MACHI, MACHINAMI, MACHIYA....

A CONTEXT FOR PEOPLE'S PLACES IN JAPAN

by

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ABSTRACT

This thesis attempts to present the structure of Japanese towns as the connection between physical amenity and use, and the meaning of spatial structure as it is formed and textured by the people who inhabit it. This is organized into four sections, the first, a discussion of Japanese culture and worldview as it relates to a sense of space. This section develops a framework and conceptual model for the later parts: a presentation of six towns in different parts of Japan; an analysis of these places as town, house, and street as they relate to this conceptual/cultural model; and, the development of a language of form and structure of one of these towns through a series of design explorations.
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Introduction

We think of the history of a town as one tied to the structure and grain of the landscape extending along the contours of a hill or stream, or as an ever-increasing network of roads and buildings which thin out at the edges. This notion of the phenomenon of a town is one which understands it almost exclusively through physical form and use. History, however, also records a process of continual change and adaptation. Everyday life and use of space, seasonal festivals and their variations find in towns their place of expression. Meaning is joined with use; the way people understand a town and the significance they
attach to it is an integral part of the physical form.

Architectural form is one of great variety and richness of expression; spaces both built or open are used differently depending upon the year, the day, or even the hour. The same space which serves as circulation at one moment can become a shop, a garden, or a place of reception in the next. Different functions can occur in the same place and even under the same roof. Space, though, is not just the provision of use or function. It involves the meaning of that place and the materials structuring it as well. The organization of these functions illustrates a social hierarchy of various uses, and as such is representative of aspects of cultural life.

A town typically grows piece-meal by its inhabitants or through larger additions by developers. Yet, it is people which make a town and not just the roofs which cover them.
A town, then, is that which attempts to define the values of the inhabitants, and as such can be recognized as a system which reinforces its character through agreements between people living in the town. It also can be composed of less controlled elements as expressions of individual ownership. By way of example, one can conceive of the idea of something such as sandals, or zori, yet there are many different styles of them, each made by a different manufacturer. In the case of an element of a town, the notion of a window is similarly generic, yet the kinds that people build into their houses along the same street can be quite different.

Most buildings in a town have the potential to be reinterpreted for various uses. In this way inns, shops, restaurants, and houses can interchangeably populate the same urban tissue. The street walls of each building can be personalized to display its individual identity, but
also support the larger definitions of community and town through various systems of agreements. These agreements or conventions, whether conscious or unconscious, are in some way representative of the values of the users themselves, and are found in a recognition of the elements which make up the character of a place. In this sense, all built environments are engendered by conventions which establish patterns of form and use, and give meaning to a particular context. Form, then, can be described as the structure of the specific place defined by the elements which make it. Use is the various ways in which people use a form or space, and meaning the understanding that the use and form combined has for them. Thus, as a town changes, new forms are not simply added, nor streets expanded; rather indigenous customs are also layered with new images. A town is more than landscape or form. It is the idea of dwelling; the conceptual model of a town as it is mentally built by the people who inhabit it. It is not only the way in which space is occupied but the meaning attached to it; the cultural, psychological, and religious space which should together be treated as aspects of an ecology of physical form. The use, form, and meaning of a space mix to create the character of place.

This thesis is an attempt to anchor the notions of dwelling to a specific place: a particular house, a particular street, a particular town. Such a problem suggests studying an existing context, well-defined by a system of agreements both physical and behavioral. I propose to examine a place not entirely unfamiliar to me which presents intricate yet thoroughly cohesive systems of form, use, and meaning.

The rowhouse or connected house is a type that occurs in densely populated areas in almost every country,
yet its interpretation varies considerably from place to place. Throughout Japan, this kind of house is a prevalent type but has different images in different areas of the country as the meaning and agreements in particular streets and particular towns have varied. Though there exists a common basis for behavioral and physical patterns at a cultural level, variations do occur in different towns; a local or community theme emerges. In the same way, differences between houses in each of these towns can also be seen as expressions of personal variations on this basic local theme. Thus the smaller neighborhood and the individual house is recognized.

This study of aspects of traditional architecture is proposed in an effort to discover a language of space and form which does not omit the texture and character of daily life and levels of cultural composition. The first part of this thesis, "A Setting", introduces and delineates what seem to me to be the basic differences between Japan and the West. The discussion begins with the idea of culture and moves toward definitions of public and private as tied to worldview and spatial structure.

In order to understand the connection of culture to form as it relates not only to a house typology but also as it is seen in a larger context, I have chosen to present documentation of six different towns. Each displays different patterns of settlement and growth, but the same dwelling type. A strong set of agreements exist at a cultural level but diverge through local and individual interpretations. This section, "Six Towns", is entirely descriptive, setting up the base for the following section. A discussion of the similarities and differences of these towns will form the basis of this third section with the intention to under-
stand the relationships between and within the towns. The emphasis will be on those sets of elements which together generate consistancies in form, meaning, and use. This part of the thesis, "From Town to House", will analyse this documentation and discuss it through three sections: the town, the house, and the street. The aim will be to identify the elements which define the character of place through social agreements at both the urban and community levels outside the house, as well as inside the house.

The street, which occurs between house and town, and represents neither individual nor urban concerns exclusively but rather joins the two together, will be the basis for the last section. Thus, this last part, "Design Alternatives", includes a series of design exercises which begin to select and optimise an architectural and spatial language of form using one town as a basis. The emphasis will be on the zone of transition between the street and the interior of the house. The intention will be to develop through design a hierarchy of systems and subsystems of elements which add to and reinforce existing conventions. This will be documented through notions of the structure of light, landscape, and materials, and the organization of form through space and dimensions as it relates to use and the social and cultural patterns of its inhabitants.
A SETTING

Showing a model to the Shōgun
at the Edo Castle
The flow of the river is ceaseless and its water is never the same. The bubbles that float in the pools, now vanishing, now forming, are not of long duration; so in the world are man and his dwellings. It might be imagined that the houses, great and small, which vie roof against proud roof in the capital remain unchanged from one generation to the next, but when we examine whether this is true, how few are the houses that were there of old. Some were burnt last year and only since rebuilt; great houses have crumbled into hovels and those who dwell in them have fallen no less. The city is the same, the people are as numerous as ever, but of those I used to know, a bare one or two in twenty remain. They die in the morning, they are born in the evening, like foam on the water...

A town is in a constant state of transition and is continuously colored not only by existing conventions but also by new patterns of dwelling and living. Changes take place, yet the remains of the old town are a visible and important part of everyday life. Old and new images become parts of the same place, existing as an amalgamation of pieces from sources far wider than the town itself. Each of the pieces have perhaps widened in meaning, or sometimes completely transformed in taking on the character of the locality. Similarly, over time the emphasis of the context changes and develops. Thus, the character of a place, embodying the notions of structure, use, and the meaning of space also changes.

There is, perhaps, no place where people live unmodified by the particular customs of that place. They are not only affected by it, but also create it and find it reflected in their daily life. Thus a sense of cultural style and a way of being emerges. This is an expression of a worldview — an image of the way things actually are in oneself and society. Cultural meaning is stored in symbols — sacred, aesthetic, natural and built — and give to the merely actual a significance. Thus, things often have meanings beyond what they in reality are. In such a way, built form can be seen as generated from these cultural symbols and therefore a record of the beliefs and values of a people.

Chisakobe no Sugaru was a favorite of Emperor Yuryaku who reigned for twenty-three years at the Palace of Asakura in Hatsuse.

Once the emperor stayed at the Palace of Iware and it happened that Sugaru stepped into the Oyasumidono without knowing that the emperor lay with the empress there. The emperor, ashamed of his conduct, stopped making love; it thundered in the heavens. The emperor [taking note of the noise] then said to Sugaru, "Won't you invite the rolling thunder to come here?".

Leaving the palace, Sugaru hurried on horseback, wearing a red headband on his forehead and carrying a halberd with a red banner. He passed the heights of Yamada in the village of Abe and Toyura-dera, finally arriving at the crossroads of Karu no morokoshi. He cried out: "The emperor has invited the rolling thunder of heaven to his palace." While galloping back to the palace, he asked himself why, even if it were a thunder kami, would it not accept the emperor's invitation.

As he returned, it happened that the lightning struck between Toryura-dera and Ioka. On seeing it, Sugaru sent for priests to place the thunder on a portable carriage, and he escorted it to the imperial palace, saying to the emperor, "I
have brought the thunder kami."
The thunder gave off such a dazzling light that the emperor was terrified. He made many offerings and then had it sent back to the original site... 

After a while Sugaru died. The emperor let the corpse stay in its coffin for seven days and nights. Then, recalling Sugaru's loyalty, the emperor had a tomb built in the place which had been struck by lightining and had a pillar inscribed: "The tomb of Sugaru who caught the thunder." The thunder was not pleased. It struck the pillar and was caught between the splintered pieces. When the emperor heard this, he freed the thunder loose, narrowly rescuing it from death. The experience left the thunder in a confused state of mind which lasted for seven days and nights. The emperor's officer in rebuilding the pillar, inscribed it with the following epitaph: "Here lies Sugaru who caught the thunder both in his lifetime and after his death."

