THE TAO OF ARCHITECTURE

P378
.Sch795

THE W[illegible]STERN MYSTICISM INFLUENCES DESIGN

LEONA[illegible]HUFF

LIBRARY
MONTANA STATE UNIVERSITY
BOZEMAN

STATEMENT OF PERMISSION TO COPY

In presenting this thesis in partial fulfillment of the requirements for an advanced degree at Montana State University, I agree that the Libraray shall make it freely available for inspection. I further agree that permission for extensive copying of this thesis for scholarly purposes may be granted by my major professor, or, in his absence, by the Director of Libraries. It is understood that any copying or publication of this thesis for finacial gain shall not be allowed without my written permission.

Signature Leonard Schuff

Date March 20, 1981

THE TAO OF ARCHITECTURE

The Way Eastern Mysticism Influences Design

By

Leonard Schuff

A professional paper submitted in partial fulfillment of the requirements for the degree

of

BACHELOR OF ARCHITECTURE

Approved: Advisor _____

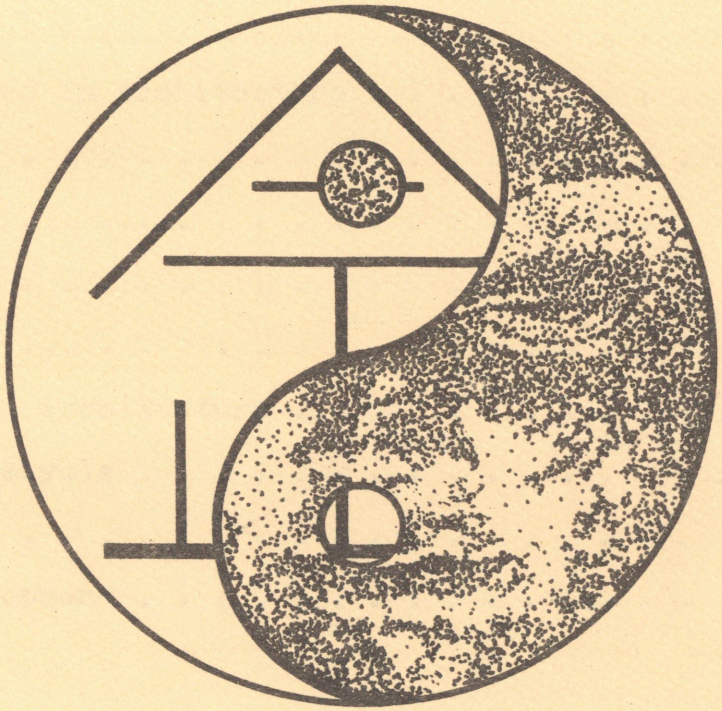
Chairman, Thesis Committee _____

Director, School of Arch. _____

MONTANA STATE UNIVERSITY
Bozeman, Montana
March 14, 1981

P378
.Sch795
NA9540
[redacted]
720.6
M76
Sch79

THE TAO OF ARCHITECTURE



The Way Eastern Mysticism Influences Design

Leonard Schuff

TABLE OF CONTENTS

	Page
Introduction	2
Mysticism	6
The Way of the Tao in Architecture	14
Yin-Yang	16
Li	28
Wu-Wei	32
Te	38
The Way of Zen in Architecture	44
Environmental Analysis	50
Program	58
Conceptual Development	92
Drawings	
Photographs	
Plates	
Notes	
Bibliography	

Some will read my thesis
statement and think it may
be "heavy". Hopefully by the
time they read the entire
thesis it will be heavy
enough to float.

INTRODUCTION

Three thousand million people
live on a ball.
The ball is suspended in nothing.
What are these three thousand million
people doing on the ball?
And why, Mr. Zen Student, do you
want to know?
You don't know that either.[1]

My thesis has a beginning but no ending. The study that I have underway is not only a study that involves architecture, but it is a study of experiencing life. This work is only the foundation for future study, for I have a long way to go. My thesis project is not the answer; it is a study to raise questions.

My questions are philosophical in character, but more importantly, they are aesthetical questions. For example: On this campus there was a sidewalk. It was in front of Lewis Hall. It was one of the few sidewalks left on campus that was not huge. It was only about four feet wide. The sidewalk was beginning to

show signs of life. There was wear from the many years of seasonal changes and from the thousands of students who walked its path. This wear gave the concrete a unique color and texture unlike that of freshly poured concrete. The many forces of nature were evident in the cracks that meandered up and down the sidewalk. In time, nature filled the cracks with soil and seeds. The seeds were pollinated and became soft lines that patterned the sidewalk in a way that only nature can. The sidewalk was bursting with life, and then it was destroyed and replaced by a new, bigger, brighter, crackless, dead one! I am sure the reasons for replacing the sidewalk were honorable and industrious ones, such as efficiency in snow removal, but because of reasons like this, one of my questions is: Why does man always have to tinker with his environment and dominate nature? "Man throughout the years has based the greatness of a nation or civilization on how powerful it is, and the amount of destruction it can implement."[2] This is a disturbing fact, but why does it have to be so? For the answer I turn to the East.

Before getting involved in explanations and definitions of terms, I feel as if I should say something about the dilemma of writing on subjects such as the Tao and Zen. In the book Tao Te Ching by Lao-tzu, the first line reads, "The Tao that can be told is not the absolute Tao."[3] But Lao-tzu goes on throughout the rest of the book telling us what the Tao is! I think this first line in the Tao Te Ching is what Fritjof Capra bases his conclusion on that the human intellect can never comprehend the Tao.[4] Other schools of Eastern thought also mistrust conventional knowledge and reasoning, but show interest in intuitive wisdom. In the words of Chuang-tzu: "A dog is not reckoned good because he barks well, and a man is not reckoned wise because he speaks skillfully."[5]

This lack of faith in logical reasoning by the Taoist shows his interest in observing nature in order to be with the Tao, rather than relying on social and moral standards which, by the way, was Confuscious" way of the Tao.

Writing about the subject of Zen is also a paradox of sorts. The message of Zen is simply "direct pointing." Zen did not interpret the Buddha's teachings in the words of the middle way or the Four Noble Truths, as the Buddha did. The standpoint of Zen is that the Buddha never said a word. His real message was not given by words, but was given by non-verbal or wordless teachings that are called "direct pointing." This idea of direct pointing is the root of Zen and Zen aesthetics.

Because of the Taoist's contempt for logical reasoning and the Zenist's view of non-verbal teachings, their philosophy is organic and aesthetic in nature. It is best expressed in works of art and architecture. The connection of architecture to Eastern thought is the primary focus of this thesis. But here I am, attempting to express the nameless Tao and the wordless Zen. R. H. Blyth, when faced with the same problem said, "The secret is not to write about Zen but to write by Zen."[6] I am not so vain as not to admit that writing by Zen would be very difficult, so along with words I will include pictures or drawings to make my thoughts clearer to you.

MYSTICISM

Let us begin the inquiry into the Way of the East by comparing two poems. I am borrowing this comparison from a class on Zen that was taught by the Reverand Glover Wagner. One poem was written by Basho and the other by Tennyson. Matsura Basho was a famous seventeenth century poet from Japan, and Alfred Lord Tennyson is a noted English poet of the nineteenth century.

BASHO

When I look
carefully I see
the narjuna blooming
by the hedge.

TENNYSON

Flower in the crannied wall,
I pluck you out of the crannies;--
I hold you here, root and all, in my hand,
Little flower--but if I could understand
What you are, root and all, and all in all,
I should know what God and man is.

What we notice first is that Basho doesn't pluck the flower or

even touch it; Tennyson does pluck it, and in doing so, alienates himself from nature. Basho only wishes to see it for what it is and in this way becomes one with nature. Tennyson is active and inquiring; Basho is passive and in a state of self-absorption. Basho asks, do I see you? Tennyson asks, do I understand you?

The difference that we are mainly concerned with is the Eastern view of oneness and harmony in all things. Viewing the world in this light is called mysticism. This mystic insight is an important chain that links all the Eastern religions--Hinduism, Taoism, Buddhism, and Zen. Mysticism is the joy of experiencing the universe as one. It is to know and feel that all things and events are interwoven to form a universal unity, where the whole is dependent on the parts. It is knowing that oneself is in perfect harmony with the environment. Mysticism is not dark, ominous teachings, nor is it magical concepts of feeble minds. The Taoist Chuang-tzu who lived in the third century B.C. explained it this way: "He once dreamt that he was a butterfly fluttering among the



Plate 1

flowers of the spring forest. Suddenly he awoke. Was he a man who had dreamt that he was a butterfly, or was he a butterfly who was then dreaming that he was a man?"[7]

The respect for nature that is felt in the East is seen in this story of a Zen Buddhist Master lecturing to his monks: "Just before the sermon began, a bird started singing on a bough outside the monastery walls. The Master kept quiet and everyone listened to the song in attentive silence. As soon as the bird finished, the Master announced that the sermon was completed and departed."[8]

A discussion of Mysticism cannot avoid the differences between Eastern and Western religious philosophies. The purpose of this thesis is not to lecture on religious philosophies. However, I think it is important to compare the two in order to clarify the meaning of mysticism and the significant role it plays in my thesis.

In the West, there is a separation between spirit and reality. In the East, where the sacred and secular are one and the same, a non-dualistic

attitude exists. Non-dualism denies the distinction between good and evil, and between god and self.

In the West, man's self has been alienated from nature. His attack on nature has left Western man with a dependence on salvation from God. In the Eastern way of life, one does not seek salvation from God, but rather one seeks liberation. The Eastern way to search for God is to discover who he is or what he is. The Easterner perceives himself as an intricate part of nature, and nature as an intricate part of him. In contrast, the Westerner views nature as an outside force that has to be manipulated, theorized, and generally tinkered with. The Easterner who has reached the state of liberation understands his role in the universe. He understands that he is one with his environment. He is a thing, just as a plant is a thing or a star is a thing. The Westerner, on the other hand, learns to worship God and place Jesus Christ in a glass bottle that can only be admired but not experienced.

This is not to say that there are not or haven't been Western or Christian mystics. Wordsworth describes a mystical experience in these lines:

> To every natural form, rock, fruits or flower
> Even the loose stones that cover the highway,
> I gage a moral life: I saw them feel, the great mass
> or linked them to some feeling.
> Lay imbedded in a quickening soul, and all
> that I beheld respired with inward meaning.[9]

Another example in Western literature about a mystical experience is given by Eugene O'Neill in his book Long Days Journey into Night:

> When I was on the Squarehead square rigger bound for Buenos Aires. Full moon in the Trades. The old hooker driving fourteen knots. I lay on the bow sprit, facing astern, with the water foaming into spume under me. I became drunk with the beauty and singing rhythm of it and for a moment I lost myself--actually lost my life. I dissolved in the sea, became white sails and flying spray, became beauty and rhythm, became moonlight and the ship and the high dim-starred sky. I belonged, without past or future, within peace and unity and a wild joy, within something greater than my own life, or the life of Man, to Life itself! To God, if you want to put it that way.[10]

Mysticism is the roots of Eastern cultural expression, while in the West only a few have attained this insight and wisdom. The Easterners' concern for nature and their attitude about their environment is a lesson yet to be learned by Western man.

THE WAY OF THE TAO IN ARCHITECTURE

Searching For the Hermit in Vain

I asked the boy beneath the pines.
He said, "The Master's gone alone
Herb-picking somewhere on the mount,
Cloud-hidden, whereabouts unknown."

Chia Tao (777-841)
Translated by
Lin Yutung

The Way of the Tao is like a dance. It is in continuous motion--never static--moving to nature's rhythm and harmony. In Hinduism, the idea of motion and the dance is illustrated by the mythological god, Shiva. Shiva symbolizes the constant rhythm of birth and death. The god is half man and half woman, moving in a sensual and elegant dance. The dancing of the God



The Hindu God, Shiva

Plate 2

Shiva reflects the Hindu view of the universe: it is not static--everything and everybody is constantly changing.

The Tao is the power of nature. Many have used the metaphor of comparing the Tao to water: it always seeks the lowest, takes the easiest, path; yet it can wear stone. The Tao is the experience of being on a raft, afloat and drifting aimlessly along the stream of life.



Plate 3

When speaking in the language of the Tao we must include four important words: yin-yang, li, wu-wei, and te.

YIN-YANG

The yin-yang concept is a delightful invention by the Chinese. The concept is simple: yin-yang deals with the world of opposites as the unity of all things. This seems to be a contradictory statement, but let me explain further. The Taoist believes that there can be no life without death, no joy without suffering, no inside without outside, no soft without hard, no heavy without light, and no solid



The principle of yin-yang can be seen in the symbol of the Tao.

Plate 4

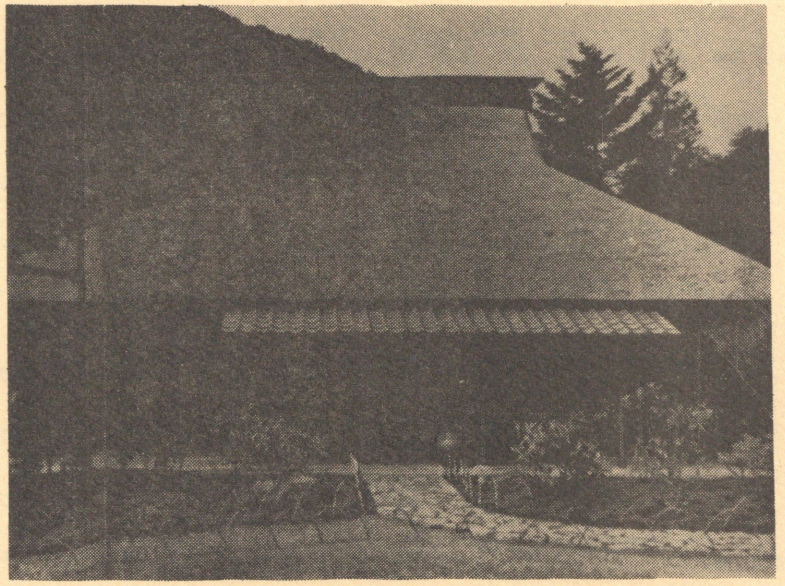
without void. Taoists recognize the inseparability of all things; one thing cannot be unless it has an opposite thing. The Taosits say everything is united, making a harmonious whole. Such is life.

A recent example of the yin-yang philosophy at its pure, simplistic best was in the movie, Oh God, Book II. The young girl (Tracy) asks God (George Burns), "Why is there death and pain in the world?" God simply answers, "Now that is a good question." He adds, "Without suffering there would be no happiness, without death there could be no life."

In Eastern architecture such as Japanese, one can see the principles of the yin-yang applied. Let it be understood that the principles are not preconceived and planned, but rather they are based on the cultural habits and religious customs that have been passed down over many years.

In the traditional Japanese home, the house is not supported by load-bearing walls but by sturdy columns which are embedded in stones only partially buried. The floor is above ground level. The outer

walls serve as sliding screens to allow cool summer breezes to penetrate the house. The roofs are steeply sloped. The roof overhangs are wide enough to cover a perimeter walkway or veranda which is made of simple, stout wood planks. What is happening here? There is union of solid and void, heavy and light. The house is deceptively fragile in appearance, although the structure is made of sturdy, stout members. The house has a sense of lightness and a feeling of floating, even though it is anchored rigidly to the earth. Looking an one detail of the house will give us a clue to the master craftsmen's secrets. The Japanese have paid special attention to the detail of joining



Traditional Japanese house
Plate 5

house and ground. Rather than resting the columns that support the building on a concrete footing or directly on the ground, they rest each column on a rock. Rocks are heavy, but in their natural setting embedded in the earth, there is a feeling of suchness, belonging, or place. The rocks appear to be much lighter than they really are.

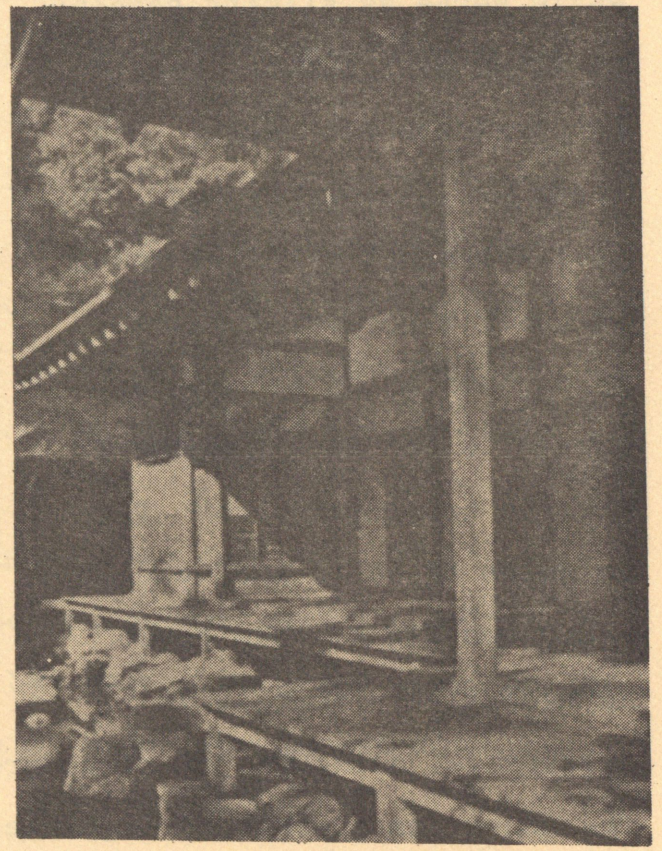


Plate 6

Another example of yin-yang polarity is the contrast between walls and posts. The posts are wood, dark in color and hard in texture. The walls are stucco or paper that is light in color and soft in texture. This polarity between light and dark and soft and hard

gives the house a dynamic character. The house seems to vibrate with life, yet it yields to nature's rhythm of the seasonal changes. The generous overhangs of the roof together with the contrast between shadow and light, solid and void, give the house its pure and honest form.

The relationship between solid and void or emptiness and form is an important part of Zen, Taoism, Buddhism, and Hinduism. In Buddhism, the word sunyata means "emptiness," and the word mu in Japanese means "nothingness." Mu and sunyata are two important terms in Eastern thought. The Eastern idea of the void, nothingness, or emptiness is rather different from our Western view. In the East, the void is not dark, negative, or representative of the evil aspects of life. A Buddhist would say that emptiness equals form, and form equals emptiness. This equation seems to be a contradiction, but if we think back to what we just learned about the yin-yang we would see that indeed emptiness does equal form. In the words of Lamu

Govinda:

> The relationship of form and emptiness cannot be conceived as a state of mutually exclusive opposites, but only as two aspects of the same reality which co-exist and are in continual co-operation.[11]

The unity of these opposite concepts of emptiness and form has been expressed in a Buddhist sutra:

> Form is not different from emptiness; emptiness is not different from form. Form is precisely emptiness; emptiness is precisely form.[12]

The logic of this is so simple that the mind has trouble grasping it at first, but as soon as the mind stops grasping, the idea is crystal clear. In the words of Alan Watts, "The ideal of pursuing good (anything without considering its opposite) is like trying to get rid of left by turning constantly to the right. One is therefore compelled to go round in circles."[13]

The concept of shadow and form or emptiness and form is a basic

pattern that is used in architecture. The ancient men of China and Japan were also aware of this pattern and its relationship to architecture. Considering architectural space, Lao-tzu observed over 2500 years ago that in a house it is the emptiness, the space in a room, and the windows and doors that make the house inhabitable. Chuang-tzu emphasized the importance of the pattern of emptiness and form when saying that in a cup, it is the emptiness that matters. But even today many designers are overlooking the void of the cup and directing their energies to the form alone. Edmund Bacon says, "The essence of design is the interrelation between mass and space. In our culture (Western) the preponderant preoccupation is with mass, and to such and extent that many designers are 'space blind.'"[14]

The pattern of emptiness and form is also used in other Eastern arts, for instance in Zen paintings. In Zen painting, the area of the canvas that is left blank is just as important as the areas that are brushed with ink. The Zen painter knows that the empty space is



Plate 7

O to realize space!
The plenteousness of all,
  that there are no bounds,
To emerge and be of the sky,
  of the sun and moon and flying clouds,
  as one with them.[15]

indeed the part of the painting that gives the ink strokes their form and the painting its depth. The negative space of a Zen painting is just as important as the positive space. We could even say that there is no distinction between positive and negative space.

