

Palo Duro Canyon

Interpretive Center

"...towering walls of a castle of the feudal ages, with its giddy battlements pierced with loopholes, and its projecting watch-towers standing out in bold relief upon the azure ground of the pure and transparent sky above."

Captain Randolph B. Marcy 1866

An
Interpretive Center
For the Palo Duro Canyon State Park

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A Thesis in Architecture

Submitted to the Architecture Faculty of the College of Architecture
of Texas Tech University in Partial Fulfillment for the Degree of

Master of Architecture

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PREFACE



"The bridge swings over the stream with ease and power. It does not just connect banks that are already there, the banks emerge as banks only as the bridge crosses the stream. The bridge designedly causes them to lie across from each other. One side is set off against the other by the bridge. Nor do the banks stretch along the stream as indifferent border strips or the dry land. With the banks, the bridge brings to the stream the one and the other expanse of the landscape lying behind them. It brings stream and bank and land into each other's neighborhood. The bridge gathers the earth as landscape around the stream."

Martin Heidegger (Norberg-Schulz 1996a)



THESIS STATEMENT

All places have a spirit that gives it life and determines its character. The character of a place is "what persists there of time, climate, traditions, past events, topography, of ancient buildings and vegetation." It is through our architectural experience that we find meaning in our environment (Ando 1998).

Therefore, architecture should bring into presence the place and heighten the phenomenal experience to uncover the meanings potentially present in a given environment.

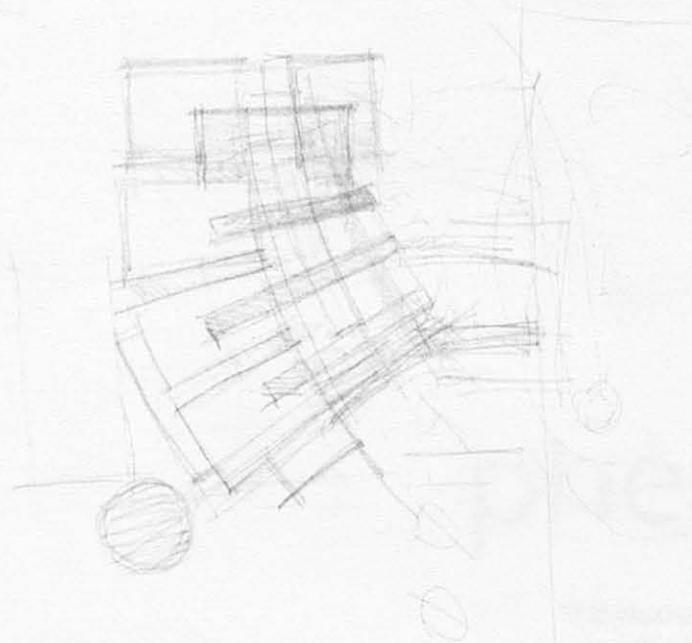
CONTEXT STATEMENT

Palo Duro Canyon State Park is located in Armstrong and Randall counties twelve miles east of Canyon on Texas Highway 217. It covers 16,402 acres of scenic and geological strata and formations that are estimated to be several million years old. It reaches depths of 800 feet from rim to floor and average widths of more than six miles. The sedimentary rocks deposited in layers are a mélange of subdued color, from the deep red shales and white gypsum at the canyon floor, passing up the walls through the red, lavender, yellow and gray layers of sandstone and shale to the pinks and tans of rimrock. This magnificent array of colors that changes with the sun and seeing a reminiscent of history is what attracts people to the canyon.



Fig. 1 "The Lighthouse" Palo Duro Canyon State Park





FACILITY TYPE

The facility is an interpretive center for the Palo Duro Canyon State Park. The new facility will *improve* interpretation of the park's historical and cultural values, *stimulate* and *retain* public interest, *orient* and *direct* visitors, and *heighten* and *enhance* visitor experience through architecture. This will be achieved by capturing the "spirit of the place" through site placement and a clear and exciting spatial sequence that will allow visitors to gain a better understanding of Palo Duro Canyon.

SCOPE OF PROJECT

The Civilian Conservation Corps designed the El Coronado Interpretive Center during the 1930's in the style of the Park Service Rustic. It has remained unchanged despite an effort by the National Park Service to promote the Park Service Modern style in the 1960's through the *Mission 66* program.

The new facility will have administrative spaces for the park assistants and managers, park interpreters, office and gift shop assistants and managers, and research assistants. The facility will support an interpretive program through the galleries, the auditorium, and workshop spaces. It will also support group recreational activities through the multi-use space adjacent to an outdoor area.



theory

phenomenology

"It is impossible for me to describe the sensations that came over me, and the exquisite pleasure I experienced as I gazed upon these grand and novel pictures."
Captain Randolph B. Marcy (1866)



INTRODUCTION

In the period between the two world wars, architecture embraced the 'functionalist' approach to deal with the problem of giving man an 'existential foothold.' In *Towards A New Architecture*, Le Corbusier believed that architecture should "respond to a need" thus "producing happy people" (Norberg-Schulz 1980b, 187). Functionalism believed that "the social and human problems at that time were the products of a false and deficient environment, and that the man's condition may be improved through a new architecture which re-conquers true and fundamental meanings" (Norberg-Schulz 1980b, 187). This new architecture (Figure 2) is distinguished by a few characteristic properties: the free plan, the use of the independent, regular skeleton structure, the preference for elementary stereometric volumes, and the avoidance of traditional motifs and ornament (Norberg-Schulz 1980b,200).

"The Functionalist approach led to a pronounced differentiation of functions and forms. To define the functions and determine their formal consequences, Functionalist architecture isolated them and reduced them to their measurable aspects. Functionalist architecture therefore easily degenerated into a machinelike juxtaposition of separate parts."

Christian Norberg-Schulz (1980b)

The Functionalist approach has led to a "schematic and characterless environment" (Nesbit 1996, 48).

In the decades following the Second World War, there was a need for individual characterization of buildings and places, which was a reaction to the "scarce variations in character permitted by early Functionalism." At the same time, there was a need to emphasized regional character in architecture from geographical, cultural, and historical background (Norberg-Schulz 1980b, 204).



Fig. 2 Villa Savoye. Le Corbusier - functionalism architecture led to schematic and characterless architecture



PHENOMENOLOGY

"Buildings are not just visual compositions; they are magical, meditating structures that evoke and enhance images of life."

Juhani Pallasmaa (2001)



Fig. 3 Hysolar Research Building. Behnisch and Partner. 1987.

"Why do so very few modern buildings appeal to our feelings, when almost any anonymous house in an old town or the most unpretentious farm outbuilding gives us a sense of familiarity and pleasure?"

Pallasmaa (1996)

PHENOMENOLOGY

Phenomenology is a school of philosophy whose principal purpose is to study the phenomena, or appearances, of human experience. Phenomena consist of people, of animals, of sun, moon, and stars, of night and day and changing seasons. But it also comprises more intangible phenomena such as *feelings*, the "content" of man's existence (Pallasmaa 1996, 414).

There is a growing concern that architecture has lost its communicative power. Many buildings today may "arouse our curiosity with their inventiveness, but they hardly give us any sense of meaning of our world and our own existence" (Pallasmaa 1996, 447). Juhani Pallasmaa believes that "we live in an era of shallow, momentary impressions that emphasize image over essence" thus creating architecture that leads to disorientation and meaninglessness (1994, 30). Architecture is not just about the symbol but how the meaning behind the symbol is experienced.

"Architectural meaning resides in human experience. It is evoked in the acts of occupying and inhabiting space, in one's experiences of space, matter, gravity, and light."

Pallasmaa (2001)



PHENOMENOLOGY

Phenomenology in architecture is concerned with giving man a meaningful experience in a particular place. Once the environment is experienced as meaningful, man gains *existential foothold*. How does architecture provide *existential foothold*?

Christian Norberg-Schulz identifies phenomenology's potential in architecture to make an environment meaningful through the "concretization" of *genius loci*, the spirit of the place. In order for man to gain *existential foothold*, he has to give his place a concrete *character*. He has to understand the "vocation" of the place. Architecture only comes into being when a "total environment is made visible." Thus, architecture gathers the properties of the place and brings them close to man. Norberg-Schulz also added that man has to know *where* he is and *how* he is in the environment. Therefore, architecture should provide *orientation* in space and *identification* with the specific character of the place (1996).

"The primary purpose of architecture is hence to make a world visible. It does this as a thing, and the world bring into presence consist in what it gathers."

Christian Norberg-Schulz (1996)

Phenomenology in architecture has also renewed interest in sensuous qualities of materials, light, color, and the symbolic tactile significance of the place (Nesbit1996, 29).



PHENOMENOLOGY

SPIRIT OF THE PLACE

According to Juhani Pallasmaa, "the most comprehensive and perhaps most important architectural experience is the sense of being in a unique place" (Pallasmaa 1996, 452). *Place is defined as a totality made up of concrete things having material substance, shape, and color (Norberg-Schulz 1980a, 6). Together these things determine an 'environmental character' which is the spirit of the place, or genius loci. According to ancient Roman belief every "independent" being has its genius, its guardian spirit. This spirit gives life to people and places, accompanies them from birth to death, and determines their character or essence (Norberg-Schulz 1996b, 422). This spirit symbolizes what a thing is or "what it wants to be." Architecture makes visible or concretizes the genius loci by gathering the properties of the place and bringing them close to man. It is only then, that man gains 'existential foothold' that is a meaningful experience of his environment. Therefore, the existential purpose of architecture is to "make a site become a place, that is, to uncover the meanings potentially present in the given environment" (Norberg-Schulz 1996b, 422).*



Fig. 4 Dipoli Student Union. Rocks and edges similar to roofline and balcony

CHARACTER

All places have a character. Character is the general "atmosphere" which is the most comprehensive property of any place. For example, a dwelling has to be "protective," an office "practical," and a church "solemn." Character becomes an important part of the experience of a particular place. It "is a function of time; it changes with the seasons, the course of the day, and the weather, factors which above all determine different conditions of light" (Norberg-Schulz 1996b, 420). It is determined by the material and formal constitution of the place (Figure 4). We must therefore ask: how is the ground on which we walk; how is the sky above our heads, or in general: how are the boundaries that define the place (Norberg-Schulz 1996b, 420). There are three fundamental categories of character that have been subject to architectural concretization and they are described as natural, human, and spiritual (Norberg-Schulz 1980b, 225). The natural characters comprise the qualities of things and materials such as texture and weight, individual properties of places, natural processes, and large-scale processes such as the cardinal points and the course of the sun. The human characters are personality types, correlated traits, human actions and interactions, and elementary categories such as masculine and feminine. The spiritual characters refer to beliefs and values that cannot be understood from the human and natural phenomenon (Norberg-Schulz 1980b, 225).



ISSUE: CHARACTER

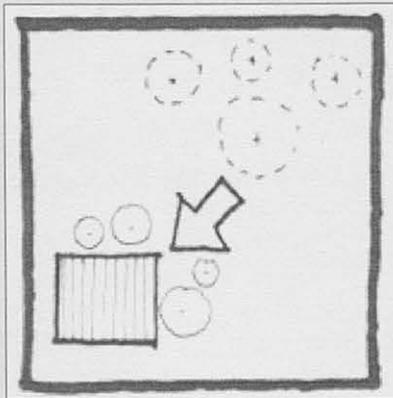
The facility should express the materials and formal constitution of the site to create a sense of place.

message what a place is trying to "say" to its users

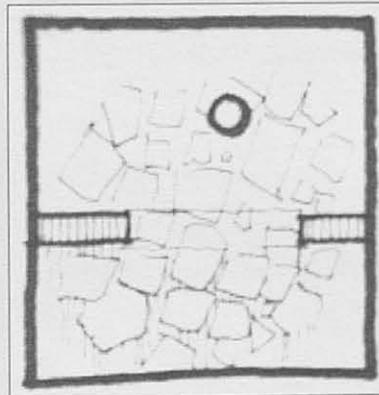
symbolism the meaning or representation to be communicated

Indigenous plants and materials should be used within the facility.

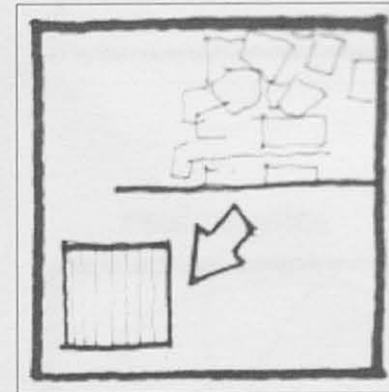
LOCAL VEGETATIONS



NATURAL FLOORING



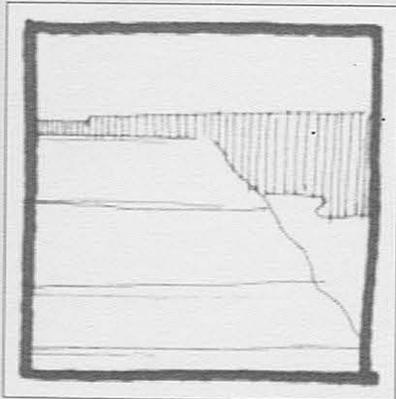
LOCAL MATERIALS



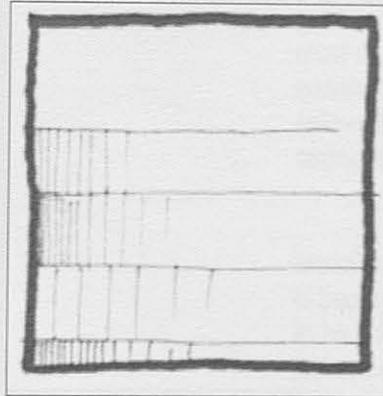
ISSUE: CHARACTER

The facility should express the colors and patterns found in the site.

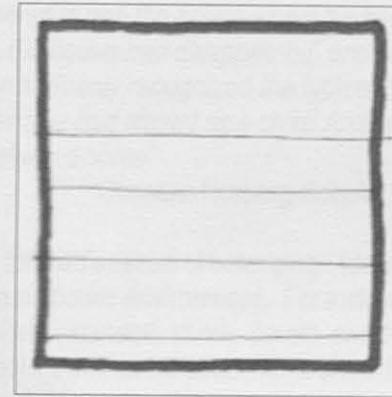
GEOLOGICAL LAYERS



COLORS

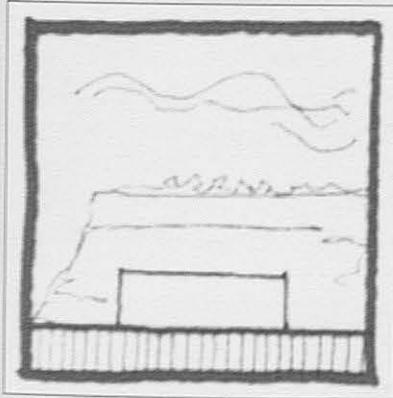


MATERIALS



The exterior building forms should emulate geometries found in nature.

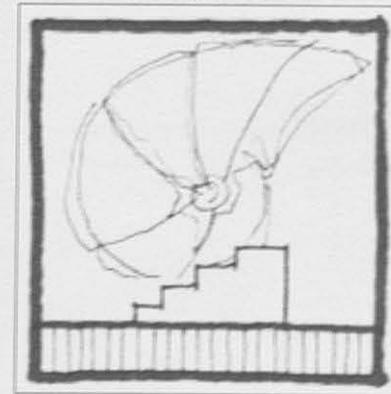
MESAS



ROCKS



FIBONACCI SERIES



Palo Duro Canyon State Park

Interpretive Center



PHENOMENOLOGY

IDENTIFICATION

"Visiting at the end of the Second World War his native Berlin after many years of absence, he wanted to see the house where he had grown up. As must expected in Berlin, the house had disappeared, and Mr. Kallmann felt somewhat lost. Then he suddenly recognized the typical pavement of the sidewalk: the floor on which he had played as a child! And he experienced a strong feeling of having returned home"

Christian Norberg-Schulz (1996b)

Identification is the basis for man's sense of belonging. Identification means to become "friends" with a particular environment. For instance, an Arab has to be a friend of the infinitely extended, sandy desert, and the burning sun. Nevertheless, this does not mean that his settlements should not protect him against the "natural forces." His home primarily aims at the exclusion of the sand and sun. To gain existential foothold man has to *identify* himself with the environment, that is, he has to know *how* he is in a certain place (Norberg-Schulz 1996b, 423). Human identity is a function of places and things. It is therefore important that our environment must consist of concrete objects of identification.

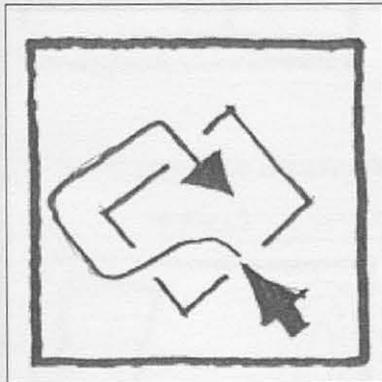


ISSUE: IDENTIFICATION

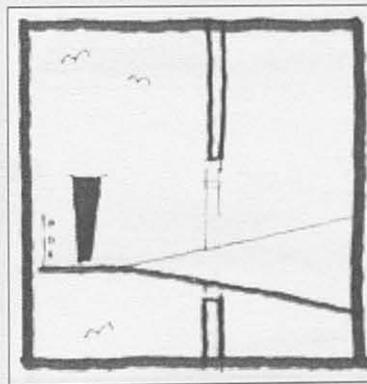
The facility should promote a dialogue between man and nature to create a sense of belonging within the visitors.

Paths should visually and physically reinforce the inside/outside relationship.

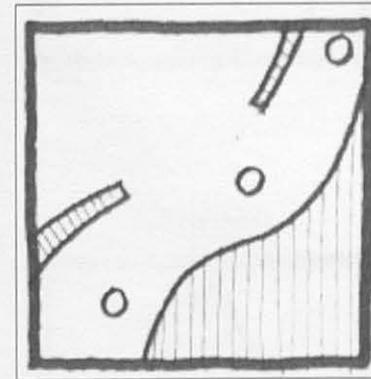
THROUGH CIRCULATION



THROUGH CIRCULATION



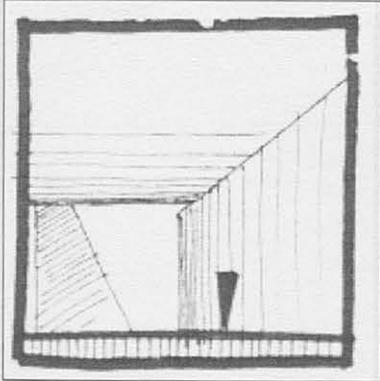
OPENINGS



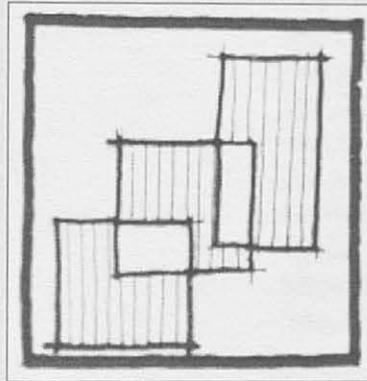
ISSUE: IDENTIFICATION

Abstract natural elements within the facility.

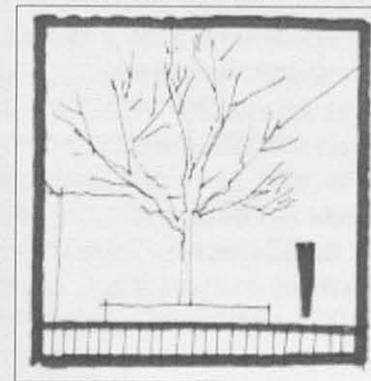
UNUSUAL OPENINGS



VOIDS WITHIN FORMS



INTERIOR COURTYARDS

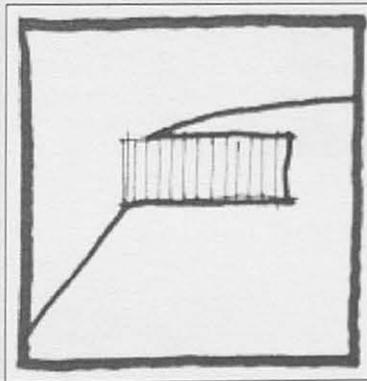


The facility should be visually integrated with the site.

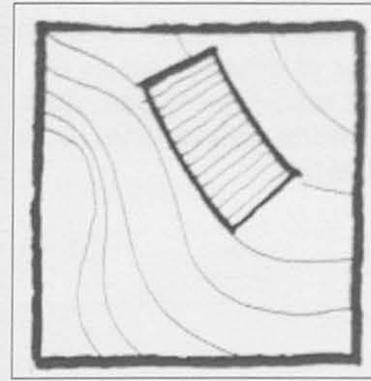
AS WALLS



UNDERNEATH



TOPOGRAPHY



Palo Duro Canyon State Park

Interpretive Center



ORIENTATION

To gain an existential foothold man has to be able to *orient* himself; he has to know where he is. All cultures have developed a system of orientation that facilitates the development of a good environmental image. "A good environmental image gives its possessor an important sense of emotional security" (Norberg-Schulz 1996b 423). Without a good system of orientation, man feels "lost." The environmental quality that protects man against getting lost is *imageability*, which means "that shape, color, or arrangement which facilitates the making of vividly-identified, powerfully-structured, highly useful mental images of the environment" (Norberg-Schulz 1996b, 423). The elements that constitute the spatial structure are concrete "things" with "character" and "meaning" (Norberg-Schulz 1996b, 423).