This is the origin of the name, "Hill of Thunder," given in the time of the old capital.  
(Nihon ryōiki Vol. 1 Tale 1, written early 9th century.)

The emperor, by recognizing Sugaru's loyalty, enshrined his deed by building a pillar in the place...
that the thunder touched down on the earth. The site, formerly "between Toyura-dera and Ioka," at that point comes into its own. It is made by the event, and encompasses the meaning of that event. Thus, a place becomes a built aspect of the meaning of architecture. The "Hill of Thunder" is created not only by the pillar of Sugaru's tomb, but because of the event that occurred there. Place, then, as a cultural expression of worldview, contains both elements as physical built form, and character as manifested through the overall image, meaning, and use of the form. A place is realized through use and its character. Places are not only forms but store meanings as well.

The traditional rowhouse (machiya) in Japan and the spaces between created by this housing are architectural expressions of Japanese culture and worldview. They can be described as building forms and places which are identifiable through an understanding of meaning and form. These are simultaneously affected by, and inform the way Japanese live according to custom; learned use of spaces, and repeated everyday patterns and gestures. Whether conscious or unconscious, these notions in some way reflect their values and in turn are expressed in architectural form. This is a manifestation of
the agreements which occur at the level of the city and of the larger notions of a people's cultural understanding. This is the basis for the idea of place. Because each culture has its own worldview, a place is necessarily tied to a culture. A sense of place is not absolute, it changes just as the people who inhabit it, and the uses which fill it change. Though the notion that places exist is universal, the essence of place is particular.

Our own, that is, "western" notion of the world is not always helpful in providing clues to Japanese conceptions of life. In Western culture, there is a tendency to view the world in absolutes, utilizing a system of dualities; of sacred and profane, of public space and private space, of good and evil. Absolute values are central to all views of the world. These ideas are transcendent, that is, the values guiding these principles are found outside human experience.
In the West, for example, a church is a sacred place, built as a 'house to God;' a person's own house cannot be sacred in quite the same way. There is a strict distinction between sacred and secular space. In a typical European city plan a church is always an object in a field of another similar building type. This building is sacred not only as a church, but also because it preserves its own identity as sacred, and thus separated space.

In Japan, on the other hand, value is centered in the particularities of Japanese concrete experience. In this way, none of the kami have absolute value unto themselves and have characteristics that are obviously those of human beings. (The thunder kami in the previous story is an example, clearly displaying behavior of people; anger, jealousy, suspicion, and confusion.) Further, though larger temple and shrine complexes are separated as sacred, smaller local or house shrines are found everywhere; even buildings or objects not built to be sacred can become sanctified. Though certain places are more sacred at one time than another, every place and everything has the potential to be equally sacred. Even the bowl one eats from or a stone in one's garden has that potential.

In the village of Kusumi, Mizuno, Katakata district, Mino province, there was a woman whose surname was Agata-no-ujii. She was
over twenty but unmarried, and she became pregnant without any sexual intercourse. At the end of the second month in the spring of the tenth year of the boar, the first year of the Enryaku era, in the reign of Emperor Yanabe, she gave birth to two stones after a three-year pregnancy. They measured five inches in diameter. One was blue and white mixed together, while the other was pure blue. They grew year after year.

In Atsumi district, next to Katakata district, there was a great kami, whose name was Inaba. The deity took possession of a diviner and spoke through him saying, "The two stones which were born are my own children." Therefore, they were enshrined at the girl's residence in a sacred place surrounded with a hedge.

We have never heard a story like this from ancient times until today. This is also a miraculous event in our country.4 (Nihon ryōiki. Vol. III, Tale 31.)

The sacred plays itself out in this world and thus there is the tendency to consider the world as the context for human concern. Nature is not symbolic of an ideal, but in fact is meaningful in and of
itself. As in the story, kami are rocks and not merely represented by them.

Because the sacred is visible through the phenomenal world and the kami display the range of human characteristics and emotions, having the potential to do both good and evil, there is a basic acceptance of natural dispositions and desires. However, whereas in the modern West individual desires almost always

Figure 12. Dōsojin with an offering of a straw horse

Figure 13. A dōsojin couple

4. Ibid., Nihon ryōiki, pp. 265-266.
transcend those of a group, in Japan the individual's desire is seen as secondary to the group as a community. The locus of value is found within the group or community and behavior is always in reference to the norms of a particular group. An important aspect of this relationship between individual and group is the emotional level of the individual's commitment to the others. Because of this emphasis on the communal aspects of life, one must behave to maintain the group—hence a stress on group harmony exists. The way to achieve this harmony is through working out in a mutual way the relations between people. The Seventeen-Article Constitution of Prince Shotoku written in 604 states this in Article 1.

Harmony is to be valued and an avoidance of wanton opposition to be honored. All men are influenced by partisanship, and there are few who are intelligent. Hence there are some who disobey their lords and fathers, or who maintain feuds with the neighboring villages. But when those above are friendly, and there is concord in the discussion of business, right views of things spontaneously gain acceptance. Then what is there which cannot be accomplished?

Since the mutuality of relationships and the balance maintained particular to each group is valued, the proclamation of an absolute value system like one of good and evil in the West, would disrupt the harmony.

Instead, relative standards for right and wrongdoing are discerned for each situation. Everything is viewed in terms of its relative position with something or someone else. Since there is no singular way to guarantee harmony, situational decision-making is necessary. Each social situation, each relationship, requires its own way to harmony. Article 10 states a similar idea, in more specific language than the previous quote:

There right is our wrong, and our right is their wrong. We are not unquestionably sages, nor are they unquestionably fools. Both of us are simply ordinary men. How can anyone lay down a rule by which to distinguish right from wrong? Therefore, although others give way to anger, let us on the contrary dread our own faults, and though we alone may be in the right, let us follow the multitude and act like them. 7

The harmony or balance of a particular relationship is important. Even if the individual perceives himself in the right, he or she must put it aside for the good of the group. Thus, behavior revolves around a sense of harmony and propriety, and value is realized in the particulars of everyday life.

Given this general framework where group structure rather than the individual is emphasized, we can begin to see that typical behavioral categories for the West do not quite serve to elucidate Japanese concerns. This is the same for the Western concepts of public and private. Whereas public in the West tends to mean activities with other people and private to mean being alone, in Japan public means the interaction of people in the community from different groups, and private the interaction between members of the same group. There is a de-emphasis on the role of the individual acting without the support of a group structure.

The ideas of public and private 7.

Seventeen Article Constitution.
in the West connote a private life as distinguished from a public one. Private relates to one's personal space. In a family this is articulated by one's bedroom, a room within the house itself. The public implies a town square, or one's place of work. In Japan these distinctions as such do not exist. Instead, Japanese sociologists have used the terms "inner" (uchi) and "outer" (soto) to describe these relationships. "The criterion for Japanese behavior is the distinction between the inner circle and the outer circle with no firmly established individual freedom or public spirit."8 The inner circle is described by family (architecturally represented by the house) and one's friends, co-workers, or fellow students. The outer group is described by strangers; the community at large. Yet even these terms are necessarily limited. There are varieties of


Figure 15 A child's image of a square.
outside, just as there is more than one group defining inside; the numbers of groups one belongs to are not limited, pre-determined, nor absolute. There are also layers of groups that define one's role. Whereas a stranger might be another Japanese person in the same town outside of one's group; in another, larger group definition with respect to one's town or country, a person from a different town or country might be considered the stranger.

Thus the relationships between people at every level are important. One's life is characterized not by the dichotomy of inside and outside, but rather by the nature of the groups which one belongs to. Further, behavior is governed by the norms of each inner group as a distinctive whole, existing discreetly one from the other. Each may even manifest different social values. These normative rules as to how one should behave are thus

Figure 16 "A Night Visit"
Munakata Shiko - woodblock print
There is not, however, a one-to-one correspondence with the wall and the separation of domains. As will be seen in the next chapter, the outer is often partially within the territory of the inner domain.

9.
Doi. Ibid. p.42.

10.
There is not, however, a one-to-one correspondence with the wall and the separation of domains. As will be seen in the next chapter, the outer is often partially within the territory of the inner domain.

11.

defined by the "particularism" of each group.