In architecture, the space that is created between and adjacent to buildings is generally spoken of as negative space, and consequently the building becomes the positive space. But is it the building

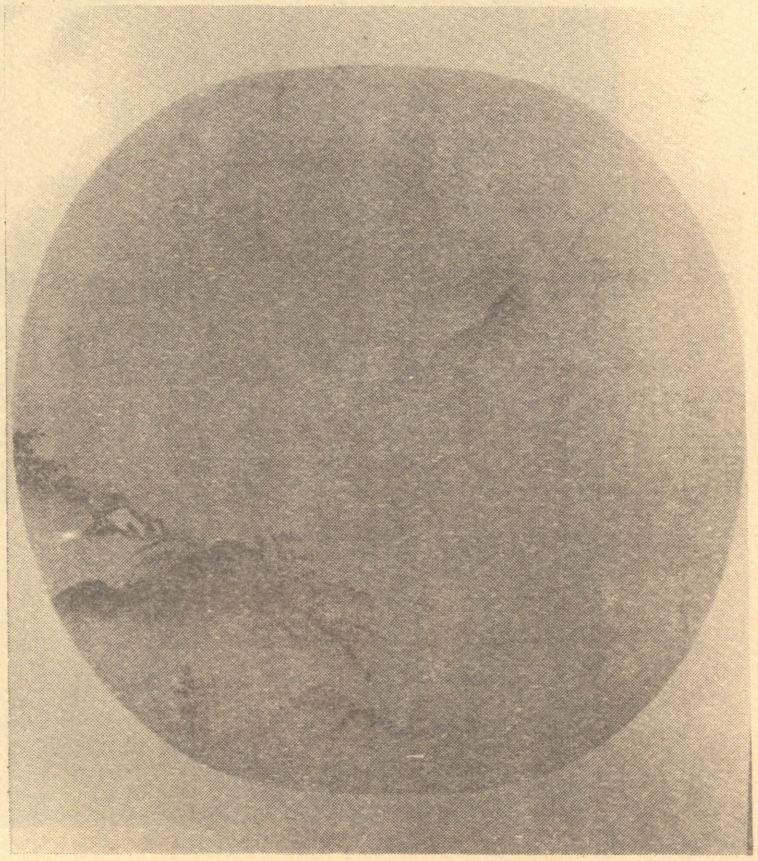


Plate 8

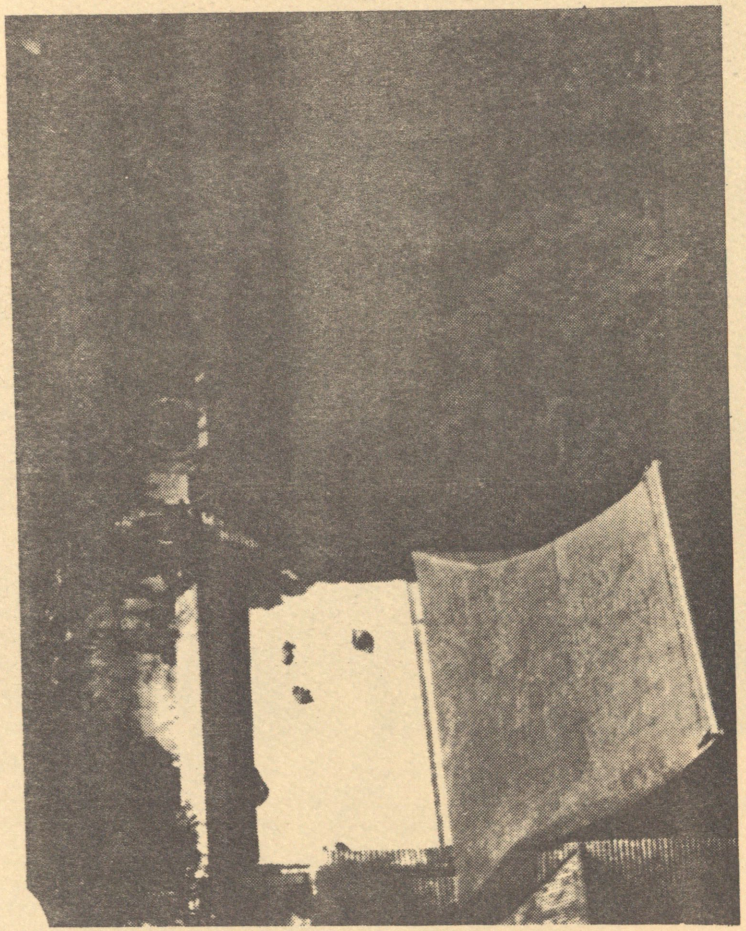


Plate 9

Ryoan-ji, Kyoto

that gives the exterior space its charm and scale, or is it the exterior space that gives the building its charm and scale? Of course, it is convenient to label the exterior space negative and the interior space positive, but isn't it true that exterior negative space could be positive space as well? It is all very humorous if we think about it. Why not just say that neither negative space nor positive space is separable, but that both form a harmonious whole where each is dependent upon the other.

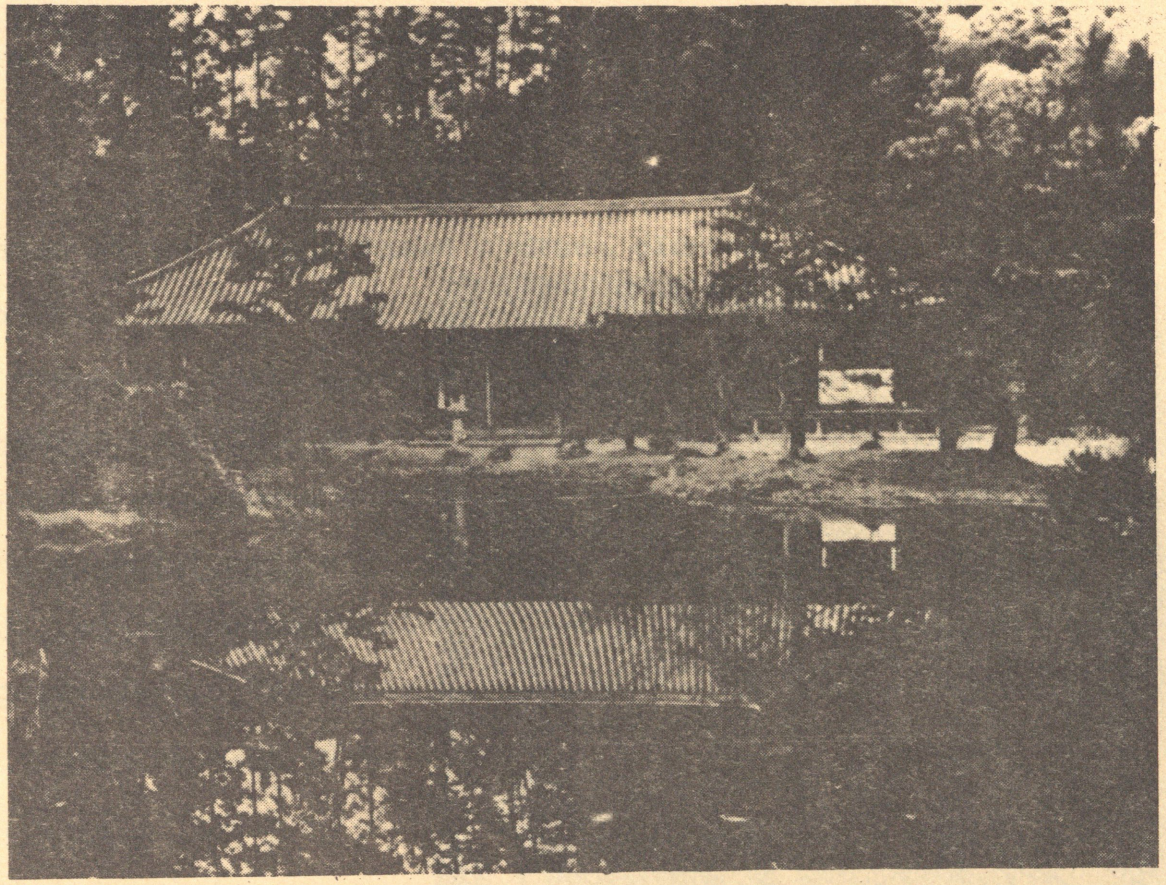


Plate 10

The same holds true with shadow and form. The particular shape or form of a building is dependent upon the shadow or negative space that is created by overhangs or a change in plane. Yutaka Izue, a contemporary Japanese architect, explains it like this: "I am convinced that shadow plays a vitally important part in contrasting two elements of disparate natures or two different forms. In addition,

the shadow method can help restore heart and beauty to heartless modern architecture."[16] Yutaka explains the shadow method further: "The deep eaves in traditional Japanese architecture create a shadow zone between elements of contrasting textures and qualities of the house."[17] The shadow area softens the contrasting elements in the creation of interior and exterior spaces. Yutaka adds that "without the shadow produced by the deep eaves of wooden Japanese buildings, the contrast between the great volume of the tile roofs and the apparent weakness of the slender supporting posts could never have developed the gentle loveliness found in such buildings."[18]

LI

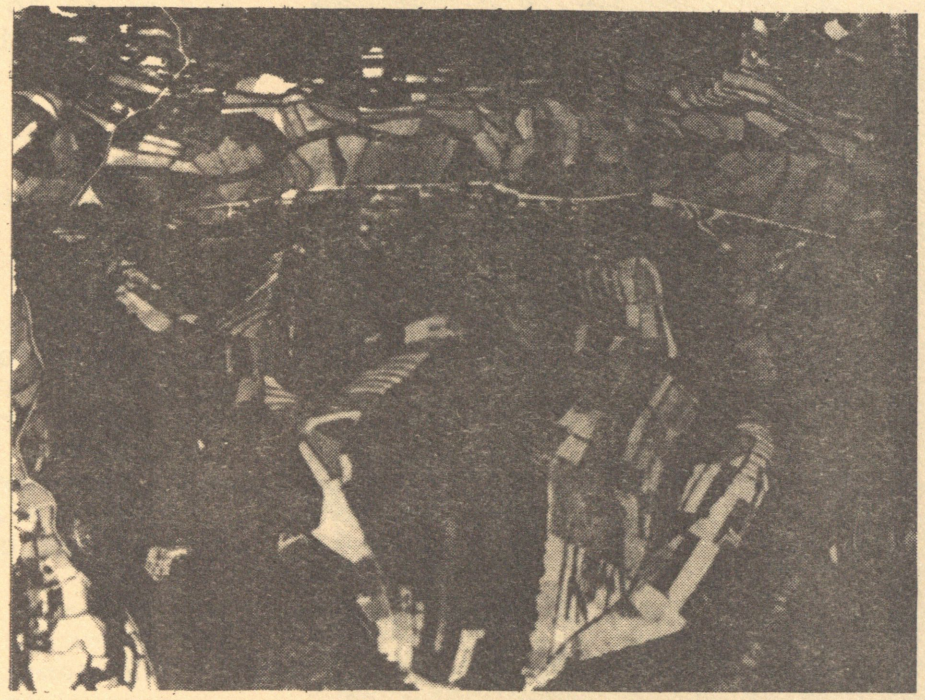


Plate 11
Japanese Landscape

The word li is used by the Chinese to express the pattern of the Tao. Li means "organic pattern," such as the patterns on leaves, the ripples of the water after a stone strikes a pond, the patterns on a turtle's underside, or the variety of shapes that clouds make. Yes, even those patterns of the meandering cracks on the sidewalk which I spoke of in the introduction are organic patterns of li. Chinese artists have used li in their landscape paintings and paintings of flowers and

birds. The Taoist painter is not concerned with duplicating nature exactly as he sees it, as a super-realist would be, but rather he expresses his paintings in terms of li.

Architects as well have used this organic pattern of li. The one that comes to mind foremost is Frank Lloyd Wright. Wright used the pattern of li in the Johnson Wax Tower. The pattern from nature that is most often used by architects is nature's structural principles. Wright used the structural principle of a tree in designing the Johnson Wax Tower. The foundation in the Johnson Wax Tower was expressed by Wright as the root system of a tree. The central core of the building was not only the main structural element, but was also used for vertical circulation and as a duct and pipe system. The central core of the Johnson Wax Tower is just as a trunk is to a tree; it supports and nourishes the rest of the structure. Each floor of the Tower is cantilevered out from the central structural system, just as branches are extended from the main structure of a tree.

Alvar Alto used the pattern of li in his design of the Baker House at M.I.T. The curving form of the Baker House is a lovely touch, and functionally it allows each room a unique view of the passing river. The form of the building is a sensitive response to the meandering movement of the water. Alto's sensitivity to the pattern of the water reflects in the overall design of the Baker House.

The Japanese word sabi is similar to the Chinese work li. Sabi is also an expression of aesthetic values. Li is "organic pattern," sabi is the "pattern of organic aging." The idea here is that all things develop their own unique characteristics during the aging process. The Japanese

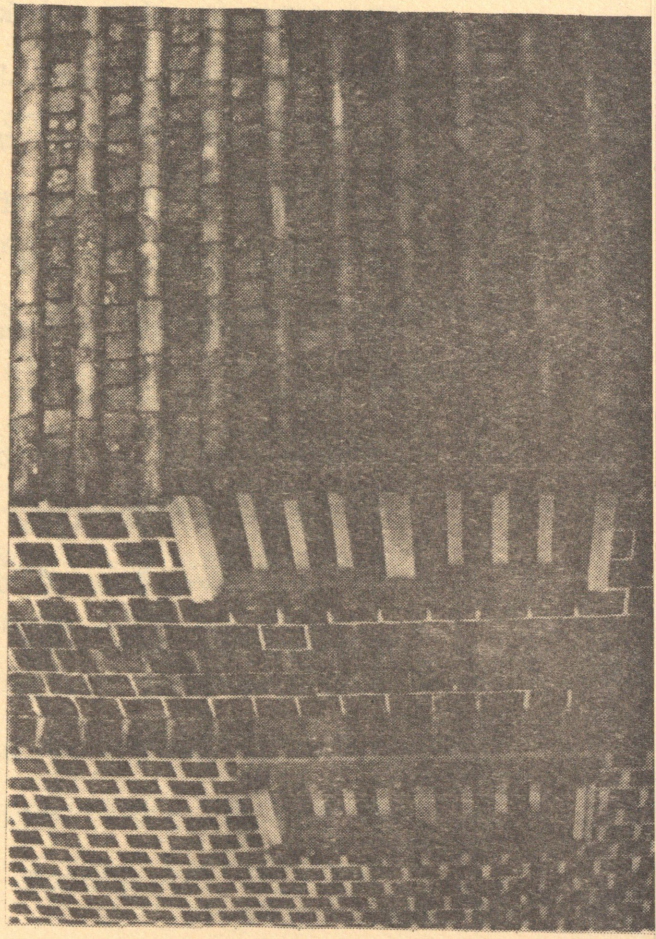


Plate 12
Sabi of Tile and Bricks

see natural beauty in the weathering of wood, in the discoloring of metal, and even in the wrinkling of skin on wise faces. The practice of sabi is seen in traditional Japanese buildings. The wood is almost always left unfinished, without stain or varnish, to ripen slowly, only according to nature's rhythm of seasonal changes. The rocks that are used in Japanese gardens are not picked hastily, but are selected because of their special aesthetic features of sabi. The Japanese have a deep understanding of materials used in architecture due to their respect for and love of nature. This respect and love of nature comes from the mystical religions of Shinto, Zen, and Amida Buddhism. The philosophies on aesthetics have danced their way into the culture and people of Japan so thoroughly that they touch the lives of everyone and everything.

WU-WEI

The word wu-wei literally means "non-action." Wu-wei is not forcing; it is going with the pattern of li. According to the Tao, wu-wei means flowing with the current, swaying with the wind, or going with the grain. Wu-wei is not simply a laissez-faire attitude, but is based on intuituve knowledge that is structured in accordance with nature's ebb and flow of gravitational forces and climatic variables. Mai-Mai Sze, author of The Tao of Painting, explains wu-wei in this manner: "Wu-wei is outward passivity and intense inner activity."[19] I differ with this statement only slightly. I would describe wu-wei as calm outward yielding and intense inner activity. I feel there is more of a yielding to forces of nature or man in experiencing wu-wei than a state of passivity. To put the thought even more simply, one could say that wu-wei is "calm excitement."

The Japanese fighting arts of akido and judo, which use the same

technique, give an example of wu-wei. When you attempt to strike your opponent, the opponent uses the momentum of the strike to counterpunch or throw you to the ground. Brute force is not needed. The idea is to roll with the punch. The sports of surfing and skiing are also very much in tune with wu-wei, where the surfer and the skier take advantage of nature's power.

To the Taoist, gravity is a form of energy. To Lao-tzu, gravity is the root of lightness. Gravity is a significant factor in architectural designs. I think the approach in traditional Japanese architecture to this common structural problem has been solved in the same spirit as Lao-tzu's view of gravity. In other words, go with it, don't force it, and gravity won't be a burden. The structural loads in traditional Japanese buildings are taken care of simply by using the post and lintel construction method. The forces of nature are taken on in the most direct and honest way possible. In a traditional Japanese house there is no guessing as to how the house was constructed. The beams, planks

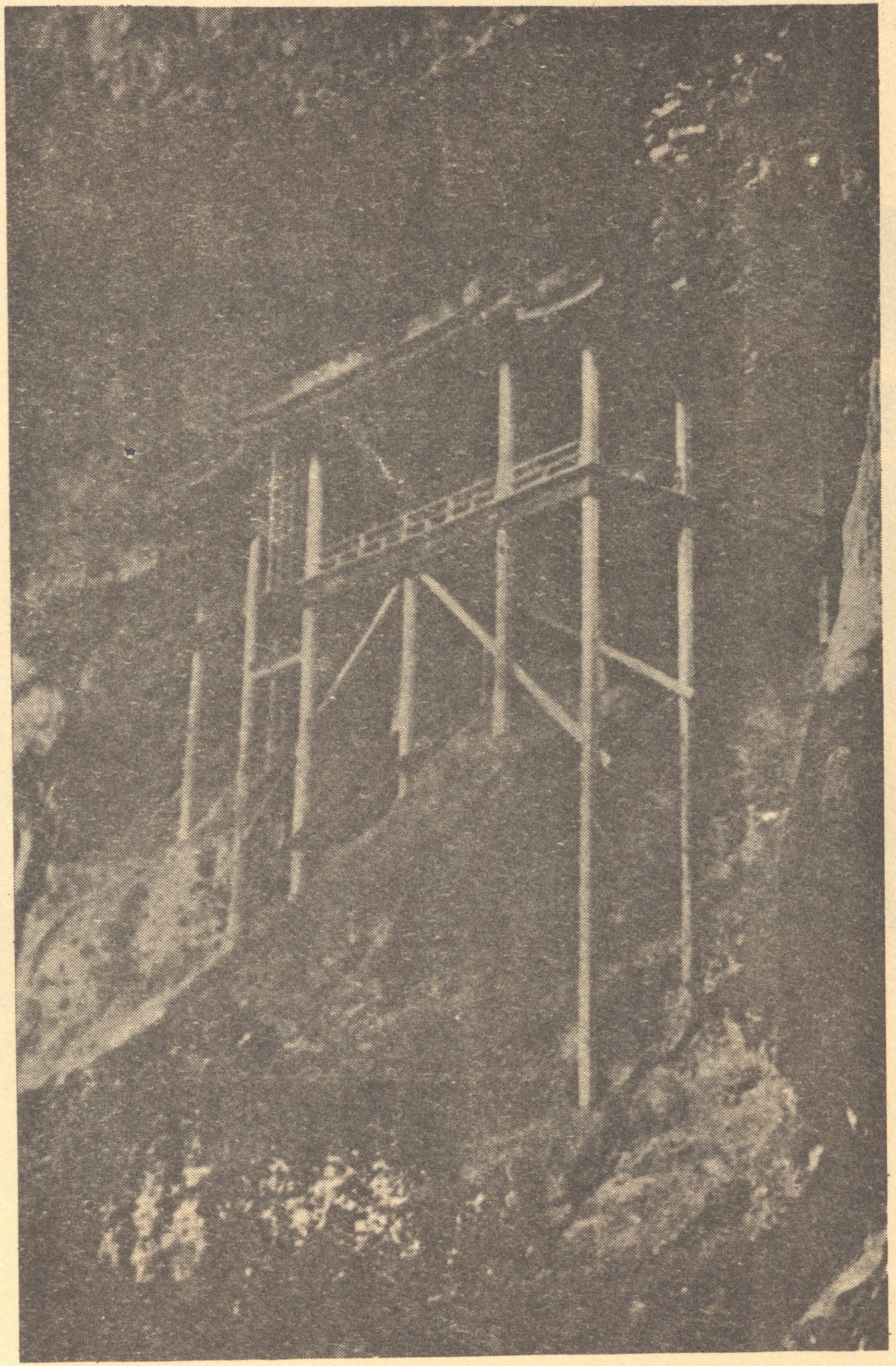


Plate 13
Sambetsu-ji Temple

and posts are exposed for everyone to see and experience. There is no need for sophisticated construction methods such as cantilevers and complicated vaulting systems, for they are not in the Japanese vocabulary. Because of this, Japanese buildings are in balance, albeit not symmetrical balance in form, but balanced with the human intellect. The body and mind experience a sense of security from the buildings. The buildings are not built against the echoes of

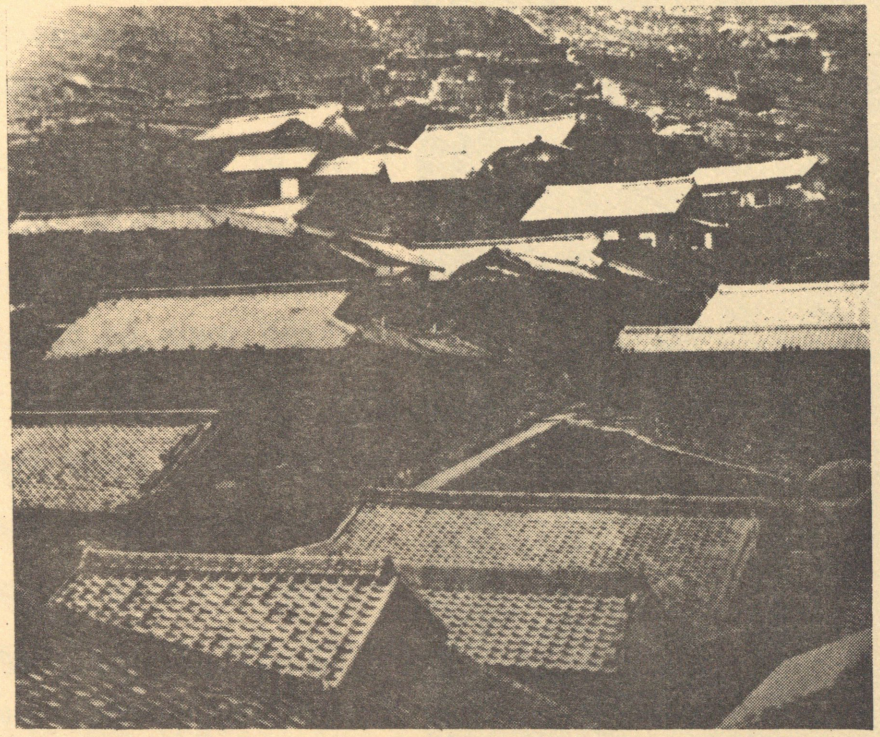


Plate 14

nature, but are built in respect for them. Frank Lloyd Wright was totally conscious of designing in harmony with nature. His organic architecture was based on this principle. He once said, "Never build on the hill but build of the hill." Louis Kahn was also sensitive to nature. His respect for it is seen when he commented, "When designing, the site will tell you what to do." And again Lao-tzu said 2500 years earlier that in a home it is the site that matters.