MULTI-SENSORY EXPERIENCE

"An impressive architectural experience sensitizes our whole physical and mental receptivity."

Juhani Pallasmaa (1994)

"Every touching experience of architecture is multi-sensory; qualities of matter, space, and scale are measured equally by eye, ear, nose, skin, tongue, skeleton, and muscle. Architecture involves the seven realms of sensory experience that interact and infuse with each other."

Juhani Pallasmaa (1994)



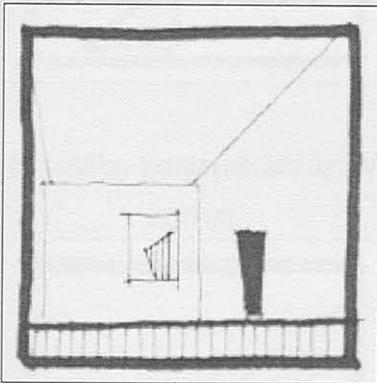
ISSUE: ORIENTATION

The facility should provide a clear, simple, and exciting circulation system to direct and familiarize the visitors with park services and activities.

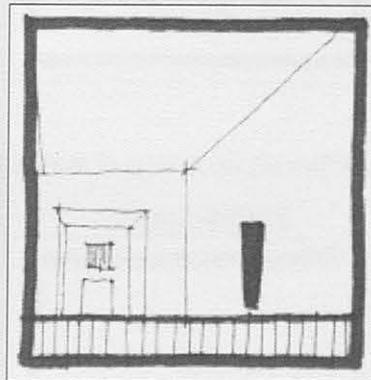
proximity establishment of centers or places
continuity directions or paths
closure areas and domains
foci meanings

Spaces should have focal points to direct visitors.

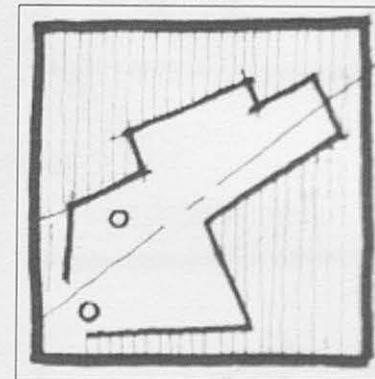
WINDOWS & FEATURES



DISPLAYS & LIGHTING



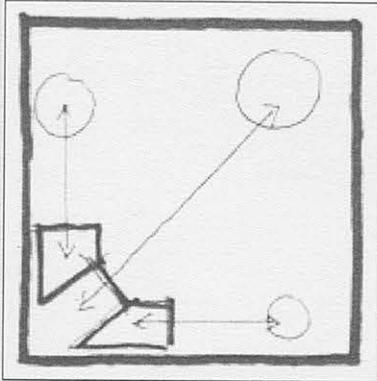
AXIS



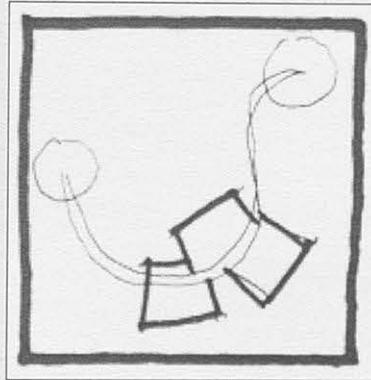
ISSUE: ORIENTATION

Spaces should be organized along an axis that relates to the site.

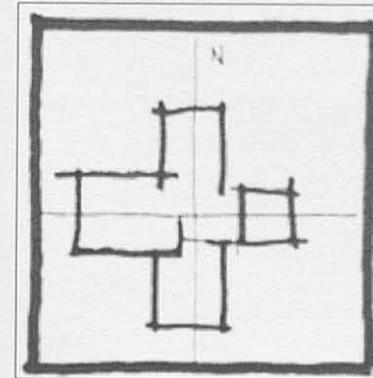
NATURAL FEATURES



NATURAL PATHS

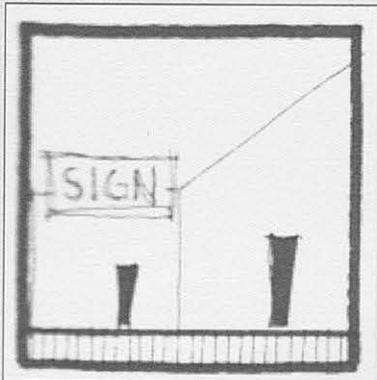


CARDINAL DIRECTIONS

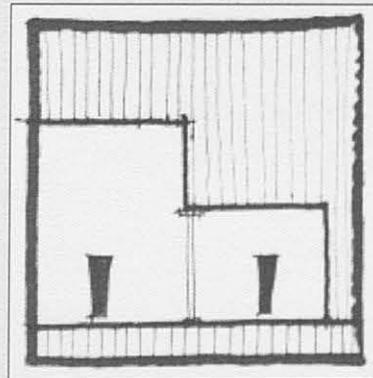


Circulation system should be self-explanatory for visitors to distinguish the public and non-public spaces.

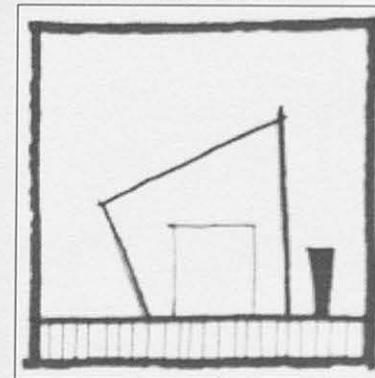
SIGNAGE



CEILING HEIGHTS



SYMBOLIC ENTRIES



Palo Duro Canyon State Park

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WALL MUSEUM & LA PLANTA HOUSE - 1991

1991

1991

1991

1991

1991

1991

1991

1991

1991

1991

1991

1991

theory
case studies

Palo Duro Canyon State Park

Interpretive Center



SAMI MUSEUM & LAPLAND VISITOR CENTER

Inari, Lapland

Juhani Pallasmaa

CONCEPT

The Sami Museum and Lapland Visitor Center means homestead literally, the place one's home is, and for the Sami people, that place is by history and necessity centered in the Arctic Landscape. The visitor center is located where the Juttua River joins Lake Inari, the center of the Sami culture and trading. The visitor is introduced and familiarized with the culture and the surroundings in several ways. The building profile resembles the surrounding hills and the roof forms of Sami storehouses. Pallasmaa uses ramps to direct and guide the visitors in and out of the building. For instance, the landing of one of the ramps becomes a place to view the surrounding landscape. In addition, the interior spaces represents the Sami home structure to once again remind and inform the visitors of their location.



Fig. 5 Representative of Sami home structure.

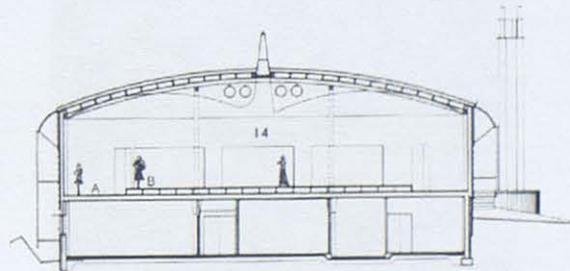


Fig. 6 Roof to shed snow and to represent skis.



Fig. 7 Ramp landings as a place to view outside.



DIPOLI STUDENT UNION

Otaniemi, Helsinki
1961-67

Reima Pietila

CONCEPT

The Dipoli Student Center concretized the *genius loci*, the spirit of the place, by capturing the materials and formal constitution of its surroundings. The corners and the edges of the building melt together and resemble the forms of the Finnish rocks. A wide overhang in dark copper stretches between the trees, and the windows follow the rhythm of the tree trunks. Natural materials unify the floor with to the surrounding rocks. All these features combine together to capture the character of the place.

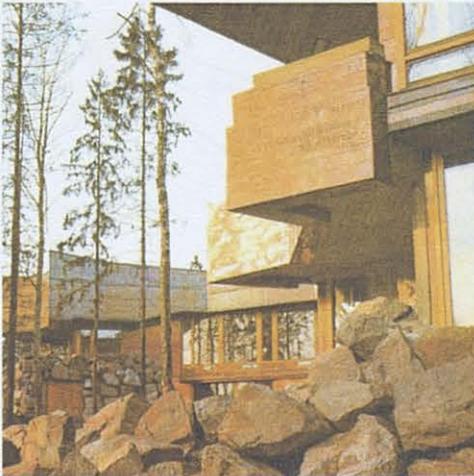


Fig. 8 Building edge and Finnish rocks.



Fig. 9 Facade reflective of surrounding colors.

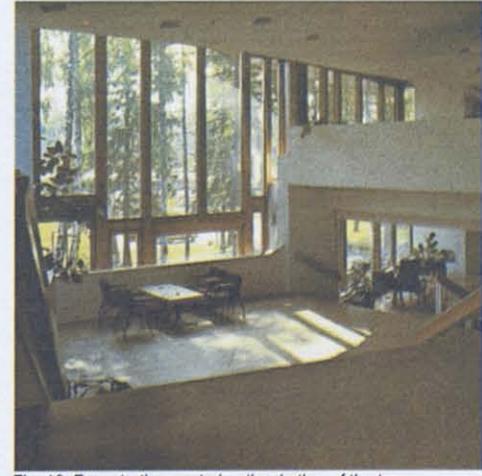


Fig. 10 Fenestration capturing the rhythm of the trees.



DEER VALLEY ROCK ART MUSEUM

Dear Valley, Phoenix, AZ

William P. Bruder

CONCEPT

The Deer Valley Rock Art Center is another geographical feature, a line and a scar within the hostile environment of the Arizona desert. William Bruder uses local materials and highly, elaborate geographical forms to visually integrate the building into the landscape. The building has been designed as a funnel that channels the visitors from the parking lot toward the mountain and petroglyphs engraved by the Hohokam Indians. The ground floor is a triangle framed by the mountain and a dike, linking together civilization and nature. In the longitudinal section, the highest point coincides with the watercourse and marks a turning point. Transversely, the roof opens up toward the exhibition area, increasing the amount of free space.

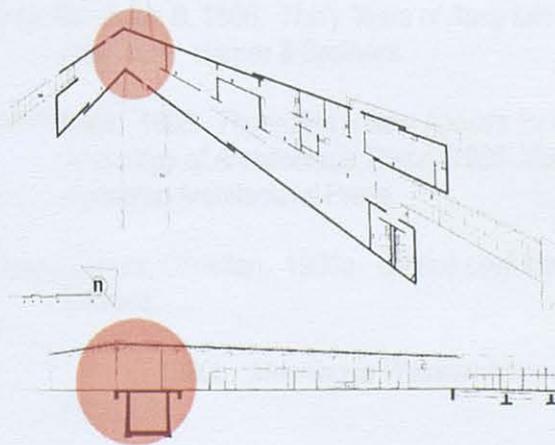


Fig. 11 Sudden shift in plan and gradual increase of ceiling height marks the watercourse.



Fig. 12 Site plan

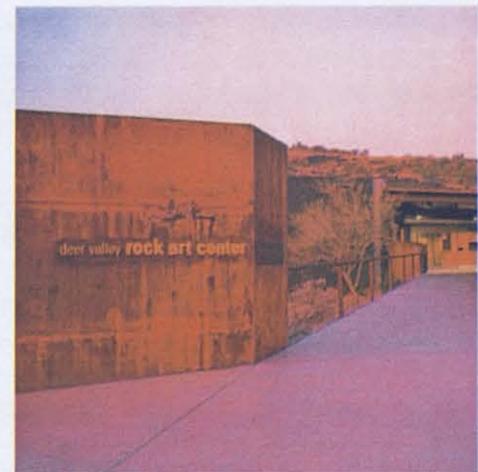


Fig. 13 Color matches with environment.



REFERENCES

Ando, Tadao. 1996. Toward New Horizons in Architecture. In *Theorizing A New Agenda for Architecture: An Anthology of Architectural Theory 1965-1995*, ed. Kate Nesbitt, 456. New York: Princeton Architectural Press.

1998. *Tadao Ando: Architecture and Spirit*, ed. Anatxu Zabalañeascoa and Javier Rodriguez Marcos. Barcelona: G. Gili.

Cerver, Francisco Asensio. 1997. *The Architecture of Museums*. New York: Hearst Books Int.

Marcy, Randolph B. 1866. *Thirty Years of Army Life on the Border*. New York: Harper & Brothers.

Nesbitt, Kate. 1996. *Theorizing a New Agenda for Architecture: An Anthology of Architectural Theory 1965-1995*. New York, NY: Princeton Architectural Press.

Norberg-Schulz, Christian. 1980a. *Genius Loci*. London: Academy Editions.

1980b. *Meaning in Western Architecture*. New York: Rizzoli Inc.

1996a. Heidegger's Thinking on Architecture. In *Theorizing A New Agenda for Architecture: An Anthology of Architectural Theory 1965-1995*, ed. Kate Nesbitt, 429. New York: Princeton Architectural Press.

1996b. The Phenomenon of Place. In *Theorizing A New Agenda for Architecture: An Anthology of Architectural Theory 1965-1995*, ed. Kate Nesbitt, 414. New York: Princeton Architectural Press.

Pallasmaa, Juhani. 1994. An Architecture of the Seven Senses. *Architecture and Urbanism*, July Special Issue, 27-39.

1996. The Geometry of Feeling: A Look at the Phenomenology of Architecture. In *Theorizing A New Agenda for Architecture: An Anthology of Architectural Theory 1965-1995*, ed. Kate Nesbitt, 414. New York: Princeton Architectural Press.

2000. Arctic Role: Visitor Centre, Inari, Lapland. *Architectural Review*, August, 50-55.

2001. Our Image Culture & Its Misguided Ideas about Freedom. *Architectural Record*, January, 51-52.

Quantrill, Malcolm. 1985. *Riema Pietila: Architecture, Context, and Modernism*. New York: Rizzoli.

Tietz, Jurgen. 1999. *The Story of Architecture of the 20th Century*. Cologne: Bonner Strasse.



REFERENCES

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context

Palo Duro Canyon

"We all, with one accord, stopped and gazed with wonder and admiration upon a panorama which was now for the first time exhibited to the eyes of civilized man."

Captain Randolph B. Marcy (1866)



PALO DURO CANYON

"All here was crude Nature, as it sprung into existence at the flat of the Almighty Architecture of the universe, still retaining its primeval type, its unreclaimed sublimity and wildness, and it forcibly inspired me with veneration and awe which are so justly due to the high antiquity of Nature's handiworks, and which seem to increase as we consider the solemn and important lesson that is taught us in reflecting upon their permanence when contrasted with our own fleeting and momentary existence."

Captain Randolph B. Marcy (1866)



Fig. 1 View from scenic outlook.

Palo Duro Canyon is one of the most rugged, scenic, and geologically significant areas of the Texas Panhandle. It is located on the southern high plains, an area called El Llano Estacado or "staked plains." It begins in northeastern Randall County about 12 miles east of the town of Canyon and 15 miles southeast of Amarillo and covers 16,402 acres of geological strata and formations that are estimated to be several million years old. It reaches depths of 800 ft from rim to floor (approximately 3,500 ft to 2,400 ft above sea level) and average widths of more than six miles.

Palo Duro Canyon's greatest attraction comes from its sharp contrast with surrounding terrain. The steep sides of Palo Duro Canyon consist of bright, banded layers of orange, red, brown, yellow, gray, maroon, and white rocks that represent four different geologic periods and a time span of more than 240 million years. Fossils of long-extinct animals and plants have been found embedded in the rock layers. Adding to the canyon's scenic grandeur are numerous pinnacles, buttes, and mesas, each protected by a cap of erosion-resistant sandstone or other rock. The natural vegetation of the canyon consists of a variety of grasses and other xerophytic vegetation such as prickly pear, yucca, mesquite, and juniper. Cottonwood, willow, and salt cedar grow along the banks of Prairie Dog Town Fork of the Red River.

Most observers enjoy the scenery and come away mentally impressed and emotionally refreshed. For others Palo Duro Canyon inspires a creative and even perhaps a spiritual response. In 1853, Captain Randolph B. Marcy, a frontier infantryman, was overwhelmed with wonderment and awe at the discovery of the canyon. Inspired by the surroundings, Marcy recorded in his journal one of the most artistic and vivid descriptions of the canyon.



MAN & PALO DURO CANYON



Fig. 2 Palo Duro Canyon.



Fig. 3 Goodnight Peak.

Palo Duro Canyon State Park

THE EXPLORERS mystery and discovery Coronado's Expedition 1541

The first Europeans to see Palo Duro Canyon were the members of the Coronado expedition, who camped and rested for several days before moving on to search for the fabled city of Quivira. Pedro Catenada, a chronicler of the journey, described the canyon as "a large ravine" that was a "league wide from one side to the other, with a little bit of a river at the bottom" (Griggs 2001, 118). It was also the men of Coronado's expedition that first saw the native inhabitants of the region that would later be known as the Apaches.

Randolph B. Marcy's Expedition 1852

The first Anglo-Americans to explore the Palo Duro Canyon were the members of Captain Randolph B. Marcy's 1852 expedition to examine the Red River and the country beyond upon it. Inspired by the magnitude and the beauty of the spot, Marcy recorded one of the most vivid observations of Palo Duro Canyon (Griggs 2001, 122).

"We all with one accord stooped and gazed with wonder and admiration upon a panorama which was now for the first time exhibited to the eyes of civilized man. Occasionally might be seen a good representation of the towering walls of a castle of the feudal ages, with its giddy battlements pierced with loopholes, and its projecting watch-towers standing out in bold relief upon the azure ground of the pure and transparent sky above. It was as if it had been designed and executed by the almighty artist as the presiding genius of these dismal solitudes."

Captain Randolph B. Marcy (1866)



Interpretive Center

MAN & PALO DURO CANYON

INDIANS refuge and protection

In 1541, two different tribes, the Querechos and the Teyas who shared the same culture and language, occupied the region. Nevertheless, the two groups were enemies as they fought for survival in the canyon. They depended heavily on the buffalo for food, clothing, and shelter as their camps traveled with the herd. They sought refuge and protection within the canyon walls from each other and from the harsh winter winds of the region. By 1650, the Apache Indians acquired horses from the Spaniards and forty years later, their way of life changed. With the horses, Apache camps moved easier in and out of the rugged areas of Palo Duro Canyon as they searched and followed buffalo herds (Griggs 2001, 119).

By 1700, the Comanche Indians, whose homeland was in the northern and central Great Plains and west of the Rocky Mountains, began to migrate south towards the Palo Duro Canyon. They were forced to migrate because of the territorial expansion of the powerful Sioux who was armed with European muskets. Armed with only primitive weapons, the Comanche Indians decided to move rather than fight. Similarly, they occupied the Apache territories in the canyon and easily expanded to the Southern Plains of Texas. The canyon provided water, protection from cold winter winds, wood for fires, long broad prairies for campsites, and stockade buffalo hunting ground (Griggs 2001, 120). For a century, the Comanche found refuge and protection and very little interference within the walls of the Palo Duro Canyon.

In 1874, Kansas buffalo herds were decimated and the hunters and fur-traders were given permission to enter the Texas Panhandle to hunt for buffalos. Displeased with the decision, the Indians fought the buffalo hunters, thus initiating the Red River War between the Texans and the Indians. For the last time, the Indians found refuge and protection within Palo Duro Canyon in the midst of the Red River War. In September of 1874, in the battle of Palo Duro Canyon, the Indians fought the United States Cavalry, led by Colonel Randal S. Mackenzie, in their last attempt to defend their territory. (Griggs 2001, 124-126)

"The Indians who had succeeded in safely placing themselves behind the immense breastwork of rock, some 800 to 1000 feet above us, opened fire upon us and in a very few minutes made it so hot and galling that we were forced to fall back-the Indians being so thoroughly protected in their positions that we could do nothing..." (Griggs 2001, 128)



Fig. 4 Canyon floor and the "Spanish Skirts"



GEOLOGY

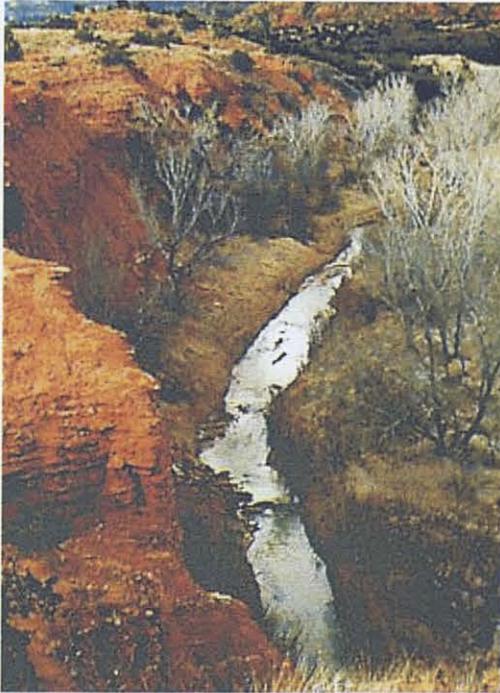


Fig. 5 Prairie Dog Town Fork of the Red River.

The characteristic landforms in the canyon are flat-topped hills known as *buttes* and *mesas*. Nevertheless, there is a gradation in landforms from smallest to largest, from pinnacle to butte to mesa and to plateau, the High Plains surface. The different erosional processes, orientations, and erosional resistance of the rock layers created a three-level topography: the canyon floor, the mesas and buttes, and the caprock of the High Plains.

Palo Duro Canyon was developed by a variety of processes.

Prairie Dog Town Fork of the Red River - the primary contribution of the stream has been the removal of material supplied to it by the gravitational motivated processes of creep, debris flow, slump, and rockslide.