It is surely significant in this connection that the Japanese term uchi (inside) as used in words such as miuchi (family circle) or nakamachi (circle of friends or colleagues) refers mainly to the group to which the individual belongs and not as with English terms such as "private," to the individual himself. In Japan little value is attributed to the individual's private realm as distinct from the group.9

Hence, in daily life the Japanese understand "inside" as the house or workplace, and "outside" as that which lies beyond those places. Inside is always a group definition rather than an individual one. Because of the multiple functions of rooms and the lack of acoustic privacy in a Japanese house, the notion of a private bedroom is less meaningful than in the West. In a sense, the two domains of inside and outside are qualified
architecturally by the zone of walls which separate them. When two groups or group and non-group overlap, the relationships between them are revealed; a hierarchy of spaces is materialized. In the house, for example, when only the family is there, the spatial differences disappear:

The family, too, is "those within" -- distinguished clearly from anyone outside; but once within, all distinction disappears. Thus the "house," or the "inside" is regarded as the family as a whole, a relationship admitting no discrimination, but very strictly segregated from the "outside" world. Guests, however, change the entire house mentality, and can be entertained in various rooms in a hierarchy from the front to the back, or garden edge of the house. The guest, however, is usually not totally outside, rather within a larger or different understanding of the house group.
Though the concept of inside implies a separation from the outside world, there are common understandings and architectural forms at a larger level which contribute to a community sense of place. In Japanese towns there is a strong sense of cohesion and repetition of forms similar in theme. The outer impinges to some degree upon the behavioral values of the inner group and there is some larger identification at a community level governed by rituals in meeting strangers or participating in festival events. In terms of values these periods are in-between the norms defined by the various inner groups. This behavioral in-between is characterized by the built in-between; the spaces between houses; and the street. Whereas the notion of inside leads directly to an understanding of the group and the structure of house and workspace, outside leads one
to an understanding of the community; the structure and image of the spatial in-between. Thus, the street is in a sense the connector between the inside and the outside or community face through architecture.

The aim of this thesis is to define places as they are understood within cultural and environmental frameworks. Form detached from its environment is not a place. Observation and analysis can orient one to a culture, but must by necessity stay close to the ground and not rely solely upon imaginative abstraction. This, then, is an effort to connect culture to form and use, first through an analysis of an existing context, then through design explorations. The design is based upon strengthening and enhancing this notion of in-between or community space. The intervention is at the level of this outside or communal face but encompassing aspects of both something larger and smaller — through the relationship between town and house.
Figure 20: Japan and neighboring lands
Kurashiki

Kurashiki is a town on the Inland Sea roughly halfway between Kyoto and Hiroshima. It is the commercial and industrial center for the area, magnified by the development of Mizushima port in the southern part of the city. This area is now rapidly forming one of Japan's major coastal industrial zones.

Kurashiki, situated on a fairly wide plain, began as an agricultural village with a port used for the export of locally grown rice. Many old rice warehouses still exist in the area and play an integral part in the image of the town as a whole. The name Kurashiki gives
meaning to this image: kura meaning warehouse, and shiki derived from the verb shiku, to spread or lay out.

The settlement pattern of Kurashiki is firmly tied to the physical environment. Topographically it is a small plain surrounded by mountains and interrupted by small hills. The town is built along the contours of the Kurashiki River (now a canal running through the area), and bounded by the edges of the cultivated land. In most Japanese towns there are numerous temples and shrines, but many are typically separated from the town by being built on the tops or hills. Kurashiki is no exception. The streets in both the older section of town (Honmachi) and the more recently built sections usually encircle or run along part of the periphery of a hill, many housing temple or shrine complexes. Similarly, like most of the smaller towns or villages in Japan, Kurashiki is com-
posed of buildings predominantly of skeletal construction, built of wooden posts and beams framed with windows and doors between. What characterizes this area of Japan and particularly this old section of the town, is that portions of the exterior walls not used for openings, rather than sheathed in wood, are infilled with a bamboo lattice onto which mud is applied. Two building types dominate: the rowhouses or machiya, and the warehouses or kura.

Both of these building types have a similar structure. The kura, however, which is designed to be fireproof has two layers of this mud or clay, an inner one applied between the columns, and an outer one applied over the columns. The outer, bottom half of the kura walls and some of the machiya walls are covered with a sheathing of tiles, thirty centimeters square, to protect the clay against the rain. In the Kurashiki-style or clay warehouse (tsuchiya-gura), the tiles are covered with thick plaster joints called namako because they resemble the shape of their namesake the namako or sea-cucumber; walls with these tiles have thus come to be called namako-kabe. Strips of these tiles are also added near the roof line to guard against dripping from the eaves.

The street spaces of Kurashiki are characteristically narrow, most ranging from nine to twenty feet wide. Shadows are automatically formed and usually there is little light for trees or vegetation. This density is important to the space, though a hierarchy does exist in street sizes. In the old section of Kurashiki the largest house to house dimension occurs along the canal (averaging ninety feet wide), which is lined by willow trees planted in the early 1900's. The narrower streets are either resi-
dential with or without traffic, or arcades fifteen to twenty feet wide primarily used as pedestrian pathways through the town, and predominantly commercial.
Kasaoka

Kasaoka is located just over twenty kilometers south of Kurashiki along the edge of the mountains. The town is formed along the sea coast connecting a pass leading inland to Ihara. The main street is an extension of this inland road, and is the place where the rowhouses have been built.

Kasaoka flourished as a port in the Edo Period (1600-1868) but most of the commerce was later moved to a larger harbor, the nearby Tamashima.

Expansion in Kasaoka has been one consisting largely of landfill. In 1808, Kōjōsan, the main temple originally located on a mountain
island in the harbor, became contiguous with the mainland. Similarly, other parts of the harbor have slowly been filled in. In 1891, Kurashiki was connected to Kasaoka by an extension of the existing train line, and from that point a change began in which Kasaoka was gradually transformed from a port to an industrial town.

Kasaoka's main street is arcaded, and appears at first glance to resemble many of the typical shopping streets occurring near train stations. What looks like a modern shop facade, however, is discovered to be very old mud walls and recessed windows covered from their lower edge to the street with blue ceramic tiles. Like Kurashiki, these are
Houses commonly have three main parts behind the store: the main living spaces, the garden, and the warehouse at the back of the lot. Rooms and walls divide the spaces into separate functions, but also in the namako-kabe style. Roads are narrow and somber. Eaves hang out onto the streets and shadows are prevalent most of the day. Shops along the main street, which runs roughly from east to west, are typically comprised of dry goods stores, including foodstuffs, boat parts, and fishing gear. Allow for overlap at individual room size within these divisions. The example here shows a double-sized lot along this main street. The store at the front is used to sell and store fishing gear. The southern half of the living section is now used as the kitchen and provides separate rooms for the grandmother and sister. These rooms were said to be previously used by fishermen for overnight stays; the store also functioned occasionally as an inn.
Figure 7: Residence of Hiroi Saburo
Gion

Gion is a section of the city of Kyōto located along the eastern bank of the Kamo River across Shijo Bridge. It is one of the traditional pleasure quarters of Kyōto, characterized by the design of its kōshi or lattice windows, their individual roofs, and the sudare reed screens which hang both day and night outside of the second floor windows. What are teahouses during the daytime are transformed into geisha houses at night.

Though in the past Gion was entirely a geisha district, today it has been divided into two halves. Whereas the northern part of Gion is characterized by a gradual change...
from the old teahouses to bars and clubs, the southern part has changed much more abruptly. The shops were originally centered along Shijo-dori, a main street running east-west through Kyōto and into Gion, but when it was widened, the teahouses disappeared, and gradually larger buildings were built in their place. Those teahouses which were on the corner of Shijo and Hanami-dori moved their entrances from Shijo to this smaller sidestreet. Hanami-dori and the surrounding area, previously part of the Kenninji temple precinct, became quickly populated by the displaced shops. Around the turn of the century these buildings were reconstructed.
Though much of the image of Gion has changed over the years through new construction and the advent of neon, it still continues as a theatre district and area of entertainment, with its own distinctive character. Many of the new buildings are geisha houses, similar in typology to the rowhouses in both Kyōto and the other towns, though in this case interpreted for different uses. As such they are interesting examples of another rendering of the same building form.
Figure 34: Gion - House A

plan 1st floor

plan 2nd floor
Figure 2.7 Gion - House B
Hirata

Hirata is located in the north-eastern part of Shimane-ken nestled between the mountains of the Shimane Peninsula in the valley of the Hi river. It is a town of small agricultural and commercial enterprises located roughly halfway between Izumo, the setting for many of the ancient myths, and Matsue, a seventeenth century castle town.

In most cities and towns the house type follows the pattern of the rowhouses in Kyoto; that is, with the eaves of the house facing the street. In Hirata, however, there is a different roof type which establishes the entrance by the gable end of the house rather
A second set of eaves usually is built at this edge over the entrance, and second floor windows also have their own eaves. Though this type is not atypical in towns along the Japan Sea coast, in Hirata it serves to combine a typology of houses mixing both agricultural and commercial functions. Rather than presenting an image of long houses with multiple dwellings under the same roof, this type clearly differentiates between each individual owner. Further, the town house is characterized by an extra long lot,
connecting the street and shop at one end to the vegetable garden and the river's edge at the other. Each house and each owner is intimately tied to the land, not only in the long lot but also through the ownership of other nearby farming lands. The gable at the street emphasizes the lot length, and the individual owner, by differentiating each house from the next through the separate roofs. This type of house occurs primarily along the main street (Hommachi-dori) and several nearby streets in Hirata, but is almost always characterized by the long lot, and ownership by a farming family.