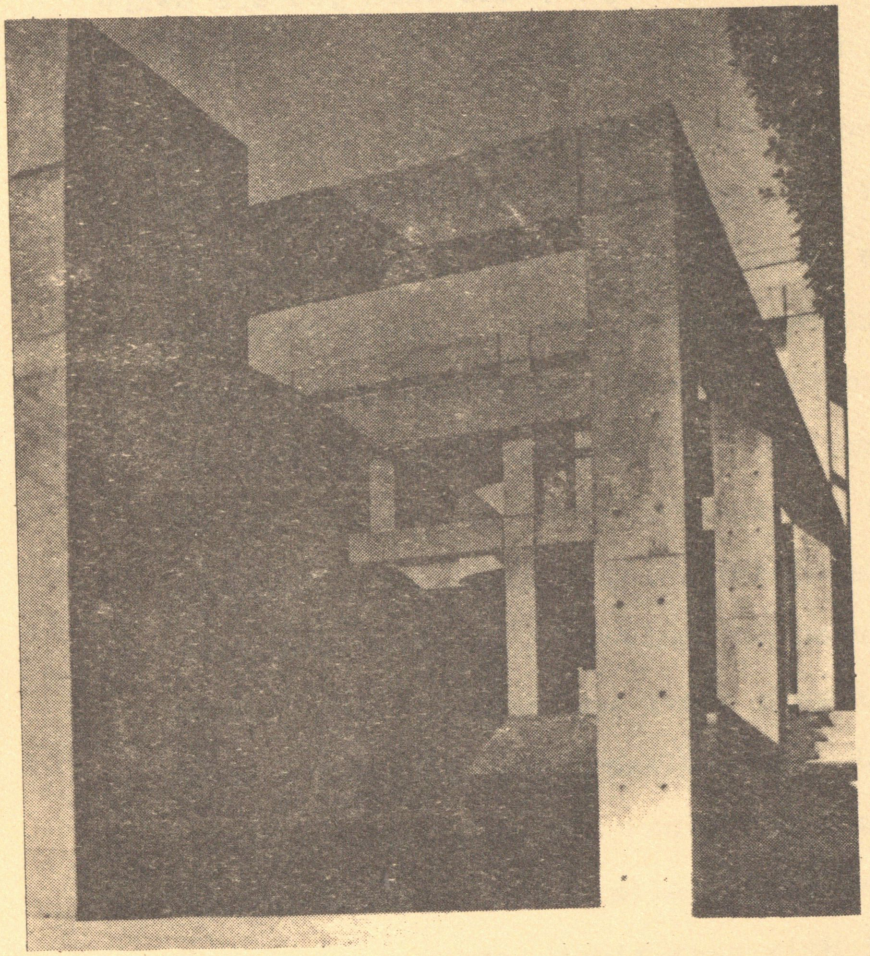


Plate 15

In contemporary Japanese architecture, buildings are still, for the most part, constructed by the post and lintel system; but wood has been replaced by concrete as the main construction material. The underlying aesthetic values of wu-wei give traditional and modern Japanese architecture its simplicity of form and total honesty and directness of construction. Wu-wei can be experienced in other art forms, sporting events and acts of everyday life. Wu-wei is

not something you learn, but it is within you, and when you are aware of its presence, you can feel it in your bones.

TE

Te is an important term that helps in understanding and solving the secrets of the Eastern way. Te is the Chinese word meaning "virtue"--not in the sense of moral excellence, but in the sense of inherent power. The inherent power of te is allowing the natural order of things to do its work without being pushed or forced. Te is like the power of the sun. It possesses the power to give life to all things, but this life-giving ritual is not preconceived and planned. One could compare the power of te to a centipede: if the centipede stopped following the natural order of things and tried to concentrate on each and every step it took, the centipede would become a fumbling and frazzled bug. Lao-tzu explains te this way: "Rule a country as you would fry a small fish." The Reverand Glover Wagner, in a similar light said, "The power of te is like cooking a pancake; don't mess with it, just let it go."

Again te illustrates the negative view that the Taoist places on the intellect. For te is the power that comes from observing nature and from the unconscious thought that is not forced but just arrives spontaneously (tzu-jan).

Te is important in all creative activities. What happens when you are confronted with a problem? You think about it and think about it. The answer seems within reach, but it is like hitting a brick wall; you have a mental block. You focus all of your mental capacities on solving the problem, but that only leads to pressure, tension and eventually a headache. You finally give up. You go on doing what you were doing before the problem arose. Then out of the blue, bingo! The answer arrives! How is this so? What happens is this: The mind that was overloaded with all that tight and narrow concentration was allowed to rest, and then the subconscious took over and answered the questions without any effort of that proud and trusted intellectualizing compartment of the mind.



Plate 16

tzu-jan

That sudden unconscious, spontaneous activity of the mind that solves proplems and answers questions is called "no-mind" or "no-knowledge" in Zen. The concept of no-mind is the major element in reaching the state of satori, or enlightenment, in Zen. Satori is experienced by everyone but goes unnoticed. Fritjof Capra explains satori as the power of the mind that grasps a joke. When someone tells a joke you don't get it by thinking about it; the punch line just arrives naturally. The idea of satori and te are very similar. Eastern thought is like a web.

The Japanese religion of Shinto also has a word that is used in a similar spirit as te is used in Taoism: Kami. Kami means "power." Shintoism is a belief that all things have spirit of kami; even rocks and trees. Everything has the inherent power of te.

The power of te is very practical. While writing this thesis, I have acquired most of my ideas not from sitting at my desk with pen in hand and eyes staring off into the distance. Rather, ideas came to me

when I was in a relaxed environment; usually in the early morning or the middle of the night, when my mind was open and free to many kinds of thought that danced continuously through my head. When viewing problems in this manner, they are not so serious and impossible. Ideas tumble from the unconscious one after another without resistance.

Stop thinking at this moment and rest your analyzing and categorizing mind. Listen to the sounds that surround you; voices of people, whistling of the wind, or the singing of the birds. But let each sound leave as easily and effortlessly as it came. Don't concentrate on anything. Let your mind rest, let your eyes sweep wherever they may. Without any effort of that intellectual and categorizing mind, you will experience te, for it is in each heartbeat and in every breath you inhale and exhale.

THE WAY OF ZEN IN ARCHITECTURE

A Zen Story

The setting was a Zen monastery high up in the mountains in the dense forest. The season was Autumn.

One morning during the daily chores an old Zen Master asked a young disciple to sweep the stone pathway that led to the entrance of the monastery. The young disciple went about his work diligently and swept the pathway clean of the leaves and dust that had accumulated since the day before. Upon doing so he approached the old Master and informed him that he had finished his work. The old Master said, "Very good." Then he told the young disciple to go back and sprinkle freshly fallen leaves on the pathway just as they were before.

Zen is simple; it is simplicity at its utmost. The catch is that it is perfect simplicity. Zen, according to R. H. Blyth, is doing everything perfectly; even making mistakes perfectly. Zen is being perfectly right and perfectly wrong.

Before I go on, I must explain that throughout this thesis I may have interchanged the words Tao and Zen. Tao and Zèn come from the

same mystical concept that all is one. Zen is a little sharper and crisper at the edges, while Taoism is less sharp and more forgiving. Master Pochang, a Zen master, was asked by one of his disciples, "What is Zen?" The answer by Master Pochang was, "Eat when you are hungry, sleep when you are tired." Lao-tzu, who wrote the first book on Taoism in the fifth century B.C., was asked by an admirer, "What is the Tao?" Lao-tzu answered, "The usual way of life is the very Tao."

Zen and the Way of the Tao are not just for a selected few, but they are for everything and everybody. Your Zen is not my Zen, East Zen is not West Zen. Zen is not a concept, idea, fabrication, or gimic. It is a way of life--an aesthetical way of life for all beings. I referred to Zen and the Tao previously as a religion. I use the word "religion" loosely and only as a device to simplify and direct my meaning. But in actuality, Zen is not a religion or a philosophy; it is only a way of life. The Japanese religion, Shintoism is also a religion without any religion in it, but it is also simply a way of life.



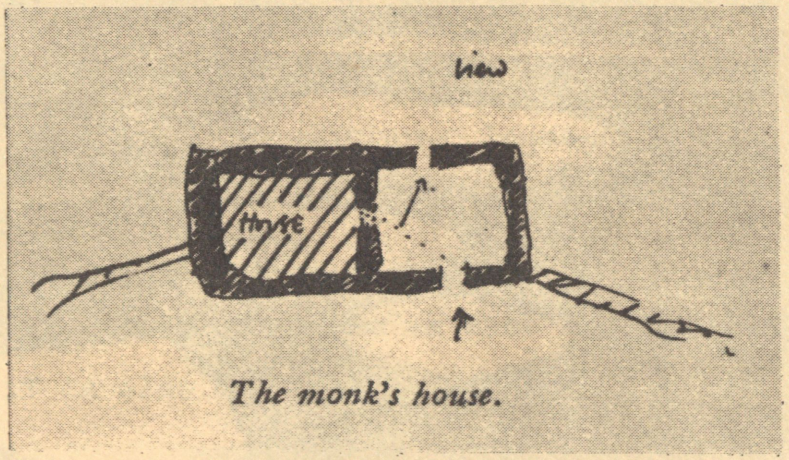
Plate 17
Zen View at Katsura Imperial Villa, Kyoto

Let us discuss Master Pochang's answer to the question, What is Zen? What does he mean when he says, "Eat when you are hungry, sleep when you are tired"? I believe he is directing the answer to the basic principle in Zen, that of non-linearality in all things. In Zen, time is not linear; there is no past or future. Only the eternal "now moment." Bang! It is all over with, gone, kapoot! It is the moment where time is absent, yet this moment spans the lifetime of stone. In this moment lies the power of the Tao and of Zen.

The principle of non-linearality and the now moment will be a major factor that I will implement in developing my design concept for the Tennis Ranch.

In the book, Pattern Language, by Christopher Alexander, this moment is explained beautifully in a practical example. Alexander labels this event "The Zen View." He unfolds this story to explain it:

> A Buddhist monk lived high in the mountains in a small stone house. Far, far in the distance was the ocean, visible and beautiful from the mountains. But it was not visible from the monk's house, nor from the approach road to the house. However, in front of the house was a courtyard surrounded by a thick stone wall. As one came to the house, one passed through a gate into this court, then cut diagonally across the courtyard to the front door of the house. On the far side of the courtyard there was a slit in the wall; narrow and diagonal, cut through the thickness of the



The monk's house.

Plate 18

> wall. As a person walked across the court he came to one spot where his position lined up with the slit in the wall, and for an instant, he could see the ocean again, then he went on into the house.
>
> What is it that happens in this courtyard? The view of the distant sea is so restrained that it stays alive forever. Who, having ever seen that view, can forget it? Its power will never fade. Even for the man who lives there, passing that view day after day for fifty years, it will still be alive![20]

This now moment is the root of Zen. It is simply doing exactly what you are doing--perfectly. The perfection of Zen is to live one's everyday life naturally, without hesitation, and with spontaneous, intuitive action.

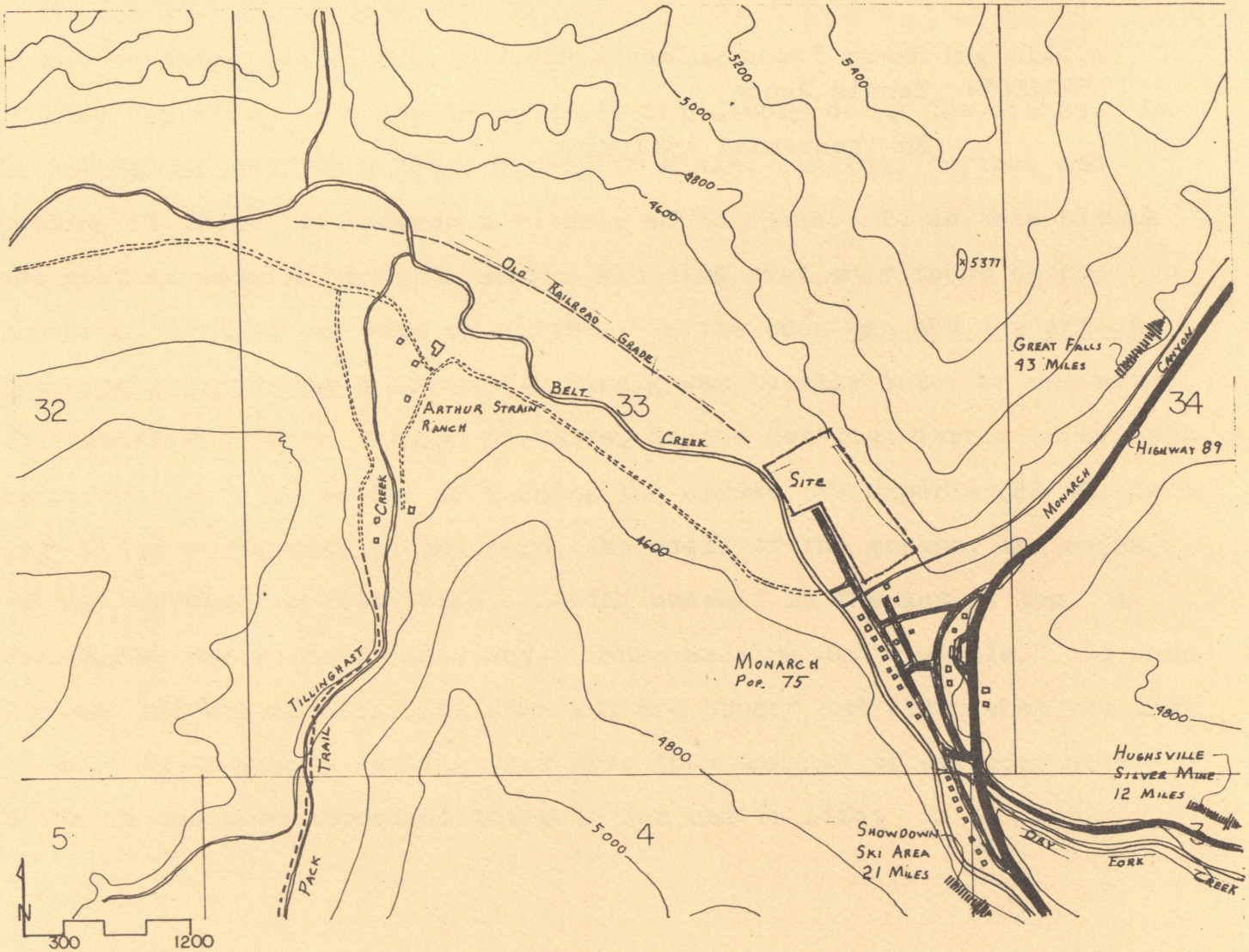
But to do this is not as simple as it may seem. The naturalness of Zen is only accomplished through long spiritual achievements.[21] In the words of a Zen saying:

> Before you study Zen, mountains are mountains and rivers are rivers; while you are studying Zen, mountains are no longer mountains and rivers are no longer rivers; but once you have had enlightenment, mountains are once again mountains and rivers again rivers.[22]

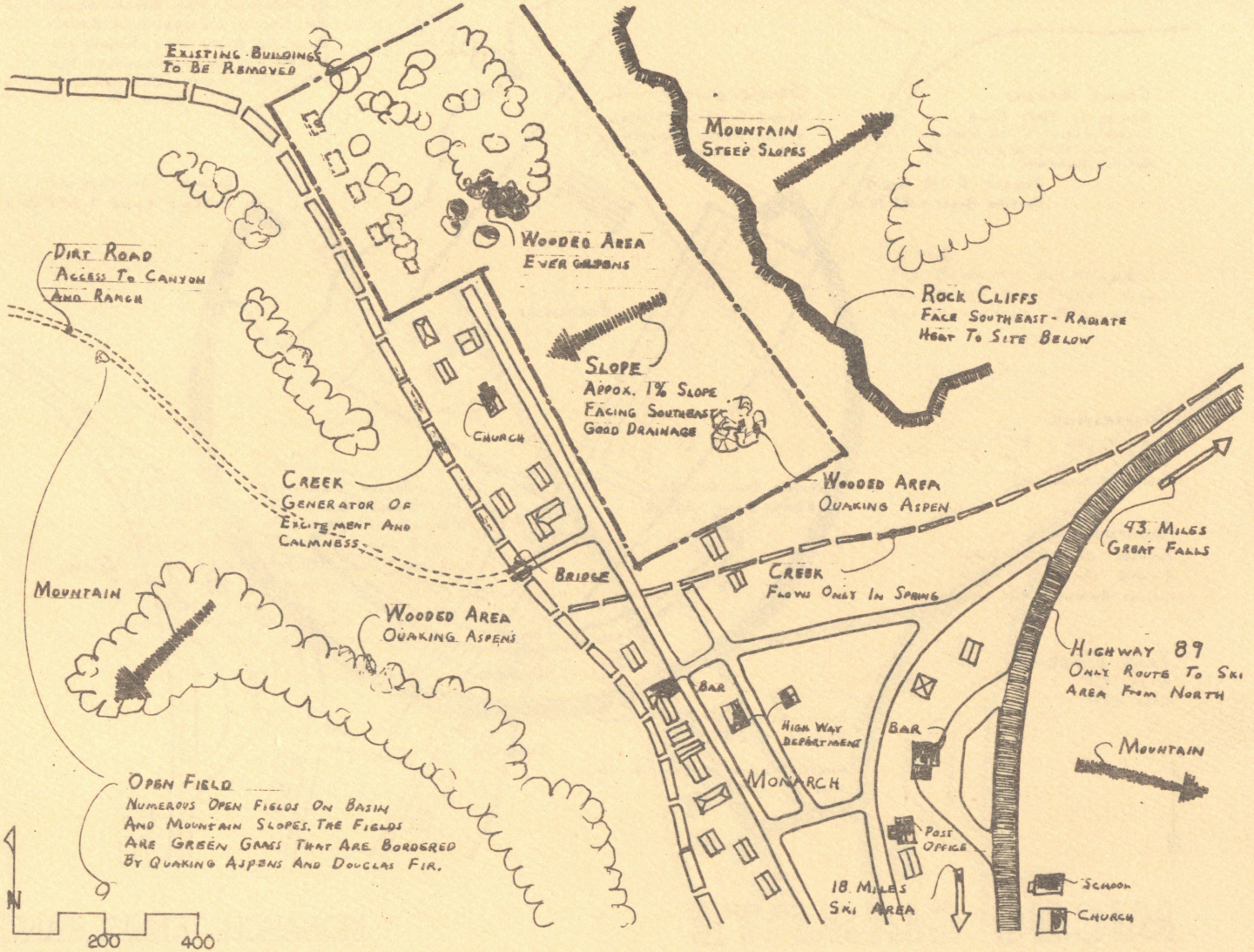
Zen is doing the dishes, not day dreaming about something else or wishing you were doing something else, but simply doing the dishes. It is taking one dish at a time, wiping it clean, rinsing, drying, and putting it away. It becomes a ritual, so to speak. To do this ritual one must be totally into his work. His mind must only focus on one moment at a time, one wipe at a time. In the book Zen and the Art of Motorcycle Maintainence, Robert M. Pirsig was totally into, or one with his motorbike. When tuning his bike, he did not just turn a screw, but he experienced the action of turning the screw. He experienced the feeling of the resistance to the turn, the smell of the grease, the noise of the surrounding activities. Losing oneself in the act is Zen. A Zen Master described it this way: "When walking don't wobble." So when Pochang answers, Zen is "Eat when you are hungry and sleep when you are tired," he is simply stating that this "now moment" of everyday activities is the most important thing in Zen and in life.

