Experiencing Architecture: Experiencing Nature

by
MaryAlice Torres
B.Arch., University of Texas
Austin, Texas
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Signature of the author _____
MaryAlice Torres, Department of Architecture
February 7, 1992

Certified by _____
Edward Levine
Professor of Visual Arts
Thesis Supervisor

Accepted by _____
Julian Beinart
Chairman, Departmental Committee on Graduate Students

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There are many who I feel contributed to this thesis,(whether they realize it or not) but only a few who will want to continue to read this page. Feel free to move along. First and foremost, I owe a great deal of gratitude to my thesis advisor, Ed Levine, for challenging me in a new direction of writing that proved to provide a constant change in the understanding of my personal architectural experience. Thank you for helping me to trust myself enough to write about an experience that words can never completely convey. Without your constant support and insight, I could have never completed this work.

To my readers, Akthar Badshah and Larry Vale, who contributed invaluable criticism and direction. To the Aga Khan Program, who provided the travel grant which sparked the idea for this thesis. To the many people at the Alhambra who provided assistance and allowed Kevin Low and me access beyond daylight hours, an immeasurable gift to experience. To the people of Spain, whose warmth and spirit inspired me to want to experience more. To Erica Song and Jennifer Mecca, for their assistance in production.

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To the many friends and family who offered words of support and encouragement along the way. To my parents, whose love and support throughout the years has given me the confidence to challenge my ideas.

And finally, I would like to dedicate this work to my fiancee, John MacDonald, whose belief in perseverance I will always admire. Without you, I would have struggled twice as hard. Thank you for your love and support.

EXPERIENCING ARCHITECTURE: EXPERIENCING NATURE

by

MaryAlice Torres

Submitted to the Department of Architecture on February 7, 1992
in partial fulfillment of the requirements for the Degree of
Master of Science in Architecture Studies

a b s t r a c t:

The idea for this thesis came from the recognition of the richness in an architectural experience and the desire to understand more about the meaning of this experience in the larger context of architecture and culture. Andalusia, Spain provides a uniqueness in that it unites, through many years of struggle, two cultures, the Spanish and the Islamic.

It begins with the description of a personal architectural experience...a journey through the Alhambra. From this description a clearer understanding of its meaning is derived. The existence of a dialog between nature and architecture becomes evident in the analysis. Light and shadow are integral in the making of this experience and layered upon these are elements which unify the experience. The integration of these aspects of the architectural experience provide a richer understanding of the definition of the architectural experience. As the experience becomes more clearly understood, its role in Islamic architecture in Spain becomes unveiled.

This thesis is an attempt to challenge the personal experience of architecture and to analyze its meanings as a way to extend the understanding of Islamic architecture in Spain.

Thesis Supervisor: Edward Levine
Title: Professor of Visual Arts

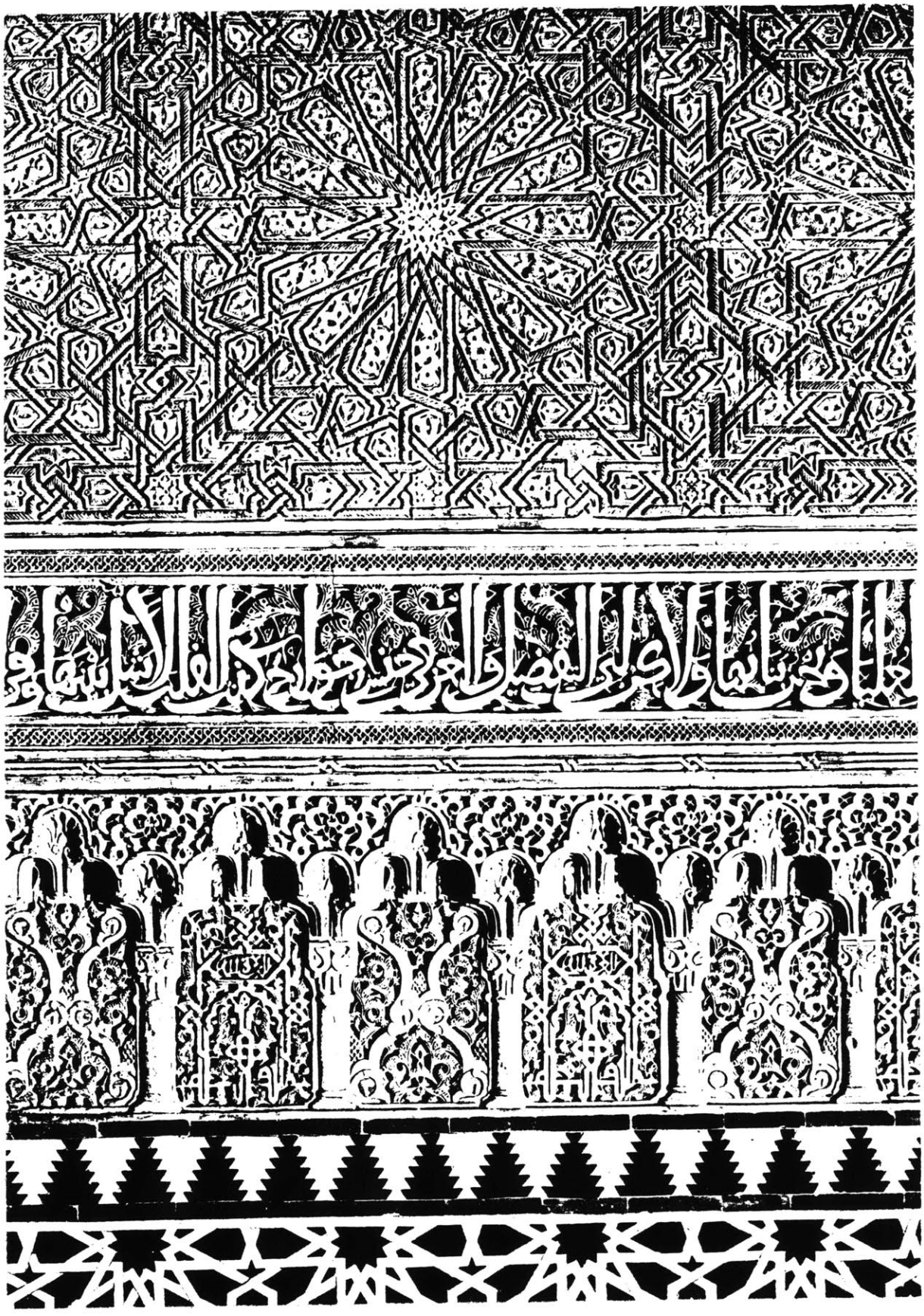
introduction:

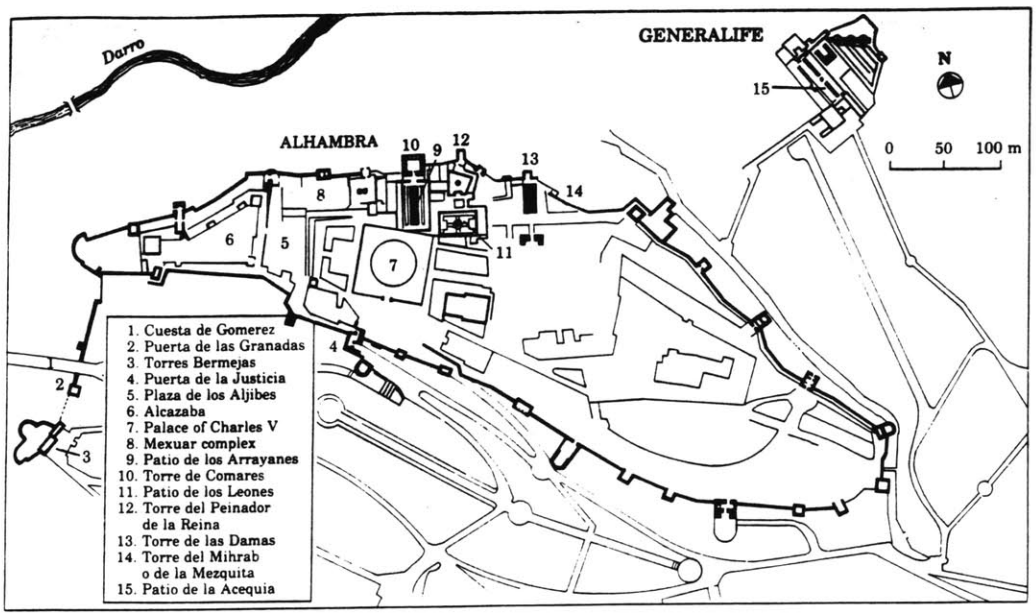
This thesis is an analysis of a personal architectural experience of the Alhambra. When I visited the Alhambra, the experience of the place was one that enhanced my senses. It allowed me to become a part of its experience and to reflect on memories of my past.

It is difficult to say where an architectural experience begins and ends. It is even difficult to define an architectural experience. Usually these experiences are described as the beginning of a day or the arrival to a place. But, the experience itself has its beginning in many places, all of which are determined by many things, most importantly, the individual. If I am to describe an experience to someone, I decide where that experience begins and ends. But someone else may choose an entirely different place for that experience to begin and end for him or herself. The importance of this is simply that all experiences are a result of perceptions within a context. This context influences the individual while the individual simultaneously influences the context in that he or she determines the limits of the context through the description of that experience. I should recognize that the description of this, in words itself, alters its perception. But for the intention of this thesis, I will begin describing this experience in Granada, Spain and attempt to express, in words, those things which I discovered about the experience.

My experience of the Alhambra was unique in that it allowed me to put together some ideas which I had about other architectural experiences of my past. I realized that many of the same elements existed in different types of experiences. I realized that light was primary to the experience. I was able to

walk away with a further awareness of how particular elements when integrated with eachother, create a sense of place. This sense of place involves the connection between nature and architecture. The integration of landscape and building as material are expressed through light and shadow. There exists a marriage between the two where their connection is made possible by the subtle transition of inside to outside and visa versa. There are interior rooms and exterior rooms in both the palace and the gardens. All spaces are transformed by light and all spaces are a detail within the whole experience. Since I spent nearly a month in Granada, it allowed me to experience the Alhambra at a variety of times during the day and night. I have found that in all these experiences, movement through space and the changing scale is directly affected by the light that touches it. In this respect it is connected to the landscape as a material and to the details within its entirety. The experience of the Alhambra engages the body and allows the transcendence into the spiritual realm.

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1. Cuesta de Gomerez
2. Puerta de las Granadas
3. Torres Bermejas
4. Puerta de la Justicia
5. Plaza de los Aljibes
6. Alcazaba
7. Palace of Charles V
8. Mexuar complex
9. Patio de los Arrayanes
10. Torre de Comares
11. Patio de los Leones
12. Torre del Peinador de la Reina
13. Torre de las Damas
14. Torre del Mihrab o de la Mezquita
15. Patio de la Acequia

Fig. 1

Chapter One: Experiencing the Alhambra.

In Granada, the Alhambra was once a palace with a series of rooms, courtyards and gardens. For years it defended itself through its perched location atop a mountain spur at the base of the Sierra Nevadas overlooking the city. But today it is a part of the Spanish culture. As light falls upon the mountains, it meets the Alhambra--the mountain spur becomes integral with the diffusion of light upon the landscape. From a distance, we see only an image upon a blanket of hills. Its scale is transformed. Although it is a large complex of buildings, it is also only a small detail within an expansive landscape. We know it today as a palace of the past that has become--a museum; a place to sight-see, a place to bring us a little closer to the understanding of Islamic architecture in a western culture. But the passion of this palace comes alive as you experience its progression.

Sounds of scooters and tour buses making their early stretch up the Cuesta Gomerez reverberates against the walls of buildings along the narrow street. It is the street that connects the Plaza below to the Alhambra Gates on the hill above. My hostel is located along this street about one hundred yards from the plaza below. As I lie in bed, smog is captured between narrow streets and lifts itself up into my window and fills the air I breathe. I am taken back five years into the streets of London where red city buses crowd and overwhelm me with thick smog filling my lungs. I remember how this smell stayed with me for hours and how everything I saw as I walked along the street was connected to this smell. And as I awaken, I remember now that I am here, in Granada and the sunlight finds its way into my room. I stand on my balcony and look out into the street as I pass the eyes of another morning watcher. The street