On the outskirts of town along the same river a completely different roof is prevalent. The gable switches back to the side with roof eaves toward the front and the gable toward the river's edge. Here, the lot is shorter, and both ends of the lot are used to enter and exit from the house, one by the street and the other by the water.
Figure 5: Watanabe Residence

Along the main street

outskirts  1st floor  river

river's edge

garden

riverside

75
Figure 31 Ishihashi Residence
彦根
Hikone

Hikone is situated north of Kyōto in Shiga-ken along the shores of Lake Biwa. During the Edo Period (1600-1868), it was developed as the center of a domain run by the Ii daimyō (or ruling) family. In 1603, Ii Naokatsu began building a castle there, completed by his brother, Naotaka, and inherited later by Naosuke, a descendent.

Today Hikone is a town divided by a series of canals, each built up in the past with fortifications to protect the castle from invasions. The inner canal surrounds the castle and is now planted with cherry trees famous for their blossoming each spring. Two other large circles and
supporting walls are formed by the middle and outer canals, and a final water edge is created by Lake Biwa to the west and the Zenri River to the south.

Houses and land are hierarchically arranged with larger lots and more spacious buildings near the castle, and smaller lots occurring as the distance from the castle widens. A series of neighborhoods are created by the separating canals and walls, distinguished by gradations from large to small in building size and income levels of the people who inhabit them.

The first and second neighborhoods are surrounded by stone walls and earthwork, and the third by earthwork and bamboo groves, creating a series of areas each with very particular functions and populations. These physical borders also separate the industrial from the commercial districts. The former including heavy industrial and manufacturing
The streets in Hikone are made up of three predominant types of intersections: the bend, the T, and the linear street. House types occurring at the crossroads are numerous, but some typical patterns emerge. When the street bends or shifts, the view ahead is the side of the house which has shifted into sight. Since houses in this town typically display the roof slope to the street edge, this side view is the gable edge of the building. At T corners, houses typically turn the corner with the lower eaves of the first floor spaces; the gable edge may become the front of the house or shop. (See p. )

Documentation for Hikone is taken from the part of town where the fishermen traditionally live, and shows a shifted street plan which is characteristic of the area. Houses along this street have small street gardens at the entrances with wells used both for the house and shop.
Figure 33: Cable at the end of the street
Kotohira

Kotohira, also commonly called Konpira, is the site of a famous temple believed to have been founded by the monk Kōkai at the beginning of the ninth century. It was predominantly Buddhist until the nineteenth century at which time it also became mixed with Shinto. There are many deities enshrined there though one, its namesake, Konpira, is especially invoked by seamen and travellers.

Located in Kagawa-ken on the island of Shikoku, Kotohira is one of the most popular shrines in Japan. A part of the town was developed along the uphill path leading to
the temple approached by long
flights of granite steps and situ-
ated halfway up Zosusan Hill. What
is most striking about the ascent
is the sequence of steps, buildings,
and events which occur along the
path. Beginning with climbing
rows of shops with houses behind, it
is punctuated by changing rhythms
of steps, lanterns, fences and walls.
Front and back, right and left are
continuously shifting. Cloth covers
are hung at different angles over
the first part of the sequence
changing to trees farther up the
hill, affecting the quality and
amount of light as well.
A pilgrimage to the Kannon Temple, annually on October 10th.
Great gate (mizumono)    open space (hiraoka)

street    section
In antiquity the idea that everything means itself and something else as well, was general and ingrained: it was taken for granted. In the specific instance of the town plan, its laying-out according to a model was hedged about with elaborate ceremonial, the words and actions of which constituted the conceptual model. The foundation was commemorated in regularly recurring festivals, and permanently enshrined in monuments whose physical presence anchored the ritual to the soil and to the physical shape of the roads and buildings.


A town can be described in two ways. First, it can be understood as a response to its location and is thus often a built aspect of the landscape. Second, since people conceptualize based in part upon their environment, the built form is a product of culture; a system of common values and meanings of form are articulated through local variations of it. Personalization, or the localized expression of identity, therefore occurs.

Though a town has an identification of its own, it is really composed of groupings of these smaller sizes of expressions. In reality it is the different groups, manifested through the neighborhoods and streets and their interrelation-
ships that create town. Thus, just as the house is a community of different individuals forming a group, a street brings these houses together in a larger setting. Streets may change from block to block or from one section of town to another, and combine forming yet a larger collective. Through these larger collectives the community as a neighborhood or a group of neighborhoods is defined.

A person experiences a town, at least in part, through a relationship with its elements which manifest a meaning of that place. The level at which these elements operate and are meaningful is tied to the overlapping spheres of community groups as neighborhoods and streets and the means of communication between these groups. There is a reciprocity between the forms which define space and the level of human interaction within these spaces.

Towns are built in various ways. In Japan, there are generally five town types.¹ These differ according to configuration generated by both specific location and the actions of the inhabitants in laying-out the town. Thus, not only the landscape, but the way in which a town is founded or conceptualized in large part determines its structure.

Kotohira, for example, is a town that is broken into several parts. The oldest section is a linear street climbing a mountain which bends and cuts back according to the topography. This street leads to a shrine which serves as the particular focal point of the community. The shrine was built first, and the town later created because of its existence, using it as a source of income through tourist trade.

Another type typical in Japan is the castle-town, often structured as a series of courts which gradually increase in size from the scale of the castle to ones encompassing the whole town. The hierarchy is con-
centric; often structured by moats or canals. Hikone is an example of this type. The organization is a reflection not only of the centralized power (the daimyō family inhabiting the castle when the town was settled), but also an example of a physical hierarchy, the structure of the town is controlled by the central court of the castle. The layers of the town, formed by the series of moats and fortifications are simply larger and less dominant versions of the original castle form.

A grid-type of town structure is usually one that dominates urban areas. The modern part of the town of Kotohira is based on a grid, but this type of urban structure is not necessarily new. Kyōto was constructed in the eighth century according to the model plan of Chang-an, the capital city of China during the Sui Dynasty. Its founding was dictated by the
ruling aristocracy and influenced by Chinese custom and various geomantic rites of layout and orientation. Thus, this more geometric structure, like the concentric castle structure, is one which is determined by, as well as reflective of, a centralized ruling power. The founding of Kyōto is reflective of these concerns for control.

When the central government in Japan was small, frequent moving of the Imperial Palace, always associated with the capital, was not difficult. As it became larger, however, it was more convenient and politically stable to localize the government in a specific area. The first sign of a centralized power occurred in 694 with the establishment of the capital city in Fujiwara, (See Figure 41). It next moved to Nagaoka one hundred years later, and then finally moved to Heian-kyō, now called Kyōto (See Figure 42).

The location was officially
approved and tested against philosophical principles, in this case, three mountains and two rivers, the local tutelary deities were notified of the impending move, the Sun Goddess at Ise was informed of the reasons for the change, and prayers were said at the tombs of emperors Tenchi and Kônin. The "tribes" were directed to build their gates, the land marked off, assignments made, the markets transferred and the Emperor Kammu moved on the 18th day of the 11th month of 794.

It is clear that there are customs in establishing the structure in the founding of towns and cities, and can be ordered from more to less rigid types. The grid or geometrical type is consistently one based upon a conceptual model of control which commemorated the place and enshrined it through ritual. The castle town, though less geometrical, is also a form which is structured by the power governing its founding, and emphasized through form by the castle itself. The linear temple town terminating at a focal point, though dictated by the placement of stairs, displays

Figure 42

Layout of ancient capital cities. Heian.
a more natural order alternately cutting across and following the contours of the hill in the ascent. The town is not created out of control, though there is an overall form (the street, like the grid) which determines movement. The street, however, follows the structure of the landscape rather than the structure or conceptual model of a town held by a ruling power. This is similar to those towns which have various focal points within a street system. Kurashiki shows this type of organization, which also follows the land contours around the hill and the edges of the canal. This is the fourth town type. Farming land is often located at the edge of town structures and is often arranged in a scattered pattern displaying another kind of natural order. This fifth type is an order in which the houses relate more to their land than to the other houses. The sense of community is less noticeable in the organization from house to house. Rather, the land itself displays a communal order at the edges of adjoining lots through systems of retaining wall structures, pathways, and waterways through the fields.  

A house can be distinguished by what it has in common with its neighbors and what is its very own. Variations on themes occur within a block or town and the personalization of a particular image is made. Thus, the study of a house includes not only its internal organization, but its relation to the street, garden, and other houses. There relationships can be expressed in terms of light, structure, and use, and the differentiation between inside and outside the house -- uchi and soto. As noted previously, there is a distinction between group and non-group, and between inside and outside in Japan. Inside and
outside groups and spaces, do, however, overlap, through the enlargement of the street, the expansion of the house, or by bringing a guest into one's household. A hierarchy of spatial order is revealed through not only behavioral norms, but through their conjunction with physical form and structure.