Piping - a process that enhances slope retreat by downward transport of material by percolating water moving through vertical to near-vertical fissures or rock openings in fine grained material.

Undercutting - occurs at the base of the slopes when the water emerges through ever-enlarging openings.

Wind erosion - played a continual but relatively minor role throughout.

The picture of canyon development that emerges then is one of canyon lengthening, widening, and deepening by stream erosion, by mass movement of material down slope to the channel of the Prairie Dog Town Fork of the Red River, and by transportation of the material downstream. These processes continue today. (Underwood 2001, 17)



GEOLOGY

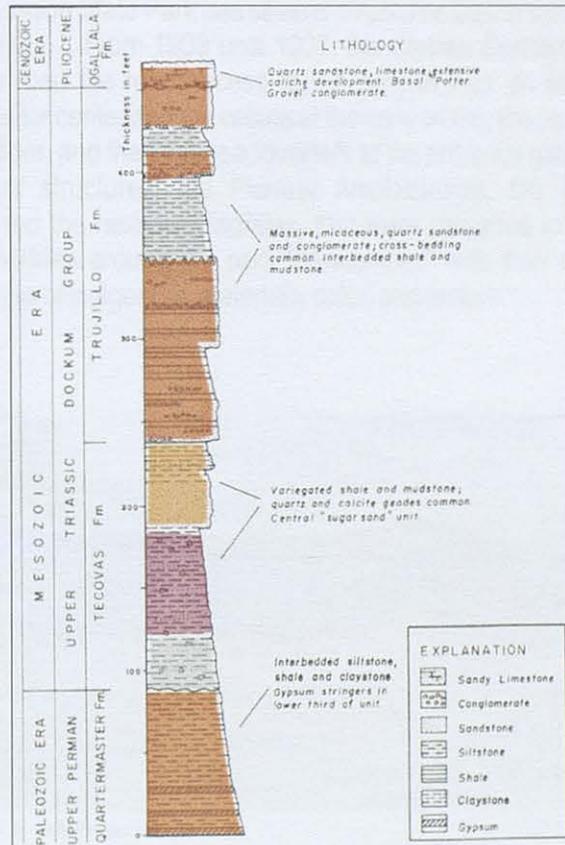


Fig. 6 Geological section.

Dating back 250 million years, the oldest layers of rock, *Cloud Chief Gypsum*, can only be seen in a few areas in the canyon. The gypsum is characterized by complex minor folds and faults. Massive gypsum occur in beds ranging in thickness from one inch to two feet.

The next oldest and most prominent layer of rock is the *Quartermaster formation*, which can be seen with its distinctive red claystone/sandstone and white layers of gypsum.

The *Tecovas formation* is located directly above the Quartermaster and is composed of yellow, gray, and lavender mudstone and sandstone. Together with the Quartermaster, they form the colorful triangular slopes called Spanish Skirts.

Above the Tecovas, the *Trujillo and Ogallala formations* can be seen as they form the Fortress Cliff. The Trujillo is composed of massive sandstone embedded with red and grey mudstone and siltstone. The Ogallala is composed of sand, silt, clay, and limestone, which compose the hard cap rock.



Fig. 7 Tecovas formation.



CLIMATE & SURROUNDINGS

BUILT ENVIRONMENT

Palo Duro Canyon State Park has several structures built in the style of Park Service Rustic. From 1933 until 1937, the Civilian Conservation Corps (CCC) developed the road access to the canyon floor as well as the El Coronado visitor center and the cabins at the canyon rim, the park shelters at the canyon floor, and the park headquarters at the entrance gate. There are several other structures, the Pioneer Amphitheatre, the Chuckwagon restaurant, and the restroom facilities, that were designed in a neo-rustic style. All facilities around the park "harmonized" with their surroundings through the use of indigenous materials, color, and texture.



Fig. 8 Park Restaurant.

CLIMATE

The average annual precipitation increases from about 14 inches in the south to about 22 inches to the north. The precipitation is unevenly distributed throughout the year: low precipitation in the winter, high in the spring, low in the mid-summer, and high in the late summer and fall. Days are hot during the summer; the daily maximum ranges from 90-95 degrees, but occasionally higher than 100 degrees. During the coldest months of winter, December and January, the temperature reaches a maximum in the low 50's and drops to a minimum in the mid 20's. Wind is a constant characteristic of the region. The greatest wind velocity comes in the early spring and the lowest in the summer. The average mean wind speed ranges from about 9 m.p.h. in the south to about 14 m.p.h. in the north (Wright 2001, 89).

VIEWS

From the scenic outlook, the sequence of rock units distinguished by their contrasting color and weathering characteristics are visible. Several geological features are also visible such as the Spanish Skirts, the Lighthouse, the Catarina Caves, and the Fortress Cliff, which dominates the horizon. From this vantage point, the well-developed three-level effect is clearly seen: the broad canyon floor; the broad mesas capped by resistant sandstone; the upper most High Plains surface (Guy 2001, 205).



ARCHAEOLOGY

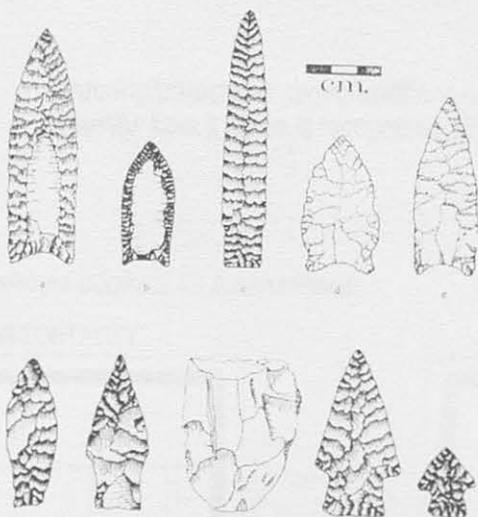


Fig. 9 Arrow points.



Fig. 10 Rock Garden.

The prehistoric Indian sites along Palo Duro Canyon are found in many different kinds of places and represent a wide variety of activities.

Campsites are marked with burned hearthstones, boiling pebbles, flint flakes, and various artifacts. They are usually found at the heads of most of the tributary canyons, along the canyon rim, on bedrock benches along the slopes, and on the canyon floor.

Habitation sites range from small overnight camps to large seasonal camps, and even permanent villages. Deep mortar holes and stone-filled graves are usually found in many of the camps.

Rock shelters are also present along the canyon rim, under the cliffs, and along the canyon slopes and floors. Most of the larger overhangs were used for habitations, and some of the smaller ones for burials. Carvings and paintings are found in some of the rock shelters, and elsewhere on cliffs and boulders.

On the canyon floor, cut banks along stream channels reveal masses of bison bones. A few of these bone beds have been shown to be places where prehistoric Indians killed bison.

At several places in the deeper parts of the canyon, outcrops of a purple bed in the Tecovas shales contain large lenses of colorful jasper. These Tecovas jasper was the preferred material for points, knives, scrapers, etc. (Hughes, Jack 2001, 36-37)



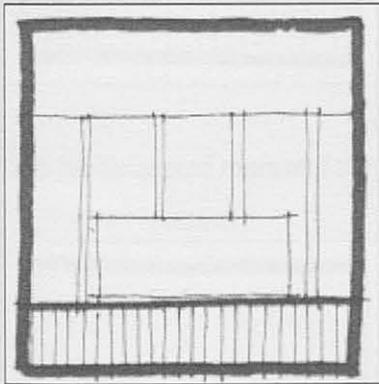
ISSUE: IMAGE

The facility should aspire to be a landmark to stimulate public interest and to become a recognizable point of reference for the visitors.

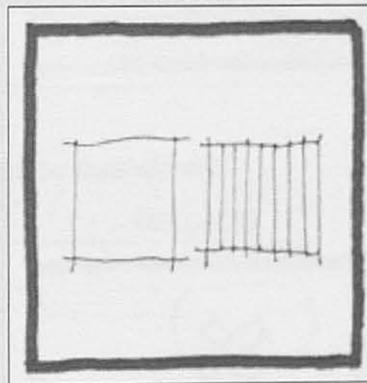
ordering/proportion recognizable visual patterns and relationship
identity how a place is recognized visually

The facility should contrast its surroundings.

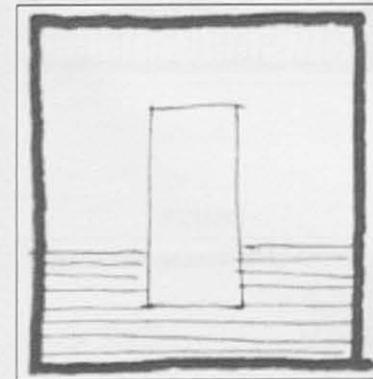
HORIZONTALITY



COLORS



VERTICALITY



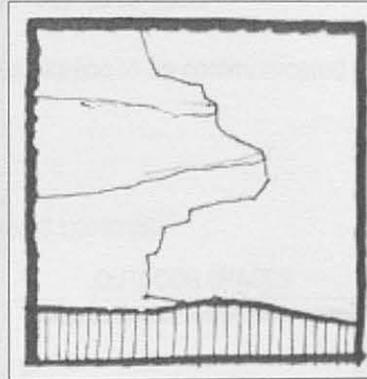
ISSUE: IMAGE

The facility should emulate park's natural features.

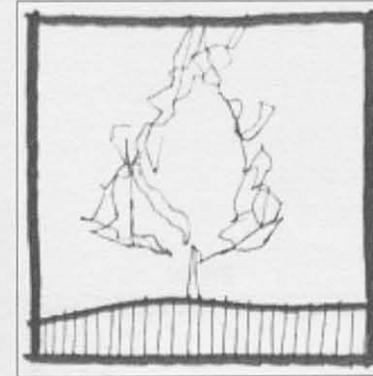
PINNACLES



ROCK SHELTERS

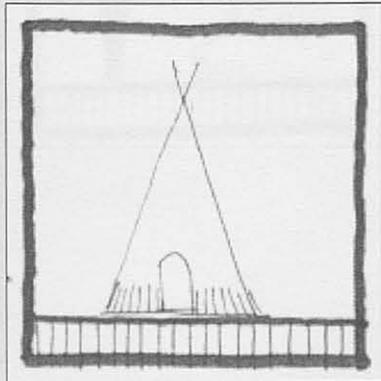


TREES

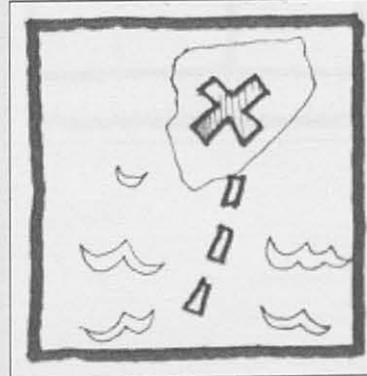


The facility should represent the park's historical and cultural identity.

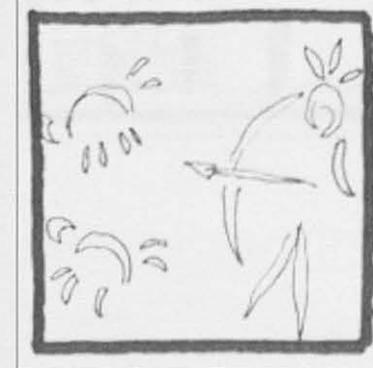
INDIANS



EXPLORERS



INDIANS



Palo Duro Canyon State Park

Interpretive Center



ISSUE: INTERPRETATION

The facility should enhance and encourage park interpretation to provide a meaningful experience of the place.

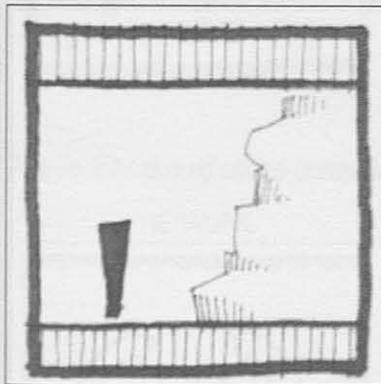
message what a place is trying to "say" to its users

culture, historical values

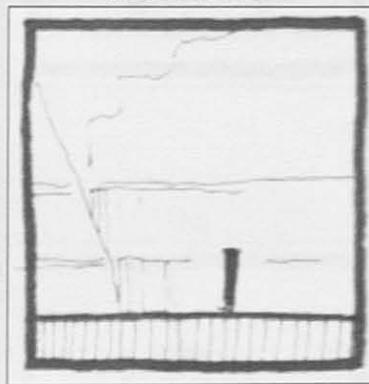
Symbolism the meaning or representation to be communicated

Exhibit spaces should be 'in touch' with the features it interprets.

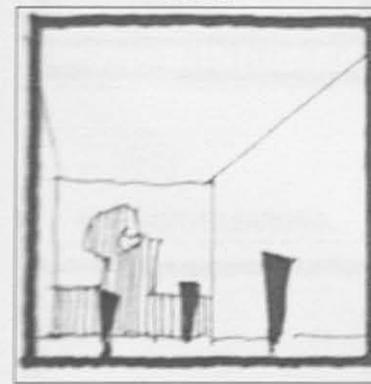
EXHIBITION WALLS



OUTDOOR SPACES



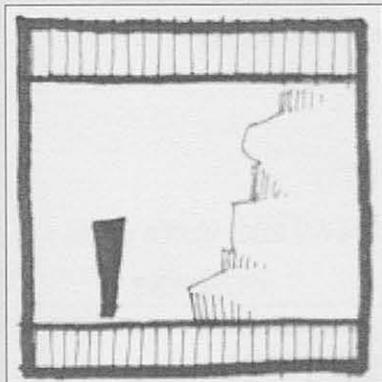
VIEWS



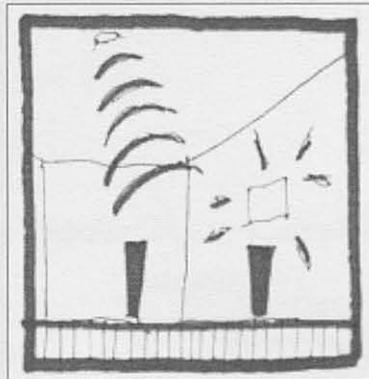
ISSUE: INTERPRETATION

Exhibit spaces should provide a multi-sensory experience.

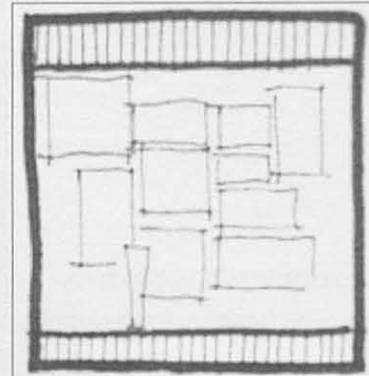
TACTILE



AUDIO/VISUAL

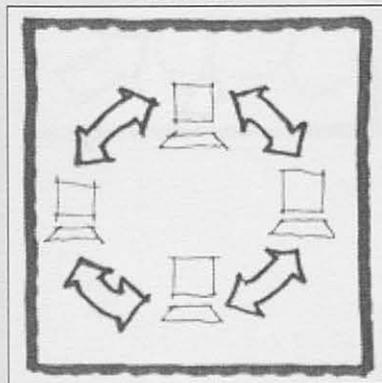


SENSORY THROUGH DETAILS

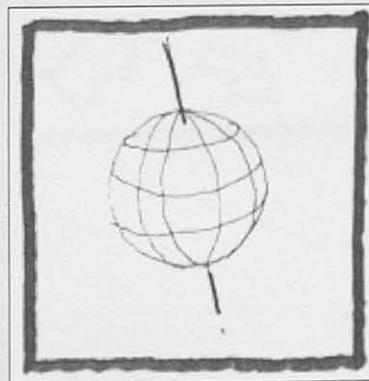


The facility should utilize computer technology.

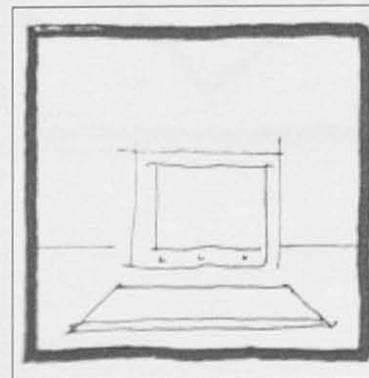
NETWORK



3-D



INTERACTIVE LEARNING



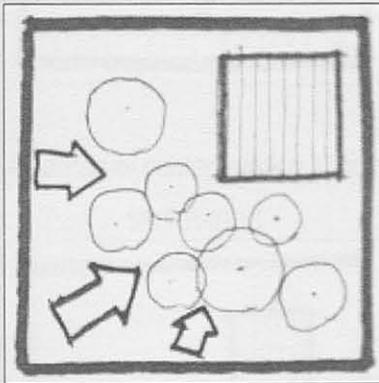
ISSUE: SHELTER

The facility should create a sense of refuge and protection to enhance visitor experience and interpretation.

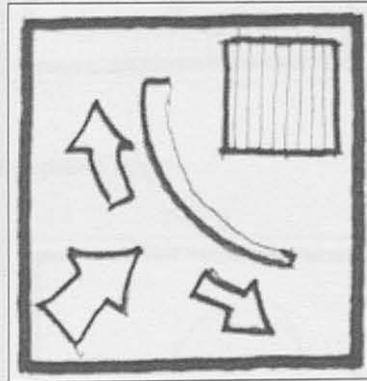
*people noise
climate wind and sun*

The facility should catch the summer breezes and protect people from winter winds.

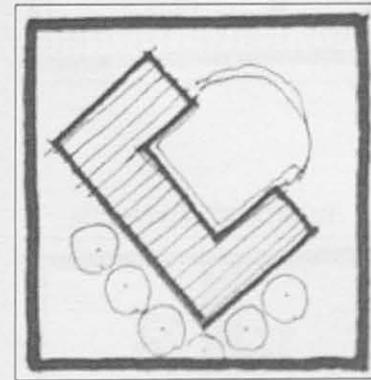
EVERGREEN



REDIRECT



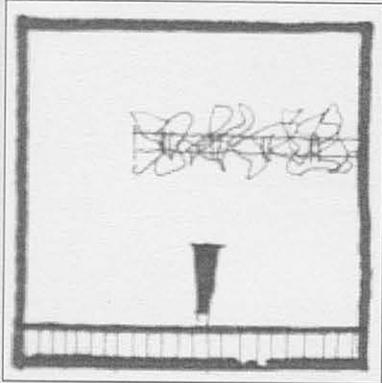
SOUTHWEST ORIENTATION



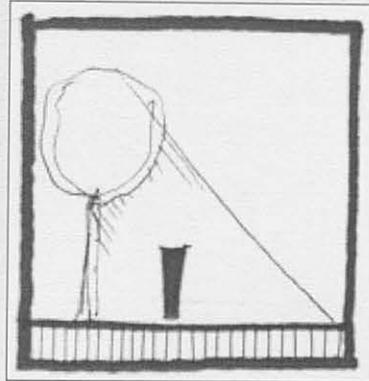
ISSUE: SHELTER

The facility should provide protection against the summer heat and sunlight.

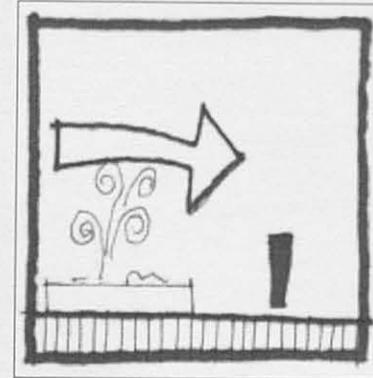
TRELLIS



TREES

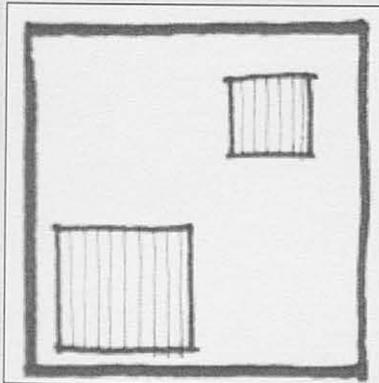


WATER

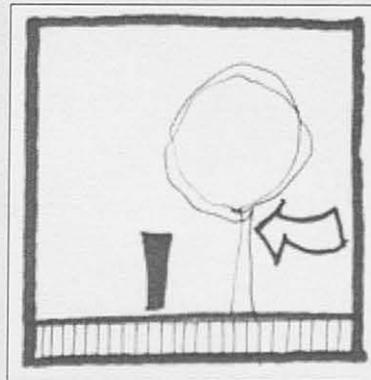


All areas of contemplation should be protected from public noise.

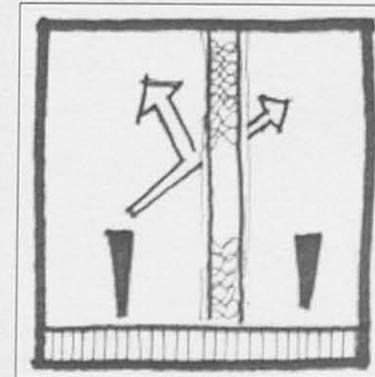
SEPARATION



TREES



ACOUSTICAL TREATMENT



Palo Duro Canyon State Park

Interpretive Center



ANTHROPOLOGICAL STATE PARK VISITOR CENTER

1920

Edward S. Gifford
Architect

1920

Architectural firm of Edward S. Gifford and John Henry Gifford, located in the City of Los Angeles, California, designed the Anthropological State Park Visitor Center. The center is a fine example of the architectural style of the early 20th century.

context case studies

Palo Duro Canyon State Park

Interpretive Center



ANTELOPE ISLAND STATE PARK VISITOR CENTER

Utah

Edwards & Daniel
Architects

CONCEPT

From a distance, the edges of the Antelope Island State Park Visitor Center blends into the contour of the Lady Finger Ridge. With its sharp edges created by intersecting walls, the center seems to resemble the rough jagged rocks of the ridge. The gray, cast-in-place concrete walls blend well with the island's indigenous stone.



