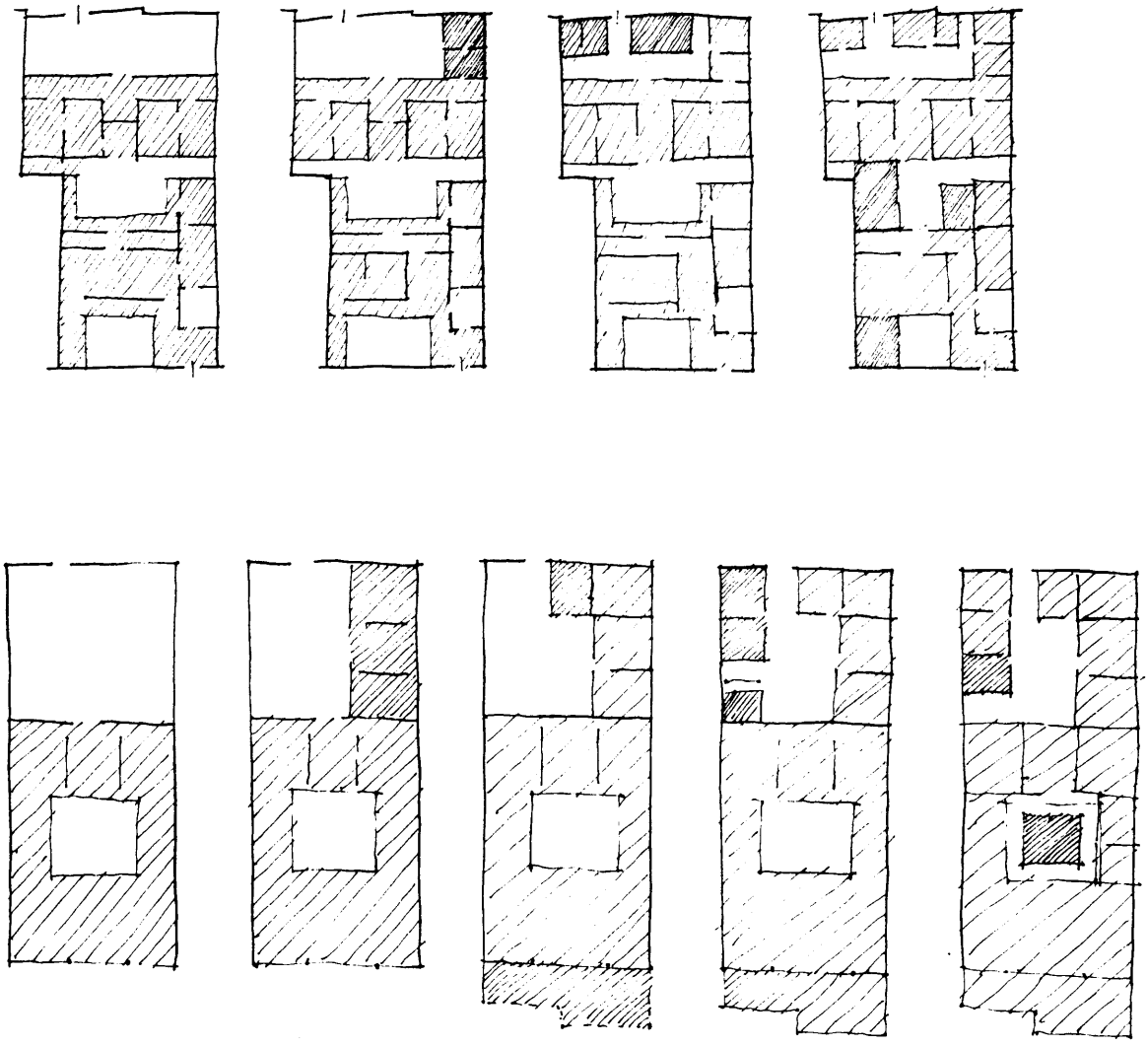
In the first stage there are two courtyards and a backyard in the compound. In the second stage two new rooms are added on the back yard and define an "L" shaped building organization in the back of the house. In the third stage two new rooms are added, forming the "C" shaped building organization in the back. In the fourth stage three new rooms are added, enclosing the courtyard. the courtyard building organization remains constant but it grows.

Case II:

In the first stage there is one courtyard and a garden. In the second stage three rooms are added generating an "L" shaped building organization in the back. In the third stage a verandah is built to protect rain water. In the fourth stage two rooms are built in the corner of garden over the first "L" shaped building organization and generate a enclosure space. The doorway between courtyard and garden is separated. In the fifth stage a new roof is added in the courtyard for the storage of goods.

Case III:

In the first stage there is front court in the compound. In the second and third stage building organization remains. In the fourth stage a room is built in the corner of the yard. The "L" shaped building organization remains.



31 Dwelling organization

Circulation Principle

Case I:

In the first stage the circulation type remains constant. All the rooms are directly connected through the courtyard. In the second stage two rooms are added. There is a indirect connection between them and one of the rooms has direct access to the courtyard. The circulation type remains constant in the last two stages.

Case II:

In the first three stages the circulation type remains constant. It is an external circulation type. In the fourth and fifth stages the circulation type changes to a mixed one because of the internal circulation. It is clear ,in the first two cases that external circulation type is dominant.