The inside-outside relationships in the nature of structure and use and the behavioral notions of inner and outer imply that the built space possesses a degree of extension and enclosure. These built relationships defining the zone between house and street can be viewed in three ways: through the process and methods of building, in the layers of screens which describe a wall, and in the types and levels of floor surfaces within the house.
In the Japanese modular system, the ken exists as a controlling element in a structural grid, affecting both the vertical and horizontal configuration of Japanese architecture. The ken is a dimension of approximately six feet based upon the measure of six shaku (one shaku equals approximately one foot; the dimension of a shaku, however, varies within Japan). Each dimension is contained within the other, but is originally derived from human scale. In building, the ken corresponds to the distance from column to column, and thus comprises the basic support into which the column system fits. The floor system is also derived from the ken, composed of 3x6 foot standard tatami mats.

Out of the ken system, two methods of order were devised. Its interpretation was determined by whether the structural center of

Figure 46 Building under construction in the center of town
columns, or the tatami size itself controlled the room size. The slack or margin of leftover space in either case was the column width (4.8 inches) divided by two. In the former or inaka-ma system, a preservation of the column center to center distance created the need for several sizes of tatami to take up this slack. Where the tatami itself was standardized in the latter or kyō-ma system, boards were fit in taking up the slack between rooms, adjacent to the column lines.

This system, though complex, allows for a great deal of variation in plan. Though the ken determines the placement and position of columns along certain lines, rooms can slide one with respect to the other. Outside space, land, is surrounded or enclosed by the house, some interior rooms are enclosed by the land, and the strict definitions between interior and exterior space are loosened. Even though the machiya
is built into a rectangular slot and does not have the freedom of space in the siting of a farmhouse or an aristocratic townhouse, it still encloses gardens and is enclosed by the land around it.

Inherent in the geometry is the fact that the grid itself does not limit flexibility of use; rooms do not represent a finalized form but can be added to an adjacent one forming connected spaces. Square (ken) or rooms derived from the square are self-stable, though the way they are added together is dynamic. A square as a form expresses

Figure 48 Tanaka Residence, Susaka, Nagano Prefecture
no tendency in direction, all sides are equal, yet one can be added to another creating a directional system. Similarly, though the Japanese house is often viewed as a continuous space, in reality each individual space (the room size) is defined by the column structure. Though one room can open to another, the sense of the individual room is not lost. The perception and use still remains as an additive one; an accretion of smaller spaces into larger. Though views are enlarged and become continuous, the sense of place and the dimensions of place are stabilized. Thus places of equal value are added one to another, and the geometry or use of one is never in competition with the other. There is a concordance with the behavioral interpretation of space as well. Dimensionally, each element refers to human scale: ken, tatami, and shaku, and these elements or their dimensions are found in each room. Further, living rooms transform to dining rooms, bedrooms, or guest rooms. Though a hierarchy exists in relation to floor surfaces (tile, wood, tatami, or stone) and as to who uses which spaces, within rooms of tatami the functions are interchangeable. Thus, in the traditional machiya, the kitchen is usually a pounded dirt floor, the entrance of stone, the bathroom of tile, and the verandah of wood.

In form and geometry the space is relatively simple, derived as it is almost entirely from the ken grid. However, the detail is such that it relates each room and each wall to another. Most rooms are not designed as individual entities with singular functions, but maintain and support a range of uses. Similarly, the standard room sizes, controlled by the number of mats it contains, is defined and limited to a few variations.
Vertical Screens

The exterior wall of the house unifies it with the outside, yet at the same time this boundary gives the outside its presence. In the Japanese house this wall is composed of layers of screens, each with a different environmental response. Since the house is of post and beam construction, virtually all of the wall space can be used for openings.

The most interior layer in the wall is the shoji, a sliding door. Constructed of wood, it is usually divided into rectangular or square panes, covered with matching squares of white translucent rice paper and admitting a soft diffused light into the room. In many homes the relatively recent addition of glass is used either in conjunction with, or occasionally, substituting for shoji. Their construction is similar, using glass instead of
paper panes. Small high windows are often built with a wooden vertical lattice on the outer edge, diffusing the light and preventing views inside. Large window-doors have amado, or sliding heavy solid wood doors used against the wind, rain, and for security. In the summer, sudare reed screens (or their plastic equivalent) are hung outside windows to allow breezes and light to enter, but to obstruct interior views.

A wall is the domain which differentiates inside from outside. It has openings which frame views, capture light, and in part embody the character of a built place. Inside the light defines use and shadows, and interiorizes the image of the street. Reflections are an intimate part of the structure of light, carrying it into the shadows. In traditional Japanese housing, lacquerware, ceramics, the gold and silver brocade in fabrics, and the pulls on the interior sliding doors enliven the shadow.

In the temples of Japan... a roof of heavy tiles is first laid out, and in the deep, spacious shadows created by the eaves the rest of the structure is built. Nor is this true of only temples; in the palaces of the nobility and the houses of
the common people, what first strikes
the eye is the massive roof of tile
or thatch and the heavy darkness
that hangs beneath the eaves. Even
at midday cavernous darkness spreads
over beneath the roof's edge, making
entryway, doors, walls, and pillars
all but invisible. . . And so it has
come to be that the beauty of a
Japanese room depends on a varia-
tion of shadows, heavy shadows
against light shadows -- it has
nothing else.

Because light is directional
and in Japan the sun angle is not
from directly overhead, some light
shines directly into the front and
back rooms of the machiya. The screen
walls create patches of light which
reflect in these rooms. A middle
room with no windows of its own
exists between these edges almost
always in shadow. A middle zone is
created where shadows exist; light
is not direct but only dimly reflected
by the lightened floor and wall
surfaces. This room, however, has
an important role serving as a
support for both the front or back
room. It is a room-sized margin.
Either room can expand into it simply
by sliding doors, or the two ends
can be connected by opening both
edges of the middle space. Because
it receives no direct light, it
rarely is used as a room alone.
In the horizontal plane, the house is separated from the street by a step. However, this occurs inside the door, within a small space usually three or four feet deep called the genkan. This genkan or entry way is an area where shoes are taken off, safe from the weather and within the confines of the physical boundaries of the house. It is, though, still a functional part of the street. Any salesman or bill collector freely enters this area without knocking to conduct business. The entering into the house-as-group takes place by removing one's shoes, and to create a space under the house for ventilation. In the manner in which it is articulated, it promotes and reinforces each meaning, the physical and the behavioral. The floor changes from one of concrete, tile or stone in the genkan, to wood, house tile or tatami.

Floor surfaces also change within the house, separating the kitchen, bath, and toilet from the living area and garden. Thus, the house interiors are divided into three longitudinal sections. The A zone is composed of a slot of living spaces (usually with tatami) and typically associated with a three-foot storage slot along the outer edge of the house. This is the space traversed by visitors as they penetrate to the garden toward the rear of the house. The B zone is often a tile, dirt, or concrete floor used for kitchen, and raised toward the toilet and bath. These zones are often separated by another three-foot margin which is sometimes part of the kitchen, or B zone. In this space verandahs, (either interior or surrounding an inner court), stairs, bath, or storage may also occur. There is also often a three-foot margin across the width of the house.
separating shop from living spaces, surrounding the garden and also used as a passage for stairs.

It can be seen, then, that the arrangement of rooms through light, dimensions and use allows for a number of tolerances, and thus potential for each family to re-interpret the use of the spaces for their own purposes. Further, from town to town, and even house to house, there are slight variations on this type which begin to either characterize the town itself, are the result of site constraints or the personalization of each model by the inhabitants.

As these differences and similarities are built up the street space and the house to house space is formed. Over time many of the houses have expanded on their lots, each following typical increments of addition, and creating a basic pattern of growth.
Figure 92. House structure and zones
The growth of houses
Street

Elements and Variation

In the Japanese street of connected houses (machinami), there exists a continuity of the urban wall and a coherence of public space. Like the house, it also can be understood through a system of themes and local variations. This is visible through a variety of elements. In most street walls the roofs are continuous for a length along the street more than one dwelling unit and more than one shop front. The appearance is one of a large long house along the street edge but it really accommodates more than one family. The identity of a family with their house is typically to a structure larger...
Figure A Standard forms and details of tile roofing
than their own unit. This is not the case in one of the towns previously presented. In Hirata, the opposite occurs; each house is built separately and the gable rather than the plane of the roof faces the street. Here also, however, the roof defines a larger notion of dwelling; the gable emphasizes the double length and direction of the lot and gives hint of the garden or river in the back through products sold in the store at the front of the house. Thus it identifies the farming houses in the town not simply as residences of those people who sell food, but as places where people who do the farming live as well. As a building which goes beyond the lot and connects to nearby fields, its meaning is enhanced by the individual gables.