Fig. 11 Color similar to rocks.

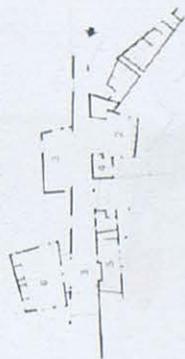


Fig. 12 Site plan.



Fig. 13 Building forms similar to rocky surroundings.



DEER VALLEY ROCK ART MUSEUM

Deer Valley, Phoenix, AZ

William P. Bruder

CONCEPT

The Deer Valley Rock Art museum is designed as a funnel that channels the visitors from the parking lot toward the mountain and the petroglyphs engraved by the Hohokam Indians. There is a single level that is entered via gentle ramp from the parking lot. Cor-Ten metal plates welcome the visitor, creating a shaded path that leads toward the reception area and acts as a transition between the blinding desert light and the filtered illumination inside the Rock Art Center.



Fig. 14 Sunshade device.

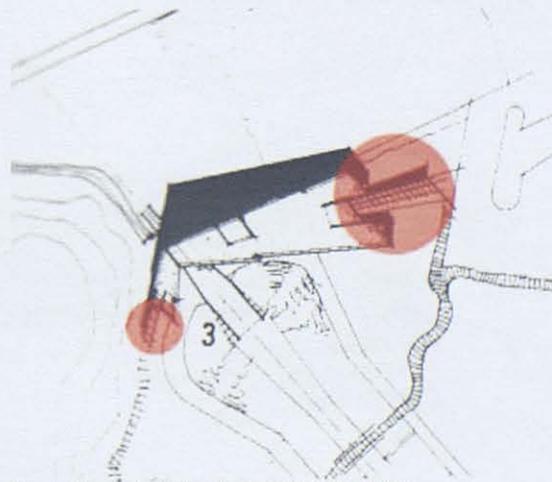


Fig. 15 Sunshade device at entry and scenic outlook.



Fig. 16 Sunshade device.



KARIJINI VISITOR CENTER

Karijini, Australia

Woodhead International

CONCEPT

Set in an ancient landscape of high plateaux, rugged hills and spectacular gorges, Karijini visitor center forms an introduction to the park's flora, fauna, people, and history. The visitor center echoes the undulation of the site. The walls represent the color and the texture of iron ore that is abundant in the region. In addition, the walls form an abstract representation of a kurrumanthu or goanna, an indigenous lizard in plan. Overall, the visitor center reflects its surroundings and represents the Aboriginal people of Australia.

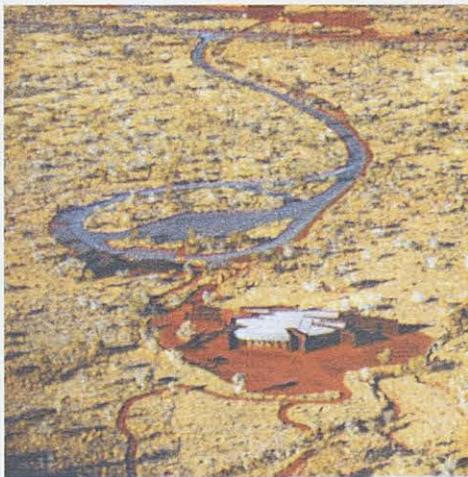


Fig. 17 Aerial view.

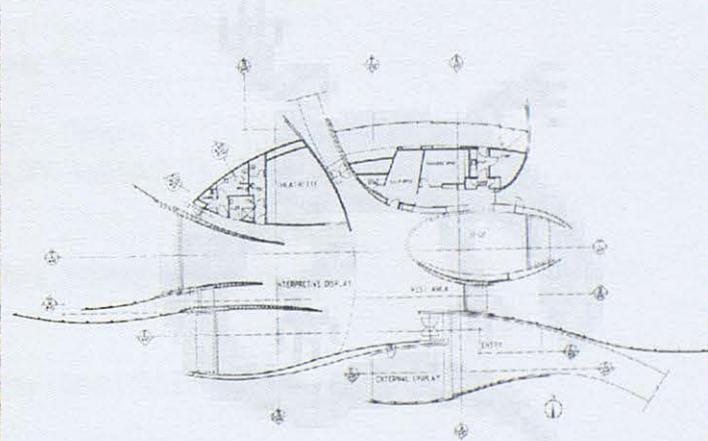


Fig. 18 Plan representative of a Guanna.

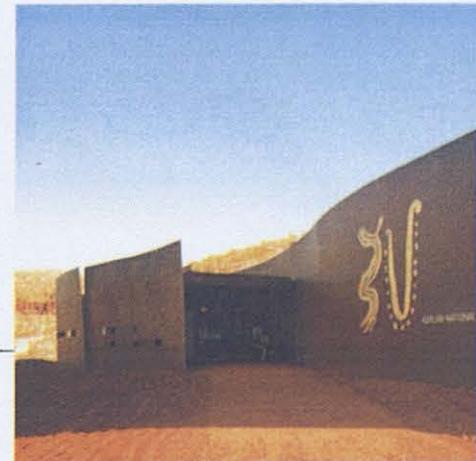


Fig. 19 Iron ore color.



REFERENCES

- Dheere, Jessica Joan. 1999. Four Visitor Centers Subtly Interpret the Landscape, Inviting Park Patrons to Become One with the Wild. *Architectural Record*, October: 144-149.
- Cerver, Francisco Asensio. 1997. *The Architecture of Museums*. New York: Hearst Books Int.
- Guy, Duane F. 2001. *The Story of Palo Duro Canyon*. Lubbock, Tx: Texas Tech UP.
- Griggs, William C. 2001. Man and the Palo Duro Canyon: From Coronado to Goodnight. In *The Story of Palo Duro Canyon*, ed. Duane F. Guy, 117. Lubbock, Tx: Texas Tech UP.
- Hughes, Jack T. 2001. Archeology of Palo Duro Canyon. In *The Story of Palo Duro Canyon*, ed. Duane F. Guy, 35. Lubbock, Tx: Texas Tech UP.
- Hughes, Sheila. 2001. Communing With Nature. *Architecture Review*, November: 47-49.
- Marcy, Randolph B. 1866. *Thirty Years of Army Life on the Border*. New York: Harper & Brothers.
- Underwood, James R., H. Charles Hood. 2001. Geology of Palo Duro Canyon." In *The Story of Palo Duro Canyon*, ed. Duane F. Guy, 3. Lubbock, Tx: Texas Tech UP.
- Wright, Robert A. 2000a. Paleontology of Palo Duro Canyon. In *The Story of Palo Duro Canyon*, ed. Duane F. Guy, 59. Lubbock, Tx: Texas Tech UP.
- 2000b. The Vegetation of Palo Duro Canyon. In *The Story of Palo Duro Canyon*, ed. Duane F. Guy, 87. Lubbock, Tx: Texas Tech UP.



REFERENCES

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2. Palo Duro Canyon. Paul Coleman 1997. www.users.arn.net .	25	11. Antelope Island. <u>Architectural Record</u> Oct. 1999. 146.	38
3. Goodnight Peak. Paul Coleman 1997. www.users.arn.net .	25	12. Antelope Island. <u>Architectural Record</u> Oct. 1999. 146.	38
4. Spanish Skirts. Photo by author 2002.	26	13. Antelope Island. <u>Architectural Record</u> Oct. 1999. 146.	38
5. Prairie Dog Town Fork. Paul Coleman 1997. www.users.arn.net .	27	14. Deer Valley Rock Art Museum. <u>The Architecture of Museums</u> . 15.	39
6. Geological section. <u>The Story of Palo Duro Canyon</u> . 7.	28	15. Deer Valley Rock Art Museum. <u>The Architecture of Museums</u> . 16.	39
7. Tecovas formation. Photo by author 2002.	28	16. Deer Valley Rock Art Museum. <u>The Architecture of Museums</u> . 16.	39
8. Restaurant. Photo by author 2002.	29	17. Karijini Visitor Center. <u>Architectural Review</u> Nov. 2001. 47.	40
9. Arrows. <u>The Story of Palo Duro Canyon</u> . 53.	30	18. Karijini Visitor Center. <u>Architectural Review</u> Nov. 2001. 48.	40
		19. Karijini Visitor Center. <u>Architectural Review</u> Nov. 2001. 49.	40



facility
interpretive center

"I could not determine in my own mind whether this remarkable defile had been formed, after long lapse of time, by the continued action of the current, or had been produced by some great convulsion of Nature..."

Captain Randolph B. Marcy (1866)



INTERPRETIVE CENTER



Fig. 1 Park Rustic Style. Palo Duro Canyon State Park cabin.



Fig. 2 Park Modern Style. Antietam National Battlefield Visitor

The Park Service initial attempt to forming a certain style of architecture in national parks came in the 1920's and 1930's. Buildings and other structures was designed to "harmonize" with the site not just by being unobtrusive, but also by being consistent with an aesthetic appreciation of the place. Park Service architects called this style of architecture as Park Service Rustic. Park Service Rustic style is "picturesque architecture that allowed built structures to be perceived as aesthetically harmonious elements of larger landscape composition" (Allaback 2000, 23). Rustic buildings emphasized the use of natural materials, decorative ornamentation, and associative elements to "harmonize" architecture with the park landscapes. This rustic image is closely associated with the experience of nature itself.

Between 1931 and 1948, total visits to the national park system jumped from about 3,500,000 to almost 30,000,000, but park facilities were unprepared. In 1949, Newton Drury, director of the National Park Services, described the parks as "victims of war" as park facilities were unimproved and poorly maintained since the 1930's (Allaback 2000, 1). Without immediate improvements, the parks risked losing the "nature" that attracted people to them, thus the *Mission 66* program was developed.

The *Mission 66* program elevated the parks to modern standards of comfort and efficiency, as well as an attempt to conserve national resources. The program allowed for Park Service to repair and build roads, bridges and trails, hire additional employees, construct new facilities ranging from campsites to administration buildings, improve employee housing, and obtain land for future parks (Allaback 2000, 3).



INTERPRETIVE CENTER

The program also initiated the development of a new building type that incorporated visitor facilities, interpretive programs, and administrative offices in one structure named the “visitor center”. With *Mission 66* complex building program and the desire to enrich and improve the park visitor experience, the Park Service demanded a building that represents efficiency and economy.

Mission 66 visitor centers embraced the new architectural style of Modernism. Modern materials and design characterized the new park architecture, with the free plan and expansive areas of glazing to provide views of nearby natural and cultural resources (French 2000). The new park architecture can be described as “Park Service Modern.” The new style embodied the spirit of the *Mission 66* program and park management facility (Allaback 2000, 17).

Park Service Modern “harmonized” with its surroundings in a new way. By stripping the ornamentation and associative elements of rustic design and adapting to the formal elements of modernism, *Mission 66* visitor centers remained unobtrusive and further reduced visual contrast with its surroundings (Allaback 2000, 22-23). Park Service Modern created a “more programmatic and functional space for less architectural presence” thus allowing for a more expanded orientation and educational program (Allaback 2000, 24).

Park Service Modern “centralized” the different park services and activities into one building to create a more efficient pattern of public use. In the 1960's, two new types of design configurations were introduced to clarify the different services and the circulation between them.

The two types, an entry lobby with distinct wings for other services and a series of independent buildings grouped around a courtyard or terrace, decentralized the visitor center (Allaback 2000, 32).

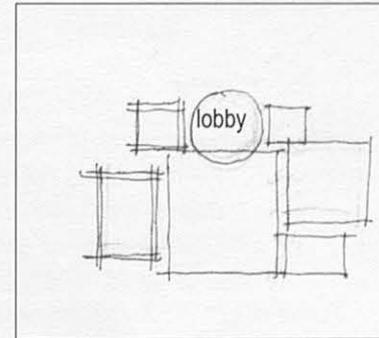


Fig. 3 Courtyard configuration.

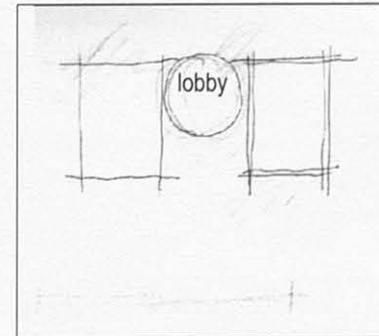


Fig. 4 Wing configuration.



INTERPRETIVE CENTER

The visitor center is one of the most useful facilities for helping the visitor to see the park and enjoy the visit. It is the center of the entire information and public service program of the park. It is the 'hub of the park interpretive program' as it distributes information and other services in the most efficient and significant manner. Without the visitor center, park visitors "drive aimlessly about the parks without adequate benefit and enjoyment from their trips" (Allaback 2000, 27).

DESIGN ISSUE

The location of a visitor center "affects how, in what sequence, the story is told, as well as how much or how little." The narrative depends on the type of park under consideration. For example, in wilderness parks, visitor centers can be placed in several locations near the edge of natural areas. Nevertheless, most historical parks are placed near the commemorative site to better understand its significance. There are three possible locations for a visitor center: at the entrance, "en route," or at the end.

entrance introduce visitor to "the total interpretation of park values"

en route introduce visitor to the park as well as provide information about the different park services and the site to be visited

terminal usually located at the end of popular destination, summarizes park values while incorporating relevant information about the area.

MISSION STATEMENT

The interpretive center should be intended to serve the public by interpreting scenery, natural resources, and cultural sites, and should be a major point of visitor arrival, orientation, and service.

GOALS AND OBJECTIVES

improve interpretation of park's story
stimulate public interest
orient and *direct* visitors
convey a mood of the park
invite a relax frame of mind
provide a space for group activities
enhance visitor experience
capture spirit of place
evoke emotional response



ISSUE: SENSATION

The facility should provide a richly varied, multi-sensual experience that awakens the viewer's senses to the spirit of the place.

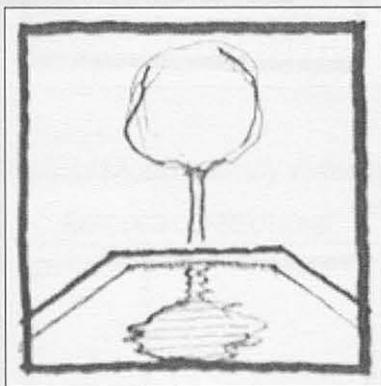
emotional response one's change in emotional state as a result of being in a particular space

spirit of place rich experience of a place as being recognizable and whole

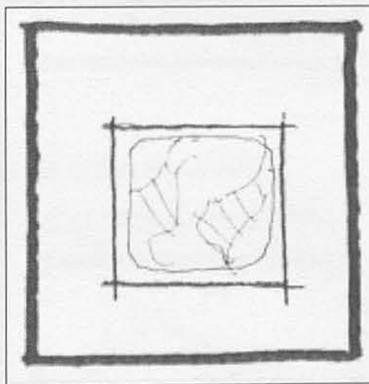
attitude one's mental state and disposition

The facility should enhance spatial experience through the use of "phenomenal lens."

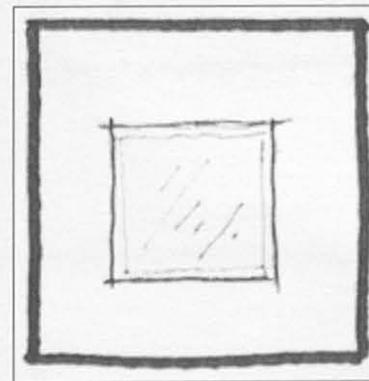
WATER



TRANSPERANCY



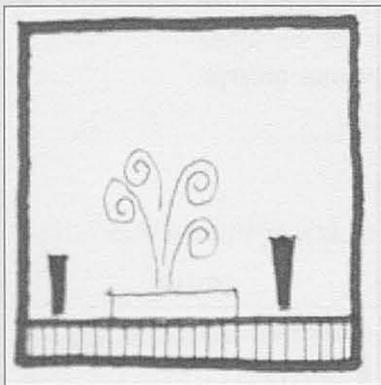
MIRRORS



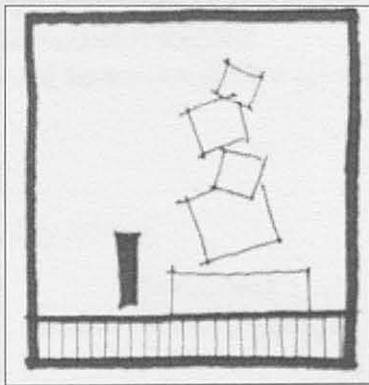
ISSUE: SENSATION

Spaces should have elements that appeal to all the senses.

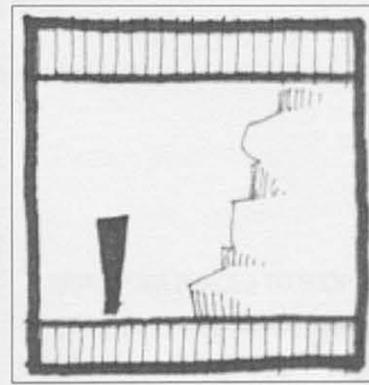
FOUNTAINS



SCULPTURES

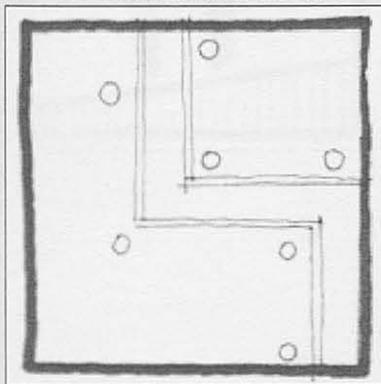


NATURAL DISPLAYS

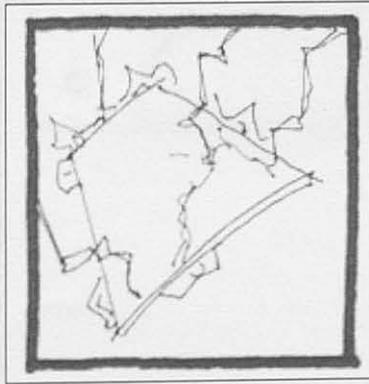


Spaces should intensify visitor experience through the materiality of details.

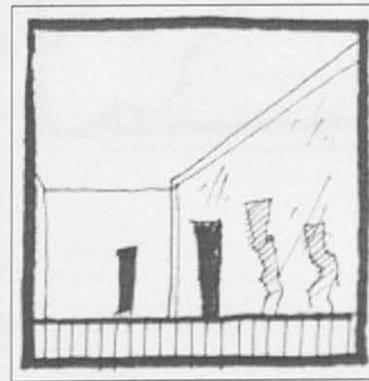
EXPOSED CONNECTIONS



ELECTRONICALLY ATOMIZED



BENDING GLASS



Palo Duro Canyon State Park

Interpretive Center



ISSUE: SPATIAL PROCESSION

The facility should create a sense of mystery and discovery to stimulate curiosity and interest.

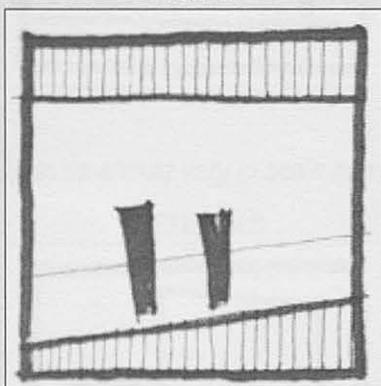
plan recognition ability to recognize where one is in a building in relationship to its plan

sequence the order in which spaces occur, procession

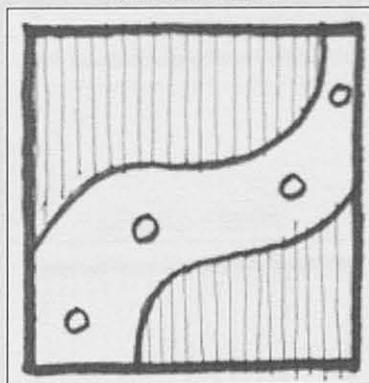
layering foreground, midground, and distant view giving a sense of what is near and what is far

Paths should encourage visitors to move in a leisurely manner.

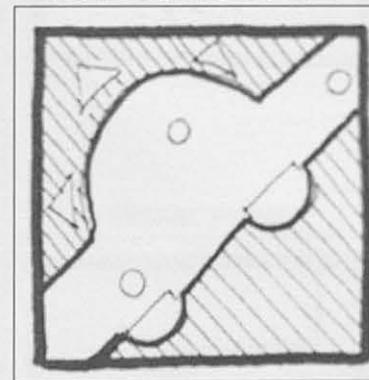
RAMPS



CURVED WALLS



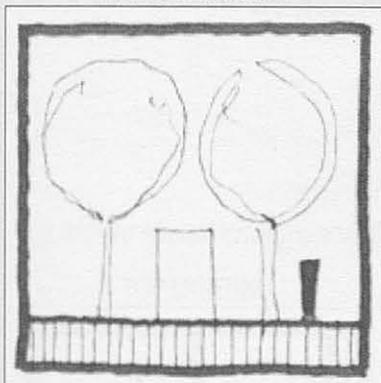
DISPLAYS & PLACES TO STOP



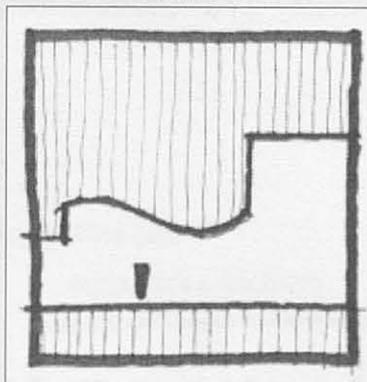
ISSUE: SPATIAL PROCESSION

The facility should provide a physical threshold wherever there is a change of mood to create a sense of anticipation.