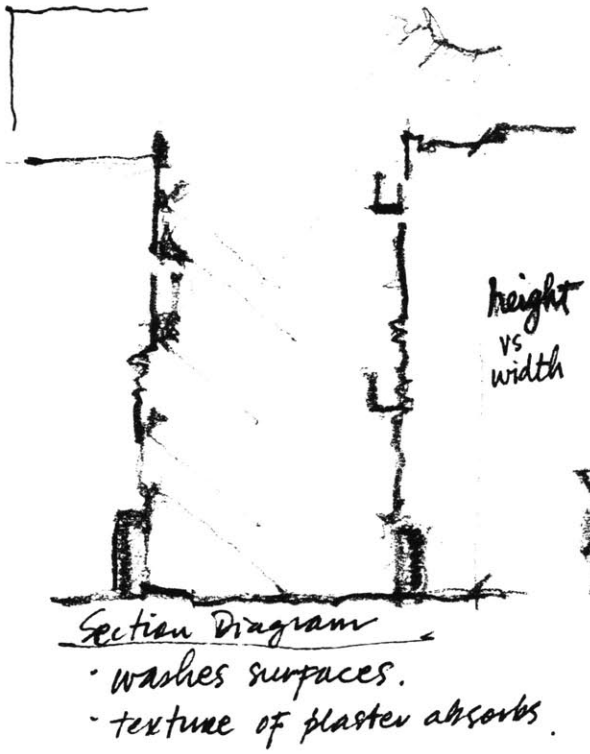


Fig. 2

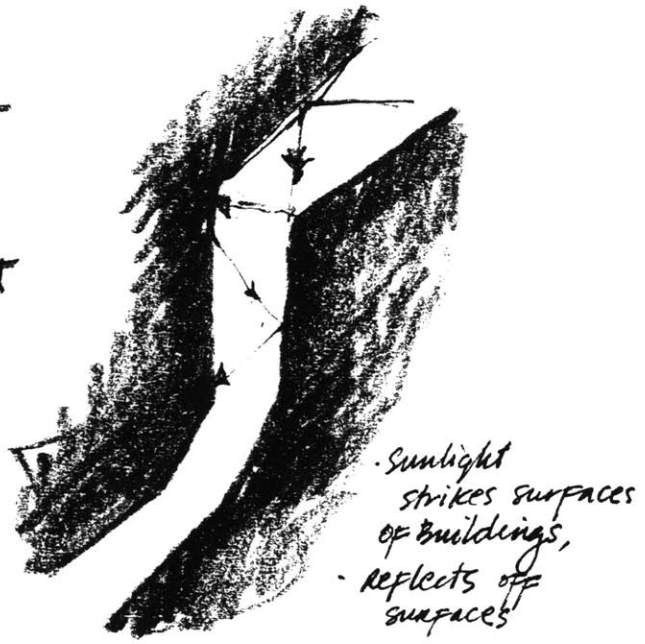


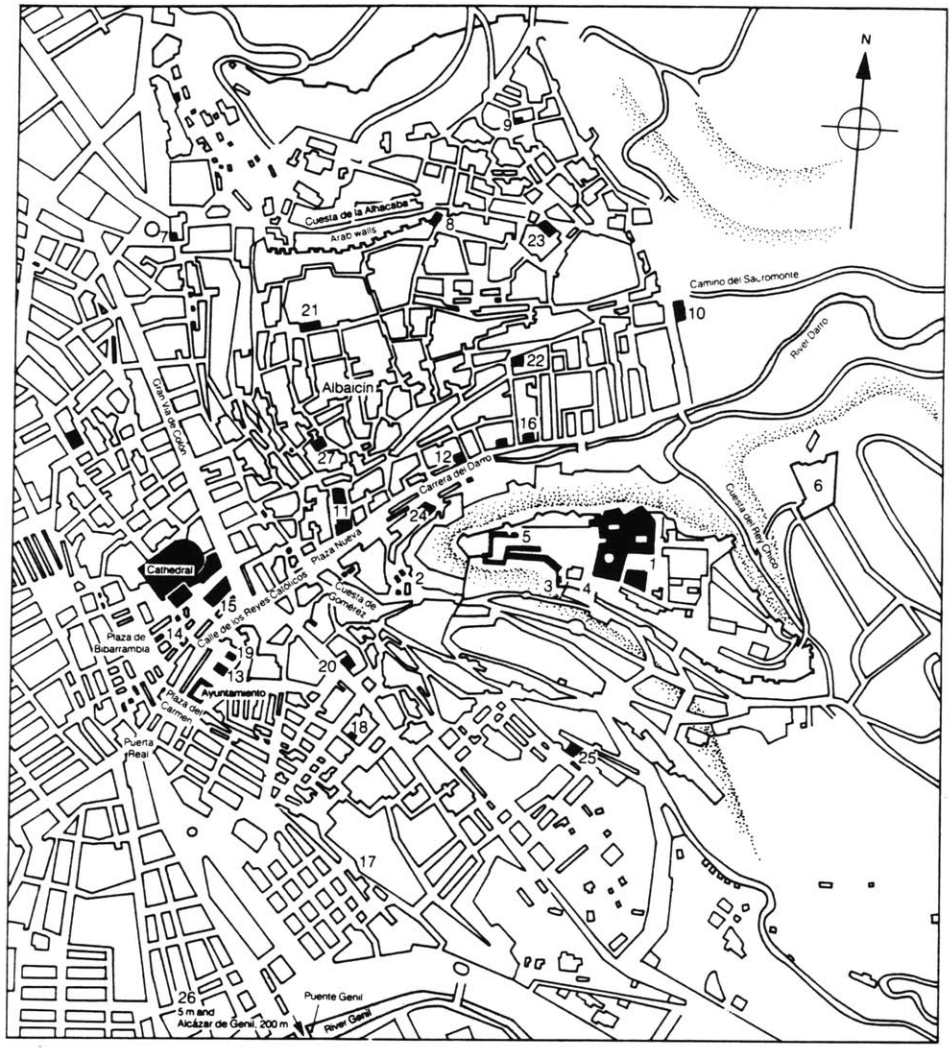
Fig. 3

Fig. 4

awakens and begins another day. In Spain, as in many countries, people stand at their windows or on their balconies and carry wonderful conversations with their friends on the street below or just watch the passersby. The shops below sell goods to tourists, voices call each other and in an hours time, the peaceful silence of dawn is transformed into the richness of daily life.

As I begin my walk up the Cuesta Gomerez to the Alhambra, I see the sunlight as it touches the street surface and passes along curved walls of stone and plaster. The light is absorbed by the plastered walls where it lies softly on their surface and wraps itself around doorways and balconies, moving through the street. I realize that this pattern of light occurs due to the height of the buildings and the width of the street as well as the texture of the surfaces exposed to sunlight (Fig. 2 & 3). The materials and their texture are affected by light in many ways. The roughness of the plastered walls moves the light in small patterns that creates a softness to the surface.

This effect of the sunlight on the surfaces of buildings seems to calm the journey up the hill. There is a richness in the experience that is expressed in the colors of flowers on white washed walls. The morning street is lit with warm sunlight but as I walk through the arcaded gate, (Fig. 4) I leave the street and enter onto a path of red dirt where I am surrounded by green-filled trees and bushes, shadowed by a misty hillside. I no longer hear the sounds of people and cars but of water rushing down the hillside, and trickling along the boundary of the path.



1. Alhambra;
2. Puerta de las Granadas; 3. Puerta de Justicia; 4. Puerta del Vino;
5. Alcazaba;
6. Generalife;
7. Puerta de Elvira;
8. Puerta Nueva;
9. Casa de los Mascarones;
10. Casa Chapiz;
11. Casa de los Pisas;
12. *hammam*;
13. Casa del Carbón;
14. Alcaicería;
15. Casa del Cabildo Antiguo; 16. Casa de Castril; 17. Cuarto Real; 18. Casa de los Girones; 19. Casa de los Duques de Abrantes; 20. Casa de los Tiros;
21. Convento de Santa Isabel; 22. San Juan de los Reyes;
23. San Salvador;
24. Santa Ana;
25. San Cecilio;
26. San Sebastián;
27. San José.