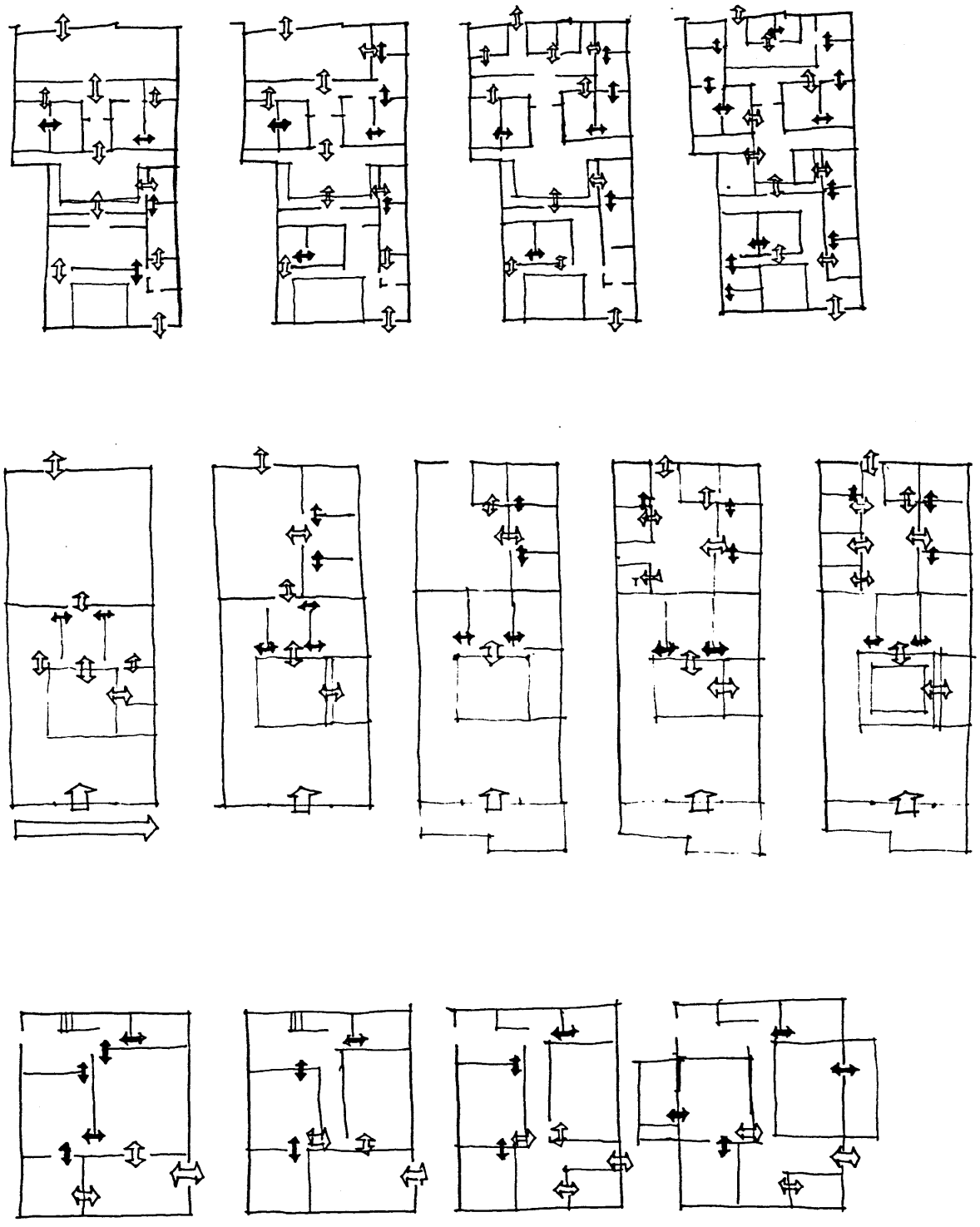
Case III:

The first two stages have an external and internal mixed circulation type. In the third and fourth stages the circulation changes to a more internal circulation type.

Prop and Miniature

The idea of miniature is still present today. Though the dwellings are now very crowded we can often notice these objects that tend to reproduce the world in nature. Bonsai or rockers, small gardens or fish tanks and bird cages are found everywhere. People are still very fond of small landscapes of potted plants.

32 a garden



33 Circulation principle

The Pattern of Living

In order to understand the social relations we have to know aspects of the social change, the family cycle and the woman's role. This information can be found through direct observations and questions about dweller's daily performance.

Social Group:

1) single person---a person living in a dwelling.

2) nuclear family--a family composed of parents and children living in a dwelling.

3) extended family--a family composed by two or more nuclear families living in the same dwelling.

4) non-family group--a social group composed of two or more nuclear families and/or a single person without kinship relation living in a dwelling.

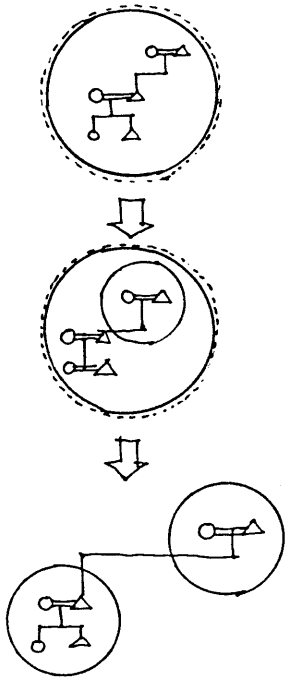
5) composite group-- a social group composed of at least one extended family and one or more minimal social groups (nuclear family, single person).

Territory

1) private territory---is the space in a dwelling controlled by a minimal social group which is a either a nuclear family or a single person.

2) shared familial territory--is the space in a dwelling shared and controlled by all the members of an extended family.

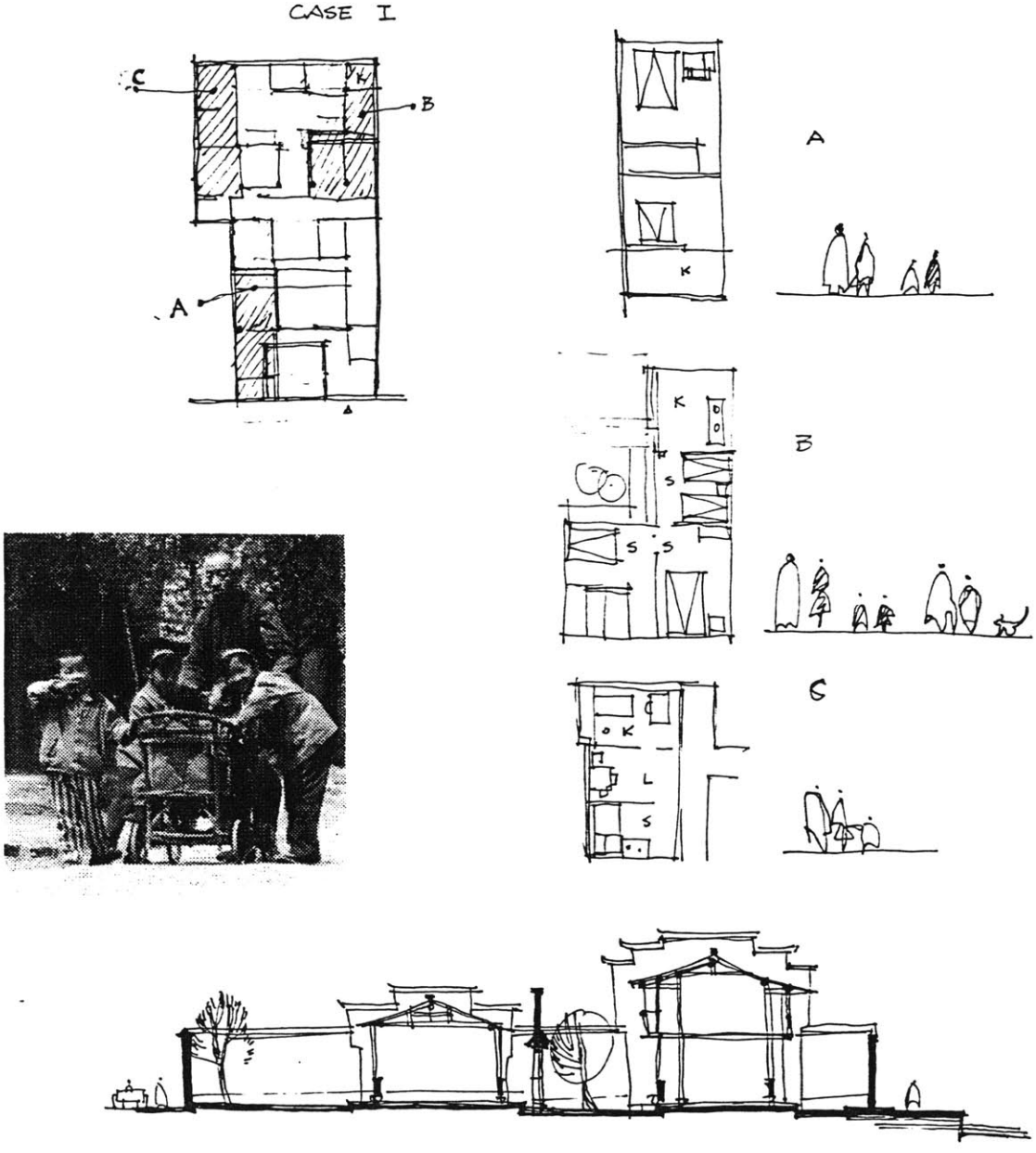
3) shared non-familial territory---is the space in a dwelling shared by all the members of a non-familial group.