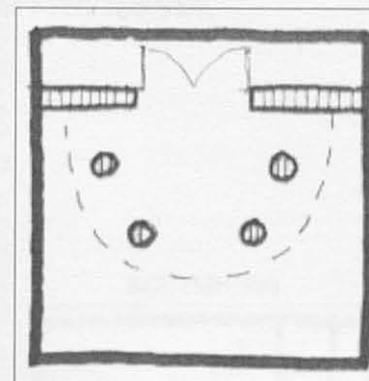
TREE OVERHANGS



PASSAGES

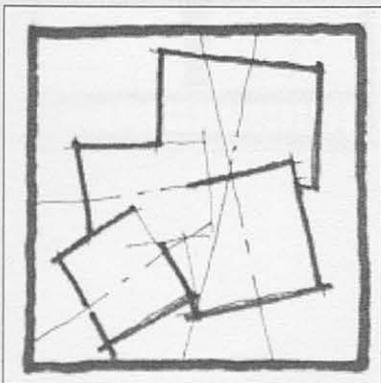


CLOISTERS

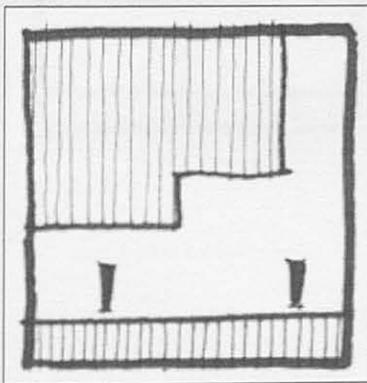


Spaces should vary in scale and form.

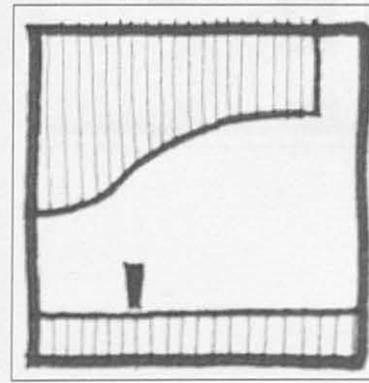
SHIFTED AXIS



CEILING HEIGHTS



ORGANIC FORMS



Palo Duro Canyon State Park

Interpretive Center



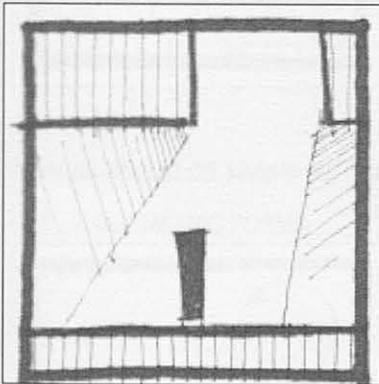
ISSUE: SILENCE

The facility should create a sense of loneliness and silence to encourage self-reflection.

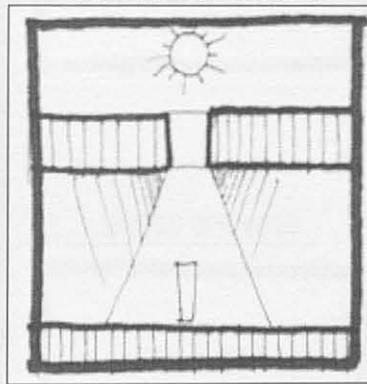
"An architectural experience silences all external noise; it focuses attention on one's very existence."

The facility should capture a variation of light throughout the day.

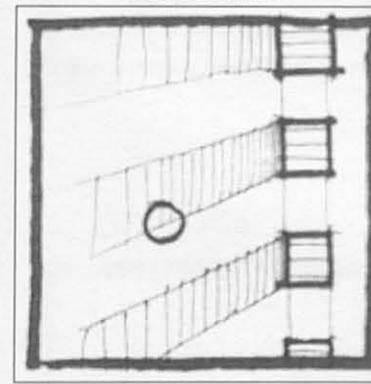
TOP LIGHTING



EQUINOXES & SOLSTICE



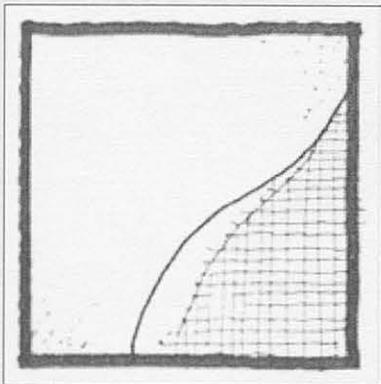
SIDE LIGHTING



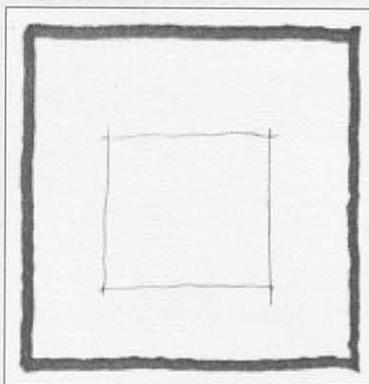
ISSUE: SILENCE

Spaces should express an unobtrusive and gentle texture.

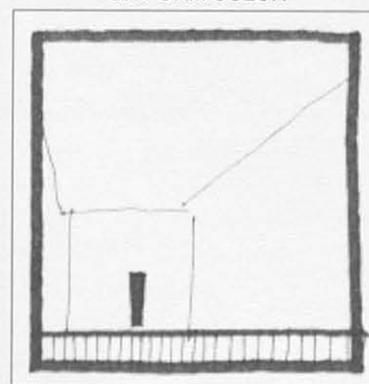
PLASTER



WHITE

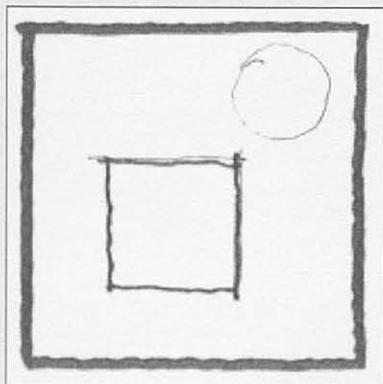


UNIFORM COLOR

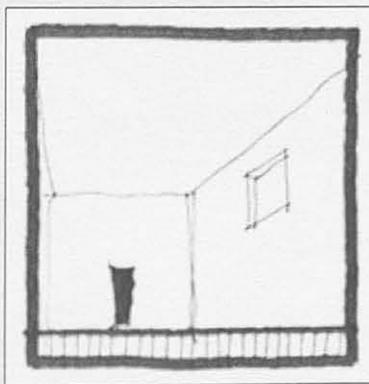


Spaces should be simple yet interesting.

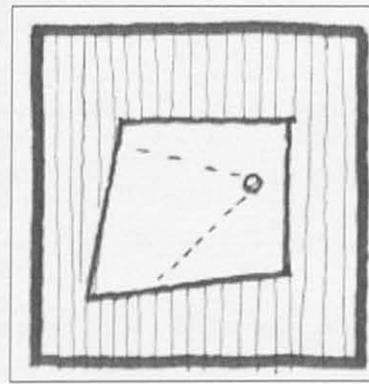
GEOMETRIC FORMS



LIMITED OPENINGS



SLIGHT AMBIGUITIES



Palo Duro Canyon State Park

Interpretive Center



facility
case studies



NAOSHIMA MUSEUM

Japan

Tadao Ando

CONCEPT

In Naoshima Museum, Tadao Ando addresses the spirit through the senses and invites reflection through its simplicity and emptiness. He uses pure geometries and genuine materials such as concrete to create “primitive” and “unadorned” spaces for people to become more aware of their own bodies and emotions. He believes that man’s goal is to unite himself with nature and that the presence of nature water, wind, and light, open sky is what humanizes a space. Therefore, Ando abstracts natural elements into his buildings to help man contemplate his surroundings from another angle.

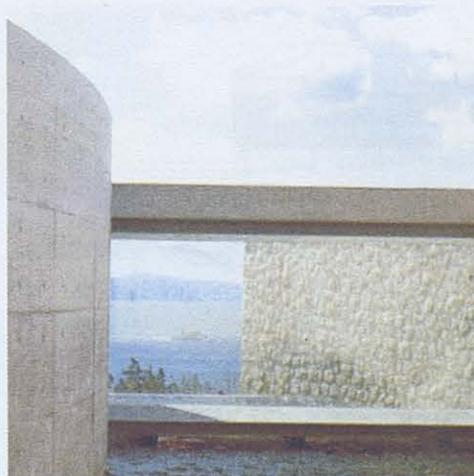


Fig. 5 Framing natural features along the path.

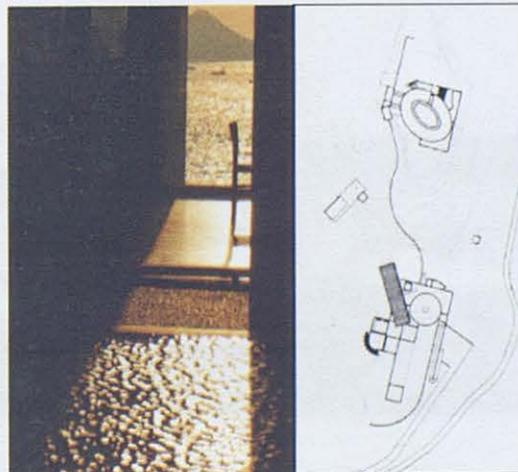


Fig. 6 Framing views and play of light and dark. Site Plan

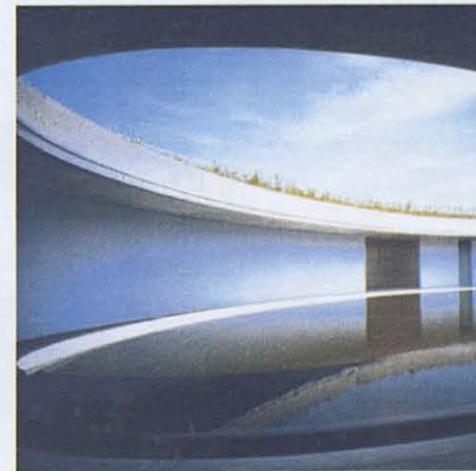


Fig. 7 Use of water as phenomenal lens.



DIPOLI STUDENT UNION

Otaniemi, Finland

Riema Pietila

CONCEPT

Dipoli Student Center is more than the concretization of a particular "spirit of the place." It also has a spatial identity that represents its surroundings. The elevations and sections of Dipoli reveal the crawling motion of the structure and the exciting spatial sequence of the public space. Pietila uses the image of the "cave of the wood" to create the continuous free-flowing character of the spatial sequence. Since the building is between the dormitories and the school buildings, the building is penetrated by a diagonal path, which forms the backbone of the functional pattern. Where the path enters, the walls swing back to create concave spaces of transition. To the exterior, the building projects a "giant outcrop of granite, while from within the atmosphere is reminiscent of a grotto." Pietila varied ceiling heights, used irregular forms, and shifted axis to create a sense of mystery and discovery within the spaces.

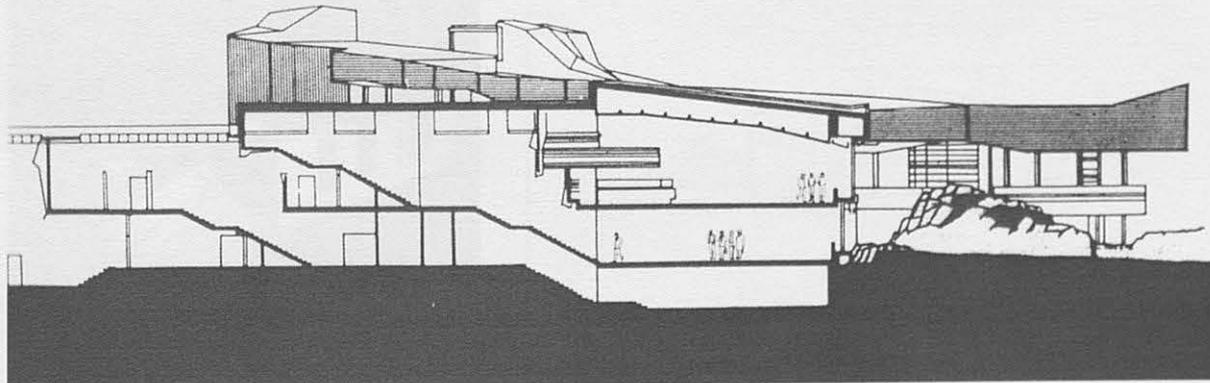


Fig. 8 Section.

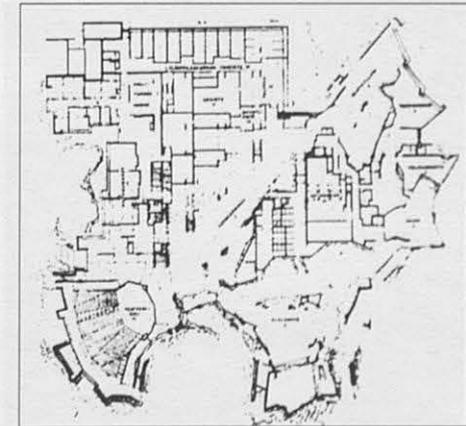


Fig. 9 Plan. Dipoli Student Union



SHOJI UEDA MUSEUM OF PHOTOGRAPHY

Tottori, Japan

Shin Takamatsu

CONCEPT

Shin Takamatsu relates architecture and nature by framing the scenery within the architecture. In the Shoji Ueda museum there is a sequence of four concrete volumes alternating with three spaces, all empty except for pools of water. The surface of the pools reflect the image of Mount Daisen, a neighboring volcano, and its surroundings as if it were a photograph. The vertical forms frames Mount Daisen as it becomes a prominent feature in the landscape. Spaces are simply articulated and the curve gently guides the viewers through the exhibits and its surrounding environment. Ramps and small openings enhances the experience by slowing down spatial progression and filtering light from above and below the spaces.

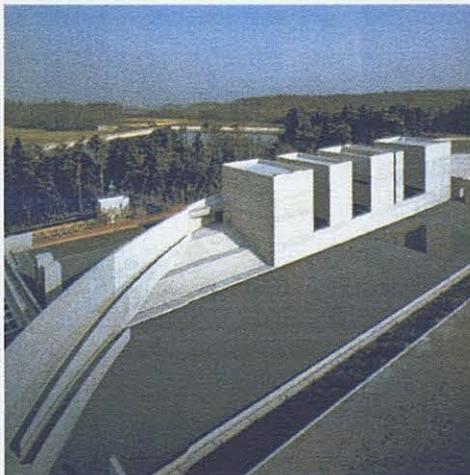


Fig. 10 Aerial of entry.

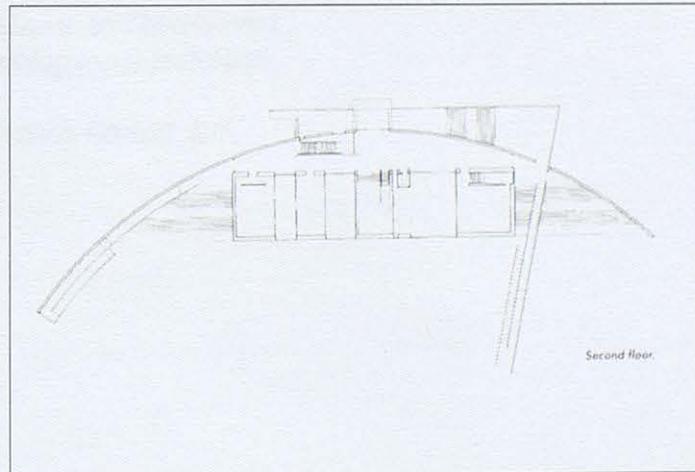


Fig. 11 Ground floor. Galleries.



Fig. 12 Mount Daisen framed by exhibition spaces.



REFERENCES

- Allaback, Sarah. 2000. *Mission 66 Visitor Centers: The History of a Building Type*. Washington: U.S. Department of Interior.
- Ando, Tadao. 1998. *Tadao Ando: Architecture and Spirit*, ed. Anatxu Zabalbeascoa and Javier Rodriguez Marcos. Barcelona: G. Gili.
- Cerver, Francisco Asensio. 1997. *The Architecture of Museums*. New York: Hearst Books Int.
- French, Christine Madrid. Mission 66: Modern Architecture in the National Parks. *The Emergence of the Mission 66 VisitorCenters*. Home page. <<http://www.mission66.com/documents/intro.html>>.
- Quantrill, Malcolm. 1985. *Riema Pietila: Architecture, Context, and Modernism*. New York: Rizzoli.



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facility
spatial and activity analysis



SPATIAL & ACTIVITY ANALYSIS

PARKING LOT

SIZE 4500 sf
USERS visitors, employees
OF USERS 1 to 15
EQUIPMENTS
N/A

APPROACH

Prepares visitor for park experience. Begins transition from "outside" to park atmosphere. Establishes mood of the park and image of the visitor center. Slowly and partially reveal the park's natural features to create a sense of mystery and discovery within the visitors.

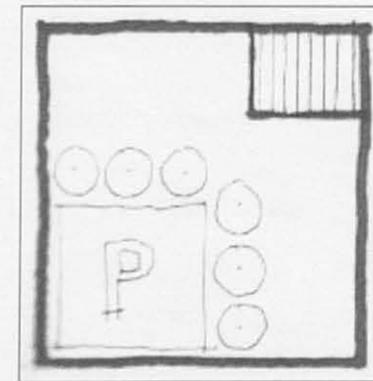
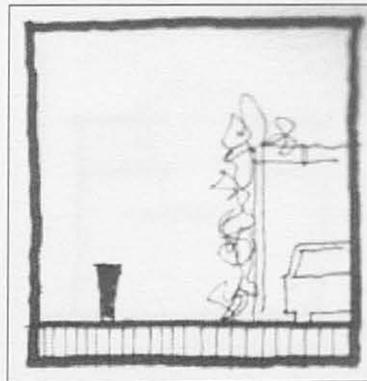
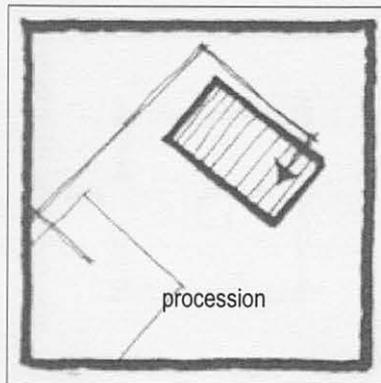
DESIGN RESPONSES

Parking lot should harmonize with the surroundings.

*Screen with natural planting.
Visually separate from visitor center.*

The path towards the visitor center should move in a leisurely manner to create a sense of mystery and discovery.

*Limit views
Use focal points
Use of ramps*



Palo Duro Canyon State Park

Interpretive Center



SPATIAL & ACTIVITY ANALYSIS

LOBBY

SIZE 1000 sf
USERS visitors
OF USERS 1 to 15
EQUIPMENTS
information desk, chairs, displays

ENTRY
Familiarize and orient visitors to different park services and activities. Create a "transition" from outside to park atmosphere. Establish or reinforce the mood of the park. Provide place to rest and relax. Prepares visitors for interpretation.

DESIGN RESPONSES

The space should convey a mood and invite a relaxed frame of mind.

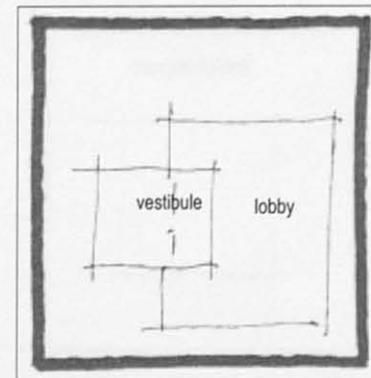
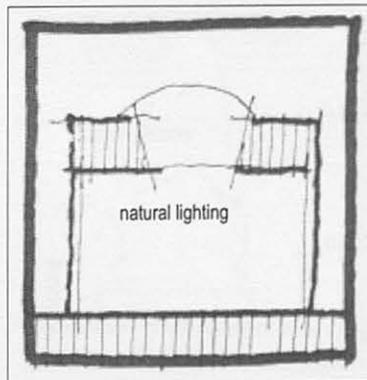
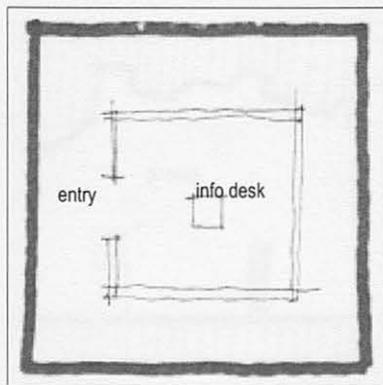
*Utilize artificial and natural lighting to convey the park atmosphere.
Provide a transition from the "outside" to the park atmosphere.*

The space should familiarize and direct visitors to different park services and activities.

*Information desk should be placed in a highly visible area.
Provide various ways to orient visitors.*

ADJACENCY/SEPARATION

Adjacent to gift shop.
Close proximity to restrooms and café.