PROJECT: Tennis Ranch

Environmental Analysis

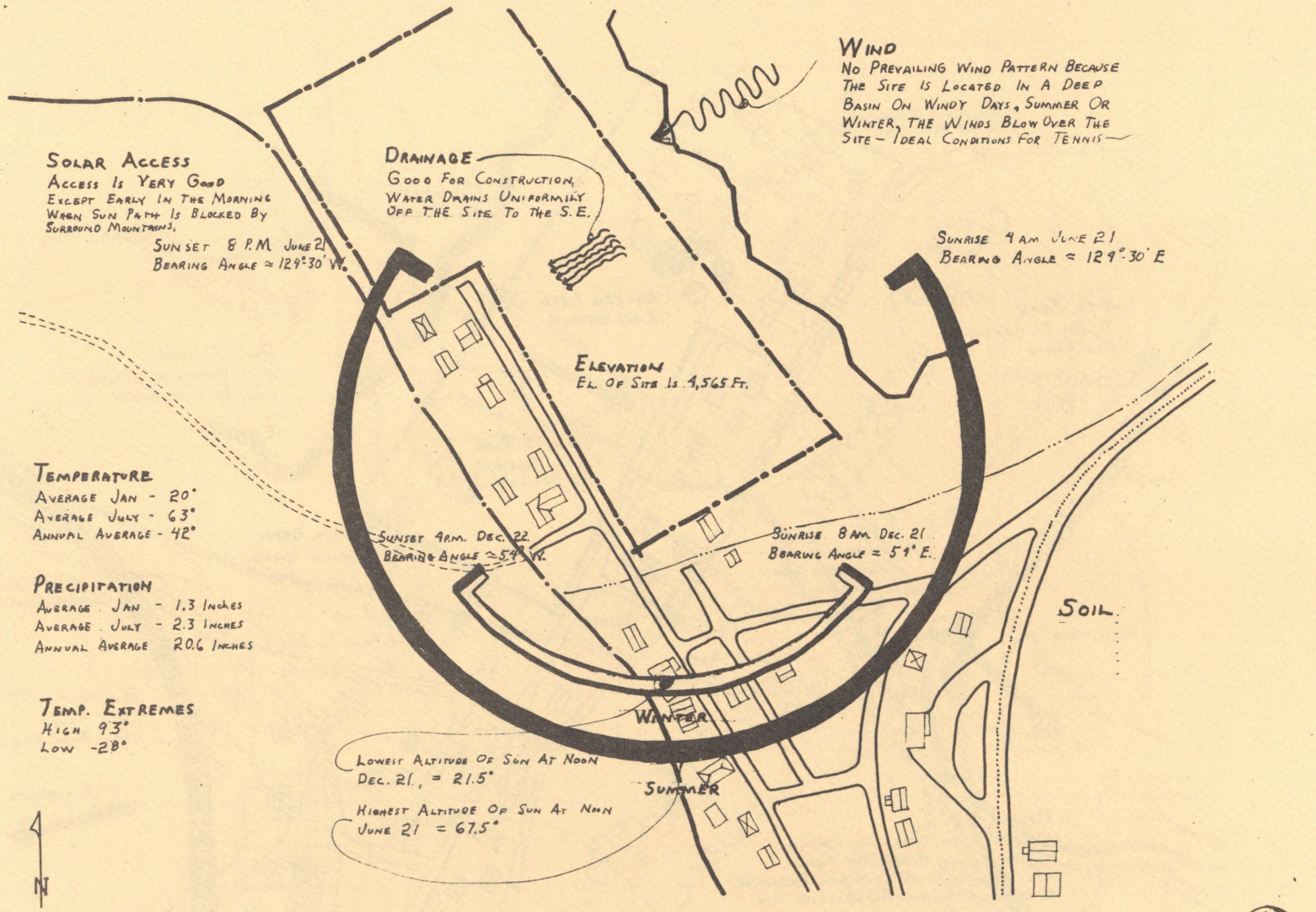


MONARCH TENNIS RANCH



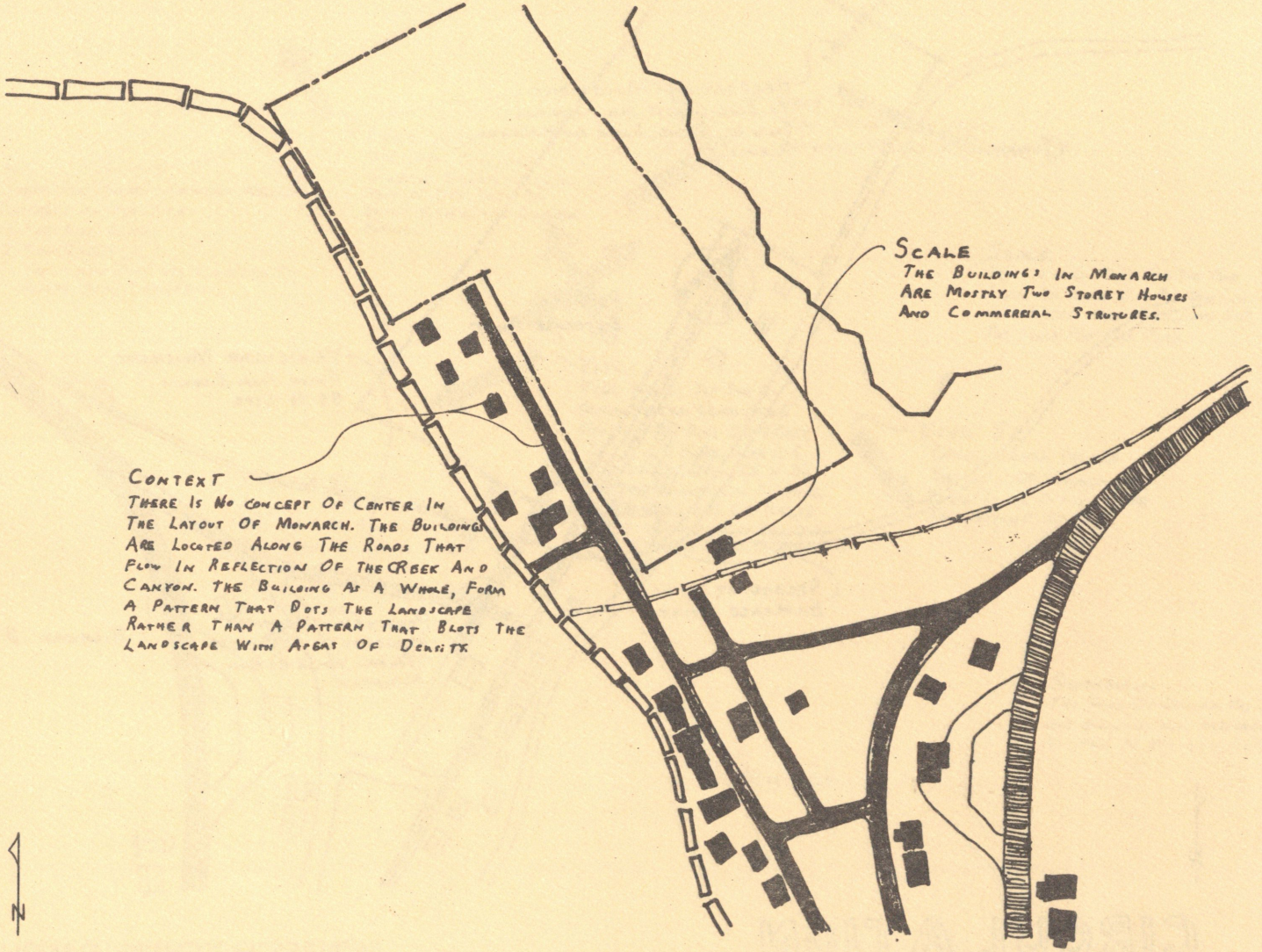
SITE FEATURES

MONARCH TENNIS RANCH



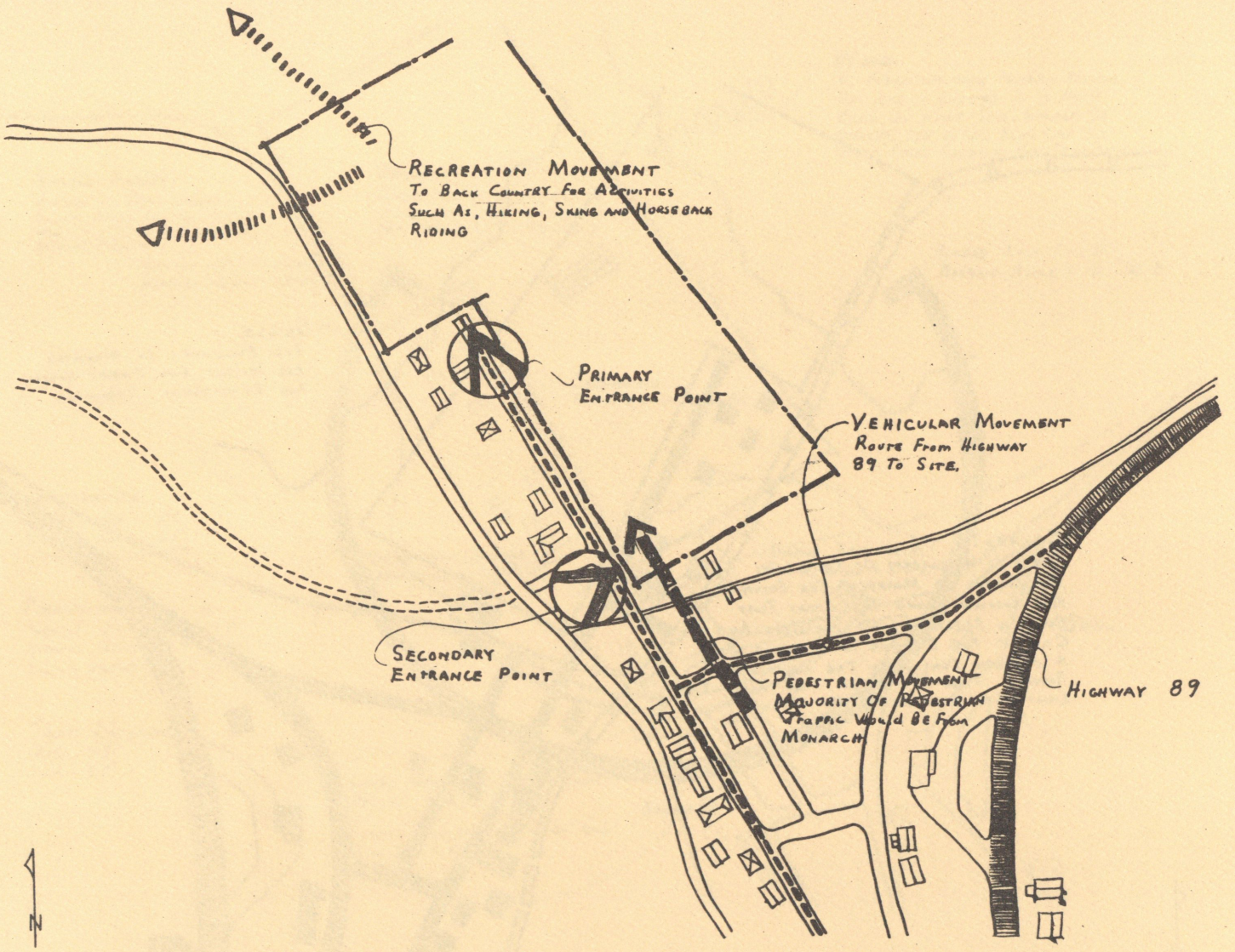
MICRO CLIMATE

MONARCH TENNIS RANCH



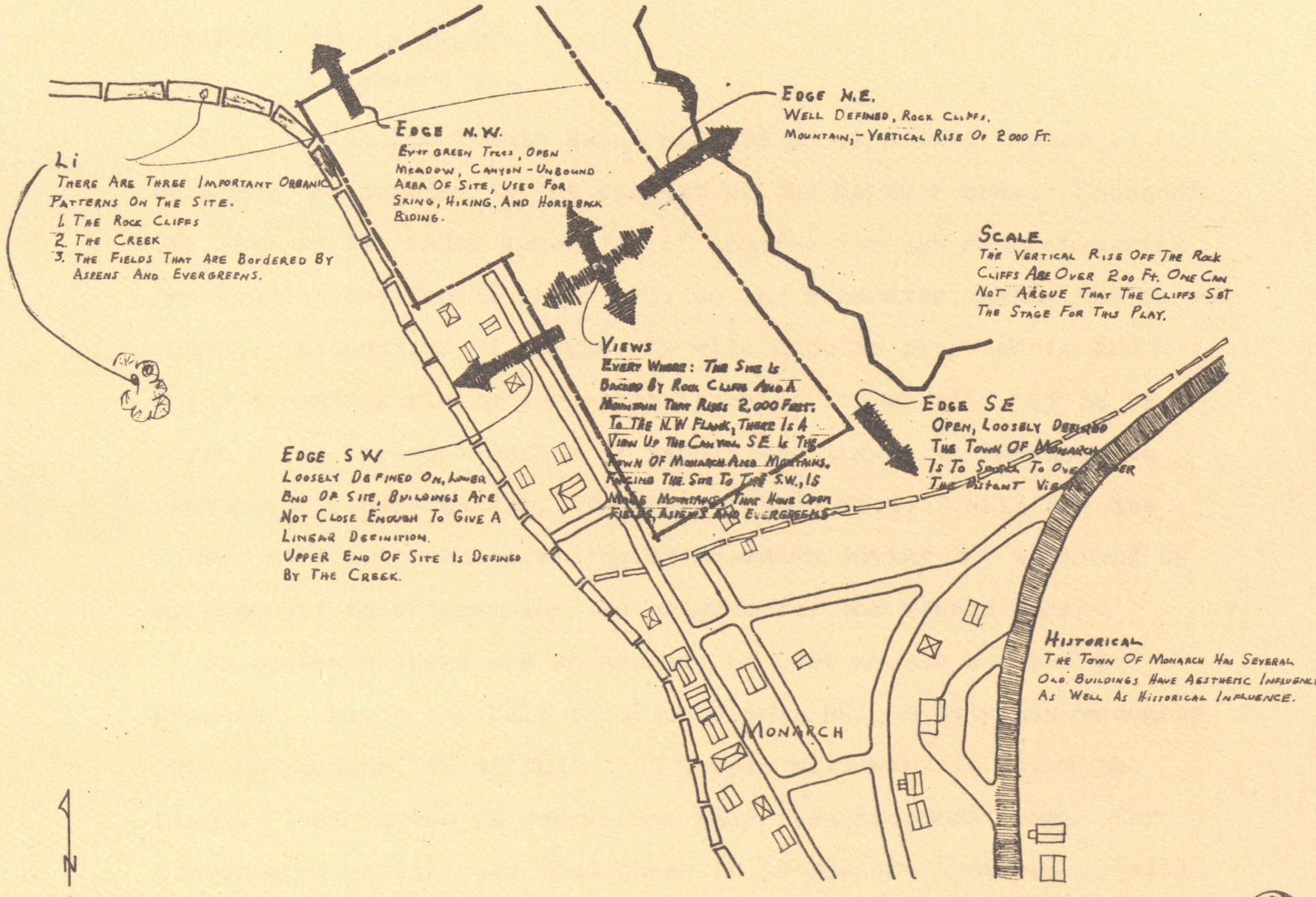
CONTEXT

MONARCH TENNIS RANCH



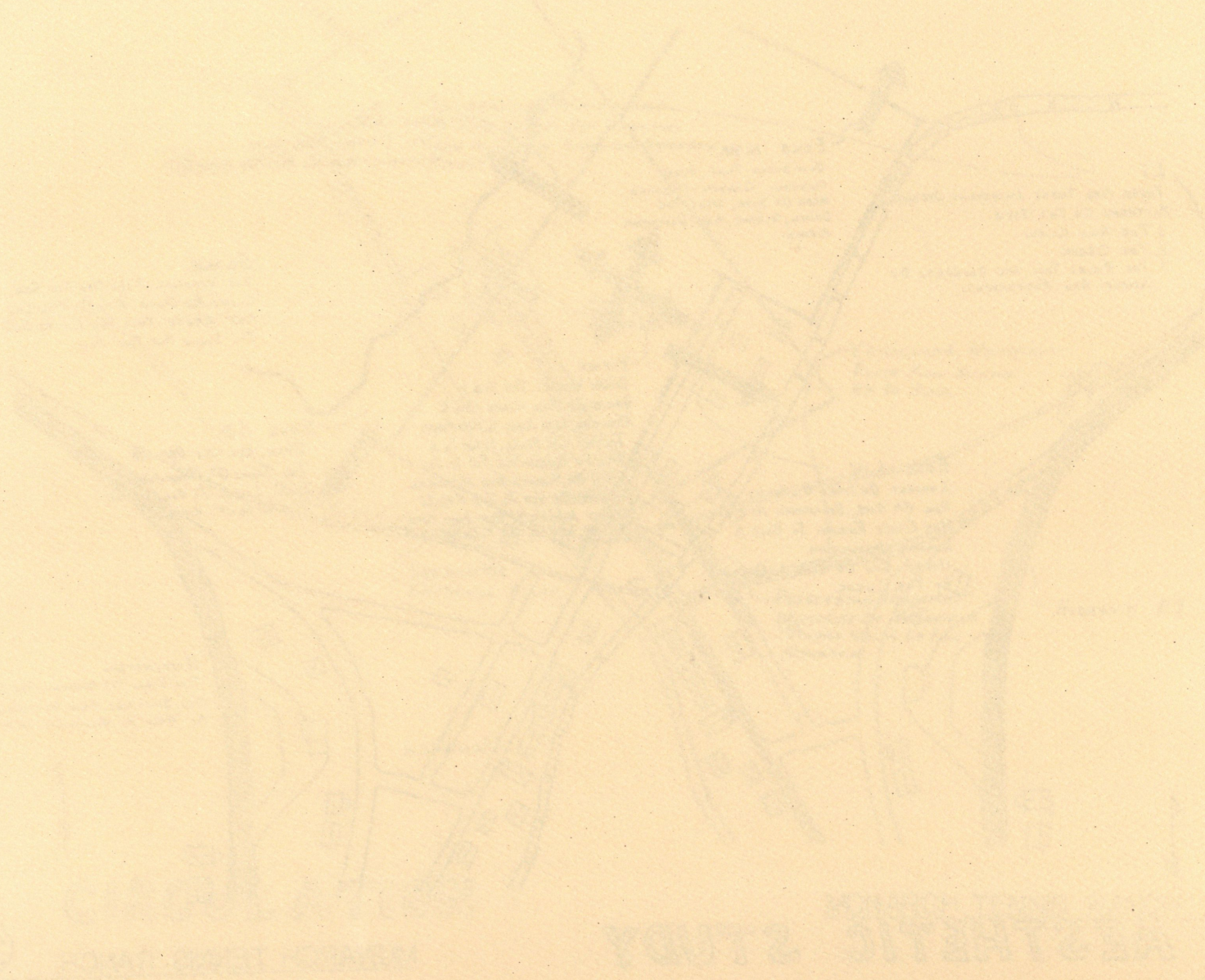
CIRCULATION

MONARCH TENNIS RANCH



AESTHETIC STUDY

MONARCH TENNIS RANCH



PROJECT: Tennis Ranch
Program

The size of the Tennis Ranch will be an important factor in relating the complex to the context of the Monarch area. Showdown Ski Bowl is the major generator of traffic through Monarch during the winter; the Tennis Ranch will be the generator during the warmer months. The number of people who will come to play tennis and enjoy horseback riding during these warmer times will not be as large as the present influx of people who travel to Showdown to venture in alpine skiing. Because of this fact, I will use the number of people who go skiing at Showdown during the week-end as my argument in determining the program for the Tennis Ranch.

On weekends there are an average of 1400 people who ski at Showdown. Let's say half of these people ski on Saturday--roughly 700--and assume 10% of these 700 people will want to spend the night. That leaves 70 people who will need accomodations. For convenience we will say that these 70 people are couples. I will need at least 35 sleeping accomodations. This figure will be my

guide in determining the area requirements for the program.

SPACE REQUIREMENTS

LODGE

Space	Description	Quantity	Sq. Ft.
Anteroom		1	100
Function:	Entrance point leading to the heart of the Lodge.		
Environmental needs:	Double doors for climatic control, maximun natural light and 30 foot-candles of artificial light.		
Circulation:	Active traffic flow.		
Security:	Open all hours with receptionist on duty.		
Related Spaces:	Lodge, Bar, Tennis Courts, Dining Room, Game Room, Registration Desk, Rest Rooms, Outdoor Activities.		
Registration Desk and Office		1	100
Function:	Registration of guests, bookkeeping.		
Equipment:	Counter, files, desk and chair, switchboard.		

SPACE REQUIREMENTS

LODGE

Space	Description	Quantity	Sq. Ft.
Registration Desk and Office (continued)			
Environmental needs:	Manager's office should be free of noise from the lobby; Lighting requirements are 100 foot-candles of artificial light.		
Security:	Manager's office will be secured after hours.		
Related Spaces:	Anteroom, Lounge.		
Lounge		1	1200
Function:	Relaxing and observing surrounding activities.		
Quality of space:	Ceiling height should accomodate informal and spacious atmosphere.		
Equipment:	Comfortable seating, large fireplace, writing tables.		