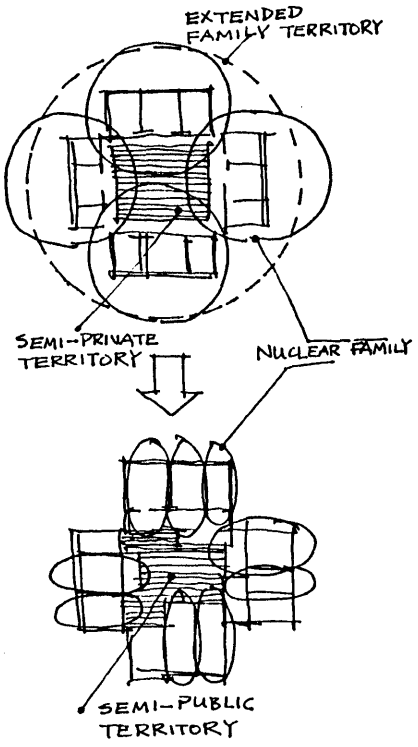
34 Family structure

Family Structure and Territory

Originally, the typical courtyard house in Suzhou was intended for one large extended family with three and



35 Families in case I



36 Territory transformations

even four generations living together. Each nuclear family within this large group had two or three rooms of their own which opened onto the central courtyard, which functioned as a semi-private space. Now, however, the housing is municipally owned, and shared by several unrelated households, all of whom pay an extremely low rent to the Housing Management Office. The original semi-private space has become a semipublic network of narrow passageways between each of the homes. There is little privacy; The families feel intruded upon. The original conformity between physical and social form is gone.

Many families are now sharing the space that was traditionally designed for one large extended family. In the preceding chapter we saw that the traditional compound was under the control of one power, that is a large extended family led by the patriarch. Everything was enclosed within the surrounding walls-- this enclosed space was only one territory. There was a very precise hierarchy between courtyards and pavilions. Most open spaces were shared and used by everyone living in the whole compound. Only one major door would give access to the whole courtyard house. But sometimes when the courtyard occupied a lot that covered the width between two lane, we might have found a back door on the northern wall of the lot. All pavilions were separated from one another, and pavilions enclosed a courtyard. The pavilions and the courtyards were like the rooms in a house. They were occupied by different generations and different activities took place in them.

Lets us look the case I , households A, B and C.

Household A: 3 people. The couple built a tiny room in one of the narrow spaces joining the north and south yards. The living area is about 2 by 4 meters. They also built a small separate kitchen. They just had a baby.

Household B: 5 people. mother, father, and three daughters. They said their house is like a train with three cars. The first is the original room (5 by 3.3 meters) which is used by the parents and the youngest girl. The second "car" is a shed which is used as a kitchen. In the girls' room, two single beds are against the walls, the washing machine, with flowers on top, serves as a table in the middle of the room, a big old radio sits on the desk, and a cat, the girls' pet, sits on top of the radio.

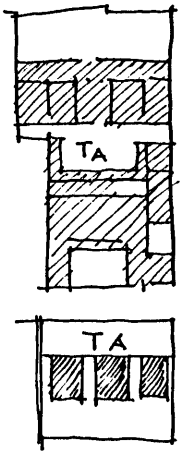
Household C: 5 people (soon to become 6). This home has an elder mother and father, a young married couple and a second son who is about to get married. In fact, there will be three families. The second son has just built a new room attached to the old one for himself and his fiancé. He has spent almost all his saving on this addition and some new furniture.

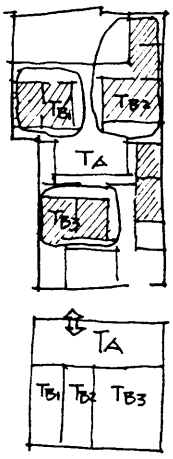
Case I:

In the first stage an extended family has whole compound; the dwelling is a private territory. In the second stage the old couple rents the back part of their lot to two young families and each family builds one room. Now there are three private territories and one non-familial shared the territory. In the third stage a fourth family built two new rooms which created the fourth private territory. In the fourth stage a single person and a fifth nuclear family built their rooms. Now there are six private territories and one non-familial shared territory.

Let us look at case I in detail: The circle zones are the pavilions. The whole compound was owned by one family. This was only one large territory Ta. When rooms were rented out to other people, the territories Tb were subdivided from Ta. Then part of Ta was a public

37 The territories and levels of hierachy

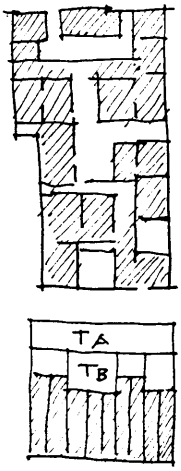




space shared by the people who rent the pavilion and the owner of the house.

As more pavilions were rented out, the public space of Ta was bigger and more territories Tb were added. The public space in the courtyard was shared by everyone in the large family.

From the liberation (1950) on, a large number of houses became State properties. The houses were divided among many families. Different divisions happened, the most common case is the following: there is still only one access to the compound, and one more layer is added to the territorial depth. The original public space (Ta) has diminished greatly in area. And the private territories (Tc) now have their own public space (Tb).