Not only the direction of the gable, but the locations and differences in eaves, the roof tiles and colors and roof types, the building heights and the spaces between houses all serve to build up the character of a place. In the same way windows and doors not only admit light but are also elements which are fairly structured in this architecture as to size, placement, and type, and begin to create a strong character of house at a community level. Individual buildings often inhabited by several families differ one with respect to another along a typical street. Thus, a variety occurs in the personalities of each building. This can be seen through the differences in elements making up two different towns, as well as within the street elevations of a particular town. Though a street edge is predominantly continuous, there are breaks in the street wall created by other streets or by pathways through the block connecting neighborhoods, which also form new street images along the same path.
elements of the street elevation
Windows and doors along the street.
Some of the side streets are used less for entrances and may create the back or outside of the house lot built with solid walls (often where kura occur), creating closure for the family inside. Others may be partially residential and partially commercial, particularly at the intersection of a predominantly commercial street. Thus a hierarchy of streets is realized. There is a range of street sizes that exist in towns and cities which create ranges of use. Even in small areas of a town streets are differentiated by their dimensions in width and length, and by the nature of entrances, windows, and building types.

The ranges and varieties of these streets are part of the definition of town and an important aspect of the hierarchy of community space. By hierarchy of community spaces, I mean the range of sizes and uses of spaces which differentiate one community group from another, not only from neighborhood to neighborhood, but between street and neighborhood, or even house and neighborhood. Just as there are varieties of open spaces, there are also varieties of building types. Along a particular street and within a particular town a range of types and sizes exist.

An unusual house in a street attracts attention but no impression remains of the street in its entirety. For though it is easy to discover a particular detail, it is very difficult to grasp the whole no matter how simple it is. 15

The public expression of street is always a dynamic one where a range of social dramas are encountered and enacted, occurring not only through form but also through social interactions. It is a place where the inside and outside groups can meet, particularly during those times outside of or at the periphery of daily life such as religious rituals and festivals.
Kurashiki - street hierarchy

Kurashiki-gawa

A small avenue along the Kurashiki canal with sidewalks under willow trees and many small museums, better quality shops, and Japanese style restaurants and teahouses.

Honmachi-dori

A less wide street containing a few banks, the local cultural center and auditorium at one end and entrances to inns, a few small museums, and numerous residences at the other one.

Arcade

Honmachi-dori eventually turns into an arcade and becomes narrower, presenting a feeling of complete enclosure. Though there are some slits of light from the cross streets, and many of the street coverings are translucent, it is predominantly a shaded street. It is populated with hardware and clothing stores, and cloth, crafts, and food shops.

This is an entirely residential street with a mixture of both large houses with big gardens around the building, and small, narrow machiya. It is quiet and less travelled, and lined with many kura.
Such temporal disturbances of regular daily life also lend greater insight to the normal day to day activities. Victor Turner, an anthropologist, in his book *Dramas, Fields and Metaphors*, describes these temporal conditions existing on the edge of everyday life as "liminal," meaning a state of being in-between the categories of ordinary life. He defines a sense of community as "communitas," the joining together of people with other people outside of their group, that is, the gathering together of people in a communal event. In liminal time and space people are assembled in a communal or community activity such as a religious ritual. Normative group values are heightened and enabled and mixed with the psychological symbols and activities of the event. For example, a citizen participating in a town autumn festival of harvest and renewal will become friendly with the other people in the event though they may have never previously met. The time and place are enhanced and a larger sense of community emerges.

Thus, this liminal time is one in which extra-ordinary patterns of behavior emerge, outside of those which occur in daily life giving meaning not only to the experience but also to the space in which it materializes. The space itself also becomes communal in a new way resulting from that experience.

During festivals in Japan a similar communal condition seems to occur, between the inside and outside behavioral patterns. The festival ritual brings about a sense of community. The Japanese sense of hiroba seems parallel to this notion of communitas. The hiroba (literally meaning open space) is depicted as a spatial gesture of public life occurring in such spaces as temple precincts, shopping streets and train terminals.
when they are used for picnics, parades, and festivals. In many towns the physical street is extended into the house, shutters and doors are opened or removed and a similar type of community space comes into being enriched with a new meaning of place.

Traditional Japanese architecture with its paper, wood or bamboo screen walls and the hung wooden lattice facades lent itself uniquely to the phenomenal interiorizing of the street -- the street space freely filtered through beyond the facade. The street space itself comes to physically materialize the notion of community and the individual becomes united to the whole town.

It is interesting that the street is the place of festivals, and the liminal in-between, because it also coincides with the parameters of outside; the structural and behavioral in-between of society as a whole. Thus, in a way this sense of community can also be understood in the workings of daily life. During the day the shop doors are slid open or more commonly completely removed. The street is not limited by the building walls, but rather to the use of the space; the street is active with the buying and selling of goods and is always populated by a variety of street merchants. The store literally becomes the street space. In the evening the shops close and the merchants return home, but the meaning of the space continues.

The entrance hall or genkan also seems to work within this system. Though it is behind a door, it exists at the floor plan or level of the street and operates by use in a similar way. This place and the gesture of removing one's shoes obligates the transition from the outside to the inside group.

Through light this transition from outside to inside occurs from brightness to darkness at the eaves, and not at the building edge.

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Typical "shops" of street merchants.

Figure 56
looking toward the canal along a back street

street sections

0 3 6 1 10 feet
The layers of shadows which move from house to street during the day are created from the eaves, the street wall, and the interior walls progressing from more to less reflected light. The eaves of the house extend such that direct lighting is limited. During the day the shadows of the house become part of the street. When shop doors are removed, or house doors cracked open, the shadow becomes continuous from house to house across the street. This continuity of shadow occurs in both stores and genkan and is emphasized since both floor surfaces are at street level. The image of a reciprocal relationship between inside and outside is strengthened.

The floor material of the street, however, is not simply the same from genkan or shop to street, but switch to rock, tile, or concrete. Thus a hierarchy of street surfaces exist. Even with the street proper the edges are lined with a different material or a different shape of the same material.

In each of these cases, it can be seen that small changes further articulate the transition from outside to inside. The street is characterized in this way by transitions arranged as a series of incremental differences through variations in street sizes and elements, light and shadow, and floor systems and materials.

In Kotohira, the step materials stay fairly consistent throughout the climb to the shrine. However, the sizes and direction of the granite blocks alter throughout the sequence. Edges are formed close to the shops with one size, and the main part of the path described with larger pieces. In Kurashiki the canal street is mainly constructed of stone, but the side streets are typically lined with stone blocks over the sewers, and larger blocks at the shop entrances. Though these are typical street floor forms, more elaborate variations can be found in other towns throughout Japan.
The zone between street and house space is both characterized by certain physical forms and generated by social conventions. It embodies not only exterior definitions of place—the image of the street and the elements describing that image—but also the interior definitions of self and society. Japan is suited to studying transformations of this in-between zone due in part to the fact that a clear system of rules often exists within particular town and street settings which have produced a strong image and consistancy of elements. This is true in the towns discussed in this thesis. Within these contexts a range of form and use occurs.
creating systems that are at once internally coherent and complex.

The analysis in the previous section has shown that street space in Japan functions as an in-between. Though it is systematic and supports a wide range of uses, it exists outside of the specific norms of localized group structures. Since it is a spatial and behavioral dimension which can be reinterpreted for various activities and actions (though less controlled by social convention), it seems an appropriate area for architectural intervention. My intention throughout these explorations has been to deal primarily with the transitional zones between these structured and less structured worlds, reinterpreting the notion of street space and restructuring the zones of community interactions. Each exercise, however, impinges by nature upon larger and smaller issues, for example the definitions of town and house. The town or neighborhood creates the setting for street intervention, and the street creates the setting for house intervention. Adjacencies are important; each level of intervention is tied to its immediate neighbor.

The analysis has been pivotal for me in understanding this issue of size. Though space can be understood through various scales: a nation, a region, a city, a town, a neighborhood, a street, a building, a room, and a human body, each are part of the others. Hence, each plays the role as context for the actions of another size. The relationships between sizes, both philosophically (as in "liminal" behavior and space) as well as those manifested through physical form are important. The notion of in-between becomes paramount.

This section is concerned, then, with the idea of people coming together in "street" space. Opposed to this concept of street places for people is the production of housing and space as a commodity for mass
consumption. Separated from the town, new housing developments have discarded the layers of community and street space that can define the various levels of human relationships.

Demand, however, is an issue. The mental image of one house per family separated from other houses is increasingly popular. Though this image is most likely the traditional house type of the upper classes, the conceptualization is far from the reality being produced.

I started in design, however, by taking note of this issue of demand and began by breaking down the form of the traditional machiya into individual units, each with their own door on the street. I realized through the analysis, though, that there was something I had discovered which was in very essence a town. Rather than a simplification of the transition from house to street, and thus a loss of community definition, the analysis began to clarify the
complexity of these levels and layers of human interaction. A town is a complex system of large numbers of people living and working together. Without breaking down this whole into smaller groups, the city and the town as collectives disappear. Community life, then, is synonymous with the notion of group life and the concept of town.

I am compelled, therefore, to plead for a reversal of these modern priorities and values in current Japanese architecture as they are interpreted from examples of American 20th century building. My goal has been to expand the concept of street, and the layers of interaction between street and house. In the analysis section I looked at a series of town settings which contained a particular house type. In this section, I will take as a base the town of Kurashiki with which I am familiar.