SPACE REQUIREMENTS

LODGE

Space	Description	Quantity	Sq. Ft.
Lounge (continued)			
Environmental needs:	Fireplace will supplement the central heating system; lighting requirements are 10 foot-candles for the general area and 30 foot-candles for the reading area.		
Circulation:	Informal circulation to allow for meandering of guests.		
Capacity:	60 people, 20 sq. feet per person.*		
Related Spaces:	Anteroom, Bar, Tennis court,, Locker room, Dining room, Game room, Registration desk,,Rest rooms.		
Game Room		1	1000
Function:	To provide indoor recreation activities.		

*William Tabler, Places For People, McGraw-Hill Book Company, New York, NY, 1976, page 75

SPACE REQUIREMENTS

LODGE

Space	Description	Quantity	Sq. Ft.
Game Room (continued)			
Quality of Space:	Allowable space for freedom of activity and expression.		
Equipment:	Ping pong tables,pool tables,		
Environmental needs:	Lighting requirements are 50 foot-candles; noise level should be controlled from other areas of the Lodge; ventilation requirements are 200 cfm of fresh air.		
Security:	Secure after bar hours.		
Capacity:	20 people		
Related Spaces:	Lounge, Rest rooms, Tennis court, Nursery.		
Nursery		1	200
Function:	Child care.		
Quality of space:	Allowable space for freedom of activity and expression.		

SPACE REQUIREMENTS

LODGE

Space	Description	Quantity	Sq.Ft.
Nursery (continued)			
Equipment:	Toys, writing desks, book shelves, storage area.		
Environmental needs:	Lighting required is 30 foot-candles; noise level should be controlled from other areas of the Lodge.		
Security:	Secured at night.		
Capacity:	10 children.		
Related Spaces:	Game room, Restrooms, Tennis court,		
Tennis Court		1	7200
Function:	Could be used as a multi-purpose room for volleyball, badminton, dancing, etc.		
Environmental needs:	Lighting requirements are 50 foot-candles; noise level should be controlled from other areas of the Lodge; ventilation is 20 cfm of fresh air.		

SPACE REQUIREMENTS

LODGE

Space	Description	Quantity	Sq. Ft.
Tennis Court (continued)			
Security:	Secure after bar hours.		
Related Spaces:	Lounge, Locker rooms, Game room, Nursery, Rest rooms.		
Locker Room, Men and Women		2	1244
Function:	Shower and toilet facilities.		
Equipment:	Men -- 2 waterclosets, 2 lavatories, 2 urinals, mirror. Women -- 3 waterclosets, 2 lavatories, powder table and chair, mirror. Both -- showers and sauna.		
Environmental needs:	Lighting requirements, general area are 10 foot-candles; mirror, 30 foot-candles. Ventilation, exhaust, 2 cfm per sq. foot of floor.		
Related Spaces:	Tennis court, Game room, Swimming Pool.		

SPACE REQUIREMENTS

LODGE

Space	Description	Quantity	Sq. Ft.
Bar		1	1200
Function:	Social entertainment.		
Quality of Space:	Adequate space for social intercourse and nooks for relaxation. A high quality of construction and design to attract people from the community, for liquor sales are a high-profit item.		
Equipment:	Bar, Back-bar, Stools, Tables and chairs, Band and dancing space.		
Environmental needs:	Possible fireplace; Lighting qualities vary from a subdued environment of 3 foot-candles to a leisure environment of 30 foot-candles. Ventilation should be 40 cfm per person.		
Security:	Secured after 2:00 a.m. Front door within view of Registration Desk.		

SPACE REQUIREMENTS

LODGE

Space	Description	Quantity	Sq. Ft.
Bar (continued)			
Capacity:	60 people, 20 sq. feet per person.*		
Related Spaces:	Dining Room, Lounge, Rest Rooms.		
Public Rest Rooms		1 Men 1 Women	150 180
Equipment:	Men -- 2 waterclosets, 2 lavatories, 2 urinals, mirror. Women -- 3 waterclosets, 2 lavatories, powder table and chair, mirror.		
Environmental needs:	Lighting requirements in general area are 10 foot-candles, at mirror there are 30 foot-candles. Ventilation--exhaust, 2 cfm per sq. foot of floor.		
Security:	Accessible from all areas.		
Related Spaces:	Lounge, Bar, Dining Room.		

*Ibid.

SPACE REQUIREMENTS

LODGE

Space	Description	Quantity	Sq. Ft.
Dining Room		1	1000
Function:	Table service of meals and snacks.		
Quality of Space:	High quality of construction and design to attract people from the community.		
Equipment:	Tables, Chairs, Service centers, Cashier stand.		
Environmental needs:	Lighting requirements are 50 foot-candles for the dining area and 50 foot-candles for the cashier area. Area should be quiet enough to allow conversation but not so quiet that each conversation can be overheard. Ventilation should be 15 cfm per person.		
Circulation:	Adequate space for waiters and customers to get to tables.		
Security:	Secured after hours. Front door within view of Registration Desk.		

SPACE REQUIREMENTS

LODGE

Space	Description	Quantity	Sq. Ft.
Dining Room (continued)			
Capacity:	50 people, 20 sq. feet per person.*		
Related Spaces:	Bar, Lounge, Rest Rooms, Kitchen.		
Employee's Lounge		1	200
Function:	Eating, break and rest room area.		
Equipment:	Table, chairs, couch, watercloset, lavatory, mirror.		
Security:	No exit to outside for control of pilfering.		
Related Spaces:	Kitchen,		
Kitchen		1	900
Function:	Preparation of food.		
Quality of Space:	Bright, clean, and a pleasant working atmosphere.		

*Ibid.

SPACE REQUIREMENTS

LODGE

Space	Description	Quantity	Sq. Ft.
Kitchen (continued)			
Equipment:	Walk-in refrigerator, Dishwashers, sinks, counters, shelves, refrigerator, walk-in freezer, dry food storage area.		
Environmental needs:	Lighting should be 100 foot-candles; Noise of food preparation should be controlled from dining area; Ventilation should be 4 cfm per sq. foot of floor area.		
Circualtion:	Adequate work area and access to receiving area.		
Security:	Designed for control of pilfering, and secured after hours.		
Related Spaces:	Receiving area, Employee's Lounge, Dining Room, Chef's Office.		
Chef's Office		1	80
Function:	Ordering and record keeping of kitchen supplies; overseeing of food preparation.		

SPACE REQUIREMENTS

LODGE

Space	Description	Quantity	Sq. Ft.
Chef's Office (continued)			
Equipment:	Desk, chair, files.		
Security:	Should be located near kitchen exit for control of pilfering.		
Related Spaces:	Kitchen, Receiving Area.		
Receiving Area		1	300
Function:	Receiving delivery of supplies.		
Security:	Secured after hours, within view of Chef's Office.		
Related Spaces:	Outside dock, Chef's Office, Kitchen, and other areas of the building.		
Mechanical Room		1	800
Function:	All heating, plumbing, electrical and air conditioning equipment.		
Related Spaces:	Outside entrance, Janitor and maintenance areas.		
Maintenance	Maintenance and janitor rooms will be provided where necessary.		

SPACE REQUIREMENTS

LODGE

Space	Description	Quantity	Sq. Ft.
TOTAL			15,854
Add 20 percent for Construction, Circulation and Utilities			3171
TOTAL BUILDING AREA			19,025

GUEST UNITS

Function:	Sleeping and living quarters.
Quality of Space:	A simple and comfortable atmosphere.
Equipment:	Double bed, single beds, waterclosets, lavatory, shower, nightstands, chairs, desk, dresser, air conditioner, clothes rack.
Environmental needs:	Air conditioning and ventilation to be controlled by occupant; Lighting for general areas is 20 foot-candles, for reading and working areas is 30 foot-candles.

SPACE REQUIREMENTS

GUEST UNITS

Space	Description		Quantity	Sq. Ft.
Circulation:	Paths and walkways from guest units to other activities.			
Security:	Locked when not in use. Units will not be totally isolated.			
Capacity:	1-bedroom	1 to 2 people	16	4800
	2-bedroom	2 to 4 people	8	3200
Related Spaces:	Nature, Outdoor Tennis Courts, Parking, Other Units.			
TOTAL AREA OF UNITS				8000

HOSTEL

Function:	Overnight sleeping and inexpensive lodging and catering to groups.
Quality of Space:	Simple and comfortable atmosphere.
Equipment:	30 single beds, 30 storage closets, 3 waterclosets, 2 urinals, 4 lavatories, 2 mirrors, 4 shower units.

SPACE REQUIREMENTS

HOSTEL

Space	Description	Quantity	Sq. Ft.
Environmental needs:	Lighting requirements are 30 foot-candles; Ventilation is 30 cfm per person.		
Circulation:	Paths that link Hostel with other activities.		
Security:	Key to roll-up beds and storage closets must be checked out at the Registration Desk.		
Capacity:	30 people	1	900
Related Spaces:	Nature, Outdoor Tennis Courts, Parking, Other Units, Pro Shop.		
TOTAL			900
Add 20% for Construction, Circulation and Utilities			180
TOTAL HOSTEL AREA			1080

MANAGER'S QUARTERS

Function:	Residence of manager of Tennis Ranch.

SPACE REQUIREMENTS

MANAGER'S QUARTERS

Space	Description	Quantity	Sq. Ft.
Equipment:	Normal household furniture and equipment.		
Environmental needs:	Air conditioning and ventilation to be controlled by occupants; Lighting for general areas is 20 foot-candles, for reading and working areas is 30 foot-candles.		
Circulation:	Paths linking unit with other activities.		
Capacity:	1 to 4 people	1	1200
Related Spaces:	Lodge, Parking,		
TOTAL			1200

EMPLOYEES' QUARTERS

Function:	To provide residence for employees.
Quality of Space:	Simple and comfortable atmosphere.

SPACE REQUIREMENTS

EMPLOYEES' QUARTERS

Space	Description	Quantity	Sq. Ft.
Equipment:	Double bed, single bed, waterclosets, lavatory, shower, nightstands, chairs, desk, dresser, air conditioner, clothes rack.		
Environmental needs:	Air conditioning and ventilation to be controlled by occupant; Lighting for general areas is 20 foot-candles, for reading and working areas is 30 foot-candles.		
Circulation:	Paths linked to other activities.		
Security:	Locked when not in use. Employees will have key.		
Capacity:	1-bedroom	3	900
	2-bedroom	2	800
Related Spaces:	Lodge, Parking.		
TOTAL			1700

SPACE REQUIREMENTS

PRO SHOP

Space	Description	Quantity	Sq. Ft.
Function:	Selling and renting of recreation equipment.		
Quality of Space:	Space that reflects outdoor activities.		
Equipment:	Counters, desks, files, shelves, working areas, and display area.		
Environmental needs:	Lighting is 100 foot-candles; Ventilation is 10 cfm per person.		
Circulation:	Spacious and comfortable for customers.		
Security:	Locked after hours.		
Capacity:	10 to 20 people.	1	400
Related Spaces:	Tennis Courts, Barn and corral, Parking.		
TOTAL			400

SPACE REQUIREMENTS

BARN

Space	Description	Quantity	Sq. Ft.
Function:	For shelter and care of horses; storage of feed and equipment.		
Equipment:	Feed bins,,shelves, saddle racks, equipment storage.		
Environmental needs:	No air-conditioning equipment required; Lighting fixtures where needed, natural lighting for each horse stall.		
Security:	Lock on barn and tack room door.		
Capacity:	12 horse stalls 24 horses		1000
	2 box stalls (12x12), circulation in open area.		1000
	Tack room	1	400
	Hay Mow	1	1500
TOTAL			3900

CORRAL

Function:	Display and control of horses.	
Equipment:	Hitching area and lean-to shelter.	
Capacity:	20 horses	2800

SPACE REQUIREMENTS

MAINTENANCE SHOP

Space	Description	Quantity	Sq. Ft.
Function:	Storage of vehicles, tool and equipment area for mechanical and building repairs, storage space for landscaping equipment.		
Equipment:	Power saw, sander, carpenter tools, garden tools, mechanic's tools, work benches, shelves and storage units.		
Environmental needs:	Lighting is 100 foot-candles and large doorways for natural light and ventilation.		
Security:	Locked after hours.		
Capacity:	Garage for 3 vehicles, Shop Storage area	1 1 1	800 1000 400
Related Spaces:	Barn, Parking, Laundry.		
TOTAL			2200

SPACE REQUIREMENTS

LAUNDRY

Space	Description	Quantity	Sq. Ft.
Function:	Washing linen, tablecloths, etc.		
Equipment:	Washing machines, Dryers, Pressing equipment.		
Environmental needs:	Exhaust openings to exterior; Natural lighting for pleasant working conditions, working areas are 100 foot-candles.		
Security:	Locked after hours.		
Capacity:	2 washers 2 people	1	460
Related Spaces:	Maintenance Shop, Guest Units, Lodge.		
TOTAL			460

Note: Source for area requirements are from Time Saver Standards.

AREAS NECESSARY TO THE SITE LAYOUT

Parking spaces @ 1.5 per unit	8170
Parking lot	4000
Tennis Courts	57600
Swimming Pool	800
Surrounding Deck	1000
TOTAL	71570 sq. feet

RECREATIONAL ACTIVITIES

Major	Minor
Tennis	Snowshoing, Hiking
Cross-country Skiing	Ice Skating
Horseback Riding	Volley Ball
Swimming	Sledding

STAFF

1	Manager
3	Kitchen personnel
1	Receptionist
1	Tennis Pro (during the summer months)
2	Ranch hands
2	Janitors , Maintenance
1	Bartender
2	Waitresses
1	Clerk

COSTS

BUILDING	AREA (Sq. Ft.)	COST (Sq. Ft.)*	COST/BUILDING
Lodge	19,025	$41.55	$790,489
Guest	8,000	24.90	199,200
Hostel	1,080	19.05	20,574
Managers	1,200	25.95	31,140
Employees	1,700	24.90	42,330
Pro Shop	400	23.95	9,580
Barn	3,900	16.00	62,400
Corral	2,800	10.00	28,000
Maintenance	2,200	27.40	60,280
Laundry	460	27.40	12,604
Furnishings (15% of total)			183,989
TOTAL			1,410,585
+ 15% for Architectural and Contingencies			211,158
TOTAL BUILDING COST			$1,621,743

*Robert Means, Building System Cost Guide, Construction Consultants, Pub., 1980, pages 332-339.

COST

Site Improvements	Area	Cost (Sq.Ft.)*	Cost
Tennis Courts	57,600	$6.00	$345,600
Swimming Pool	800	7.00	5,600
Pool Deck	1,000	6.00	6,000
Parking Lot	(20 Stalls at 298.25 per stall)*		5,965
Guest Parking	(45 Stalls at 100.00 per stall)		4,500
Water System			120,000
Sewage System			140,000
Power Distribution			8,000
Plants and Seeding (Landscaping)			15,000
TOTAL			$650,665
ESTIMATED TOTAL COST OF PROJECT			$2,272,408

*Ibid.

FEASIBILITY

Cost/sq. ft. x Rm./sq. ft. = Rm. cost x 2/1000 = Rm. Rate*

$24.90 x 400sq.ft.= 9,960; 9,960 x 2 = 19,920; 19,920/1000 = 19.92

Room Rate = $19.92

TIME REGUIREMENTS

Mortgage package	1 to 2 Months
Preliminaries	1 to 2 Months
Working Drawings	2 to 4 Months
Construction	
Survey	1 Months
Earth Work (excavation)	3 to 5 Months
Foundation	1 to 3 Months
Framing	3 to 4 Months
Utilities	2 to 4 Months
Mechanical	1 to 3 Months
Site Work and Interior Trim	2 to 4 Months
Completion Time	1 to 2 Years

*William Tabler, Places For People, McGraw-Hill Book Company, New York NY., 1976, page 75.

FUNDING SOURCES

One new financing scheme is the condominium hotel. This scheme, explained by William Tabler in the book Places For People, is a new technique used by developers and is common in resort areas. This system of condominium hotels drastically reduces both equity money needed by the developer, and the mortgage -- individual rooms in a hotel are sold each to a different owner. He has the use of the room when he wishes, and on other occasions it is rented by the hotel manager to guests.

This scheme will benefit the town of Monarch by encouraging local residents to become involved with the Tennis Ranch and a chance to get a piece of the action.

ENVIRONMENTAL IMPACT

The entire site for the Tennis Ranch would be on the land that is owned by Arthur Strain and Forest Service property. Because of the area's natural beauty, the construction of the main complex will

be limited to the site location adjacent to the town of Monarch. This will eliminate vehicular traffic beyond the main complex of the Tennis Ranch. The traffic in the back country will be limited to horseback riding, hiking, cross-country skiing, and Arthur Strain's personal use. Fishing and hunting will not be allowed on the Tennis Ranch. These activities can take place in the surrounding areas of the Tennis Ranch. These actions will hopefully place little or no impact on the wildlife in the area.

The impact of the Tennis Ranch on Monarch will not be that significant in the sense of a population increase or vehicle influx. Monarch has always been a place vibrant with activity. Located only forty three miles southeast of Great Falls, it has been a primary stopping point for skiers, hikers, hunters, fishermen, and tourists passing through. There are many cabins located near Monarch that dot the landscape adjacent to Highway 89. Just recently two silver mining operations have reopened in the nearby areas

of Hughesville and Neihart, bringing with them more capital and more people to this area.

Monarch is not a dying town that is inhabited only by retired people. Although the growth has been limited to vacation homes near by, there are many young and middle-aged people who live here. The idea of establishing some kind of a resort in Monarch is not new; the owner of the Cub's Den Bar in Monarch has been considering buying or leasing some land from Arthur Strain to build a golf course for Monarch.

Building Codes

Requirements are those set forth in the Uniform Building Code.

Requirements based on occupancy

Occupancy	Group (Table 5-a)	Separation (Table 5-B)	Live Loads (Table 23-A)
In-door Tennis	A-4	1 hr. between R- 1	40lbs/sgft.
Lodge & Hostel	R-1	1 hr. between A-4	40lbs/sqft.
Manager & Employer	R-3	none	40lbs/sqft.
Barn	M^2	1 hr. between H-2	125lbs/sqft.
Shop	H-2	1 hr. between M^2	100lbs/sqft.
Office	B-2	1 hr. between R-1	50lbs/sqft.
Storage	B-4	1 hr. between R-1	125lbs/sqft.

Allowable floor areas (for one story buildings) Occupancy Group R-1

	Types Of Construction								
	I FR	II FR	II 1 HR	II N	III 1 HR	III N	IV HT	V 1 HR	V N
A	UNLM	29,900	13,500	9,100	13,500	9,100	13,500	10,500	6,000
B	UNLM	59,800	27,000	18,200	27,000	18,200	27,000	21,000	12,000

Total area of proposed building: 12,800sq.ft.
A--- Basic Allowable Area
B--- Increase for fire extinguishing system (2x)

Building Codes (cont.)

Special Provisions: Group R Occupancies more than two stories in height or having more than 3,000 sq. ft. of floor area above the first floor, shall be not less than one-hour fire-resistive construction throughout.

Areas of buildings over one story; The total area of all floors of multistory buildings shall not exceed twice the area allowed for one-story buildings. No single floor area shall exceed that permitted for one-story buildings.

Hotels containing 20 or more quest rooms, shall have an approved fire alarm system as specified in the Fire Code.

Location on Property: Buildings shall adjoin or have access to a public space, yard, or street on not less than one side. (Group R-1 Occupancy)

Access to Buildings: Buildings containing more than 20 quest rooms shall be accessible to the phyically handicapped by a level entry, ramp or elevator.

Stairs, Exits, and Circulation

Use	Area	Sqft./Occ.	No. Occ.	Min. Exits
Lodge	13,000	200	100	2
In-door Court	7,500	15	20	2
Shop	4,000	200	10	2
Hostel	8,000	200	30	2

Floor area: Every unit shall have at least one room which shall not have less than 150 sqft. of floor area.

Building Codes (cont.)

Ceiling Height: Ceiling height not less than 7'-6". But kitchen, halls, bathrooms, may have not less than 7'-0".

Width: No habitable room other than kitchen shall be less than 7 feet in any dimension.

Exits: If only two exits are used they shall be placed a distance apart equal to not less than one-half of the length of the maximum overall diagonal dimension of the building or area to be served measured in a straight line between exits. Where three or more exits are used, they shall be arranged a reasonable distance apart so that if one becomes blocked, the others will be available.