Fig. 5

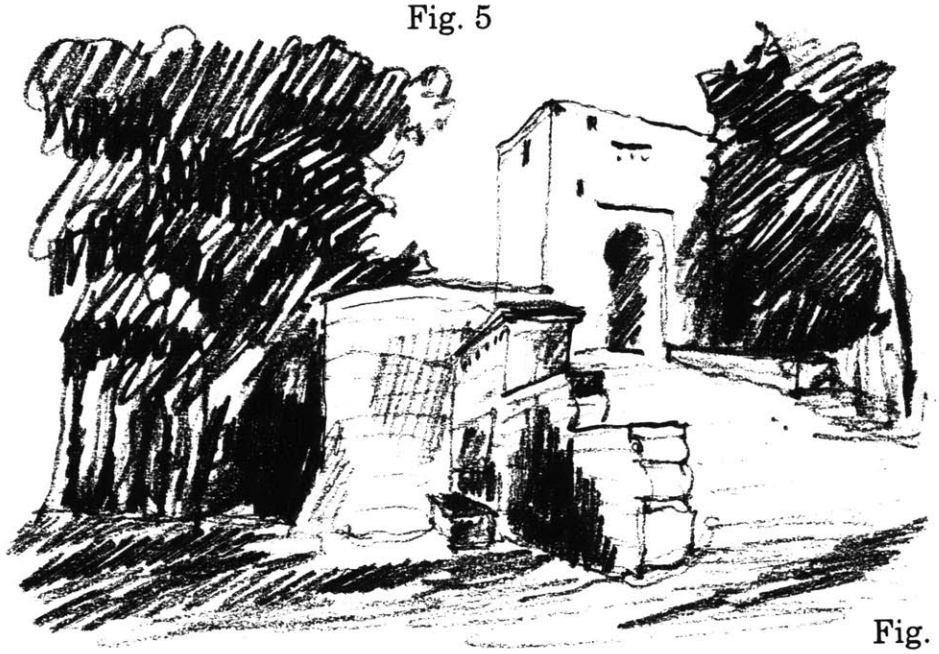


Fig. 5a

One of the interesting things about this pathway is that it is adjacent to the roadway that leads you up to the Alhambra. But as I enter the pathway from the street, I become unaware of this as I am led upwards. The main road falls beneath the footpath and the sounds of cars are diffused by trees and overtaken by the water falling down the hillside. Fig. 5 shows the area of the Alhambra and the city of Granada.

As I walk up the pathway and hear the trickling of the water along the path and the rush of the water down the hillside, I encounter this again in the courtyards through the fountains. Some trickle and some rush. And later, as I walk through the garden this same connection is formed. Not only is this a connection of spaces through the perception of my experience, it is literally a physical connection of intricate waterways and fountains which eventually are the source of that water I hear as I first walk onto the pathway leading up to the Alhambra. And it is the water that I drink from in the fountains along the pathway.

As I continue up the pathway to the Alhambra the trees shade me in intervals. The sunlight that passes through reflects mirrors of waterways along the path. As I become tired from the walk uphill I see in the distant a single stream of water raised vertically from a small fountain. Its reflection and coolness invites me to drink from it. There is nothing particularly distinct about this fountain. But it is located at just the right distance up the pathway, right where the pathway opens up and sunlight breaks through the trees. There is a bench next to it and another just on the other side of the path. Made of stone, it sits on one pedestal. It is modest and simple and it is special.