I have endeavored throughout this study to understand the physical environment of forms and elements and the way in which the inhabitants adapt to and change it. This has led, through a series of design explorations, not only to dimensions and notations of elements, but also to an attitude about social needs in a growing and changing town.

In Kurashiki the nature of place has been preserved under pressure of historical forces. The spatial configuration and articulation of the elements of place have remained, and continue to operate as a field of forms of orientation and identification for the people of the town. It is important to preserve the continuity and complexity of this character, and thus I have used a language of forms which associate closely with existing images, but re-interpret these traditional models for adaptation not only within existing buildings, but in the making of new ones. This encompasses four
areas:

1) Built form
2) An effort to compliment the existing fabric in its sense of community and the important aspects of its character as built form.
3) To respond to new values and new functional demands within the house such as space, storage, and facilities.
4) To understand the evolutionary possibilities of the existing form in terms of practical, social and cultural parameters.

I addressed these areas by beginning in the house and evaluating dimensions, locations and positions of elements. In Japanese architecture this quickly leads to the ken or a modular system of dimensions and margins. However, this is a predominantly structural idea which does not lead to a social understanding of a particular house. In the machiya, beyond this structural
arrangement, there exists another organization which responds to the social needs of the household, and where even the dimensional rules are occasionally modified. The house was found, as discussed earlier, to be divided in half, first longitudinally and then vertically, with numerous margins or possibilities for margins between. I started, then, from this point, from the idea of a basic house type divided in two halves; an A zone including living and storage spaces, and a B zone, used for kitchen, bath, and other specific functional activities requiring mechanical supports. A typical house generally includes one A and one B zone, though houses which have expanded in width have added one or more A zones.

Inherent in the use of these building spaces is the potential to reinterpret these zones or parts of zones for other functions. Thus, a shop space in one house is found to be a living-room, passageway or entrance in another. Derived from these observations, my intention has been to preserve the zones as a structure not only because of their versatility in form, but because of their inherent connection to social convention; the meaning and relevance of the contextual setting to the people who live in it. Further, in each of the design explorations the spaces which have been transformed in use.
can always be reinterpreted back into the traditional system. The dimensions of the original spaces have been, in basic structure, preserved.

For purposes of comparison, an example of a modern single-family housing development in Japan is used as a basis for the design in determining the minimum sizes for dwelling units. This example will also serve to describe some of the current methods of solving problems of housing in Japan, particularly as they occur in small towns.

The design explorations are structured into five basic patterns, developing alternatives in creating transitions between the house and street.

1) From street to exterior courtyard
2) From street to interior court
3) Courtyard and interior court combined
4) The back alley
5) The street through the block

The priority will be to develop a set of patterns and dimensions as guidelines for either renovation or new design.
Figure 60

elevations along the canal - east
A Comparison - Koiwa

There is a current trend in Japan of building small communities comprised of two-family houses on the periphery of large metropolitan areas. Koiwa, located 8 miles outside of Tokyo is one example. Built in 1965, it has a density of 1000 people per hectare.

Typically these new communities are built into island patterns ranging from 10 to 50 houses per block. A road passes through the block, and often around it as well. In the section of Koiwa called Shishibone-cho, houses are constructed with a wood frame and occupy from 180 to 250 square feet. The block shown at the right has 22 houses divided into two rows of eleven houses each by a road 18 feet wide.

Many of the families in this area have elementary school children, and are pleased to own their own house convenient to the city, with space for the children to play. Yet, because of the small size of the houses and lack of storage space, many of the residents have made changes in their houses, affecting both interior and exterior space. (see shaded sections on plans)

- building a verandah on the second floor
- making the front garden into a bath, and widening the kitchen
- changing the stairway entrance from the kitchen to the four and one-half mat living room, and replacing that space with the bath
- building in more storage space
Early Studies - Dimensions

Margins (zones in-between, or the slack between spaces which can be part of either one or the other).
- on the street, from corridor or entrance size to room size
- around the garden, allowing for the possibility for extension, verandahs
- in the height, allowing for the possibility of three floors
From Street to Exterior Courtyard

Dimensions for the width of this exterior courtyard are taken from the typical widths of an A zone, 12 to 15 feet wide. The length of the court into the interior of the block, ranges from one room size (again 12 to 15 feet) to two room sizes, a total length of which would typically define the first roof from the street. To this I have added a margin of 3 to 9 feet. (See the diagram at bottom right).

I have interpreted this courtyard zone as having the potential to "belong" to one of the units. Two possibilities emerge from this: first, the area can always change from one use (as an entrance court for example) to another, such as a store. Therefore, one side of the courtyard is unchanged, and creates a reference plane for the changes on the other. One owner, then, has the potential to transform the space, and the neighboring unit maintains his own autonomy. In this neighboring unit, (to the right in these drawings), there is a 3 foot margin at the edge. Possibilities for a storage area, separate entrance corridor, a connecting entrance corridor or living space exist.

It has been shown in the analysis that in almost every house the dweller enters under eaves which create a shadow at the door as well as provide protection from the weather. The image and character of the entrances are tied to these elements. A gate with a roof facing the street can occur at the courtyard entrance, and eaves at each of the individual dwelling entrances inside.

When the gate does not occur, a small fence or ledge is built which turns the corner around the street into the courtyard, thus creating a separation from house and street.
Different images of elevation and plan can occur by creating transitions through gateways, blinds, ledges, recessed windows and doors, shadows of eaves and the light of the courtyard, or shadow created by balconies above. The making of these elements begins to influence the elevation, balconies, eaves and gates, and changes in the direction of the gable start to articulate this courtyard as a break in the street continuity.

Within the houses a 3 to 6 foot zone occurs for the genkan (entrance) of the house. The floor surface changes, as well as the floor height. Since the courtyard can extend back beyond two rooms, it is possible that it can connect to a garden of one of the units. A connection with light continuing it diagonally can be developed through the house, or as in the diagram at the top right, an open court can lead straight back to a garden. Here the stairs are not shown. The space narrows in width but is extended in length.
The gate is significant in this context not only because of the issue of light and shadow, but because it can also indicate a neighborhood. A block of houses is framed by streets, thus the sense of a neighborhood at this scale is largely the psychological boundary defined by the street walls. More concretely defining neighborhood is the road or path that leads through a gate into some specific area. The gate serves as a boundary marker between the familiar and the outside world. While the sense of the familiar versus the outside is here also a psychological construct as are the street walls, the gate is also a physical indicator of this sense. This physical form, then, can also be seen to relate to the notions of inside and outside as previously mentioned, bridging the cultural and physical aspects of built form. The "gate" is really a generic idea as it can be a literal gate, or a bridge, a row of trees, or indeed an urban intersection. One's sense of belongingness, security, and well-being are focused in terms of which side of the gate one is on.
From Street to Interior Court

This alternative takes advantage of the roof by creating an interior entrance, 9 feet wide, and each side having a 3 foot margin, the entire area of which can be either enclosed under a partial or entire gabled roof. A range of margins exists: the first 3 feet in from the street, for the entrance overhang, also defined by columns existing inside, the second by the room size, after which the first set of doors to units can occur, and the third, the roof. The ceiling of this space can be the entire two-story height and is lit from above. (See p. )

Construction materials can be either as indicated or covered with a light, reflective material enhancing the amount of light in the entrance space.

The elevation is modified by the skylights. The entrance to the street can be recessed, or otherwise indicated at a local level and carried into the interior entrances. The street edge is not disrupted by a cut in the block since the court is inside the building. Thus it remains continuous, defining a straight line along the street.
Courtyard and Interior Court Combined

In this scheme the floor surfaces of each type of court change. Each can be wide or narrow, but take up two A zone spaces. In the diagram shown at right, the exterior court is used as the entrance. But both can be used; the interior court can extend to the street through the margin, and create two parallel zones, one which is entered via another, or even two which are owned and used separately. The exterior court can become completely interiorized; and the interior court can extend to the back gardens. The interior court is again defined by the roof. But in this case, as is shown, it occurs behind the first two rooms of the house. This space is indicated by a gable extending the length of the property which can be indicated in the street elevation. The plan at the street has a 3 foot margin to one side which can indicate the change in orientation of street edge. A stairway can be in either the interior or exterior courtyard space.
margin for parking (expands as setback increases).
The Back Alley

The aim here is to create a system of open spaces which bring to the back the image of street space in terms of width. Gardens occur in the alley to widen the view from the inside as well as extending the space of the outside. They can also serve as a zone for entrances into the houses, creating a different pattern of transitions. Each dweller can enter from a larger "square" in the back alley, through a gate into his own interior courtyard and garden, then into the genkan and house proper. There is a 3 foot margin between gardens that are immediately adjacent, but typically they are separated from house to house by one of the zones of the house.

This cut into the block is seen as an extension of the open courtyard. It is interpreted as a pedestrian pathway with a margin for parking to occur along the main street. On this main street, the distance from one break in the street to another break (pedestrian court or street), is limited to a minimum of 90 feet. This dimension allows a variety of house sizes to occur between:

Four small houses of 21 to 24 feet in width each; three medium width house with a range of sizes, or one large house. This also allows for a range of other types of uses outside of houses and shops to exist such as inns, and larger sized shops, or house and work cooperatives.