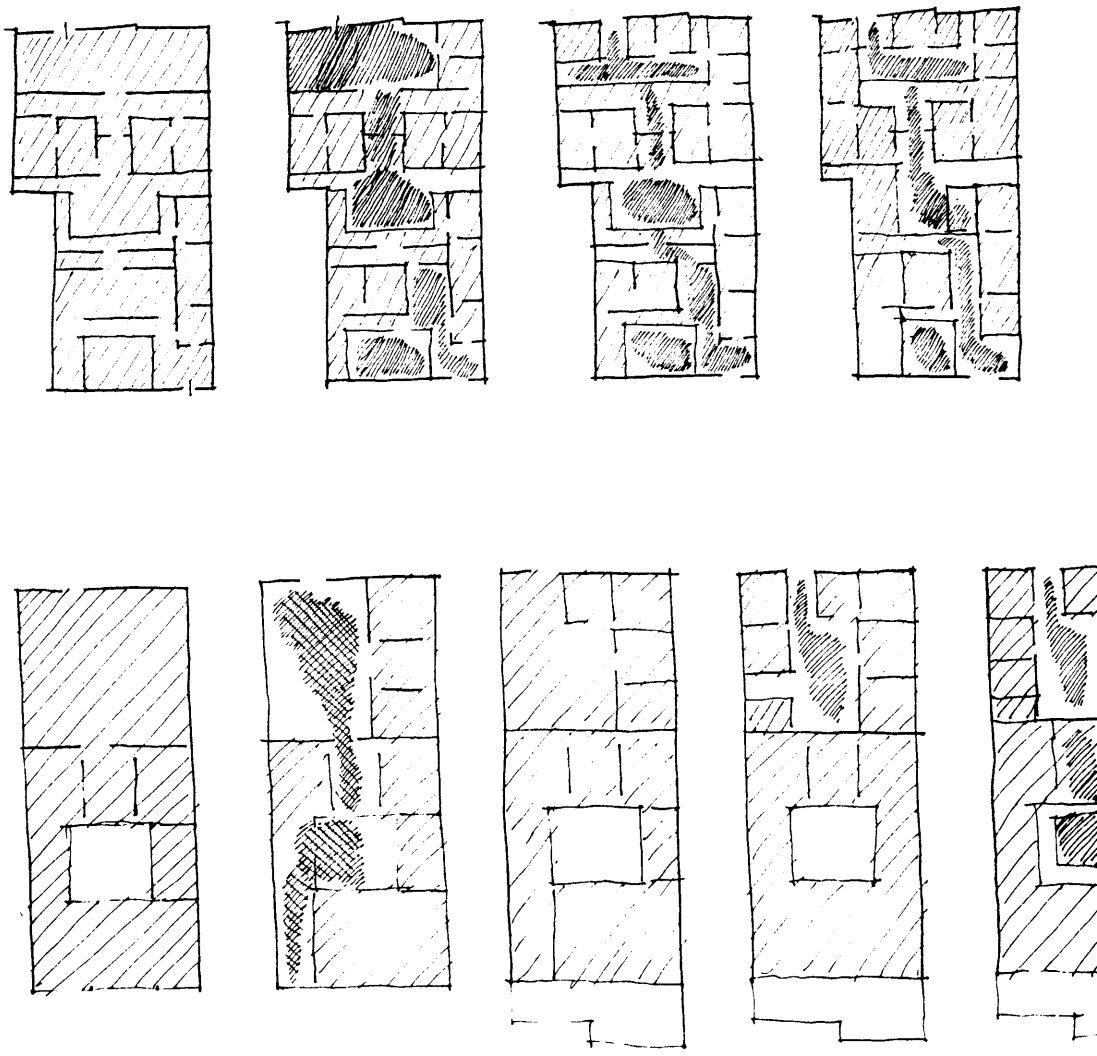


Case II:

During the first stage there is no change in the territory/social group relationship. An extended family remains as the only user of the dwelling and the owner of the front shop. At this stage the whole dwelling is a private territory. In the second stage one son of the family got married and built two rooms. The young couple shared the yard and the bathroom of their parent's dwelling. there were then two private territories and one familial shared territory (shared with kinship relations). In the fourth stage the young couple built a bathroom. They no longer needed to walk through the yard to share their parents bathroom. The yard then became private again.

Case III:

In the first stage a nuclear family lives alone in the house. there is one private territory. In the second stage the oldest son built two rooms and a toilet upstairs. He shared with his parents the living, dining and cooking spaces as well as the yard on the ground level. In the



38 Territory/social group

third stage there is no change in the territory/social group relationships.In the fourth stage the old couple rented a room to a friend's family. The new family built three rooms there. Now there are three private territories, one familial shared territory, and one non-familial shared territory.

Activity

We will use following categories examine our case studies

Activities:

1) living activities--activities performed by all the members of the social group: eating, sleeping, hygiene, recreation, living.

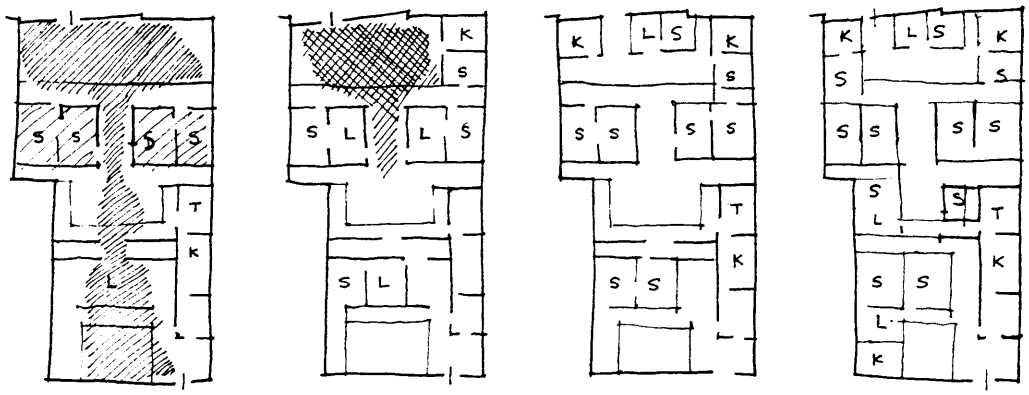
2) housework activities--traditional activities performed mainly by women: cooking cleaning, care of children, laundry and storage.

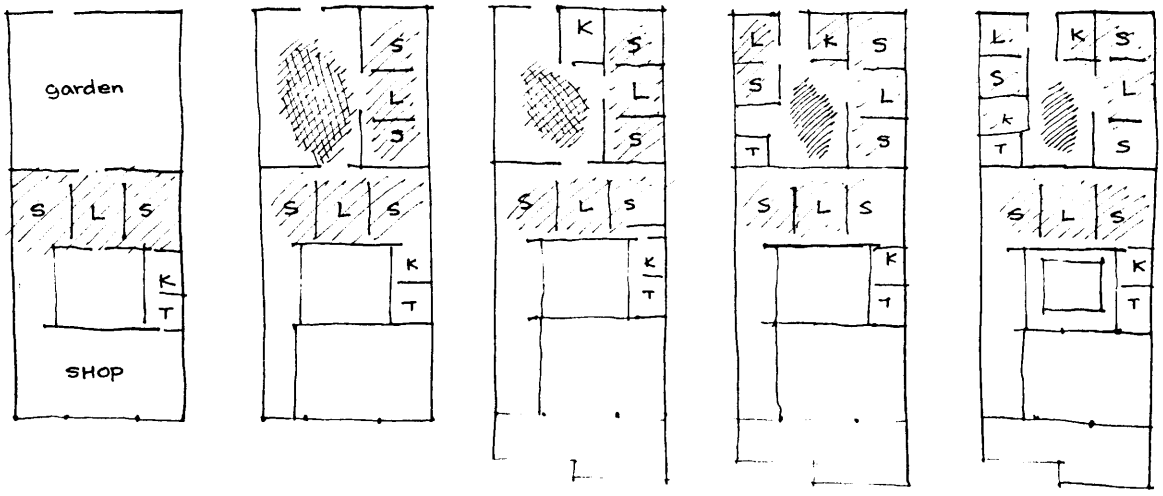
3) productive activities-- activities related to work or jobs at workshops, small commerce, animal husbandry and construction of the dwelling, etc.