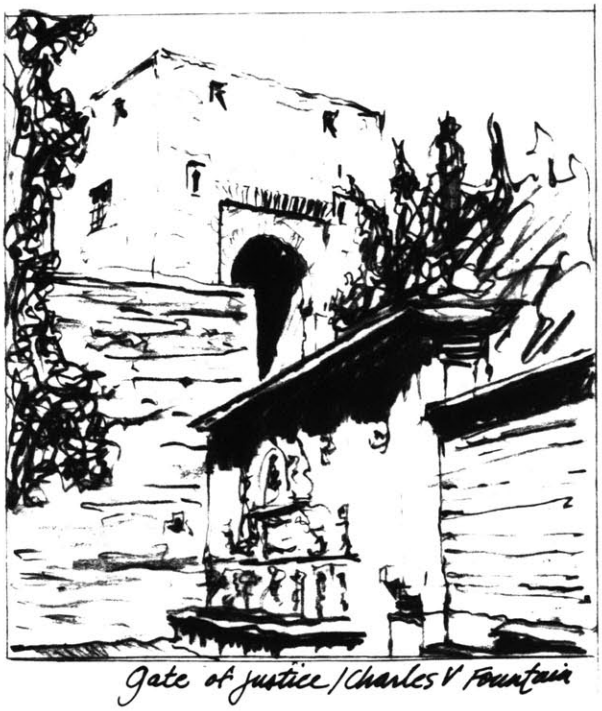


Fig. 6

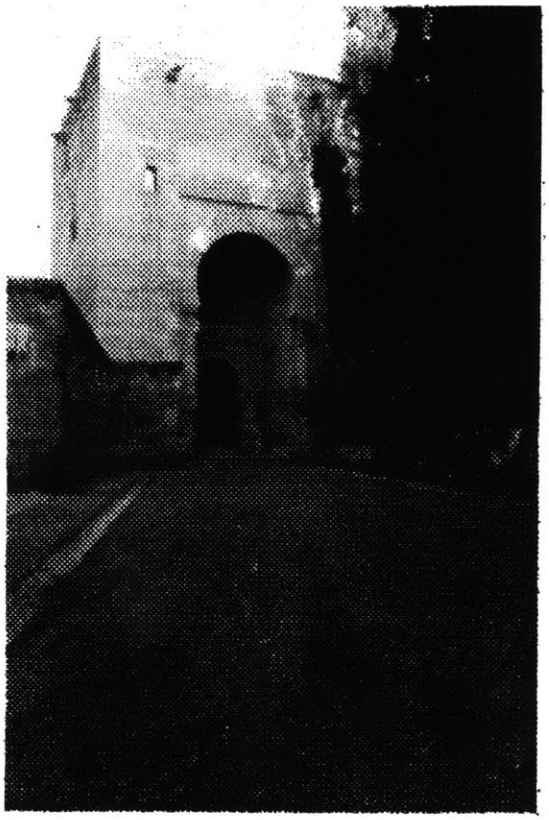


Fig. 7

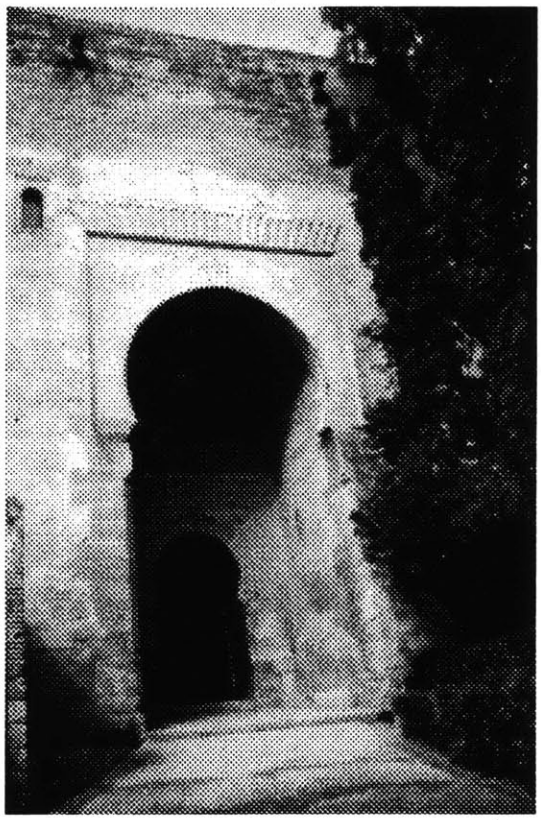


Fig. 8

The walk to the Gate of Justice takes me about fifteen minutes once I enter the pathway entrance. But in this short time I become a part of an experience that is natural and simple. There are worn benches of stone to sit and rest upon. Shades from light to dark unveil as I begin to see the top of the hill. As I reach the top, the trees open up and the sunlight intensifies as it heats the morning air (Fig. 5a). At this point lies the fountain of Charles V, built into the Renaissance support wall[1] (Fig. 6). It is more detailed, with heads pouring water from their mouths into a large basin. Now the path turns sharply to the left, up towards the Gate of Justice. The movement from light to shadow is evident as I move toward the opening of the Gate. (Fig. 7&8) It is a wide horseshoe arch that attaches two huge blocks that actually protect the interior facade of the gateway. The stone is faded from what was once rich in color. There are four embedded columns which support the Gate and each bears inscriptions of Muslim faith. An open hand is sculpted on the keystone of the arch. It is the symbol of Muslim Law where each finger represents one of the five precepts of the Koran: prayer, alms-giving, fasting, pilgrimage to Mecca and the oneness of God.[2] It is the first symbol of the Muslim Faith that is expressed in stone as you approach. As I walk inward, the ground slopes up an uneven kind of z-shaped passageway covered by a groin vault. In actuality, this z-shape was used for protection purposes but today it creates a shadowed passage that delivers me back out into the light. It is a continuance of the rhythm of light and shadow that connects the entire movement of space throughout the journey. The rhythm is seen in plan, but more importantly it is integrated in the Alhambra as an architectural experience. The separation of Gates and the shadowed passageways were once a method of defense, but today they create the rhythm of spaces, bringing a subtle transition from one space to another and an integration of the whole experience. As I moved

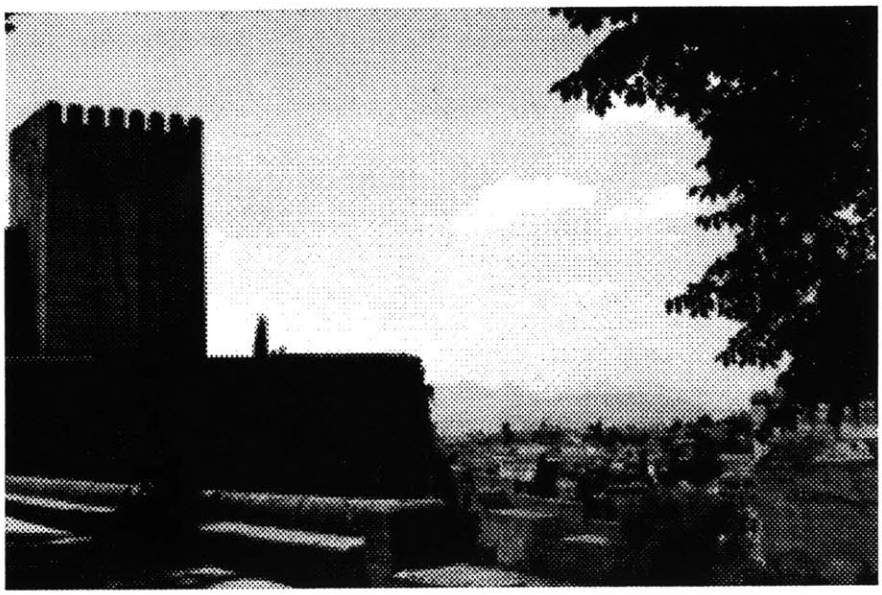


Fig. 9

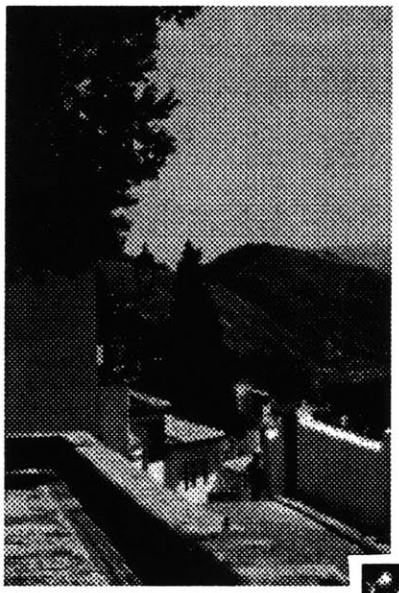


Fig. 10

Fig. 11

outside of the gateway, I again had to turn left up a slightly sloped path. The outer bulwark, or fortress wall, is on my left and at this point I begin to see the complex of buildings above to my right. I pass through another gateway, the Gate of Wine, or Puerta del Vino. There are a series of steps and the path now becomes more directed, more narrow and regular. Flowers surround the walkway and it leads me to an large esplanade called the Plaza de los Aljibes. This is where I become aware of the many people visiting the Alhambra. The heat is intense as the trees shade only the walled areas. It is the point where the natural landscape is transformed into garden spaces and paths become clearly defined. There are groups combining for tours and people roaming throughout the plaza awaiting the Alhambra's opening. As I passed the Palace of Charles V, I looked over beyond the openings of trees and onto the city below. At this point I realized the connection the Alhambra has to the city below. (Fig. 9)

The day before, I walked through the Arab quarters (the Albaicin) of the city. It is located along an adjacent hill, much lower than the Alhambra. But as I walked through the street and around narrow corners I came upon small plazas, very different in scale but similar in experience to those surrounding the Alhambra. I approached a plaza from a series of steep steps. It has a high wall and at the top it is completely flat with a central linear fountain that runs the length of the plaza. It is bounded by a u-shaped configuration of connected houses with clay tiled roofs and wrought iron gates and it is shaded by trees. There are benches to sit on and children were playing in the fountain. Where the steps lead upwards, there is a railing that runs along one side overlooking the street below. (Fig. 10) At this point I could see over the houses below and out to the Alhambra on the adjacent hillside. (Fig. 11) From this view a

Alhambra · 05 July 1990

——— Reception room - palace - Mexuar

Capitals of columns — shells — Acorns

→ reflect light - create shadows.

cup light - create texture

on wall:

"Come in look for justice and you will find it" -

inscription written on wall.