Palo Duro Canyon State Park

Interpretive Center



SPATIAL & ACTIVITY ANALYSIS

EXHIBIT SPACE

SIZE 1000 sf x 4
USERS visitors
OF USERS 1 to 20
EQUIPMENTS
Hands-on display, dioramas, special displays

INTERPRETIVE

Learn about the park's cultural and historical values through various forms of interpretation. Inform visitors of Palo Duro Canyon's origin. Engages visitors through a multi-sensory experience to enhance visitor interpretation. Explains initial thoughts and experiences prior to entering visitor center. Prepares and enhances visitors tactile experience of the park at the canyon floor.

DESIGN RESPONSES

Each space should reflect and represent the character of the exhibit.

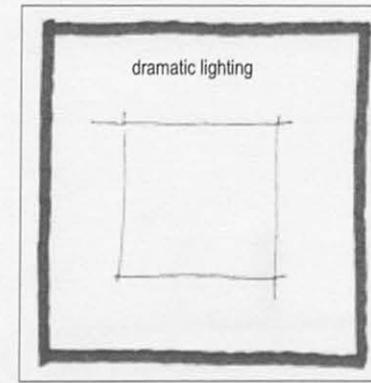
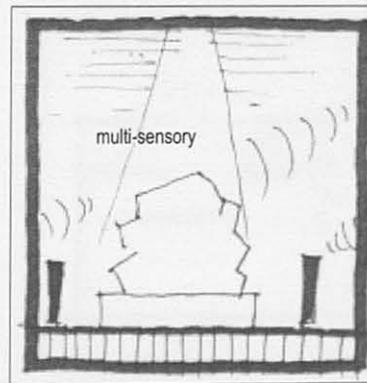
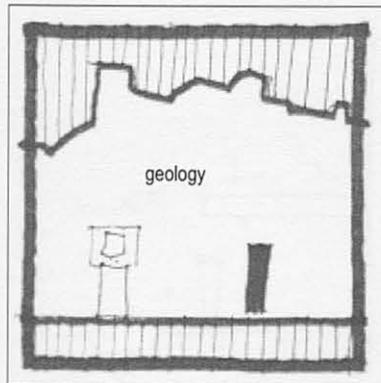
*Use colors, textures, and materials representative of the exhibit.
Symbolize the collection being displayed.*

Exhibit spaces should enhance and encourage interpretation of the historical and cultural values of the park.

*Use dramatic lighting to create focal points.
The space should be multi-sensory.*

ADJACENCY/SEPARATION

Adjacent to outdoor space.
Close proximity to lobby and auditorium.



Palo Duro Canyon State Park

Interpretive Center



SPATIAL & ACTIVITY ANALYSIS

MULTI-USE

SIZE 1400 sf
USERS visitors, researchers, locals
OF USERS 1 to 30

EQUIPMENTS
Tables, chairs, audio-visual, cabinets

RECREATION

Encourage different types of activities. Focuses on entertainment and less on education. Stimulate public interest about the park.

DESIGN RESPONSES

The space should adapt to different educational and recreational activities.

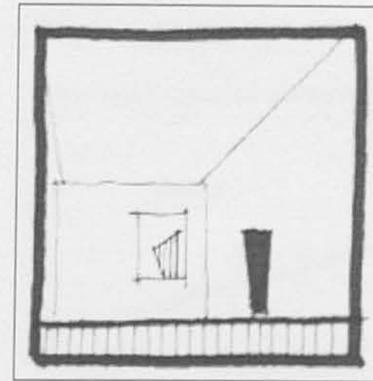
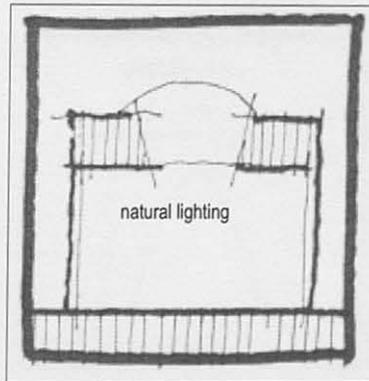
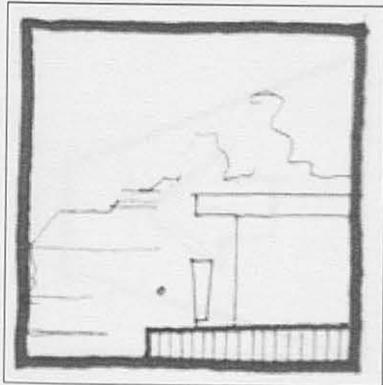
*Utilize open plan.
Divide into smaller spaces.
Provide access to outdoor areas.*

The space should facilitate social interaction between users.

*Utilize daylighting techniques.
Utilize focal points.*

ADJACENCY/SEPARATION

Adjacent to outdoor space.
Close proximity to workshop and lobby..



Palo Duro Canyon State Park

Interpretive Center



SPATIAL & ACTIVITY ANALYSIS

AUDITORIUM

SIZE 400 sf
USERS visitors, students
OF USERS 1 to 25
EQUIPMENTS
audio-visual equipments

EDUCATION

Learn more about park's cultural and historical values through videos and oral presentations. Encourages active participation in an intimate and private manner. Teach park responsibility.

DESIGN RESPONSES

The space should be able to support various forms of presentations.

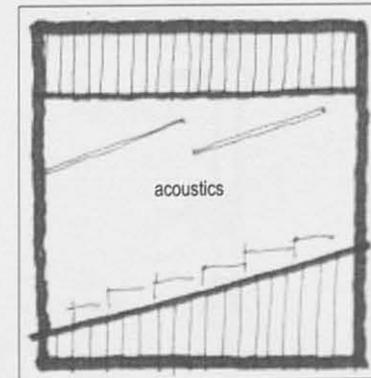
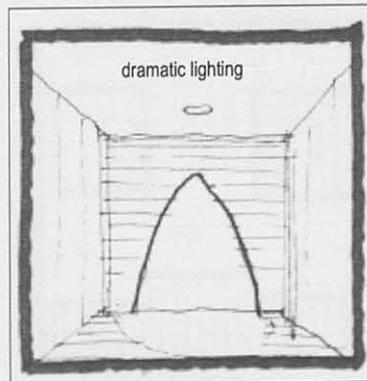
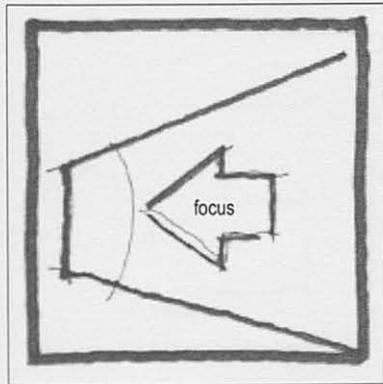
*Maximize the use of artificial lighting.
Provide space for audio-visual equipment.*

The space should be conducive to learning and promote active participation.

*Maximize acoustical treatment.
Focus on presentation.*

ADJACENCY/SEPARATION

Close proximity to exhibit spaces and lobby.



Palo Duro Canyon State Park

Interpretive Center



SPATIAL & ACTIVITY ANALYSIS

RESTAURANT

SIZE 2000 sf
USERS visitors, employees
OF USERS 1 to 25
EQUIPMENTS
Tables, chairs, concession stand, sink, storage

SOCIALIZE

Encourages social interaction between visitors and between visitors and park staff. Open atmosphere for relaxation and rest. Encourages interaction in a casual and open manner.

DESIGN RESPONSES

The space should promote social interaction between visitors and park staff to share park experiences and interpretation.

Promote café as a focal point.

Place café near or at the intersection major public paths.

The users should feel relax and at ease, mentally and physically.

Provide visual access to outside.

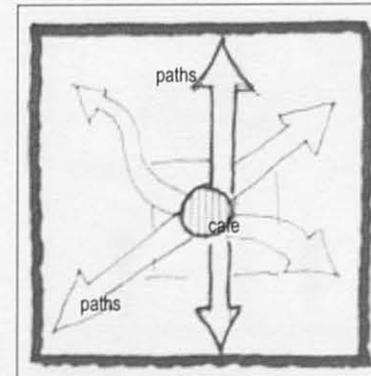
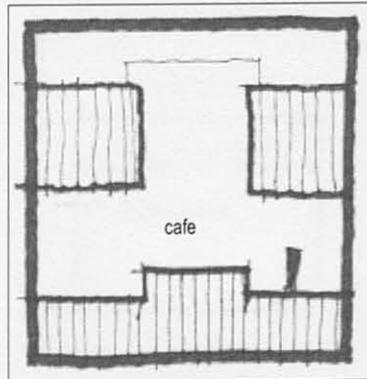
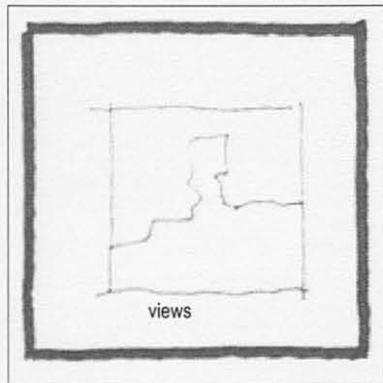
Use proper light levels of natural and artificial light.

Proper use of colors.

ADJACENCY/SEPARATION

Adjacent to gift shop and outdoor spaces.

Close proximity to lobby and public restrooms.



Palo Duro Canyon State Park

Interpretive Center



SPATIAL & ACTIVITY ANALYSIS

WORKSHOP ROOM

SIZE	800 sf x 2
USERS	visitors
# OF USERS	1 to 15
EQUIPMENTS	Tables, chairs, cabinets, special equipments

RESEARCH

Explores different historical and cultural values of the park. Maintain and preserves new discoveries within the canyon. Promote an educational experience that encourages social interaction as well as a tactile experience of the canyon's history.

DESIGN RESPONSES

The space should adapt to different research and educational activities.

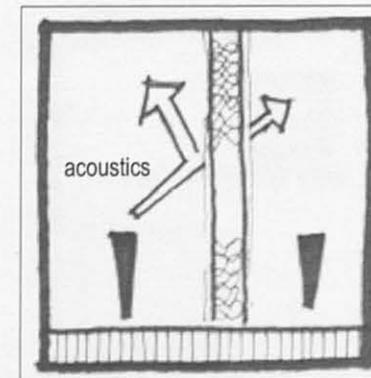
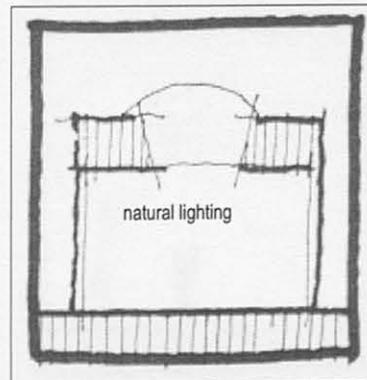
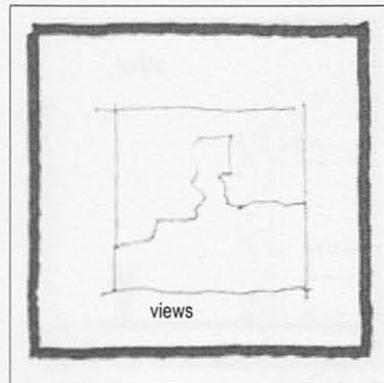
*Provide ample space for special equipments and task.
Space should subdivide.*

The space should create pleasant work atmosphere for the users to concentrate at the task at hand.

*Use proper light levels of natural and artificial light.
Proper use of colors.
Provide visual relief and variety.*

ADJACENCY/SEPARATION

*Adjacent to outdoor space.
Close proximity to multi-use, offices, and public restrooms.*



Palo Duro Canyon State Park

Interpretive Center



SPATIAL & ACTIVITY ANALYSIS

OUTDOOR TERRACES

SIZE varies
USERS visitors
OF USERS varies
EQUIPMENTS
Chairs, tables

REFLECTION
Provides a natural multi-sensory experience of the place. Encourages self-reflection and engages visitor with the "spirit of the place." Stimulates curiosity and interest about the canyon's origins. Refreshes and inspires viewer's mind and body.

DESIGN RESPONSES

Outdoor spaces should protect from the natural elements.

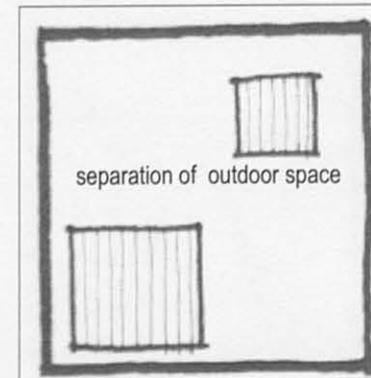
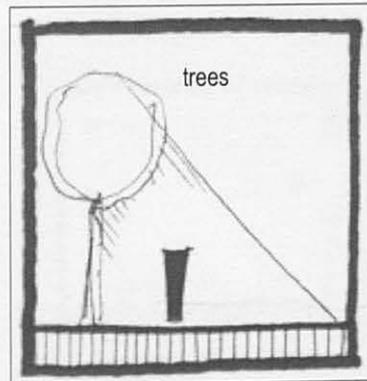
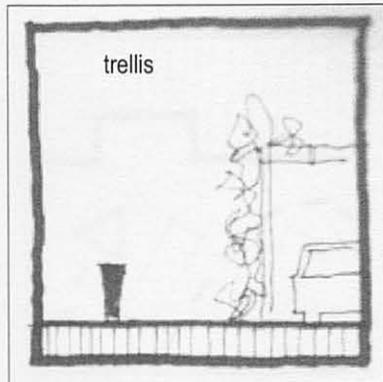
*Provide shaded areas.
Protect from noise.
Protect from winter wind.*

Outdoor spaces should provide places for self-reflection.

*Visually separated from public area.
Use focal points.
Partially protected from natural elements.*

ADJACENCY/SEPARATION

Adjacent to all spaces.



Palo Duro Canyon State Park

Interpretive Center



SPATIAL & ACTIVITY ANALYSIS

GIFT SHOP

SIZE 1000 sf
USERS visitors
OF USERS 1 to 15
EQUIPMENTS
Bookstands, displays, checkout counter

REMEMBRANCE

Purchasing of park merchandise for collection, education, and remembrance. Provides visitors with visual representation of park experience as a gift to others or as a remembrance of the place.

DESIGN RESPONSES

The space should permit angular traffic flow and create a perimeter design interest and excitement in movement.

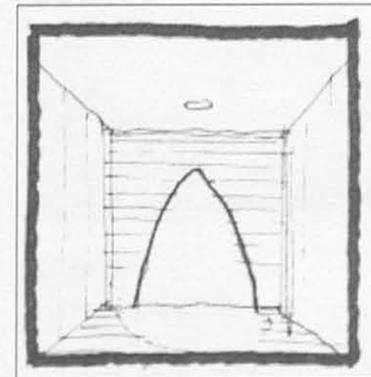
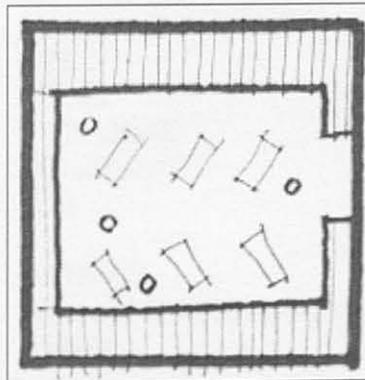
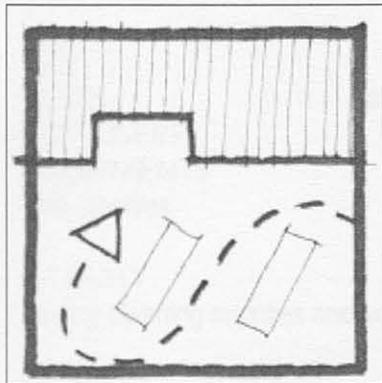
*Displays should be placed in a diagonal pattern.
Create focal points along the circulation flow.*

The space should create an attractive and pleasant buying and selling environment.

*Use dramatic lighting to create focal points.
Appeal to all senses.*

ADJACENCY/SEPARATION

Adjacent to cafe.
Close proximity to lobby and exhibit space..



Palo Duro Canyon State Park

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SPATIAL & ACTIVITY ANALYSIS

UTILITARIAN

PUBLIC RESTROOMS

SIZE 300 sf
USERS visitors, employees
OF USERS varies
EQUIPMENTS
Sinks, water closets, urinals

ACTIVITY
Utilitarian

STORAGE

SIZE 200 sf x 2
USERS employees
OF USERS 1 to 2
EQUIPMENTS
Cabinets, shelves

ACTIVITY
Storing office supplies and equipment and
gift store merchandise

MECHANICAL

SIZE 1000 sf
USERS employees
OF USERS 1 to 2
EQUIPMENTS
HVAC equipment

ACTIVITY
Maintainance

JANITORIAL

SIZE 50 sf
USERS employees
OF USERS 1 to 2
EQUIPMENTS
Sink, shelves

ACTIVITY
Storing cleaning supplies and equipment.

SERVICE ENTRANCE

SIZE 50 sf
USERS employees
OF USERS 1 to 2
EQUIPMENTS
none

ACTIVITY
Loading and unloading merchandise and
supplies.

KITCHEN

SIZE 1500 sf
USERS employees
OF USERS 1 to 10
EQUIPMENTS
Serving, dining, amd cooking equipment

ACTIVITY
Cooking, preparing



DESCRIPTION	NO. OF UNITS	SQ FOOTAGE	NO. OF SPACES	TOTAL
-------------	-----------------	---------------	------------------	-------

LOBBY/ENTRANCE	1	100	1	100
CONFERENCE SPACES	10	1000	10	1000
OFFICE	100	1000	100	1000
RECEPTION	1	100	1	100
RESTAURANT	1	1000	1	1000
ARCHIVE ROOM	1	100	1	100
PUBLIC RESTROOMS	1	100	1	100
KITCHEN	1	100	1	100

OFFICES	100	1000	100	1000
STORAGE	1	100	1	100
MECHANICAL	1	100	1	100
MECHANICAL	1	100	1	100
ENTRANCE	1	100	1	100

TOTAL	124	1200	124	1200
ADDITIONAL	1	100	1	100
TOTAL	125	1300	125	1300

PUBLIC PARKING	1	1000	1	1000
OUTDOOR SPACES	1	1000	1	1000

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facility spatial inventory



SPATIAL INVENTORY

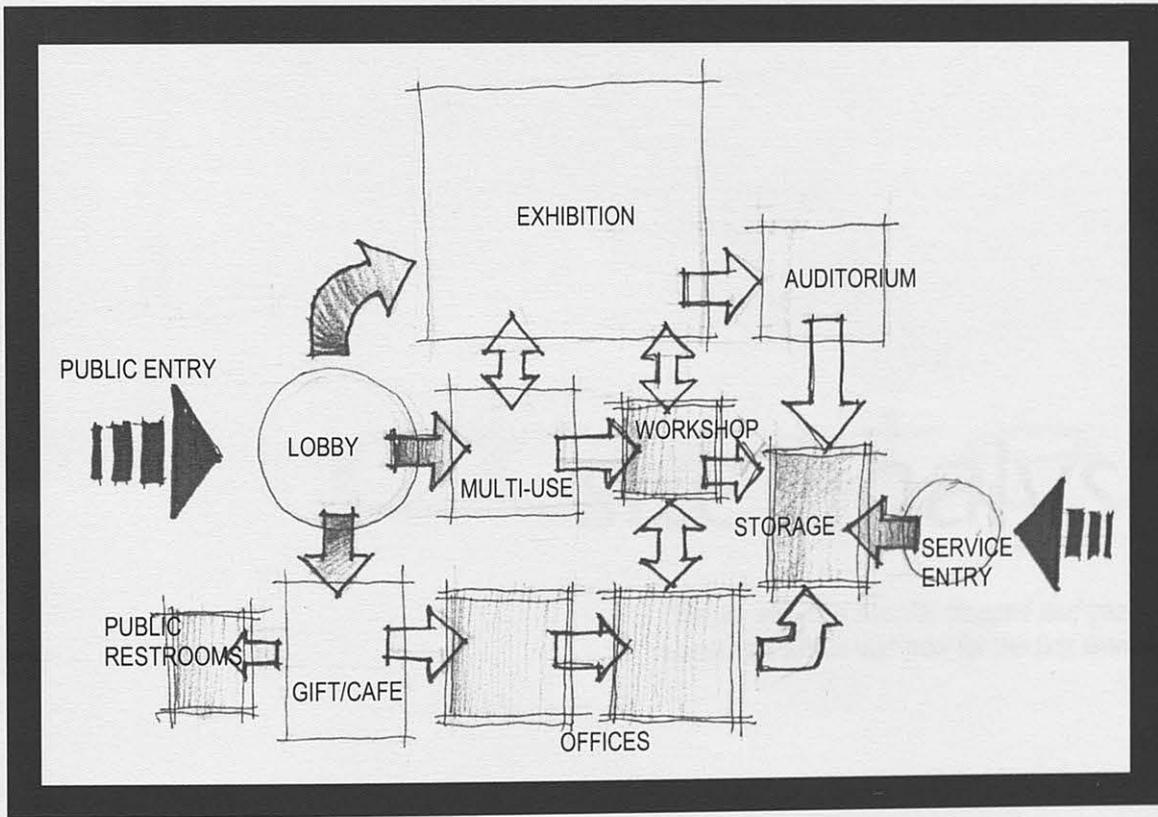
DESCRIPTION	# OF USERS	SF	# OF SPACES	SF TOTAL
LOBBY/ENTRY	1 to 15	1000	1	1000
EXHIBIT SPACES	1 to 20	1000	4	4000
GIFT SHOP	1 to 15	1000	1	1000
MULTI-USE	1 to 30	1400	1	1400
AUDITORIUM	1 to 25	400	1	400
RESTAURANT	1 to 40	2000	1	2000
WORKSHOP ROOM	1 to 15	800	2	800
PUBLIC RESTROOMS	varies	300	7	300
KITCHEN	1 to 15	1500	1	1500
OFFICES	1	200	6	1200
STORAGE				
office/gift shop	1 to 2	200	1	200
workshop	1 to 2	200	1	200
JANITORIAL	1	50	1	50
MECHANICAL	1 to 2	1000	1	1000
SERVICE ENTRANCE	1 to 2	50	1	50
TOTAL net				15,100 sf
USEABLE 1.25				18,875 sf
GROSS 1.05				15,855 sf
PUBLIC PARKING	1 to 15	4,500	1	4,500 sf
OUTDOOR SPACES	varies	varies	varies	varies

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FACILITY LAYOUT



THE ANALYSIS

TELEPHONOGRAPHY
1844-1850

context site analysis

"We all, with one accord, stopped and gazed with wonder and admiration upon a panorama which was now for the first time exhibited to the eyes of civilized man."