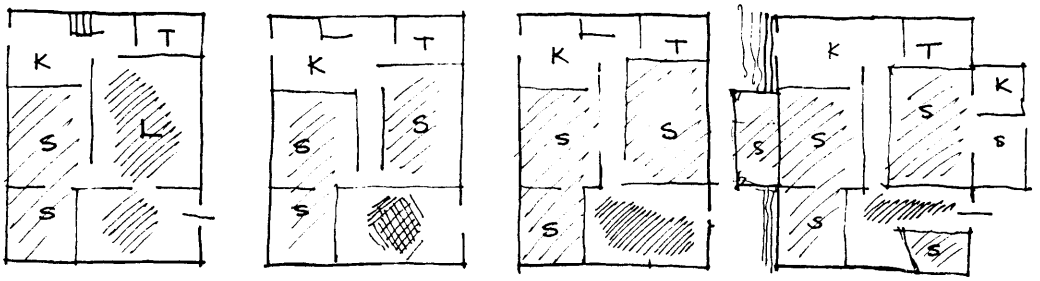
Case I:

In the first stage the extended family has one living room and one toilet. In the second stage there were two more nuclear family and each has its living room. They shared the toilet, yard and entrance with the first extended family. In the third stage, a fourth nuclear family arrived. They built two rooms; one living room and one sleeping space. They shared with other three nuclear families the toilet, yard, and entrance. In the fourth stage, a single person built a living room, and a fifth nuclear family built two new rooms; one as a living room; the other as a sleeping space. They shared again the same spaces with the other groups.

CaseII:







PRIVATE T.

FAMILY SHARED T.

NON-FAMILY SHARED T.

39 Territory/activities

In the first stage, an extended family has one living room, two bedroom and a shop in the front. In the second stage three rooms were added--one as a living space and the other as a sleeping space. In the third stage, one room is added for cooking activities. In the fourth stage a young nuclear family related to the fist built two rooms on the corner of the corner-- one as a living room, the other as a sleeping space. They shared with the first family the bathroom, yard and entrance on the first floor. In the fifth stage the young family added a new room as a cooking space in the backyard.

Case III:

In the first stage there was two living rooms three bedrooms and a toilet in the nuclear family. In the second stage there was an extended family and each nuclear families built its own kitchen. They shared the toilet, yards and entrance each other. In the third stage, there is no change. In the fourth stage, a fourth family arrived. They built two rooms; one sleeping space and one kitchen on the lane. They sheared with three other families the toilet, yard, and entrance. In the fourth stage, a single person built a sleeping space in the corner of front yard.

The Meaning of the Houses

Dwelling Transformations

I have applied my analytical method in describing the changes of dwelling over time in the old city of Suzhou. This is precisely the object of study of this dissertation.

Trends of Transformation

We now assume that in the Suzhou system there is not only a static structure which accepts a set of variations but also a dynamic aspect of such a structure observable over time. This being so, we expect that after observing a representative number of dwellings and social groups and after describing their transformations, we will find that they follow certain trends. Sometimes those trends are so repetitive that we can speak of patterns of transformation.

Patterns of Transformation

By pattern of transformation we mean certain routines followed by changes in the form and function subsystems of a dwelling over a period of time.

We made a very simple analogy with cellular process of growth and subdivision as it is described in Biology. The intent is not to generate any organic theory, but to improve in our analysis of the sense of life, change and process. We think these terms are useful in describing changes not yet adequately described in architectural terminology.

Dwelling Growth

The dwelling growth pattern of transformation is the most common pattern we have found. In this pattern the basic form of the dwelling remains constant through time. Transformations occur within the variations of the dwelling but never in its basis.

Dwelling Metamorphosis

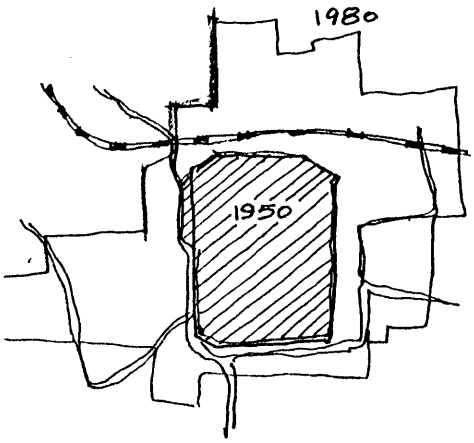
In this pattern the basic form of the dwelling changes through time. Which means that the basis of our dwelling models is changed.

Dwelling Mitosis

The dwelling mitosis, is the most complex of the patterns of transformation. In general terms it can be defined by the transformation of one dwelling into two different dwellings.

From the case studies, we can see that new intervention shows some constants, some characteristics that are similar to the arrangement of traditional pavilions.
We may notice that walls are normally not demolished in these neighborhoods. The clear separation between the lane and the private areas is a major pattern;
The bigger courtyard dwelling always have been separate entities. It become several introverted spaces;
No new intervention taken place in the center of courtyard. The additions were always built alone the enclosure walls and pavilions.
Method of enclosure, level of hierarchy in the built form, and dwellers direct control of their living quarters, are among principles that should be respected.

Urban Structure

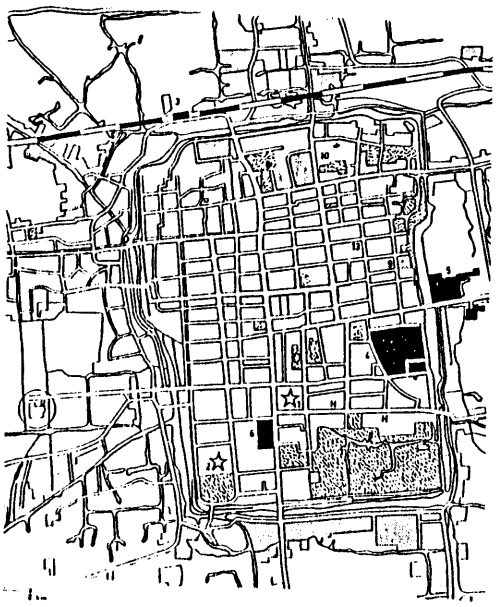


40 The growth of the city

While all these transformations occurred in the compounds, the old city, formerly surrounded by the city walls with gates and connected by canals also underwent transformation.
As we noted in the preceding part, the urban structure and urban tissue of Suzhou is the direct heritage of the Sung Dynasties. The street pattern in general and the layout of the canal have undergone very little transformation. Most of the transformations happened in the private area.
A city is a living complex. Suzhou has been continually changing all the time, and is losing its "city on water" character, especially with the urbanization and development, and the modernization program in recent

decades. The canals as a transportation route gave way to traffic on land; 11 water courses have been filled up or covered. At present, the whole length of canals in the city is only 25 kilometers. Most of the canals are narrowed and deposited with silt and mud. Only a few of them functions as transportation channels as before. The image of a water town is eroded by being deprived of its water. On the other hand, the hierarchy of canals (for cargo and service) and streets (for main entrances) was destroyed.