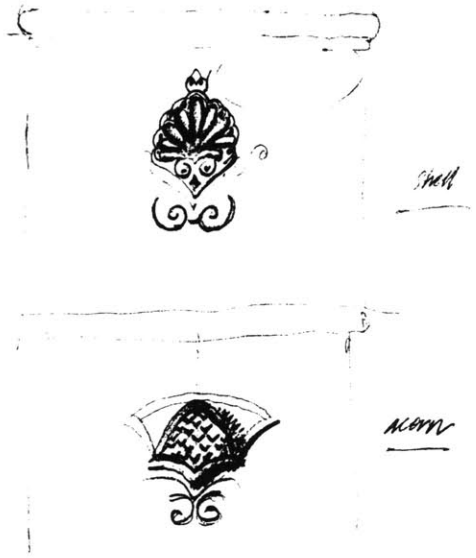


Fig. 12

connection is formed between the experience of now and that in the distance. A connection between landscape and architecture. This same connection is felt when you look out to the city below from the esplanade. It is created by a series of rhythms of light and shadow that alter the scale of details and connect them to the landscape. It allows the landscape to become a material of light within the experience.

I headed down the steps before me and went towards the opening of the Mexuar. This is where many of the tours begin, but it is only a moment in the entire experience of the Alhambra. As I enter into the Mexuar, it is morning-time and the crowds have not yet begun to fill the space. It was once a room where the ministers to the Sultan gathered to discuss important affairs.[3] But today I am alone in the room and the morning light casts shadows upon surfaces. The details of shells and acorns on column capitals capture what light they can.

These details of shells and acorns react to light in different ways. The shells are concave, they cup the light, forming a curved shadow on the inside of its surface. The acorns, on the other hand, are convex and reflect the light off themselves and create shadows upon the immediate surface. (Fig. 12) This very small detail is multiplied creating a rhythm of light and shadow which covers the surface of the columns. It is this gentle attention to craftsmanship and detail that gives a richer meaning to their expressions.

The heat of the day has not yet made its way into the Mexuar. It is cool and the tile on the floor is worn uneven by the feet of hundreds of years passed. The room is divided by four main columns, intimate in scale. The ceiling of finely

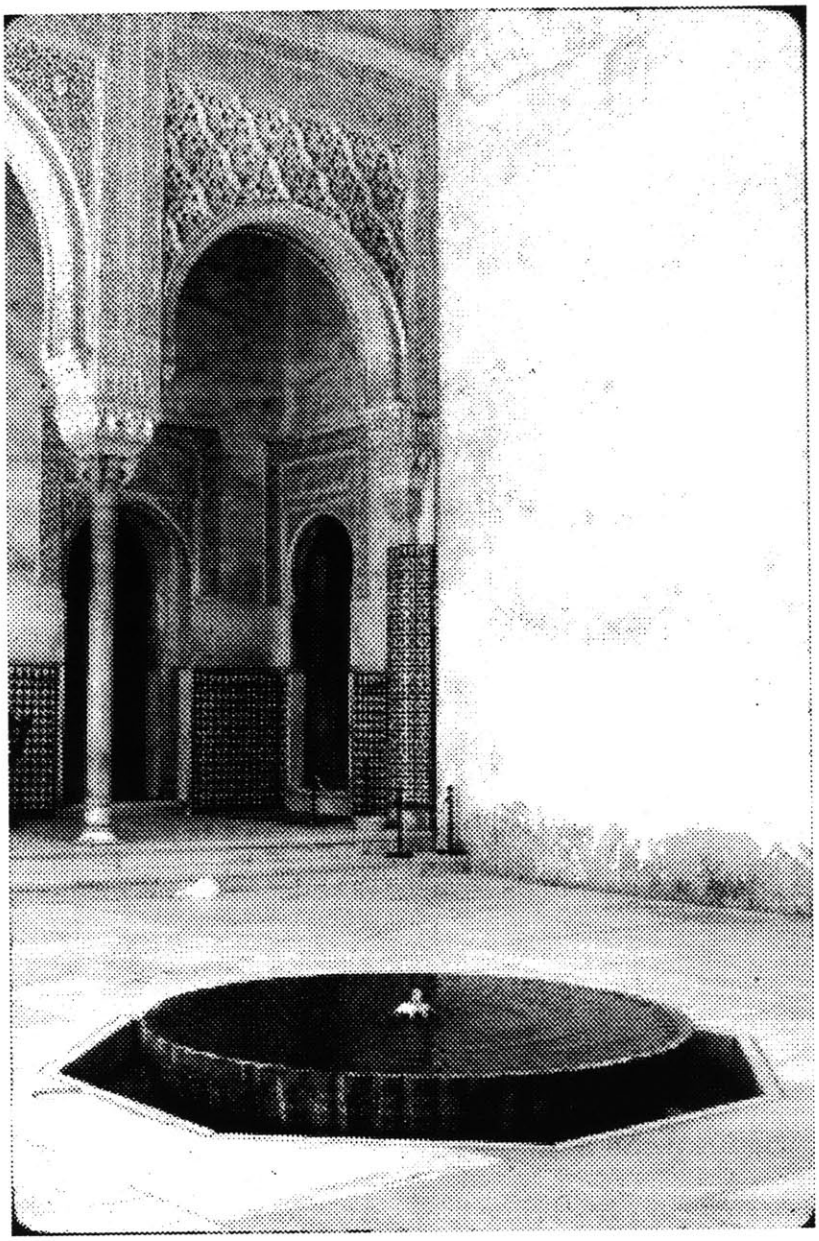


Fig. 13

detailed woodwork is also low and intimate. Once leading into the area of shadows and peaceful prayer addressing Mecca, it later was opened up and transformed into a chapel during the sixteen century. This is when the window openings and wooden balustrade were added to provide light into the space.

The tiles rich with color create star patterns as they merge into plastered walls. The walls reach upwards towards more details of finely carved plaster work. This room is not the original entry into the palace, but it seems to fit in sequence with the rhythm of spaces. There is a progression of scale in spatial sequences where small, intimate spaces lead into shadowed passages and out into light-filled courts. This pattern of movement from light to shadow and the connection formed by landscape and material allows the alteration of space without the loss of this experience.

Off to the right, on the northeast corner, is an opening where light enters into the room through a small horseshoe arch. As I walk in its direction, I can hear the sound of water, very faint. I walk through a low doorway and enter into the Cuatro Dorado, a court that is magical. (Fig. 13) In the center of the court a simple shell-shaped fountain is set into an octagonal pool where water flows. The sound is soft and the smoothness of the water looks like fluid glass flowing into the floor. Empty, the room is a place of reflection. The softness of stone and plaster integrates with details of intricate wood and plaster carved upon doors, windows and eaves. As I look upward I realized that through its proportions, the room created a beautiful ceiling -- the sky.