Exit Corridors: Width: 44"
Dead End: not to exceed 20'
Fire Resistance: 1 hour

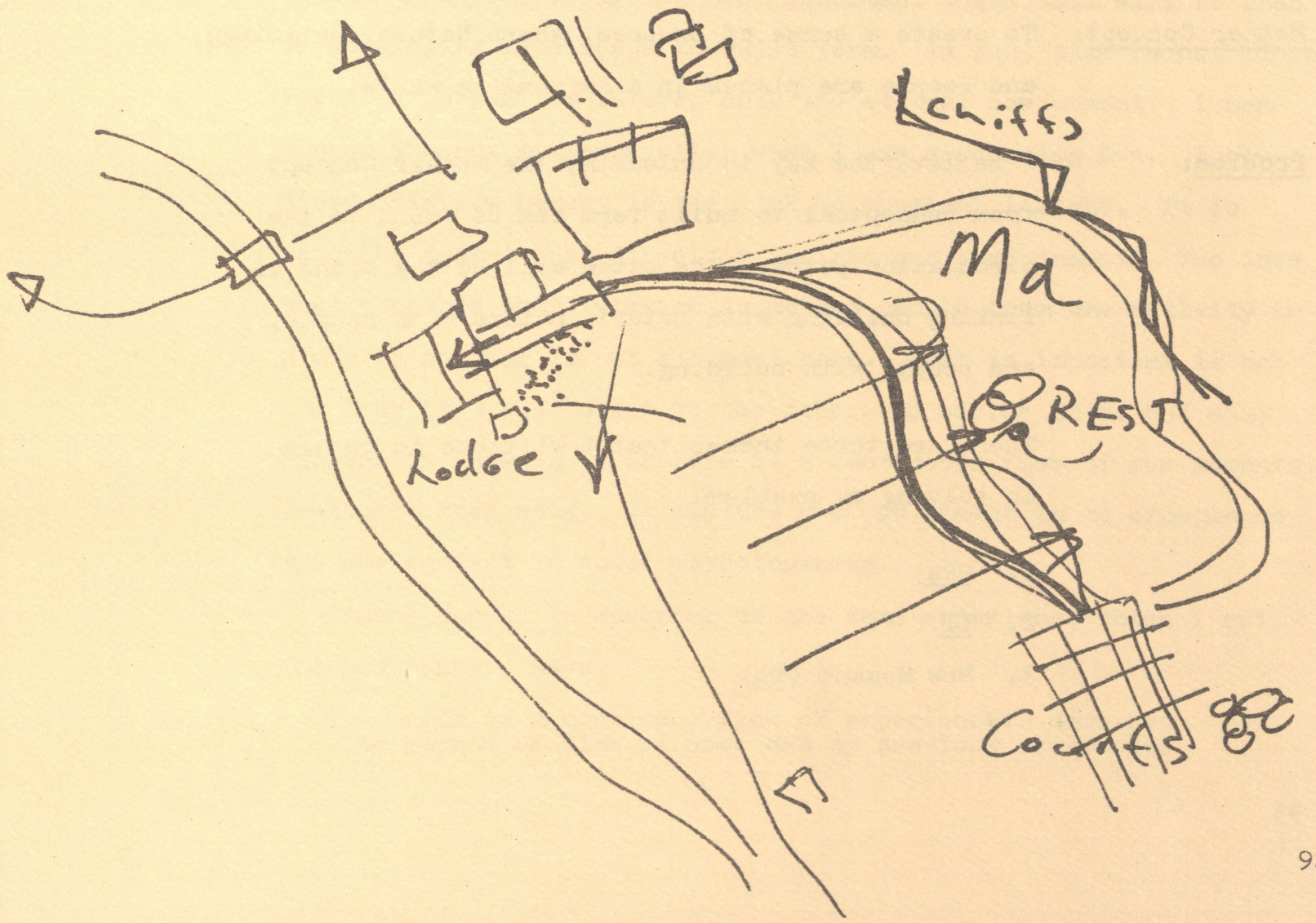
Exit Doors: Width and Height: not less than 3'-0" X 6'-8"
Swing: 90 degrees in direction of exiting

Distance to exits shall not exceed 150 ft. or 200 ft. in a building equipped with an automatic fire-extinguishing system throughout.

Stairways: Width: 44"
Rise: not less than 7.5"
Run: not less than 10"
Landings: Min.-44"X88"
Exit Enclosure: 1 hour

PROJECT: Tennis Ranch

Conceptual Development



Project

TENNIS RANCH, MONARCH, MONTANA

Mother Concept: To create a sense of oneness, where Nature, Building, and People are placed in a harmonious whole.

Problem: I believe the key to unlocking the Mother Concept from conceptual to built form can be found in the circulation paths. The paths will be the means of linking building with nature, nature with people, and people with building.

There are three themes that I will use as guides in solving my problem:

1. Oku
2. Li
3. Now Moment (Ma)

NOW MOMENT (Space-time concept of Ma)

The "now moment" is the most important theme that will be used in developing my concept to built form. In Zen, time is not linear. There is no past or future, only the eternal now moment. I mentioned the now moment earlier when I was discussing Zen. I believe this now moment is the link to mystical insight. It is this now moment that dissolves us into our environment. The idea that a path's only function is to get people from one activity or place to another is not the goal here. What is important is not how long it takes to get to the other end of the path, but what happens in between. For life is a continuous flow of now moments. Instantly they come. To capture one now moment is to experience the environment in total consciousness.

Edmond Bacon, in speaking of the same experience which I call the now moment, says:

> Life is a continous flow of experience: each act or moment of time is preceded by previous experience

> and becomes the threshold for the experience to come. If we acknowledge that an objective of life is the achievement of a continuous flow of harmonious experiences--then the relationship of spaces to one another, as experienced over time, becomes a major design problem. When viewed in this way, architecture takes its place with the arts of poetry and music, in which no single part can be considered except in relation to what immediately precedes or follows it.*

This now moment deals with space-time unity. The Japanese have a word that describes the space-time unity: ma. "Ma is a conceptualization of both space and time and means, in spatial terms, the 'natural distance between two or more things existing in a continuity' or the 'space delineated by posts and screens (that is, rooms)' or, in termporal terms, 'the natural pause or interval between two or more phenomena occuring continuously.' (These definitions are translations from the Iwanami Dictionary of Ancient terms.) Ma organizes the process of movement from one place to another. The breathing and movement of people divide the space in which the people live. The stepping stones leading to a tea house determine the way one will walk over them. The ma-- that

---

*Edmund N. Bacon, Design of Cities, The Viking Press, New York, NY, 1967, page 19.

is the interval between the stones, determines the walker's breathing rhythm. In large gardens or long pathways the route is punctured at several points to allow people to stop and enjoy the scenic highlights."* This concept of ma can be experienced in a macroenvironment also. In Montana many highways that link towns are not freeways but rural highways that gracefully follow the contour of the land. There are small towns along the route that one must pass through to get to his destination. Each town has its own flavor and character. The towns give a feeling of security to the weary traveler. In contrast, the modern-day super freeway does not meander along hillsides and through small towns. It cuts through hills and passes by the colorful rest areas that are towns. A classic example is the freeway that links Flagstaff, Arizona to Phoenix, Arizona. It is freeway all the way. There are no resting stops of ma, no

---

*Arata Isozaki, Japanese Architecture,"The Japanese Concept of Space-Time", Feb. 1979, Pages 70, 73.

towns to catch the flavor of the country. The traveler becomes isolated and detatched from his surroundings.

LI

The organic pattern of li will also play a role in the master plan of my thesis. The pattern of the creek and of the cliffs to the north of the site will be my guide.

OKU

Oku is a concept that I will play around with in connection with the master plan. Oku is a term that can be translated as meaning "inner space." It is different from our Western concept of centering. Centering implies things or events that revolve or pivot around a central nucleus in a symmetrical pattern. The nucleus becomes the primary focus of the pattern. It may be enhanced by strong vertical expression. Oku is an inner space that may not be centered at all. The paths that lead to this inner space are the important part of the pattern, not the inner space. Fumihiko Maki illustrates the concept

of oku as having no climax in itself as the ultimate destination begins to unfold. One rather seeks drama and ritual in the process of approaching it. What matters is not absolute height or bulk, but the representation of reaching the goal. Many a path to a temple or shrine turn and twist. A slight difference in undulations or perhaps the existence of a tree offers ever-changing vistas. It is the construction of a spatial experience within a time parameter.*

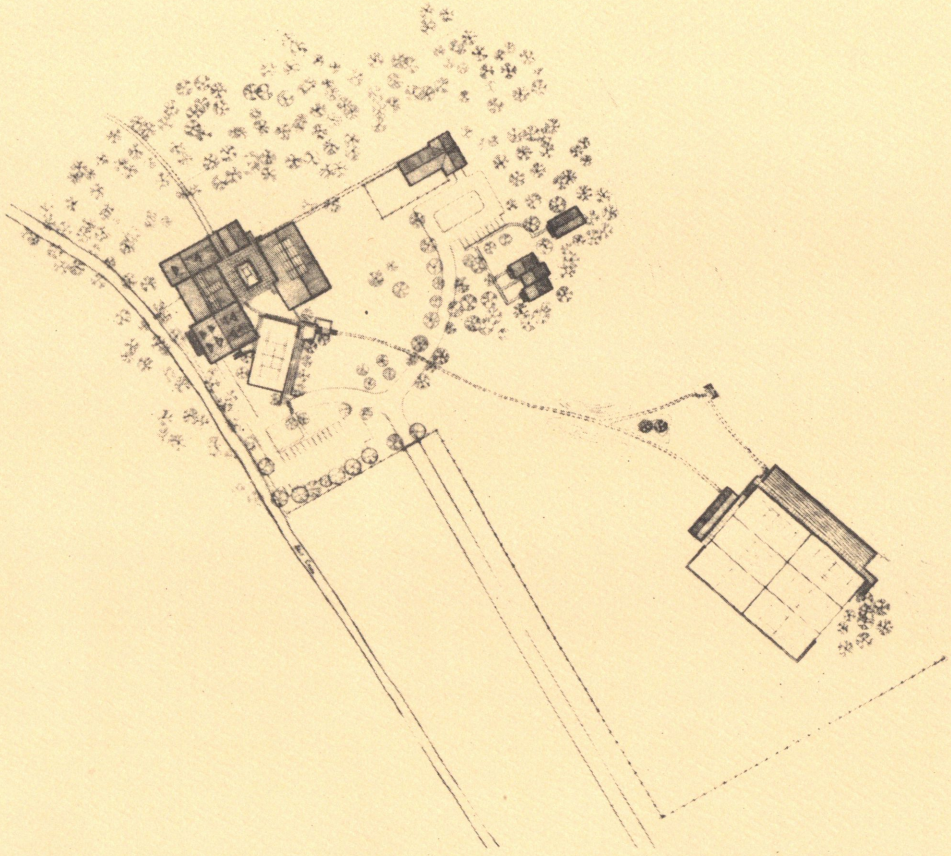
The inner space of oku need not be anything at all but open space. Oku says that a vacant lot in a city is not simply an underdeveloped spot, but rather a sacred taboo place, with a latent quality of inner space--oku.

---

*Fumihiko Maki, Japanese Architecture, "Japanese City Spaces and the Concept on oku", May, 1979, page 59.

PROJECT: Tennis Ranch

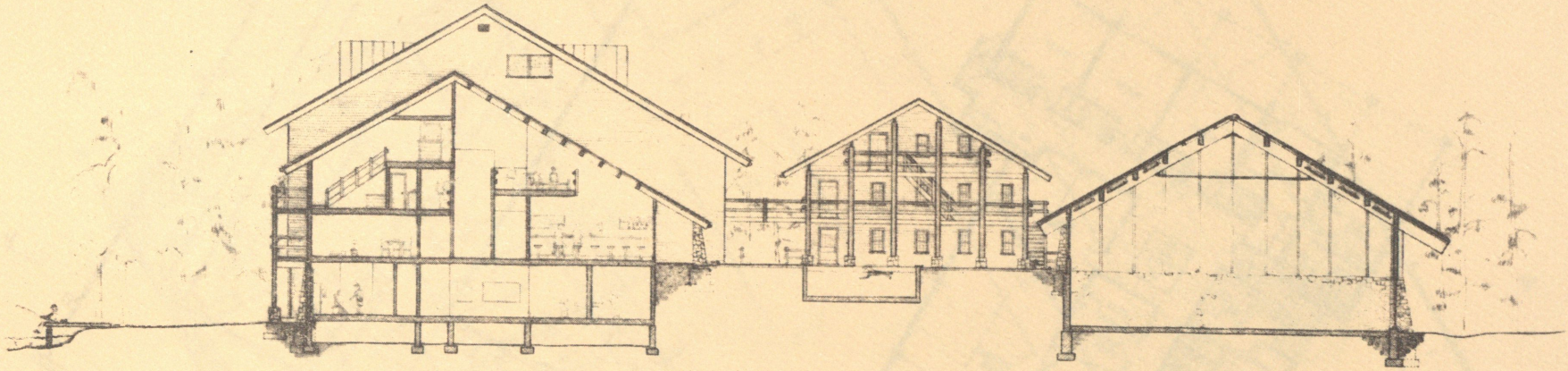
Drawings



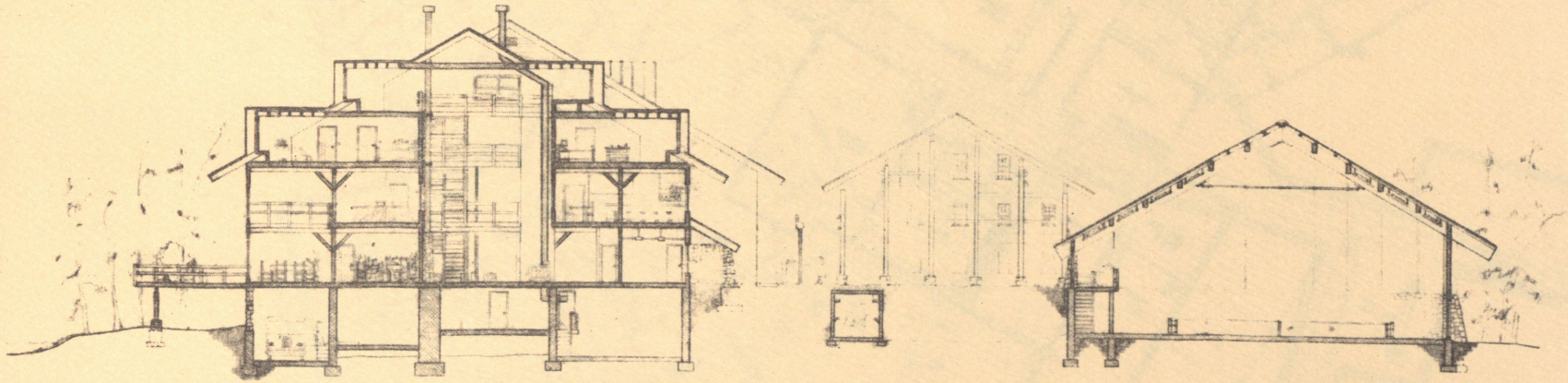
SITE PLAN

1" = 80'