Another influential change was the destruction of the walls and gates. The city walls surrounding the city were completed torn down. It is necessary to see what was the meaning of these walls and gates and what they represented in the image of the city and for the citizens. It seems that they were for almost a century, "functionally useless". But they were part of the symbol of Suzhou. The walls and gates were the real physical limits of the old city, reminding us of its past, its history, but also offering a very clear boundary to the city territory, through which it was still possible to pass. The walls were replaced mainly by ring roads and boulevards, which are also barriers.



41 Suzhou, 1986

The public space used to be one whole, without being divided by anything. The stores and shops during the business hours were wide open to the streets. The gates were non-territorial gates that would divide into sections the public domain and helped to differentiate it. Every other activity that was not part of or associated with the public space was set apart in a neighborhood cluster. Therefore all living quarters, all religious or administrative activities were clustered. Today the city has lost many of its layers of enclosure. The city walls suffered the same fate.

The transformations of the blocks have been more interesting. Apart from adding extra rooms to the original unit, commercial, small scale manufacturing, clinics, and kindergartens have evolved within the blocks. Another interesting aspect is the methods of negotiation, and collaborations that have developed between residents resulting in a more efficient usage of the minimal space that they were originally allotted.

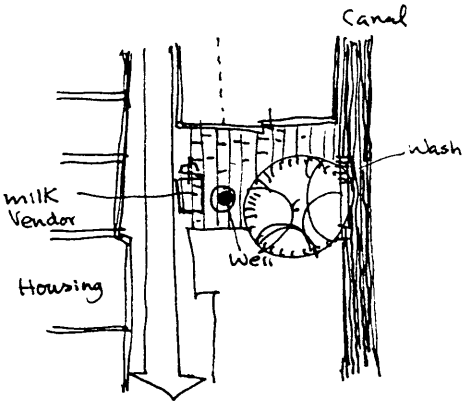
A Social Network

Sociologically, Suzhou old city---made up of small quarters, neighborhoods and courtyard houses, is defined by the social connections of the residents. The inhabitants create a social overlay on the physical form that enable them to identify "their" place. In the old city social connection is very important, and the physical form becomes secondary and could be any shape or condition. For most people in the old town, their main concern is their immediate social connections and not the whole physical and social structure of the place.

For each segment of the population social connections are an important part of daily life in the old city of Suzhou . Each looks for different relationships and reads different cues. The social connections of children are created through the courtyard, the family, and the school. Teenagers define their social territory in Suzhou on a larger scope centered around the high school. Adults center their social connections around families, friends, and colleagues at work. The older look to the tea house as a source of social connection. The smugglers and gang members define the old town in terms of territories. However, many of these circles of people cross connect in this matrix of social networks, because much of the connecting is done in the courtyards of dwellings.

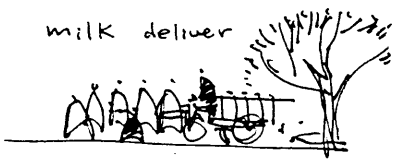
There is a common phenomenon when a family in the city is joined by a relative arriving from a smaller town in search of work. The family is used as a base to operate from. While the stay is usually temporary, it nevertheless implies changes in space usage. It is rarely the case that the relative is accommodated purely on grounds of family ties and social obligations. He or she contributes to the functioning of the household through monetary or non-monetary terms. Usually, this puts an additional burden on living space and services (kitchen or toilet). But the issues is usually resolved to a large degree by the life style which revolves around multi-functional semi-open spaces; it is thus the spatial quartiles of the traditional dwelling that make it relatively easy to incorporate an additional member or two. To a certain limit, usually dictated by space requirements, it is profitable for the family to incorporate an additional member, especially if he or she is in a "working age group". Another advantage of having an additional member is the proportional increase in linkages to the outside world.

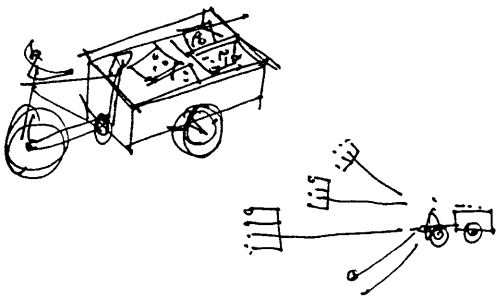
42 Neighborhood

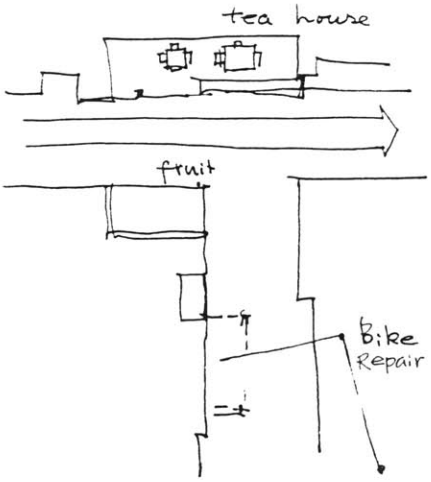


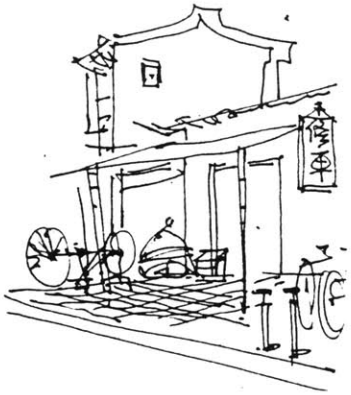
Neighborhood

Neighborliness in Suzhou is still an intense social relationship rather than a social obligation. People interact constantly with each other. The cooperation that exists among neighbors in a courtyard is often born of necessity. For example, in 1966, during the Cultural Revolution, family A had to move from a four room apartment to a room in a courtyard house. Soon after, the parents and their elder child were sent to the remote countryside to be "reformed through laboring". Only a ten year old young daughter was left behind in the city. The neighbors in the courtyard voluntarily took care of her. The parents sent money monthly to pay for her food. The courtyard still carries the meaning of "family",









43 A kindergarten in the old block

where neighbors help each other, even sometimes fight with each other, just like a big family.

When we asked about relationships between families, we found on average three to five families formed a circle with intimate relations. Twelve and a half percent of the families said they never had quarrels with their neighbors. Fifty percent said they did have quarrels with their neighbors.