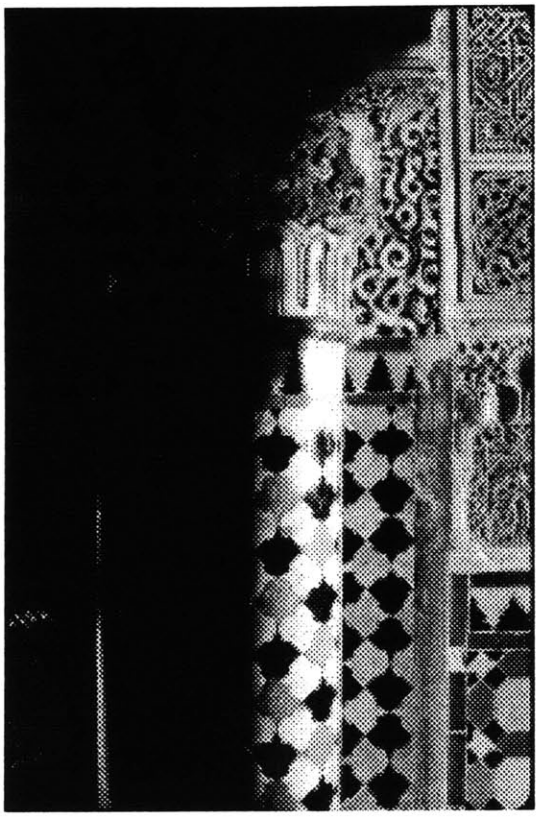


Fig. 14

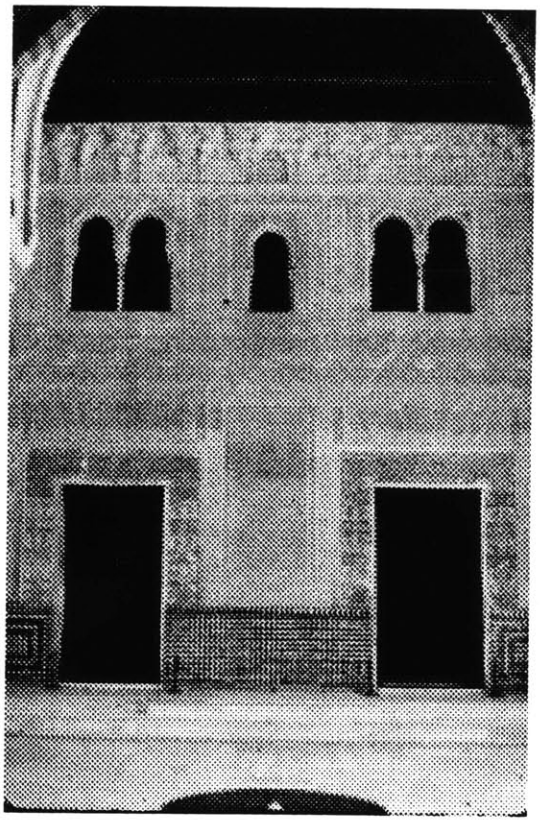


Fig. 15

At one end, a series of columns, forming a portico, lead to a small shaded room of the Cuatro Dorado, rich with detail. From a distance the columns all appear identical. But closer observation proves an individuality of craftsmanship. Their detailing varies. (Fig. 14) It expresses their independence as a part of the whole and reveals the touch of human hands.

Looking across the court, there are three steps that run the length of the wall. They lead up to two doorways (Fig. 15). The one on the right leads to what were once the private quarters of the Sultan.[4] The one on the left leads to a shadowed z-shaped passageway connecting to the Court of the Myrtles. This wall is rich in detail. The tiles (azulejos) reach from the floor and wrap around the doorways. It is bordered by carved floral and shell patterns. It moves upward and frames the horseshoe arched windows above as it leads into the richly carved dark wooden eaves. The depth of the carving on the walls surface give texture through shadowed lines and scrolls. The tiles absorb the light they need and return a shimmering glaze of pale jade. As the suns location changes throughout the day, so do the materials surface. The tile reflects more light at midday, expressing its true color but as the day passes, when the sun passes through more atmosphere, the colors change to calm soft tones. The plaster changes in colors from pale yellow to golden bronze as daylight passes into nightlight.

As I walk into the shadows of the passage into the Court of the Myrtles, a coolness briefly relieves the heat of the day. The passage is z-shaped. It has a natural progression from light to darkness to light as you pass through it. The walls are smooth and cool. It has two sets of doorways. The first is a left-handed door, the next is a doorway with two doors that open in opposite

Fig. 16

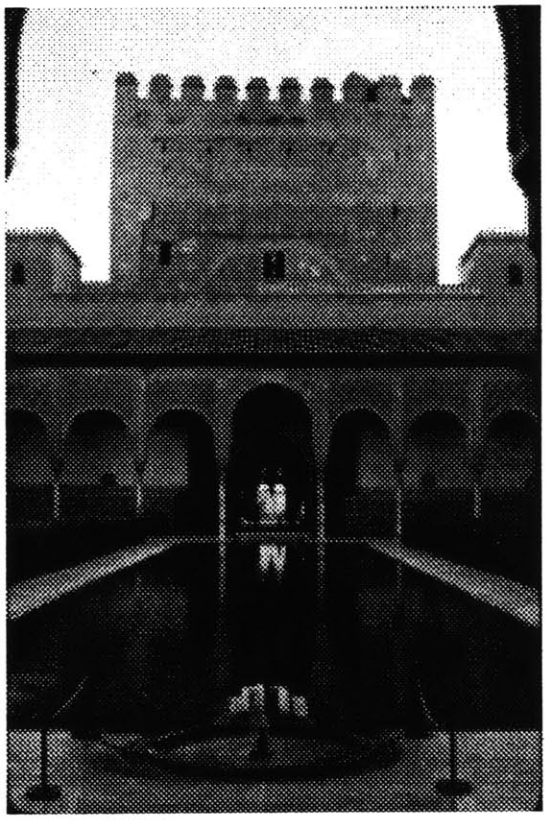


Fig. 17

directions. These provided further protection to the Sultan's privacy. But these doors are all left open so what I see as I pass through the shadows are dark, carved panels against the walls along the passageway. This distance is minimal, but it creates a subtle transition between the two courts. It is more a feeling of movement through senses not always used, where the ears and the touch become attuned to the experience. I hear the simplicity of one fountain fade and the next leads me into another court. These patterns of transition through darkness to light provide a unified link within the walls of the Alhambra as well as a connection to the landscape. It changes the experience of movement and rhythm so that what could seem to be a long passage through palace rooms becomes a quite enriched experience of light, shadow and form.

As I walk out to the court, brightness overwhelms me. The court is large and opens to the sky, but its order is simple. (Fig. 16) A series of myrtles run the length of the court and border along a large reflecting pool that fills the center of the court. The surface of the water is at the level of the alabaster walkways and it forms a continuous sheet of mirror that multiplies the colors of the court. The reflection adds depth to the ends of the courtyard as it pulls the sky upon the water. Two small circular fountains spill into either end of the pool. The sound of running water flows as buildings surfaces are reflected, dancing with movement. (Fig. 17) The walls form an envelope that protects me. The short ends of the court lead to smaller chambers. One end directs the passage to the winter chambers on the upper floors, while the other end leads into the Hall of the Ambassadors. The passage to these chambers leads me through a subtle transition where an arched colonnade of decoratively laced plaster comforts me with shade. The coolness from the enclosed chamber travels to