Captain Randolph B. Marcy (1866)

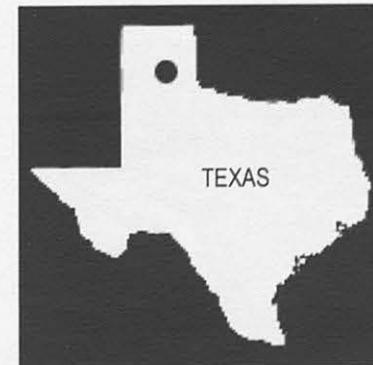
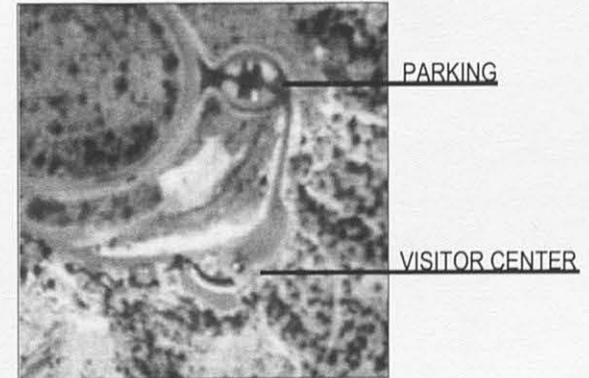


SITE ANALYSIS

PALO DURO CANYON STATE PARK
Canyon, Texas



Palo Duro Canyon State Park

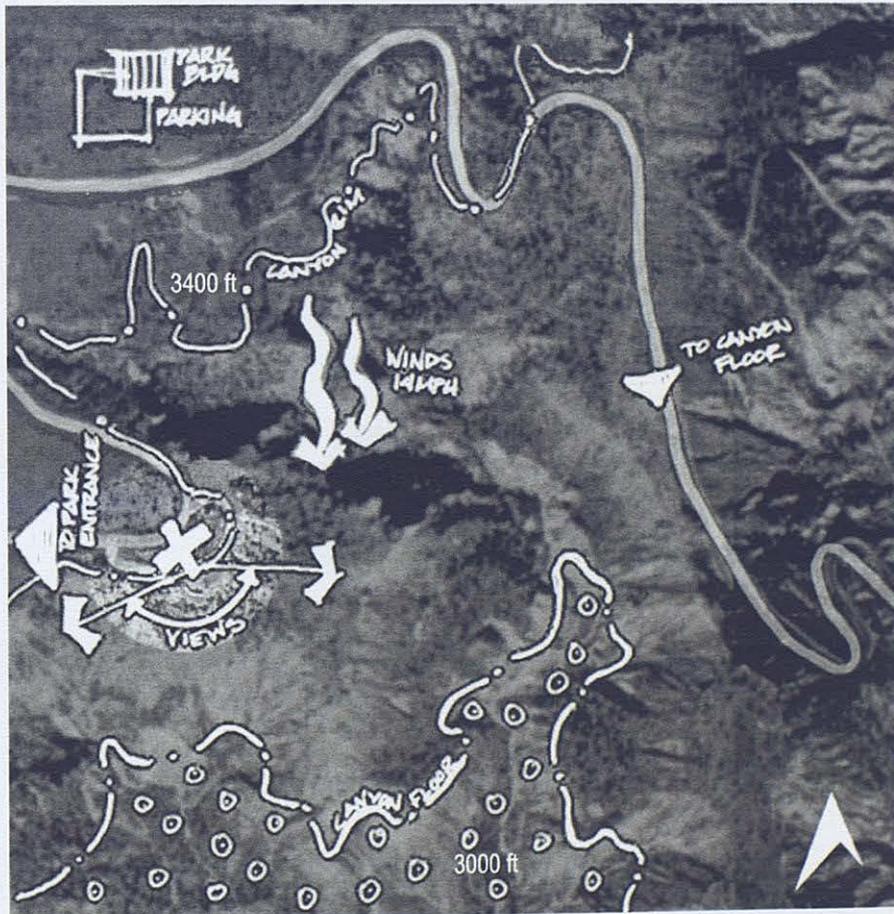


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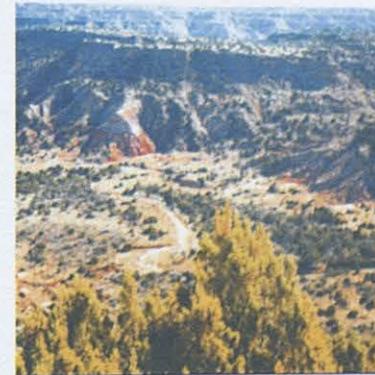


SITE ANALYSIS

PALO DURO CANYON STATE PARK
Canyon, Texas



MONTH	WIND	
	SPEED	DIR
JAN	13.0	SW
FEB	14.0	SW
MAR	15.5	SW
APR	15.4	SW
MAY	14.6	S
JUN	14.2	S
JUL	12.7	S
AUG	12.0	S
SEP	12.9	S
OCT	12.9	SW
NOV	13.1	SW
DEC	12.9	SW



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design
response



SCHEMATIC REVIEWS

CONCEPT - verticality

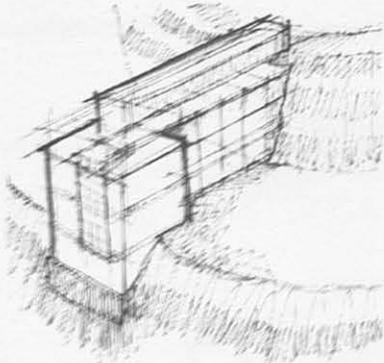
emulate natural features - pinnacles such as "The Lighthouse"

enhance spatial sequence through the use of ramps and downward progression similar to geological layers

reinforce the content of exhibit through views

provide views at end of each ramp exhibit

express geological layers through the facade as well as spatial sequence



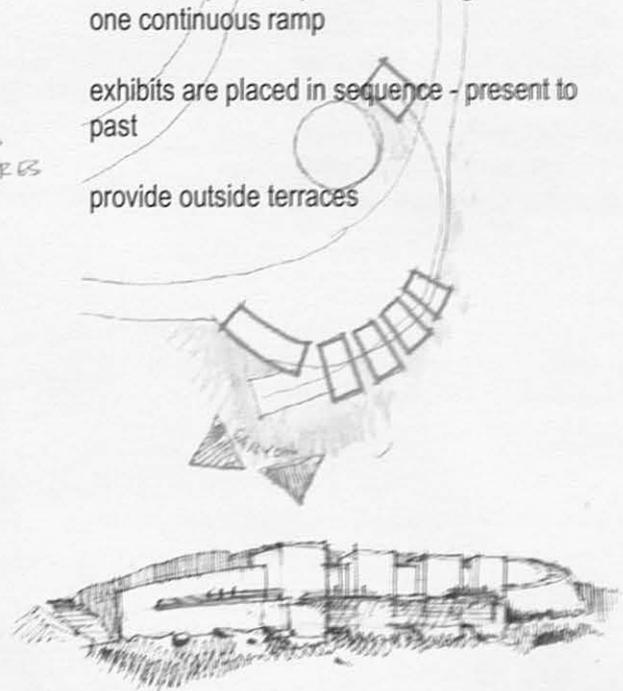
CONCEPT - horizontality

emphasize horizontality found throughout the canyon - geological layers

enhance spatial experience through use of one continuous ramp

exhibits are placed in sequence - present to past

provide outside terraces



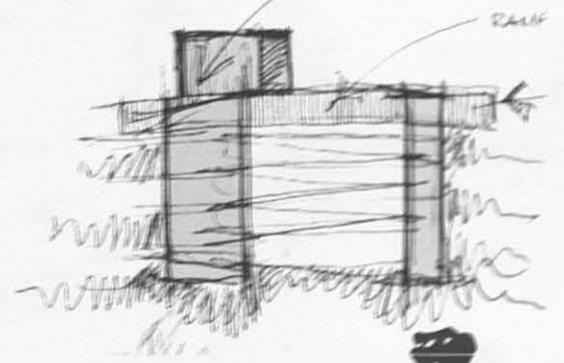
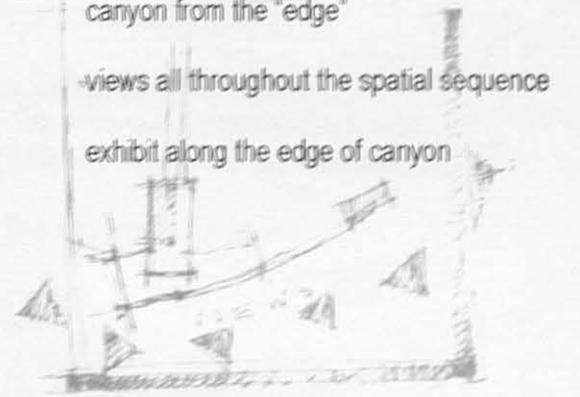
CONCEPT - experience

emphasize tactile experience

enhance sensation of experiencing the canyon from the "edge"

views all throughout the spatial sequence

exhibit along the edge of canyon



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FINAL SCHEME

CONCEPT - spatial sequence

The final scheme combines all three concepts: the verticality of the canyon's pinnacles, the geological layers and patterns, and the importance of visitor experience.

DESIGN REVIEW CRITICISMS

bridge as an architectural element

enhance and develop visitor experience through clear circulation system and exciting spatial sequence

clarify main exhibit space circulation and enhance spatial experience

begin visitor experience from the park road

materials

maintain controlled spatial sequence

DESIGN ISSUES & RESPONSES

character - emulate natural features

orientation - clear spatial sequence

identification - through views & site placement

image - emphasize verticality, point of reference

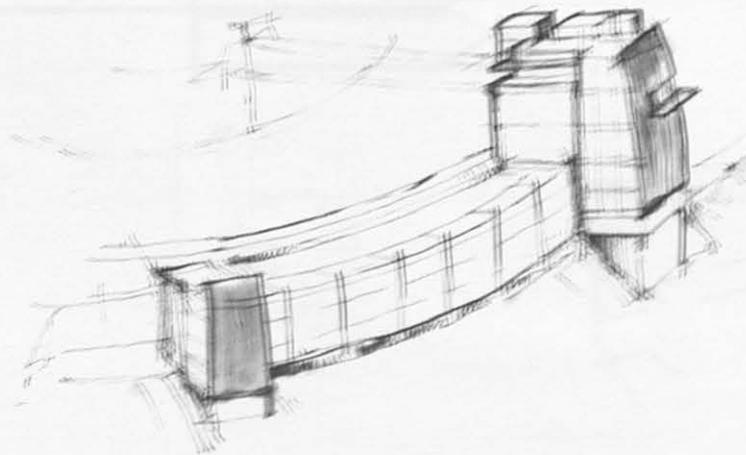
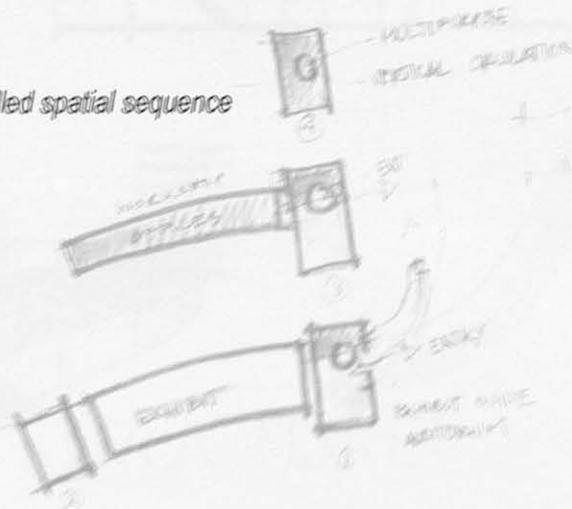
interpretation - controlled and continuous exhibit space

shelter - protected from weather

sensation - visual and tactile experience, tall vertical spaces

spatial procession - controlled sequence starting from the park road, expression of geological layers, & enhance vertical circulation through open views toward the canyon

silence - panoramic views, use simple geometric shapes



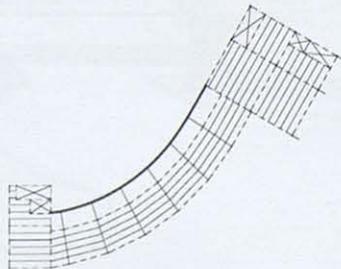
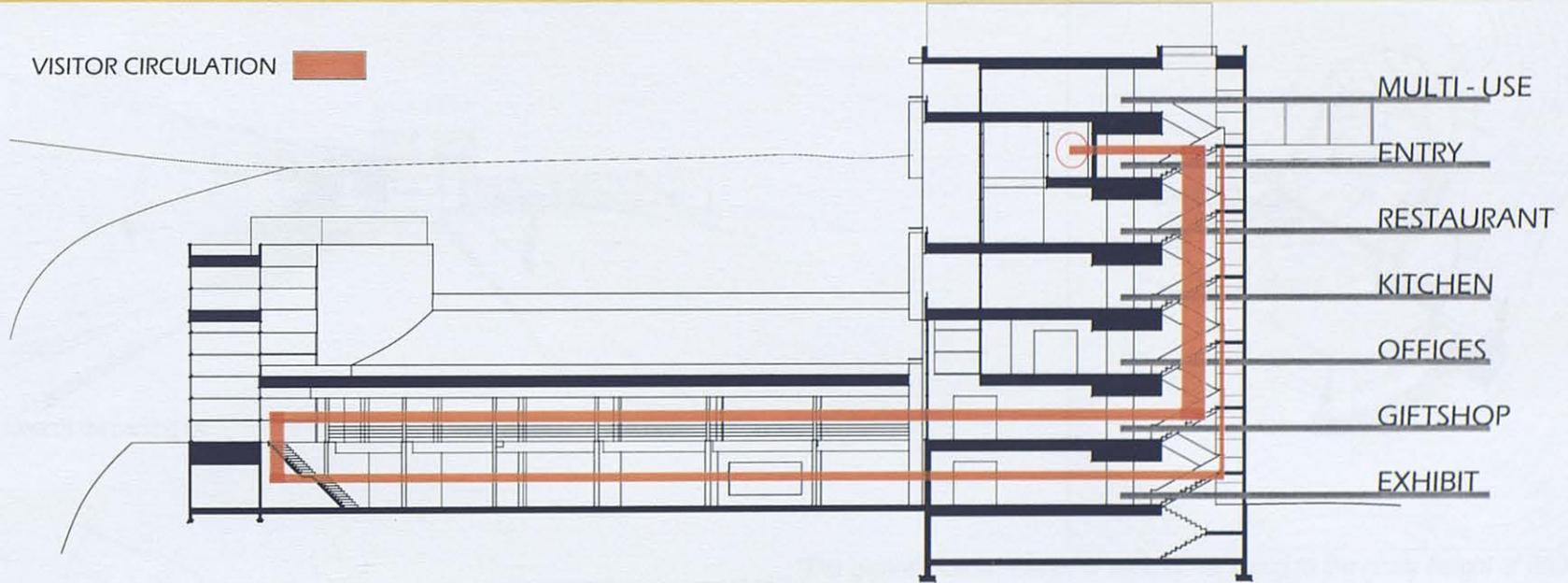
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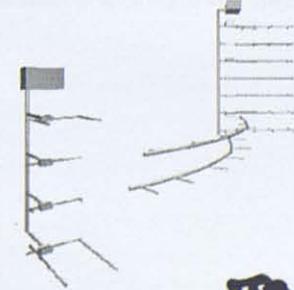
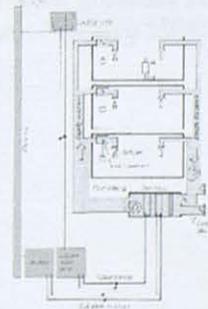


BUILDING SYSTEMS

VISITOR CIRCULATION 



STRUCTURE

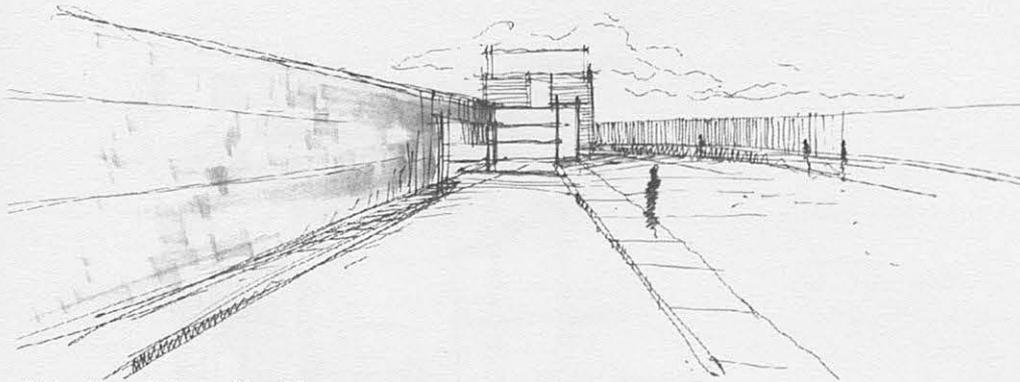


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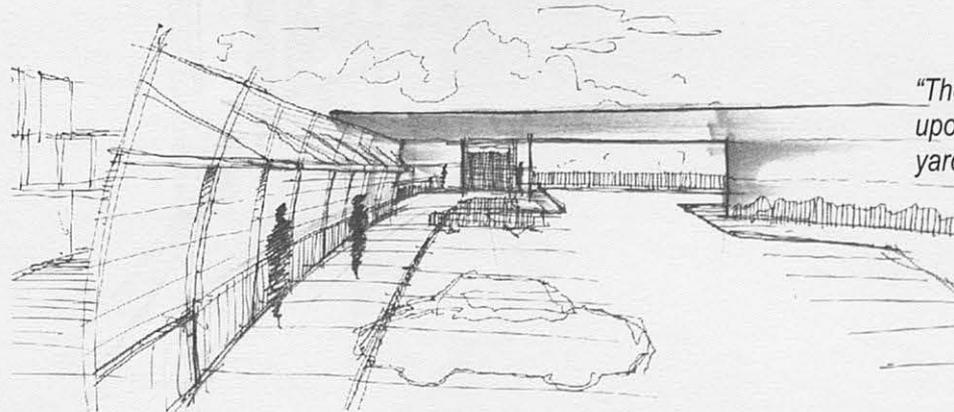
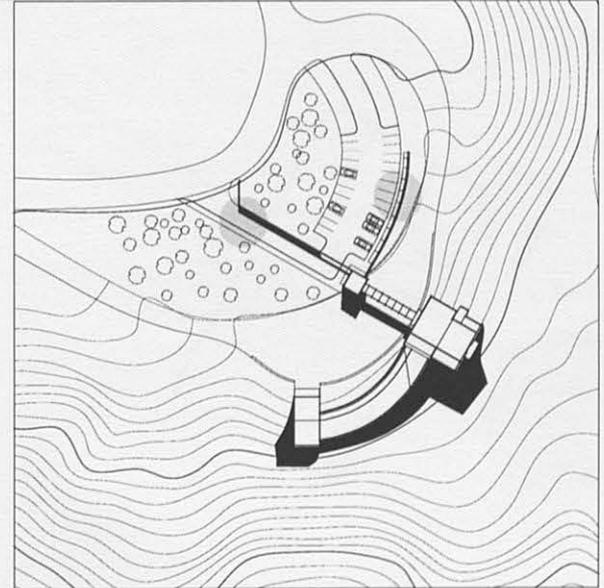
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APPROACH