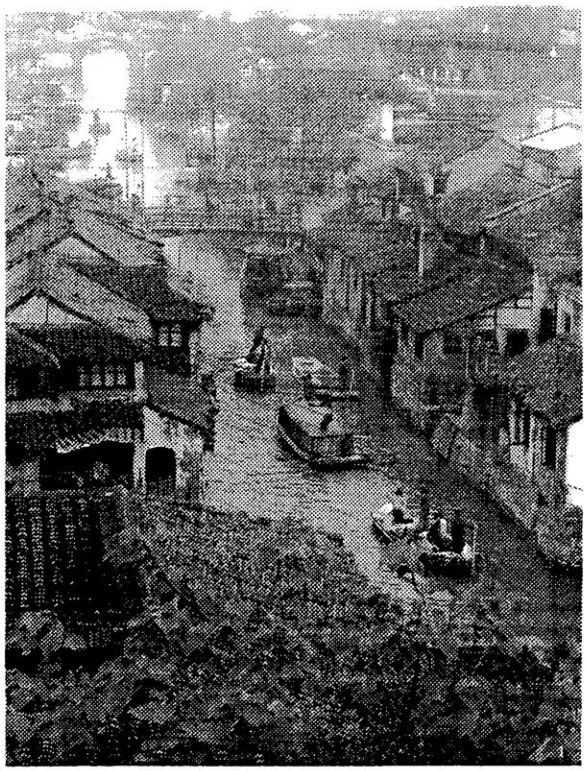
The survey shows us that the main social communication is outside the neighborhood. This is especially true among the younger generation.

We asked about alternatives for outdoor space: if they could choose, would they prefer to have the outdoor space divided into small pieces, so that each household could have one? or would they prefer to keep they courtyard open as a whole space shared by all the families (more like the traditional pattern)? Every family chose the former. This indicates a strong desire for more privacy and the possibility of controlling their own territory.

The cooperation that exists among neighbors in a courtyard is often born of necessity. Usually, people who live in courtyard housing are used to cooperating with their neighbors; the reason is simple--they need to. For example, helping each other with child care, protecting each other's homes from the intrusion of strangers, exchanging information about shopping, etc. Recently, a new kind of cooperation has emerged. Some unemployed youths who live in the same neighborhood get together to start small businesses. Some of them have been quite successful and some of the young entrepreneurs have become among the richest people in the town. These "individual traders" might play a more and more important economic and social role in socialist China.

From the above we can see people's interaction with the built environment is in continuity with tradition. The intention of transforming the old city into a "modern"

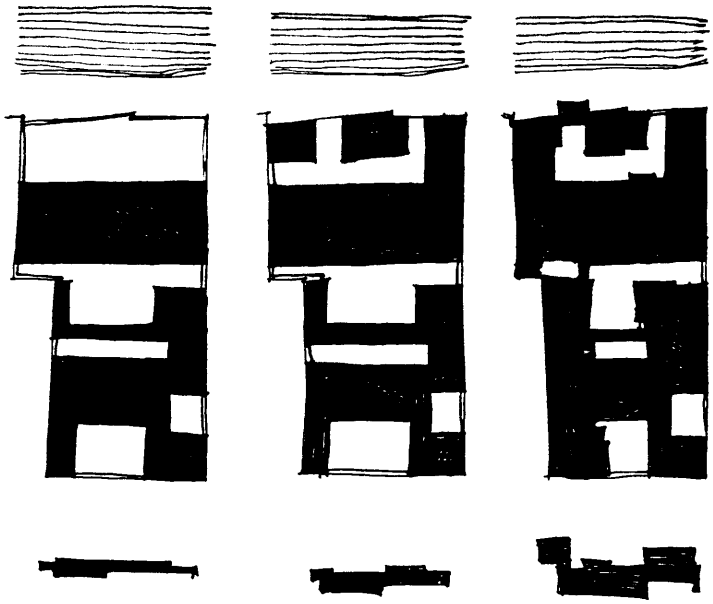
one, following an international trend, is explicit. At the same time, we can find that tradition is alive in many ways. Both influences and coexist are implicit.



Part IV Conclusion

Differences and Common Traits between Traditional and Contemporary Dwelling

Questions for Further Research



Conclusion

This concluding chapter is an overall reflection on the issues raised in the previous chapters. It brings to light the factors which have influenced changes in domestic built form in the process of socio-economic transformation in Suzhou. Although this thesis does not reach a formal conclusion, it embodies fruitful material and attempts to suggest a wide range of themes which might warrant further exploration, especially within the context of the evolving Chinese city.

Although firm conclusions cannot be reached without further research, certain important influencing factors can be extracted from the material already available. The approaches suggested in this thesis for the analysis of built form, focus on the significance of issues, which architects tend to overlook, connected with the desires and aspirations of people. The requirements of the user, in the architect-client relationship, are usually dealt with more in the physical sense rather than perceiving human beings as cultural beings who associate value and meaning with their working and living environments. This study has tried to look at these issues from a cultural perspective and it is hoped that this has rendered this approach particularly relevant to the study of built forms and their transformation.

The Differences and Common Traits between theTraditional and Contemporary Dwelling

On the Dweller's Role

Probably the most important aspect that both traditional and contemporary types of deployment share is the role played by the inhabitants. They are in fact, in control of their living space. At the lowest levels the interventions of change were and are under the control of thousands of

individuals. Action is decentralized. Over a given period, they have control of a major portion of the built environment.

We saw in the transformation by additions and substractions of the traditional arrangements that, although most people do not own their living quarters, they do have very direct control of the lower level configuration of elements and arrangements of space. They can restore and build additional rooms with very little restriction and with any materials that they can acquire; they have total freedom at that level. This, of course, is within the rules and structure of the social, political and historical circumstances. Though the additions may be very different in their nature, the situation is same. People all use a common, restricted group of element (building materials) and are acting (building) on similar ground (within the traditional deployment). But because the lowers level of territories (their immediate living spaces) are controlled by the users themselves, the results also tend to be individual and different. Of course, here one must remember that these transformations are produced on a temporary basis. People, even though they have great control over their own territory, do not own their home. Furthermore the future of their neighborhood's existence is also unknown.

This brings us to the conclusion that the quality of the living environment is directly related to the intervention of dwellers. And dwellers must be free to model the immediate surroundings to match their own aspirations and dreams.

The policy-makers of China should stop trying to spatially organize their poor into public housing, because in many cases they have failed. These housing projects have failed because they did not provide the residents with spaces which could be manipulated.

The Enclosure

We saw that the enclosure, in both traditional and contemporary deployments, is a very crucial pattern. The first thing to be built traditionally was the surrounding wall. The enclosure protected the family life--that was and is so important in China. It created a private world.

Today in the old neighborhoods with courtyard houses, a single compound is no longer inhabited by a large extended family. Many different, unrelated families now share a compound, but the surrounding walls are still necessary. The enclosure continues to give people a distinct status. It creates an entity where people easily know each other and with which people can identify.

We also saw, in looking at the arrangement of the additions, that the original wall remains an untouchable element. Whatever transformations the compound might undergo, the walls are never torn down.

The social composition inside the compound has changed quite a lot, but new walls may be added. When the compound grows outside of its original limits, a wall is erected in the street and part of the public space becomes a private territory.