MONARCH TENNIS RANCH

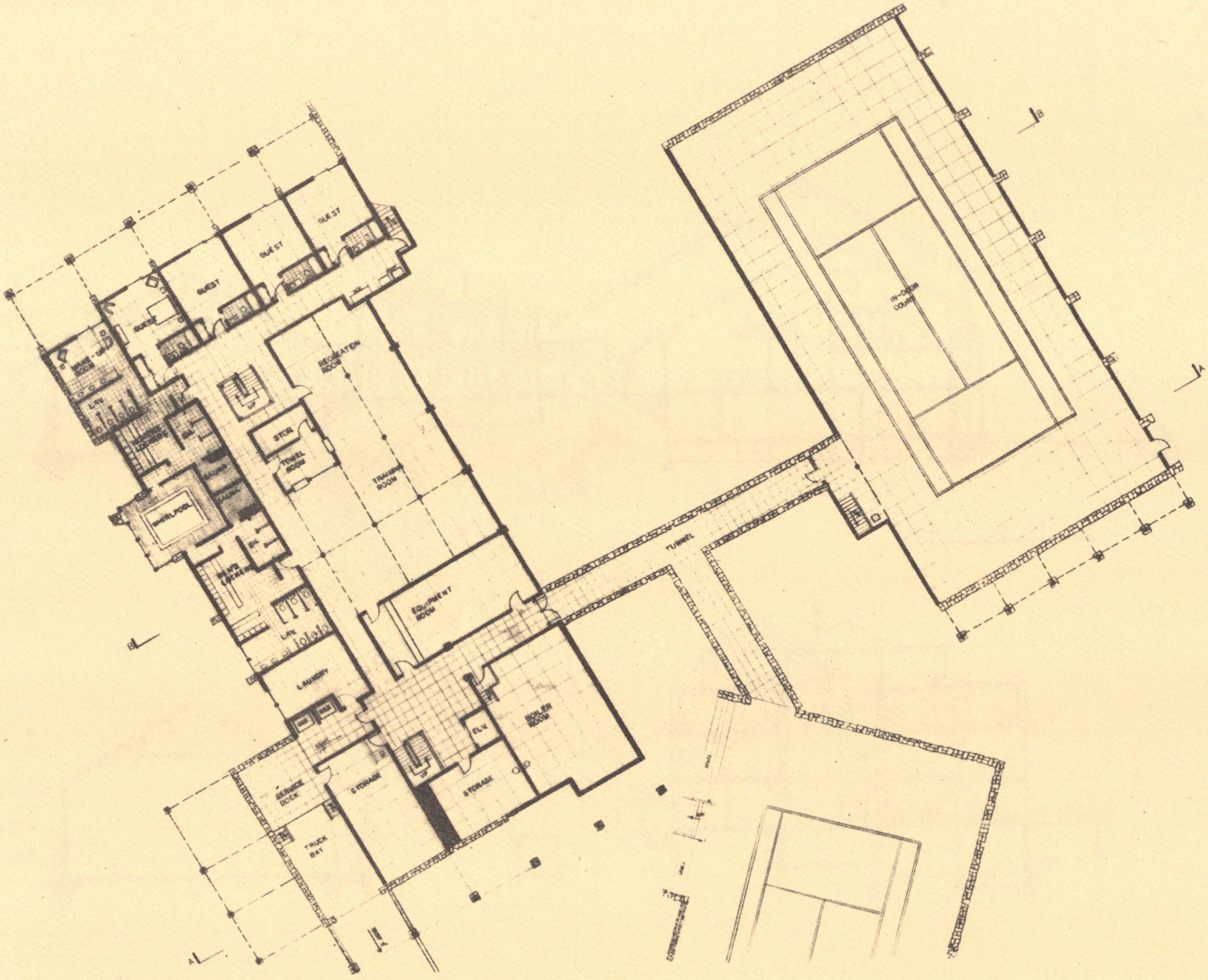


SECTION B-B



SECTION A-A

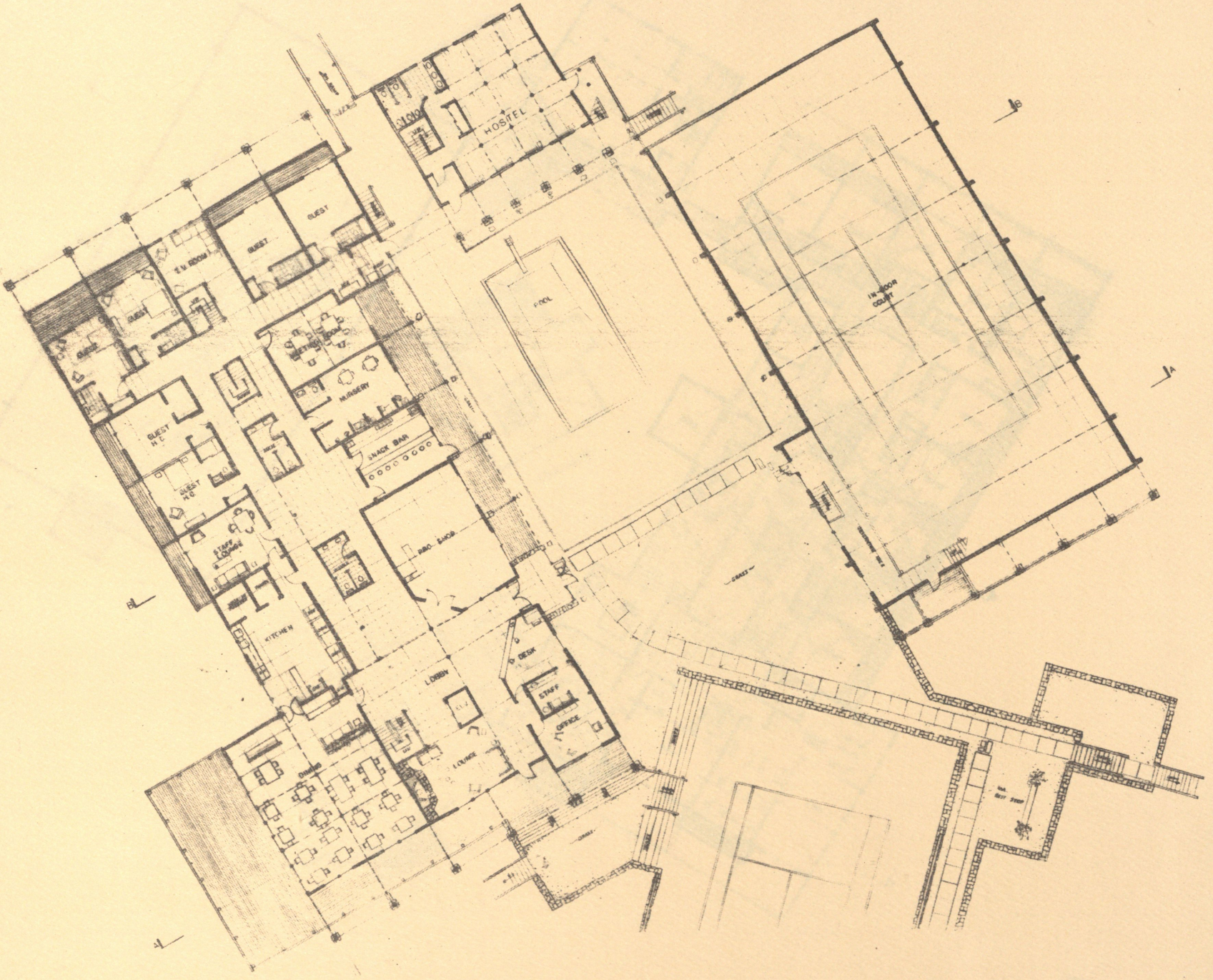
MONARCH TENNIS RANCH

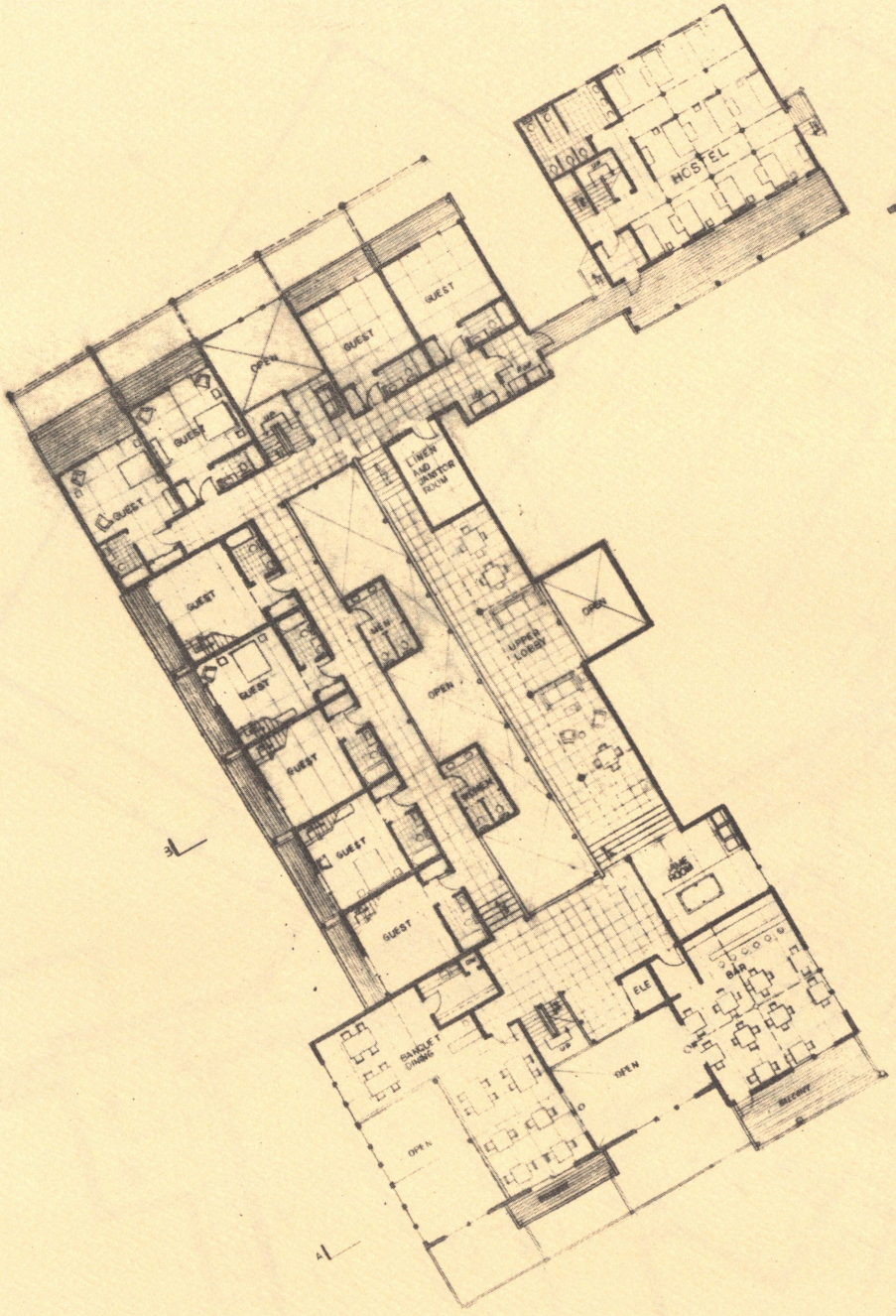


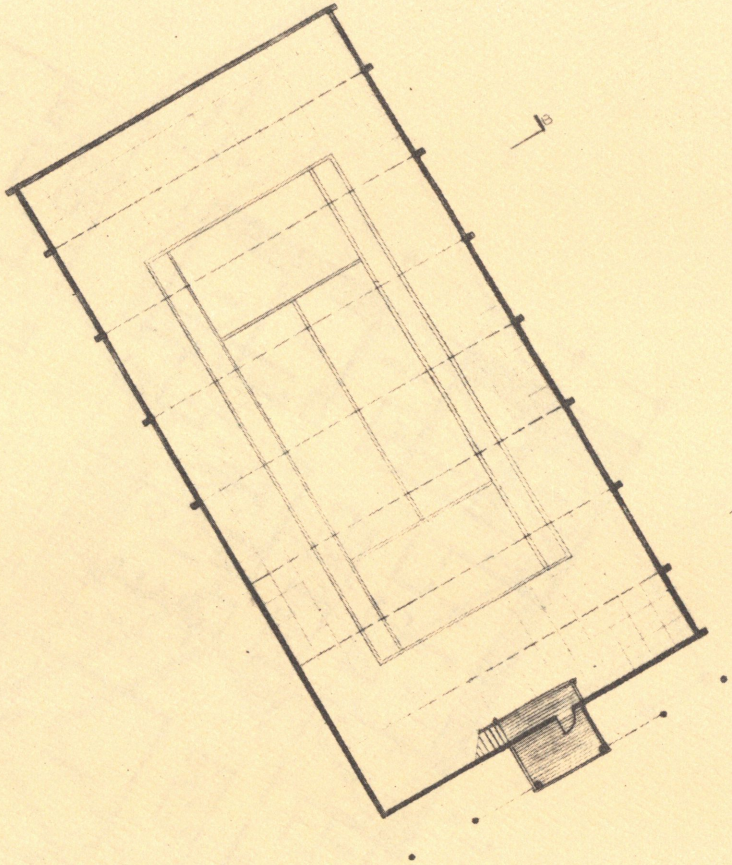
BASEMENT PLAN

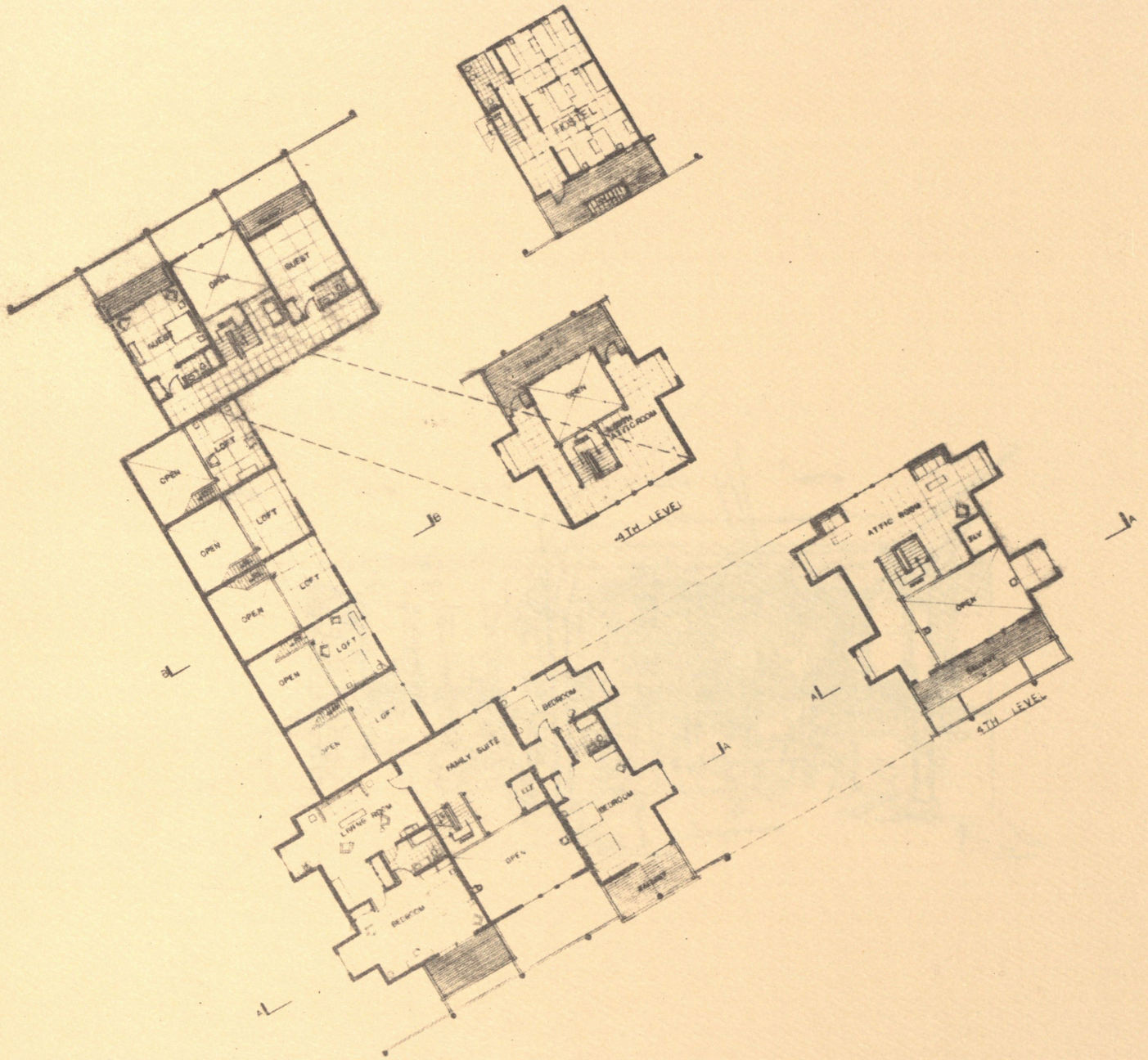
1/8" = 1'

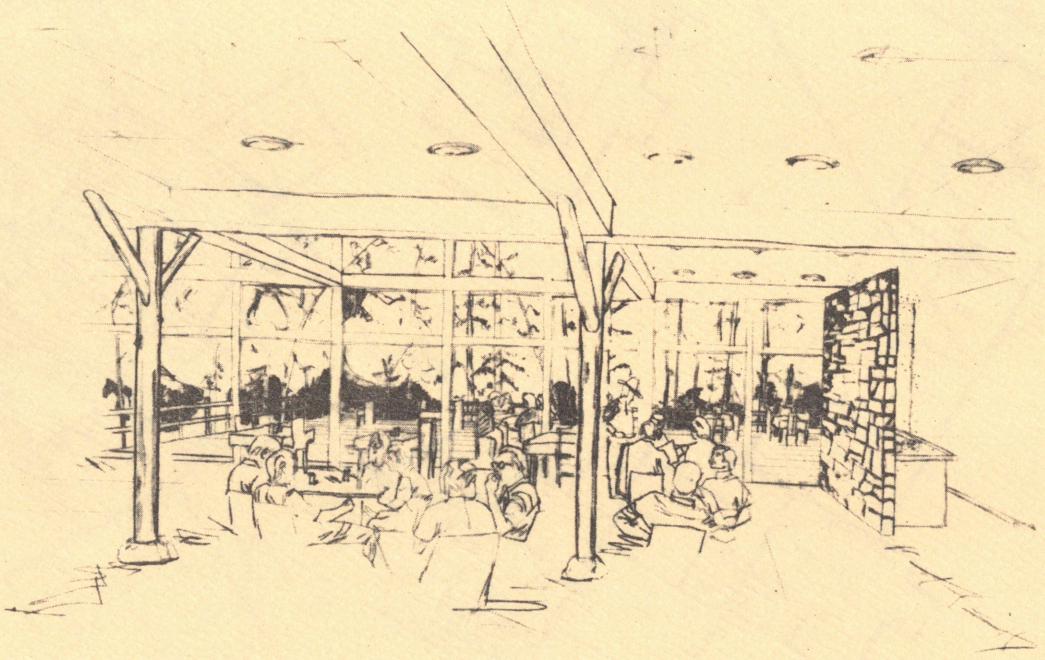
MONARCH TENNIS RANCH

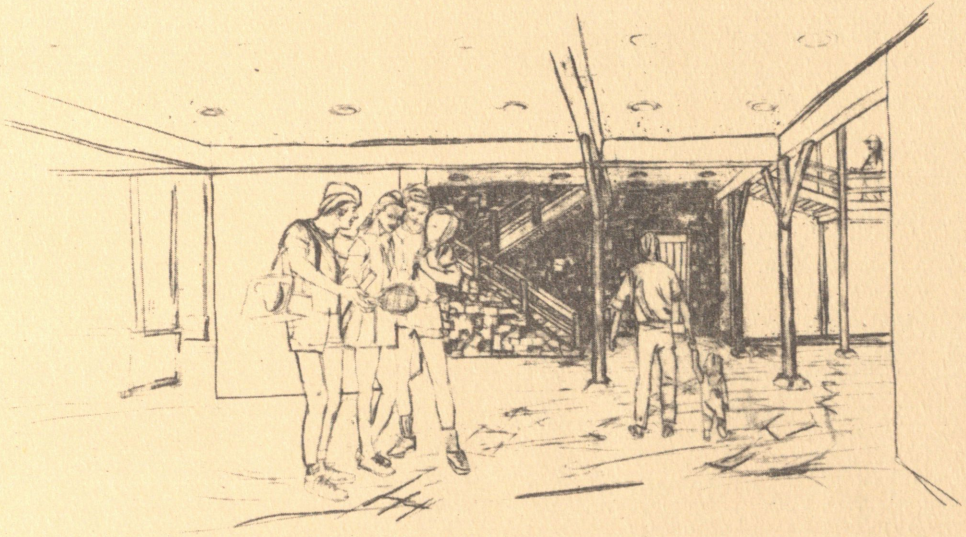

HOSTEL
POOL
IN-DOOR COURT
GUEST
GUEST
GUEST


HOSTEL
GUEST
GUEST
GUEST
OPEN
GUEST
GUEST
LINEN & JANITOR ROOM
GUEST
GUEST
GUEST
GUEST
GUEST
OPEN
UPPER LOBBY
OPEN
BAR
ELE
OPEN
OPEN
BALCONY



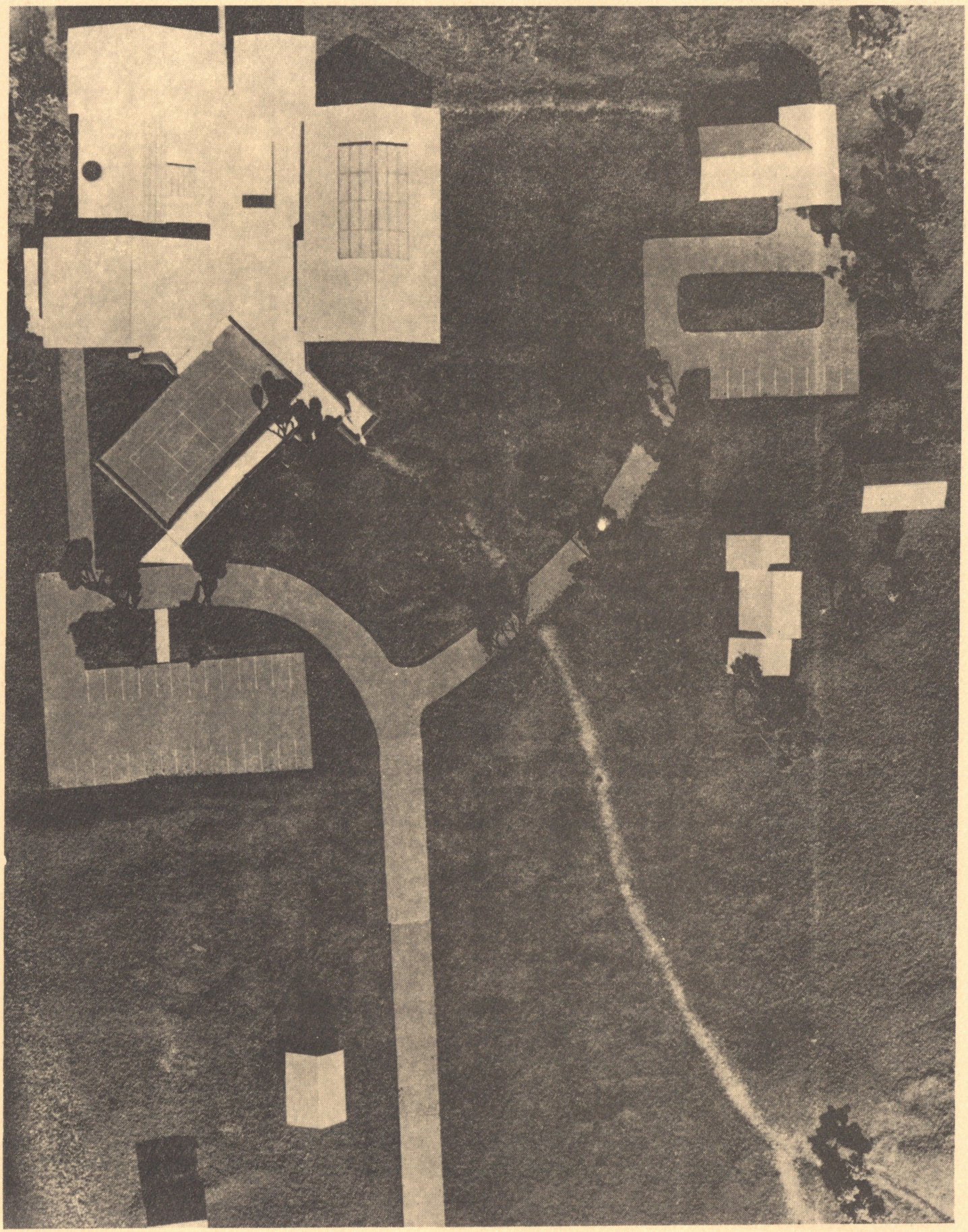

HOSTEL
GUEST
OPEN
LOFT
OPEN
LOFT
OPEN
LOFT
OPEN
LOFT
OPEN
LOFT
FAMILY SUITE
BEDROOM
LIVING ROOM
OPEN
BEDROOM
LOFT
BEDROOM
OPEN
ATTIC ROOM
OPEN
4TH LEVEL
4TH LEVEL