driving towards the parking lot



walk towards the bridge

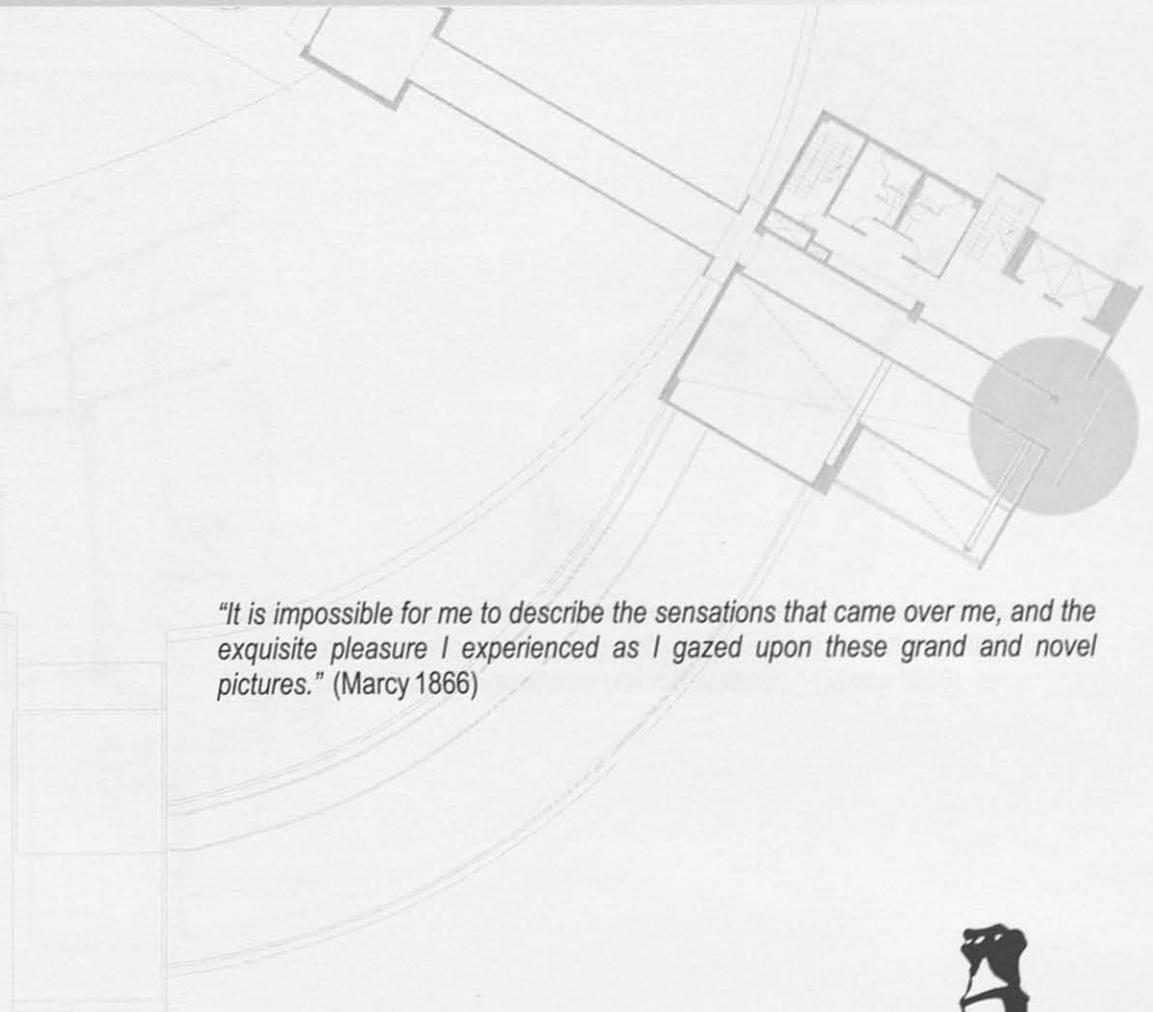
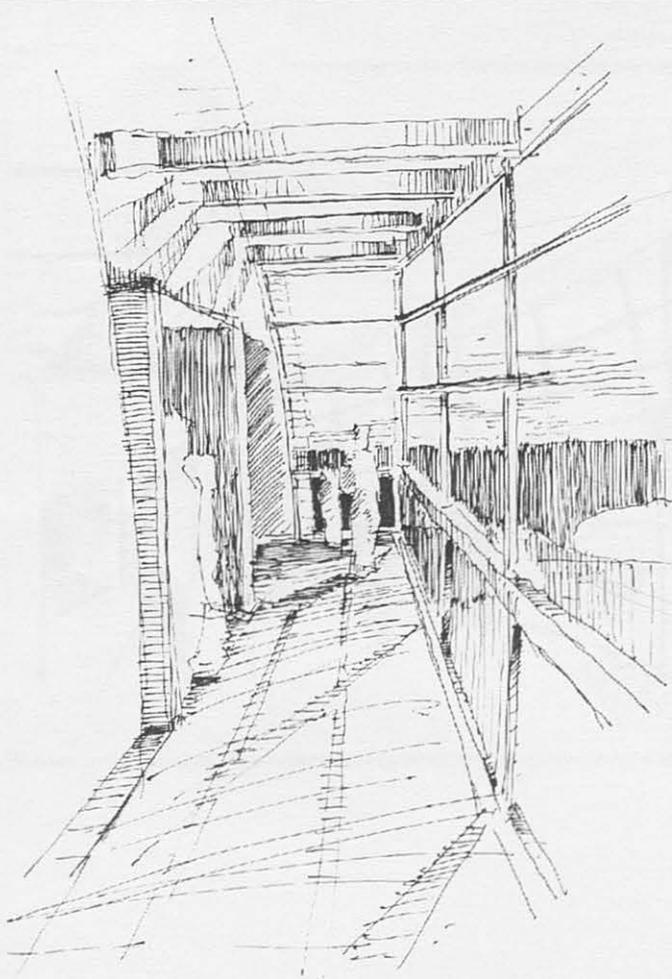
"The gigantic escarpments of sandstone, rising to the giddy height of 800 feet upon each side, gradually closed in as we ascended, until they were only a few yards apart..." (Marcy 1866)

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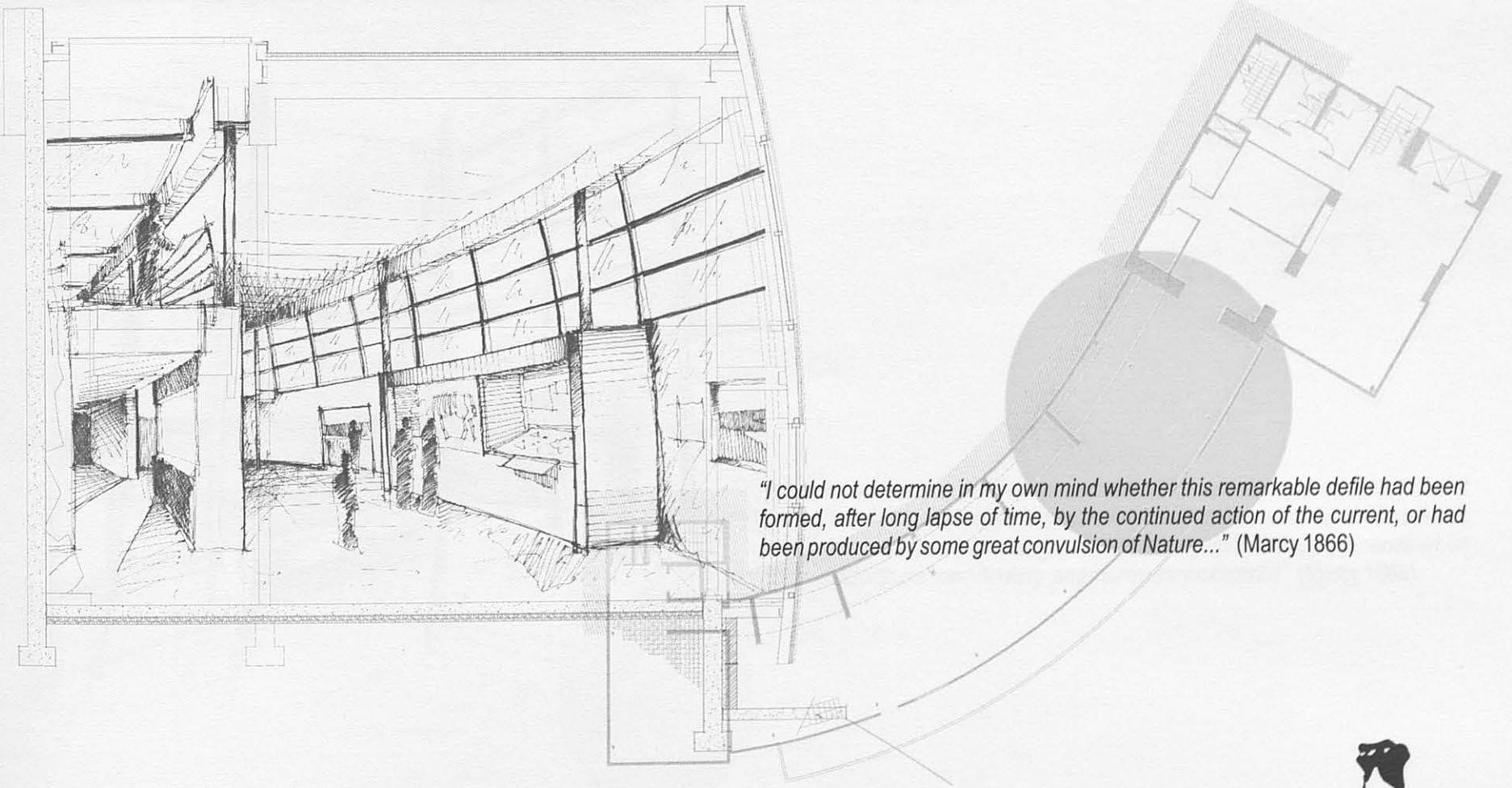
MAIN ENTRY - bridge



"It is impossible for me to describe the sensations that came over me, and the exquisite pleasure I experienced as I gazed upon these grand and novel pictures." (Marcy 1866)



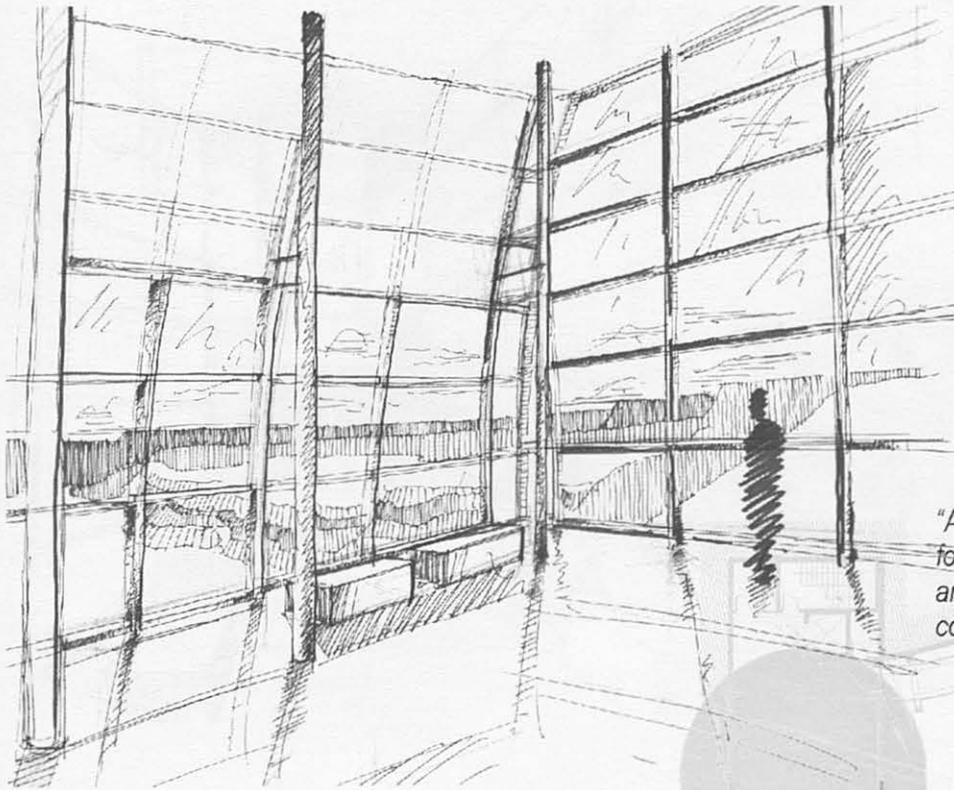
EXHIBIT



"I could not determine in my own mind whether this remarkable defile had been formed, after long lapse of time, by the continued action of the current, or had been produced by some great convulsion of Nature..." (Marcy 1866)



SCENIC OUTLOOK



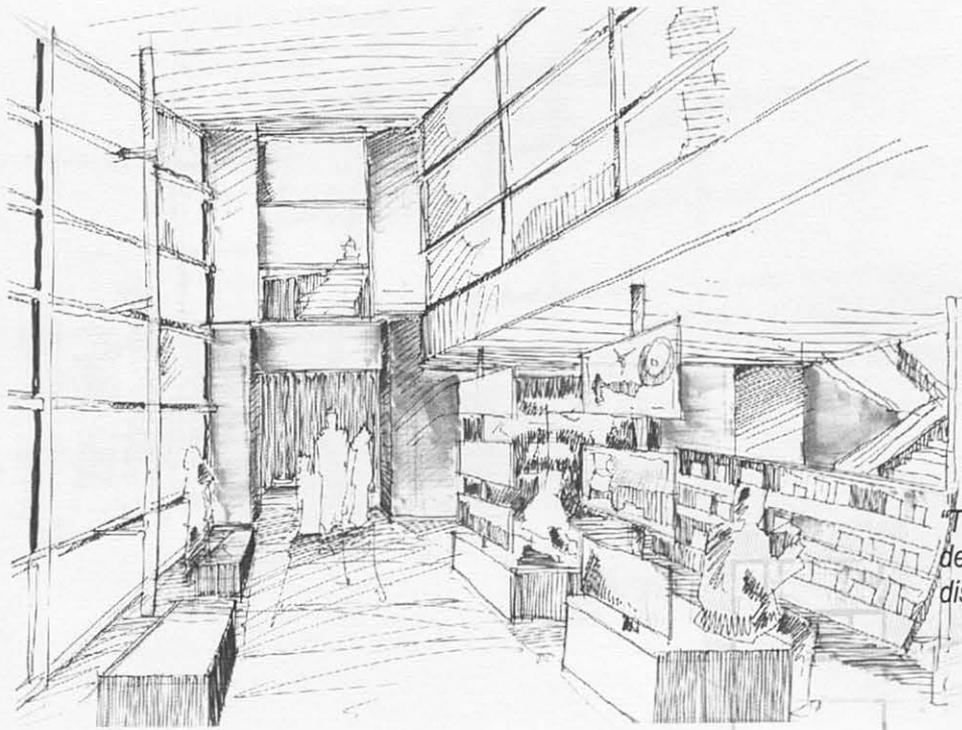
"All here was crude Nature...its unreclaimed sublimity and wildness, and it forcibly inspired me with the that veneration and awe...as we consider the solemn and important lesson that is taught us in reflecting upon their permanence when contrasted with our own fleeting and momentary existence" (Marcy 1866)

Palo Duro Canyon State Park

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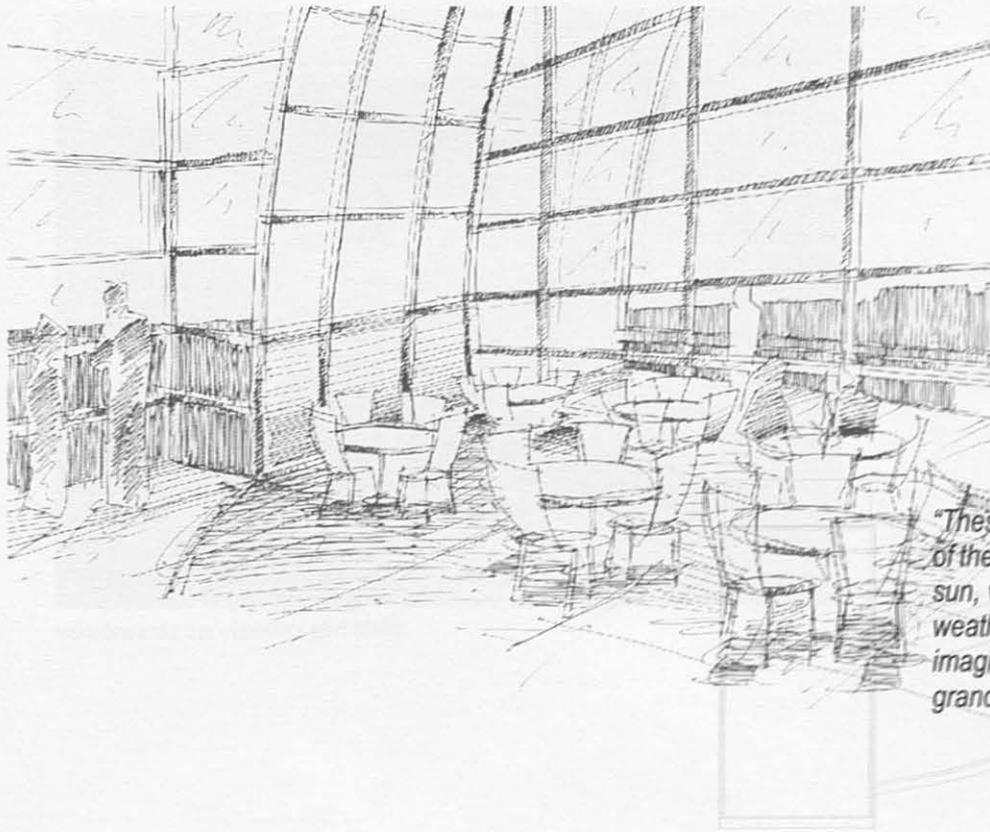
GIFT SHOP



"This, standing upon its lofty pedestal, overlooks the valley, as if it had been designed and executed by the Almighty Artist as the presiding genius of these dismal solitudes." (Marcy 1866)



RESTAURANT



"These stupendous escarpments of solid rock, rising precipitously from the bed of the river to such height as, for a great portion of the day, to exclude the rays of sun, were worn away, by the lapse of time and the action of the water and the weather, into the most fantastic forms, that required but little effort of the imagination to convert into works of art, and all united in forming one of the grandest and most picturesque scenes that can be imagined." (Marcy 1866)



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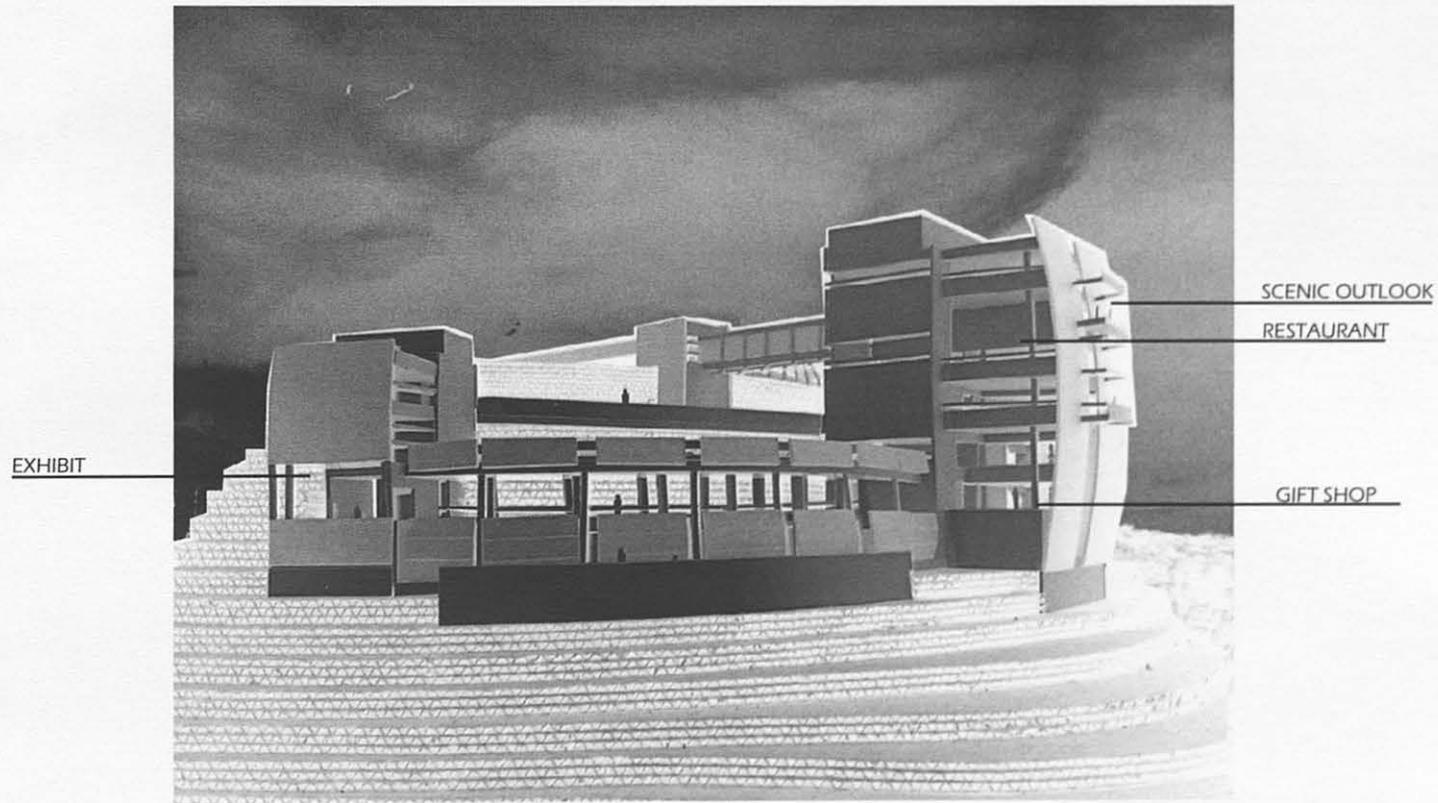
view towards the elevators and stairs



view towards the observation deck



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REFERENCES

Marcy, Randolph B. 1866. *Thirty Years of Army Life on the Border*.
New York: Harper & Brothers.