The presence of these walls allows activities of different density to happen side by side with different sizes of compounds and different times of day. In the old cities of China where the density is very high, a compound surrounded by a wall is good protection against the bustling street activity.

Hierarchy of Territory

In the traditional deployment we saw that there was a hierarchy of enclosure. A city (surrounded by a wall), within a country (surrounded by a wall), neighborhoods

(delineated by large avenues and often by walls) within the city, blocks (surrounded by compound walls) within neighborhoods, and compounds within the blocks. Additions added more levels to this territorial hierarchical depth. In the compound (which was the lowest territorial level controlled by one family) there was a public space that gave access to each family space. This added one or more layers to the territorial depth.

Scope of Intervention

To be efficient, the renovation process of neighborhoods, like those of the courtyards, has to be decentralized. A centralized process, which would be expensive. Conservation of elements seems very illogical viewed from the position of a centralized power. A wall to be preserved at the house level is very easy to manage But the same wall, multiplied hundreds, if not thousands, of times, and seen at the neighborhood or worst at the city level, is a very complex problem. For that reason centralization favors waste. On the other hand, when a centralized power is not acting judiciously at the higher levels where its true effectiveness lies (often for political or economical reasons) the powers controlling the lower levels can be in a bad position or jeopardized. This is the actual case in Beijing where the municipality is not providing an adequate infrastructure in the neighborhoods. Therefore any initiative at the compound level is largely restricted.

There is no contradiction between the old structure of the courtyard house, the neighborhoods, and the modernization. The main obstacle is more located in people's minds than anywhere else. Formally, such adaptation is quite possible. Contemporary and high-tech devices, objects or furniture can easily fit within the traditional house. Electricity and running water have already been installed in some courtyards. The process

is not so expensive when it can be done individually, and at a time and place that is convenient for the people, or when the work can be distributed over a longer span of time if necessary. A step by step process, which is integrated with the lives of the inhabitants, is more effective than "politically efficient" unilateral government intervention.

Questions for further Research

The study has taught us lessons that run counter to many of the practices of contemporary design and planning.
First, the fact that our richest urban environments are also the oldest means that their wealth is rooted largely in the layers of history buried in them. In other words, the quality of the environment depends not only on its age, but also, importantly, on the fact that it has changed continuously over time.

Rather than present a set of solutions, this study will conclude with some questions. These are questions which came to mind after observing patterns of dwelling in Suzhou; after speaking with dwellers there, and after examining information gathered.
They led to some tentative observations which suggest areas for further study. In some ways they are like the Suzhou dwellings, a set of incomplete ideas and statements in a relation that is always changing. In the same way we prefer to make tentative conclusions rather than present "efficient" recommendations.

Courtyard Dwelling

After analyzing my case studies, I found that most of the dwellings continue to follow the courtyard dwelling scheme, but with a very different significance whereas

traditional courtyard acted to preserve the privacy of each family, now that the courtyards are shared. At this moment we will not make any statement about it beyond raising some questions about the origin and use of the courtyard.

Why has this kind of transformation taken place?

Interviews with people in the neighborhood indicated that the inhabitatants did not work with a preconceived plan but simply built their dwellings incrementally according to their needs and resources. This introduces the question of implicit patterns of form and use and their addaption to new and specific requirements.

The Patterns of Use

Patterns of use vary in each household over time, but one recurring pattern in Suzhou is the sharing of certain territories and services. We could find shared spaces (yards and rooms), shared service (toilets, laundry spaces, cooking places), and shared activities (child-care, maintenance, cooking, etc.). We showed that the relationship among them can combine and change over time. Some initial statements were made about patterns of transformation:

Shared Territories--built or open spaces controlled by more than one nuclear family. we found in our territory-social group analysis how the same basic form and sometimes the same building organization are flexible enough to not only accept but also support changes in territory/social group relations.

Shared Service--There are certain patterns in the family cycle that relate to building organization, such as needs to share toilet facilities, cooking places, and laundry spaces in different stages of social group transformation. The importance of courtyard dwelling in accommodating these changes is to be noted.

Shared Activities--We showed the relationship between shared activities and their location within the dwelling in the third part. A common shared activity in Suzhou is child care, as when young working mothers leave their children to the care of parents or close relatives.

The Production and Use

The building organization in Suzhou is always changing. This dynamic process is characterized by the mixture of two processes production and use. In the traditional houses today the sense of change, of transformation is stronger than the sense of completeness. As a visitor to those places I feel that the dwelling is always incomplete because a wall, a roof, a floor, a window or another element is in the process of being constructed. However, if we think of families who throughout perhaps twenty years of living in this type of dwelling, experience a change every two or three years (say new rooms added, old ones demolished); then we can see that the dwelling is something dynamic which is adapted to changing needs and resources. The sense of consumption of a final product "dwelling" which we "use" is here superseded by a sense of dwelling which includes production and consumption at the same time. It is important to realize the flexibility of the process; with minimal resources each addition happens at a different time for each dwelling.

If, on the other hand, we introduce the concept of "efficiency" into this process and decide that every dwelling must be "complete" in five years, we know that the results will be totally different. Dwellings must be controlled by the dwellers if there is any intention of speaking about "efficiency."

Space and Time to Build

Dwellers in Suzhou would have difficulty understanding the term "freedom to build". They have not had the freedom to choose their lot. They have had to pay for a truck to deliver water to them daily. They have had to spend a large part of their time building their dwellings using their only resources, those which are readily available to their own hands. They must often demand from the government schools, playgrounds and clinics for their children. They must often pay twice to be recognized as legal owners of their lots. Perhaps, instead of "freedom to build", we should use the phrase "space and time to build". Perhaps this conveys more adequately the situation as experienced. What is important to preserve is the possibility of obtaining a lot at a cheap price and building a dwelling with limited resources over a long period of time. What must be improved is access to economic and material resources.
I think that this, was in effect, the main argument of Turner's studies. Use of the term "freedom to build" however generated long discussions which obscured his real points. What Turner was asking for was precisely this space and time to build alternative.

Transformation

In recent years there has been a great deal of discussion concerning the relationship between social and spatial changes. There are a wide range of opinions but two positions can be viewed as having very different starting points. The behaviorist approach stresses the strong impact on human behavior which the physical environment exerts. Studies such as those by Mchelson and Jane Jacob support this view.
The other view begins with the perception of the built environment as the result of social changes. In other words it sees it as the passive reflector, the mirror, of social change.

I would say that it is necessary to look at built environments as they appear daily with people moving, acting and working in them in ways that transform themselves and their environments. It would possible to introduce a biological analog in order to understand that the built environment must be studied as part of a social process.

Thus, we might argue that in the same way that the human body makes use of skin to both separate itself from and relate to the environment, even the smallest social group, e.g. the family, has a "skin" which helps to define the territory in which it can act.

In this way a house is not just an object sold in the market place but it is the container of the social group which lives in it, and serves to define both its separation from and its relationship to the larger environment.

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