The back alley can range in length up to a distance of 72 to 90 feet in length from the entrance street, and range in width from 8 to 18 feet allowing for "squares" and entrance courts to occur.
The Street Through the Block

This street, also pedestrian, is wider at the main street than the back, and like the back alley, typically more residential. Gardens are centered around the squares which are formed by courts leading off the main path.

The street either bends, or runs straight through the block. A gate or fences occur at the major street entrance where the width is from 9 to 12 feet wide, but is either non-existent or smaller at the smaller back street, where the path is 6 to 8 feet wide. Further, at the minor street entrance, a change in the eaves in elevation may indicate the path, whereas from the major street, both gables may change direction, and three-story houses occur. Parking areas are along the edge of the main street, in a zone created by a setback of the building line.
the street through the block - bend
the street through the block straight
elevation studies through street/alley
CONCLUSIONS AND PATTERNS
Conclusions

A person who lives in a society and in a town is exposed not only to his own personal predicament, but also to those problems of the society in which he lives. People change, town inhabitants change, towns are continually regenerating, and each individual always reconciling himself or herself with them.

Social values and the use of space is changing in Japan. Though I have studied a traditional house type, the life within these dwellings has not come to a standstill. Whereas in the past, space uncluttered by furniture and possessions was the norm, it no longer holds true. Space which was previously open is now crowded with a variety of goods and wares. Many newly-built homes not only have tatami or Japanese-style rooms, but also have Western-style dining rooms, dining-kitchens, living rooms and bedrooms, sofas and beds. With the increased use of furniture, floor surfaces have in turn changed: hardwood, tiles, concrete, and rugs have all made their way into the house. Though most houses still have at least one room of tatami, new materials and new ways of living have been equally accommodated.

What has been sacrificed in this new building type, however, is the clarity of spatial organization of the traditional house. The connections between many rooms are blocked by furniture, and transitions between house and landscape and house and street minimized. Functions such as bath and toilet, traditionally toward the garden or back edge of the house, have been moved toward the front door or into the kitchen. The strength in the machiya is, however, its capacity for variations in organization while still
maintaining a clear distinction of zones. Further, it has a functional versatility in employing a minimum amount of technology in the transition from one use to another. In the modern type of house, the placement of stairs, walls and bath preclude any expansion of living space. Its limits in size in both width and length dissolve possibilities for expansion between inside rooms as well as connections to, and the enclosing of outdoor gardens.

What is interesting, however, in comparing these two housing types, is that at base their dominant elements are the same - gardens adjacent to living spaces, the number of living spaces, and the consistently narrow street spaces. There seems to exist a larger cultural milieu, a set of conventions defining use and space on a broad level. It appears, then, that what is built in the center of town can have some value in areas on the periphery of towns where similar values, and needs exist.

application of basic principles found in traditional house and street contexts. A number of patterns have emerged from the machiya example which can be used not only in the renovation and transformation of that housing type, but can be also applied in new developments on the outskirts of town where similar cultural tendencies exist. (It would also be interesting to look at other types of housing in Japan, such as the farmhouse and the large individual house, but is far beyond the intentions of this thesis).

Though we have seen that the dweller invariably modifies the use of his building spaces, perhaps even on a daily basis, there are basic structures and conventions which remain constant and define the context for people's places - embodying the character and life of a town.
size of families
floor surfaces

minimum $a = 12'0"
minimum $b = 9'0"

• hierarchy of spaces

street to house
sequence of elements

STREET
pavement → light to shadow → gate → tree → fence

• grouping entrances in public space

• connected buildings

• courtyard

• garden

• eaves

• wall

• stone

• shutter

• garden

208
fireproof party walls
vent to street and garden

front room
-direct light
-middle room
typically opaque doors
-back room
direct light
-verandah
translucent door

garden

wall

fence

house 209
Materials: the addition of many small pieces, and as in the key, a flat surface articulated at the edges and around windows and doors.
LIST OF ILLUSTRATIONS

GLOSSARY

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<table>
<thead>
<tr>
<th>Term</th>
<th>Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>amado (雨戸)</td>
<td>rain shutters or doors</td>
</tr>
<tr>
<td>bijutsukan (美術館)</td>
<td>an art museum</td>
</tr>
<tr>
<td>chanoma / chashitsu (茶の間)</td>
<td>a tea-room</td>
</tr>
<tr>
<td>daidokoro (白所)</td>
<td>kitchen</td>
</tr>
<tr>
<td>daiku (大工)</td>
<td>carpenter</td>
</tr>
<tr>
<td>dosō / dosō (土蔵)</td>
<td>a storehouse</td>
</tr>
<tr>
<td>fusuma (襖)</td>
<td>an opaque sliding door paneled with paper on both sides</td>
</tr>
<tr>
<td>genkan (玄関)</td>
<td>an entrance, entry hall or room</td>
</tr>
<tr>
<td>heya (部屋)</td>
<td>a room, living space</td>
</tr>
<tr>
<td>hiroba (広場)</td>
<td>a square, or literally a &quot;wide area&quot;</td>
</tr>
<tr>
<td>hiroma (広間)</td>
<td>a wide living space</td>
</tr>
<tr>
<td>hito (人)</td>
<td>a person</td>
</tr>
<tr>
<td>hito-bito (衆多人)</td>
<td>various people, people</td>
</tr>
<tr>
<td>ima (居間)</td>
<td>a living room</td>
</tr>
<tr>
<td>inaka-ma (田舎間)</td>
<td>a system of building and design utilizing the ken as a basic dimension standardizing column-to-column spacing</td>
</tr>
<tr>
<td>kabe (壁)</td>
<td>wall</td>
</tr>
<tr>
<td>kami (神)</td>
<td>gods</td>
</tr>
<tr>
<td>-kan (倉)</td>
<td>building or office</td>
</tr>
<tr>
<td>kawara (瓦)</td>
<td>roof tiles</td>
</tr>
<tr>
<td>kawara-buki (瓦葺)</td>
<td>a tiled roof</td>
</tr>
<tr>
<td>ken (間)</td>
<td>a measurement and module for design setting a standard for building, and equaling approximately six feet</td>
</tr>
<tr>
<td>kura (倉)</td>
<td>a storehouse, warehouse</td>
</tr>
<tr>
<td>kyō-ma (京間)</td>
<td>a system of building utilizing the ken as a basic dimension in which tatami size is standardized</td>
</tr>
<tr>
<td>machi (町)</td>
<td>a town</td>
</tr>
<tr>
<td>machinami (町並)</td>
<td>a row of houses</td>
</tr>
<tr>
<td>machiya (町家)</td>
<td>a rowhouse</td>
</tr>
<tr>
<td>mado (窓)</td>
<td>window</td>
</tr>
<tr>
<td>nakama (仲間)</td>
<td>a circle of friends</td>
</tr>
<tr>
<td>namako-kabe (舎壁)</td>
<td>tiled walls with thick joints of plaster between tiles</td>
</tr>
</tbody>
</table>
niwa (庭) garden
obenjo (お便所) toilet
ofuro (お風呂) bath
oshi-ire (押し入れ) closet
ryokan (旅館) an inn
shaku (尺) a measurement equalling approximately one foot
shōji (障子) a translucent paper
sliding screen door; a sliding glass door
soto (外) outside, outer
sudare (簾) a bamboo or reed blind
tatami (畳) a mat
tokonoma (床の間) a small alcove within a living space
tsuchiya-gura (土蔵) a clay storehouse
uchi (中) inside, inner
yane (屋根) roof
zashiki (座敷) a sitting room with tatami
zōri (草履) sandals
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【村に斜面に築いた集落】

「海を渡る神——島貽を干すな」

【海と風、祭と集落】

森本正一「倉敷紡績工場のうつりかわり」（都市住宅）

「アイビースクエアへの変身」

中尾義介「町家式農家」（都市住宅）


奥山文朗「江戸時代の大工たち」


筆者文朗「農家の大工たち」


鈴木克「日本のの民家・町家III・中國・四國・九州」


豊永悟一「棟方志功・現代日本の美術14」


辻野純徳「倉敷市美観地区」（都市住宅）

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浦辺建築事務所「倉敷アイビースクエア」


山片三郎「建築然然草」


山口文, 小嶋勝衡, 国吉直行, 原昭夫, 須原庸次, 「川越・保存が計画へ」 (都市住宅)
I remember a clear morning in the Ninth Month when it had been raining all night. Despite the bright sun, dew was still dripping from the chrysanthemums in the garden. On the bamboo fences and criss-cross hedges I saw tatters of spider webs; and where the threads were broken the raindrops hung on them like strings of white pearls. I was greatly moved and delighted.

As it became sunnier, the dew gradually vanished from the clover and the other plants where it had lain so heavily; the branches began to stir, then suddenly sprang up of their own accord. Later I described to people how beautiful it all was. What most impressed me was that they were not at all impressed.

(The Pillow Book of Sei Shonagon, written about 990 A.D.)