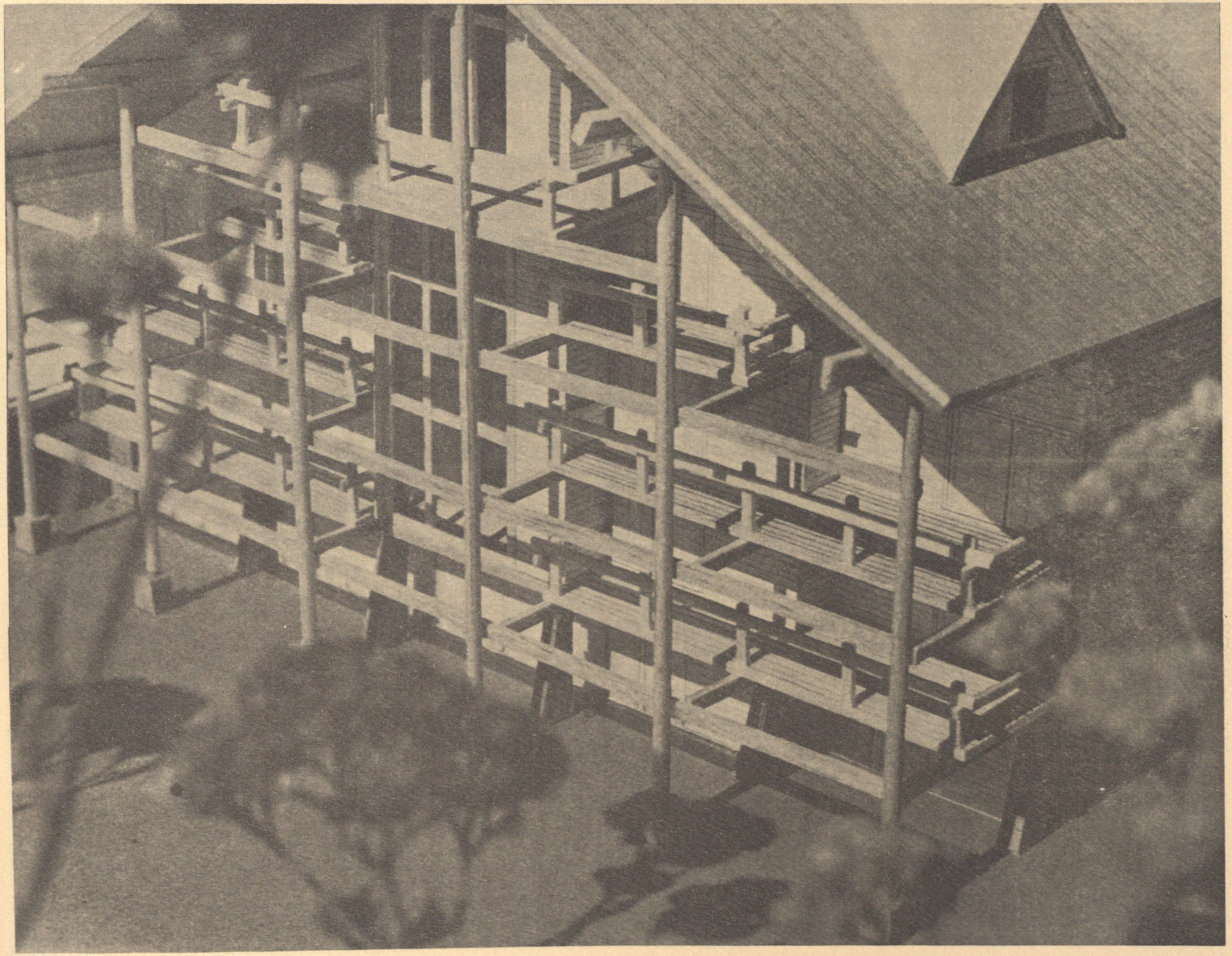


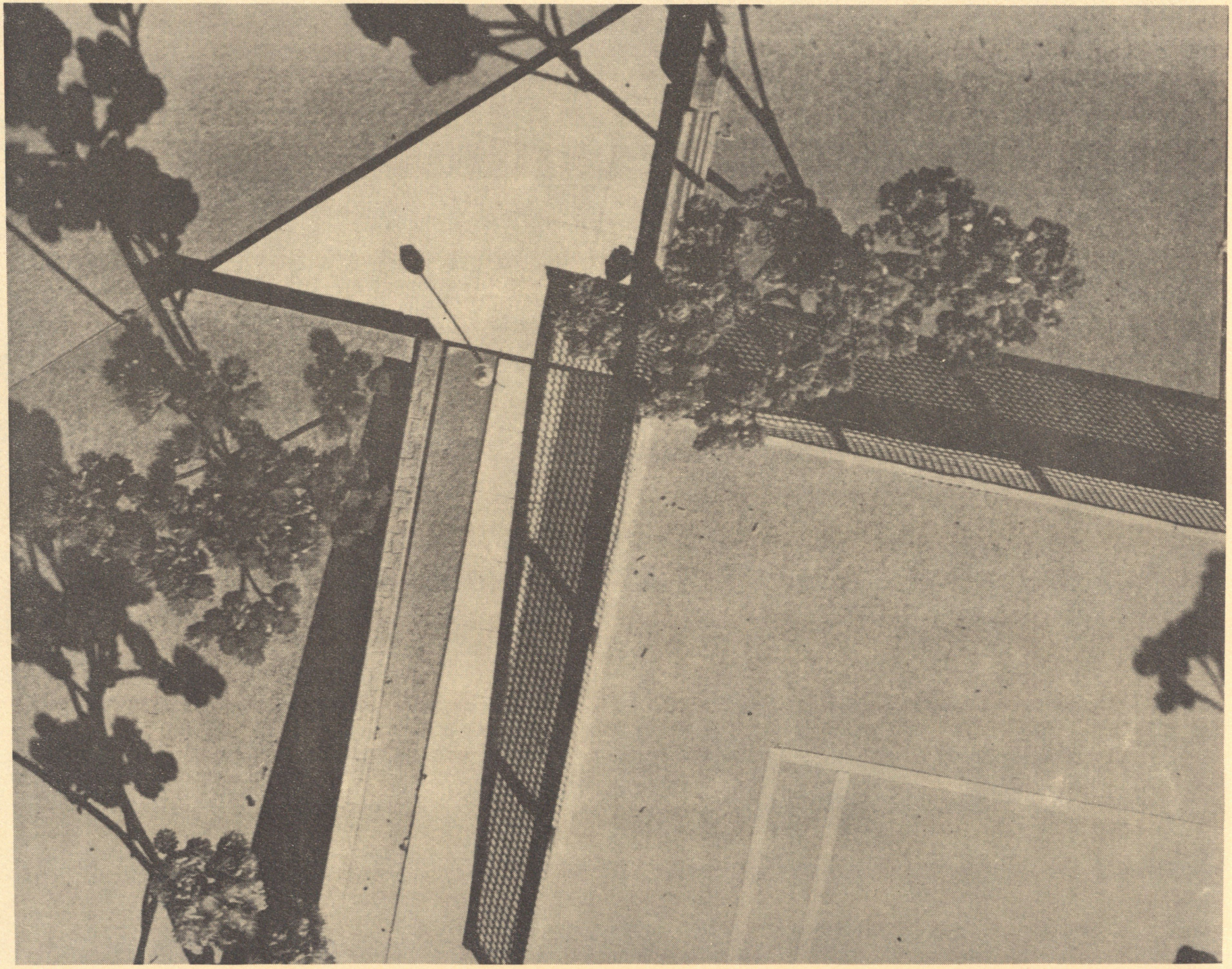
PROJECT: Tennis Ranch

Photographs

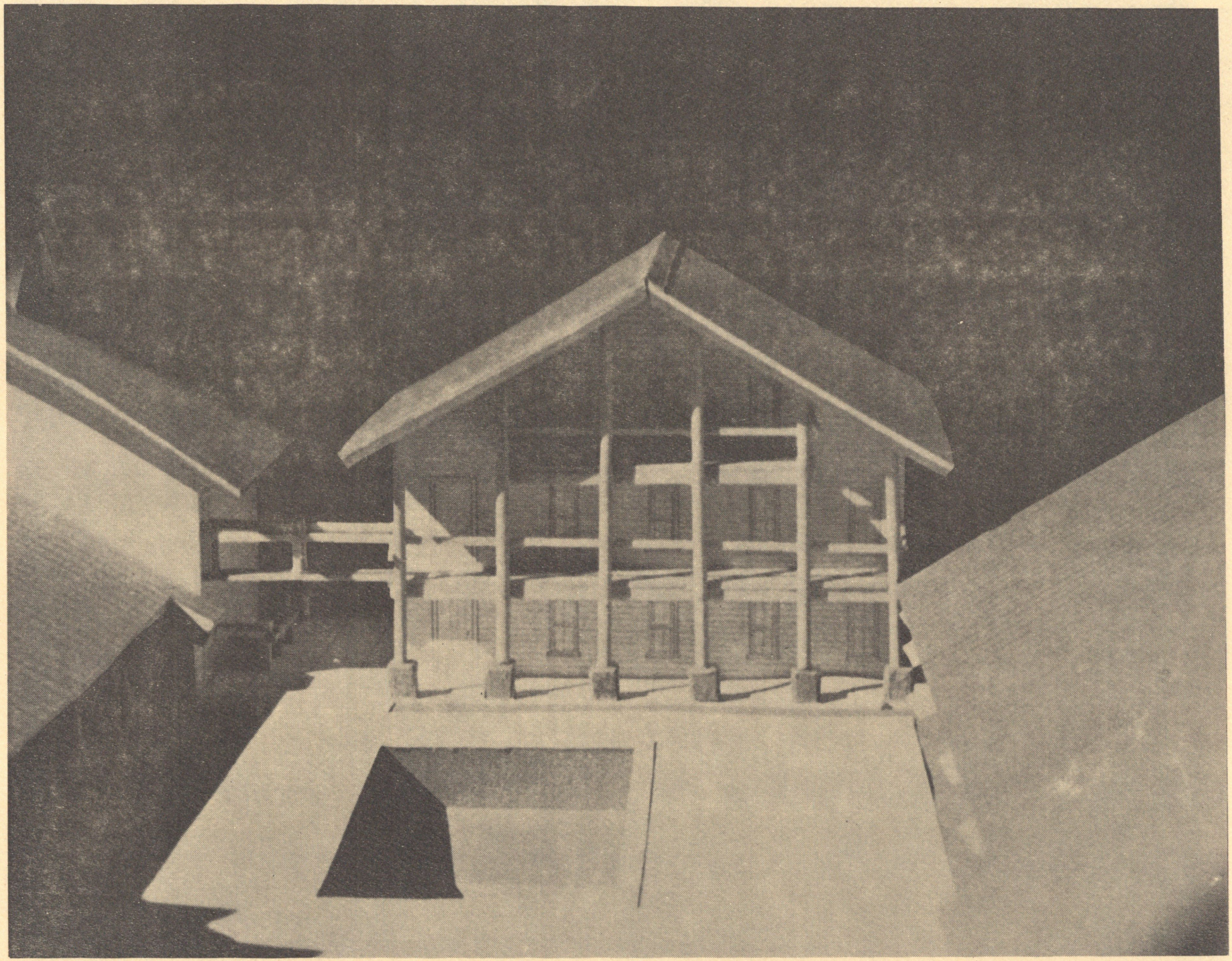


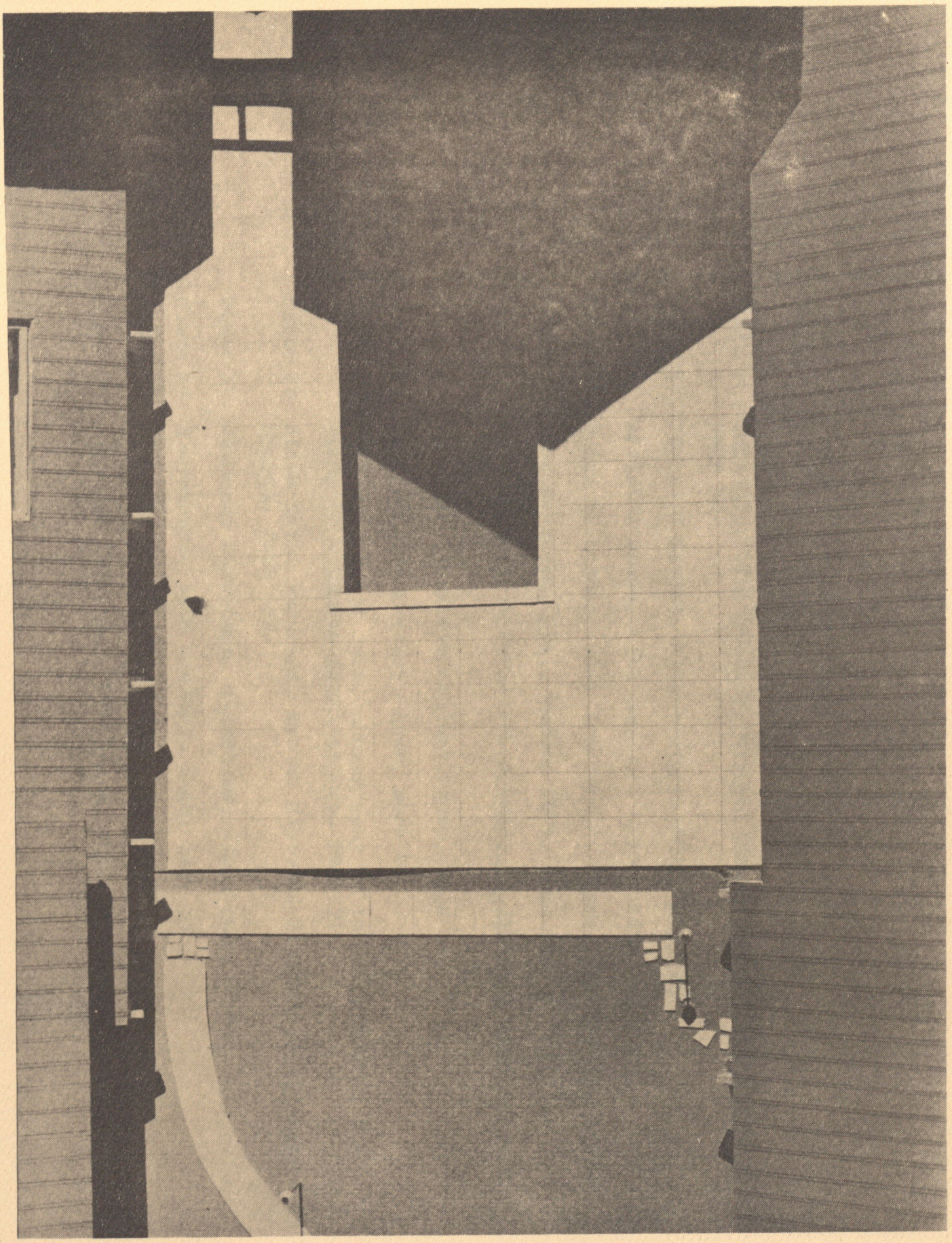












PLATES

Plate 1 Shin Lin, 17th century, Michael Adam, Wandering in Eden, page 67.

Plate 2 "Shiva," Madres, 13th century, Adam, page 30.

Plate 3 Artist Unknown, 15th century, China, Adam, page 73.

Plate 4 Drawn by Author, idea from Frijof Capra, The Tao of Physics.

Plate 5 Mihe-no-chaya, J.A., March, 1980, page 65.

Plate 6 Onjo-ji Kojo-in Pavilion, A Guide to Japanese Architecture, page 221.

Plate 7 Tao-chi, 17th-18th century, Adam, page 54.

Plate 8 Ma Lin, 13th century, Adam, page 40.

Plate 9 Ryoan-ji, Teiji Itoh, photography by Yukio Futagawa, The Roots of Japanese Architecture, page 91.

Plate 10 Amida Hall, Jorur-ji, Kyoto, Niyoyuki Nishihara, Japanese Houses, page 143.

Plate 11 Japanese Landscape, Hiroshima, Itoh, page 48-49.

Plate 12 Storehouse, 19th century, Itoh, page 55

Plate 13 Sambetsu-ji Temple, Itoh, page 157.

Plate 14 Japanese Landscape, Nishihara, page 154.

PLATES (cont.)

Plate 15 Post and Lintel, J.A., October, 1979, page 55.

Plate 16 Tzu-jan, Bamboo, 14th century, Adam, page 61.

Plate 17 "Now Moment," Garden Entrance, Katsura Imperial Villa, Kyoto, 17th century, Itoh, page 135.

Plate 18 "Zen View," Christopher Alexander, Pattern Language, page 642.

NOTES

[1]Janwiller van de Wetering, A Glimpse of Nothingness, Pocket-Books, Simon and Schuster, New York, NY, 1974, page 190.

[2]Ralph Gu Hoy Siu, The Tao of Science, The Technology Press, M.I.T., John Wiley and Sons, Inc., New York, NY, 1957, page 4.

[3]Lao-tzu, translated by Lin Yutang, Tao te Ching.

[4]Fritjof Capra, The Tao of Physics, Shambhala Publications, Inc., Berkeley, CA, 1975, page 113.

[5]Chuang-tzu, translated by James Legge, chapter 2 in Capra.

[6]R. H. Blyth, Zen and Zen Classics, Vintage Books, New York, NY, 1978, page 4.

[7]Gu Hoy Siu, page 17.

[8]Ibid, page 96.

[9]Ibid, page 80.

[10]Ibid, loc. cit.

[11]Lama Anagarika Govinda, Foundations of Tibetan Mysticism, page 223, in Capra, page 215.

[12]Prajna-para mita-hridaya Sutra in Alan Watts, The Way of Zen, Pantheon Books, Inc., New York, NY, 1957, page 64.

NOTES (cont.)

[13]Ibid, page 115.

[14]Edmund Bacon, Design of Cities, The Viking Press, New York, NY, 1967, page 15.

[15]Ibid, loc.cit.

[16]Yutaka Izue, "Shadow and Form," JA, July, 1971, pages 98-99.

[17]Ibid, loc.cit.

[18]Ibid, loc. cit.

[19]Mai-Mai Sze, The Tao of Painting, Bollingen Foundation, New York, NY, 1963, page 29.

[20]Christopher Alexander, A Pattern Language, Oxford University Press, New York, NY, 1977, page 642.

[21]Capra, page 124.

[22]Ibid, loc. cit.

BIBLIOGRAPHY

Adam, Michael, Wandering in Eden, Alfred A. Knope, Pub., New York, 1976.

Alexander, Christopher, A Pattern Language, Oxford University Press, New York, 1977.

Bacon, Edmund, Design of Cities, The Viking Press, New York, 1967.

Baskin, Wade, Classics in Chinese Philosophy, Littlefield, Adams and Company, Totowa, NJ, 1974.

Blake, Peter, Frank Lloyd Wright, Pelican Book, 1960.

Blyth, R. H., Zen and Zen Classics, Vintage Books, New York, 1978.

Boesiger, W., Richard Neutra, 1961-66, Frederick A. Praeger, Pub., New York, 1978.

Capra, Fritjof, The Tao of Physics, Shambhala Pub., Berkeley, CA, 1975.

Cereghini, Mario, Building in the Mountains, Edizioni del Milione, Milano, Italy, 1957.

Dogen, Commentary by Hakuya Taizan Maezumi, The Way of Everyday Life, Center Pub., Los Angeles, CA, 1979.

Fingarette, Herbert, Confucius--The Secular as Sacred, Harper and Row Pub., New York, 1972.

Heinrich, Dumoulin, A History of Zen Buddhism, Pantheon Books, New York, 1963.

Herrigel, Eugen, The Method of Zen, Vintage Books, New York, 1974.

BIBLIOGRAPHY (cont.)

Herrigel, Eugen, Zen in the Art of Archery, Vintage Books, New York, 1971.

Hoover, Thomas, Zen Culture, Vintage Books, New York, 1977.

Huber, Jack, Through an Eastern Window, St. Martin's Press, New York, 1965.

Itoh, Teiji, The Roots of Japanese Architecture, Harper and Row, Pub., New York, 1972.

Izue, Yutaka,"Shadow and Form," JA, July, 1971

Krishnamurti, J., Think on These Things, Perennial Library, Harper and Row, Pub., New York, 1964.

------, You Are the World, Perennial Library, Harper and Row, Pub., New York, 1972.

Lancaster, Clay, The Japanese Influence in America, Twayne Pub., New York, 1963.

Lao-tzu, Translated by D. C. Lau, Tao to Ching, Penguin Books, 1978.

------, Translated by Witter Bynner,The Way of Life, Capricorn, Books, New York, 1962.

McHarg, Ian, Design With Nature, Double Day Press, Garden City, NY, 1971.

Merton, Thomas, Zen and the Birds of Appetite, New Directions Book, New York, 1968.

Meskill, John, An Introduction to Chinese Civilization, Columbia University Press, Lexington, Mass., 1973.

BIBLIOGRAPHY (cont.)

Moholy-Nagy, Sibyl, Native Genius in Anonymous Architecture, Schocken Books, New York, 1976.

Neutra, Richard, Building With Nature, Universe Books, New York, 1971.

------, Survival Through Design, Oxford University Press, NY, 1954.

Nishihara, Niyoyuki, Japanese Houses, Japan Pub., Inc., Tokyo, 1968.

Peña, William, Problem Seeking, Cahners Books, Inc., Boston, Mass., 1977.

Pirsig, Robert, Zen and the Art of Motorcycle Maintenance, Bantam Books, New York, 1974.

Ramsey and Sleeper, Architectural Graphic Standards, John Wiley and Sons, New York, 1970.

Reps, Paul, Zen Flesh, Zen Bones, Anchor Books, Inc., Garden City, New York.

Ross, Floyd, Shinto: The Way of Japan, Beacon Press, Boston, Mass., 1965.

Sekiguchi, Shindai, Zen: A Manual for Westerners, Japan Pub., Inc., 1970.

Siu, R. G. H., The Tao of Science, M.I.T. Press, John Wiley and Sons, Inc., New York, 1957.

Stryk, Lucien, World of the Buddha, Doubleday Company, Inc., Garden City, New York, 1968.

BIBLIOGRAPHY (cont.)

Suzuki, Daisetz, Zen Buddhism, E. P. Dutton and Company, Inc., New York, 1962.

Szu, Mai-Mai, The Tao of Painting, Bollinger Foundation, New York, 1963.

Team Rap, Japanese Architecture, July 1977, pp. 40-46.

Thomas, Lewis, The Lives of a Cell, Viking Press, Inc., New York, 1974.

Tiedemann, E., An Introduction to Japanese Civilization, Columbia University Press, Lexington, Mass., 1974.

Trevanian, Shibumi, Ballantine Books, New York, 1979.

Waley, Arthur, The Analects of Confucius, Vintage Books, New York, 1938.

Watts, Allan, Cloud-Hidden, Vintage Books, New York, 1974.

------, The Essence of Allan Watts, Celestial Arts, 1977.

------, Nature, Man and Woman, Vintage Books, New York, 1958.

------, The Spirit of Zen, Grove Press, Inc., New York, 1958.

------, Tao: The Watercourse Way, Pantheon Books, New York, 1975.

------, The Way of Zen, Vintage Books, New York, 1957.

Wertering, Janwiller van de, A Glimpse of Nothingness, Kangaroo Book, New York, 1974.

Wolfe, Ralph, Pole Building Construction, Garden Way, Pub., Charlotte, VT, 1980.

Yi-Fu Tuan, Space and Place, University of Minnesota, 1977.

------, Topophilia, Prentice-Hall, Inc., Englewood Cliffs, New Jersey, 1974.

MONTANA STATE UNIVERSITY LIBRARIES
stks 720.6.M76Sch79 CA
The Tao of architecture : the way easter
3 1762 00158707 8