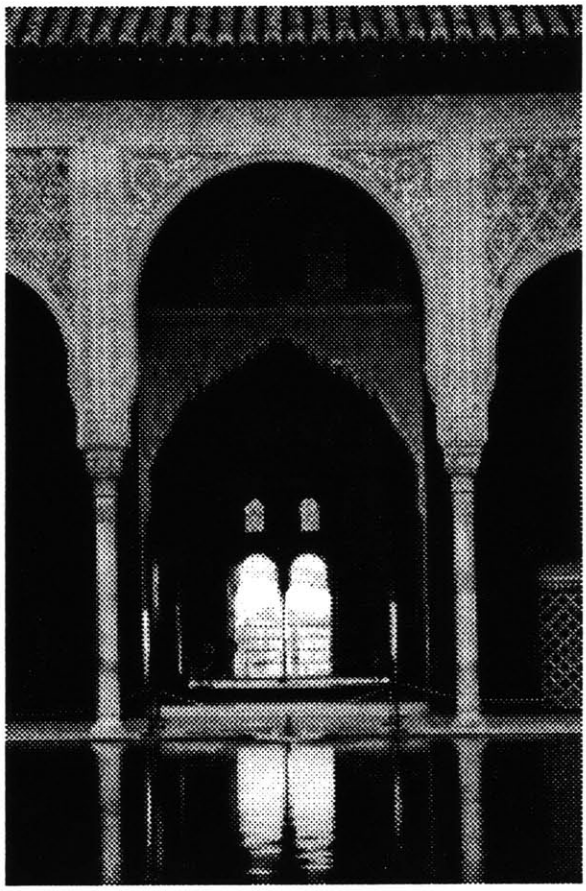


Fig. 18

me. There are a few chairs at the ends of the court in which to sit. A place to relax as I take in all its beauty.

Seven o'clock brings a pink glow into the Court. The sunset casts its golden bronze light into the air. It is held upon the surface where it absorbs the light--capturing only what it needs to express its colors and reflecting what is left for another surface. The passage of time changes the details upon the waters surface. As I look across to the south end of the courtyard, wall and arcades, columns and capitals of the Palace of Charles V are vividly reflected upon the water. They dance gracefully as the water flows in rhythm.

As the Alhambra closes and people depart, silence falls upon the surface. The flow of water and the voices of birds are evident. The details are delicate and intimate and each one reminds me of the touch of a man. They speak about the imagination of the individual who crafted them. About the loyalty to nature and to Allah. They are an expression of the craftsman's life. In openness, the lofts of expansive space above display a ceiling of sky and stars.

The passage from the Court of the Myrtles to the Hall of the Ambassadors, is called the Sala de la Barca, or Hall of the Boat. It is a long and narrow hall that you pass through along its short side. It immediately becomes a shadowed space. Since it is the space that connects the Court and the Hall its only light is that from these two spaces. Just before you reach the opening to the Hall of the Ambassadors, there is a small window opening which looks deep into the walls of the building. In the distance, through this space is a faint light. An escape of light from another court. Then you pass through a large opening and into the Hall of the Ambassadors. The Court of the Myrtles

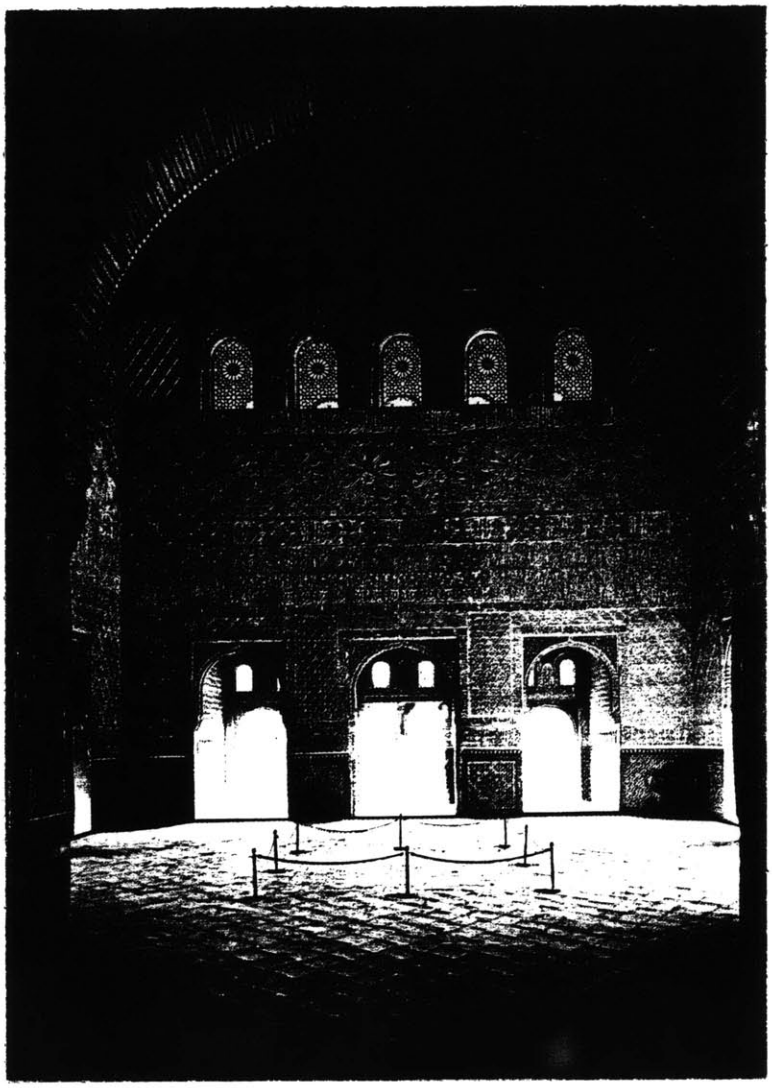


Fig. 19

aligns with the Hall so that as you first leave the court and walk towards the hall you can see the landscape, framed by arched openings, connecting the nature of the court with that of the city beyond. (Fig. 18) In creating a rhythm of spaces through light and shadow, size, proportion, there is also this visual connection from one space to the next. At times you only see an opening with light that hints to what you are about to experience. Other times you are in an open court or hall that displays shadows from many openings, all of which lead you further into the Alhambra. Some take you to private quarters, some spaces you cannot enter but only look upon from a doorway while still others welcome you.

In the Hall of the Ambassadors, the last bit of daylight creates intimacy and expresses colors upon materials surface as daylight transforms into nightlight. I followed the path of a line within the tiles and found that it takes me to a journey along the surface of the wall. What had seemed to be only a simple geometric shape extends to become a continuous wall of detailed colors glossed by their surface, expressing a connection to the whole of the Hall (Fig. 19). The words of Allah inscribed form patterns of symbols rich with meaning. But they are also a detail within the whole. Their language is not known to me but its beauty as finely carved inscriptions on surfaces of plaster express the texture of the walls. They are deeply recessed and capture shadows in corners.. The integration of bands of tile and reliefs, form a beautiful base around the Hall. These details are a part of a larger expression of completeness throughout the room which invites movement up to the ceiling.

The sunset casts a vibrant haze from blue to red over the city and landscape beyond. The lights from the exterior cast shadows inward into the Hall. But in

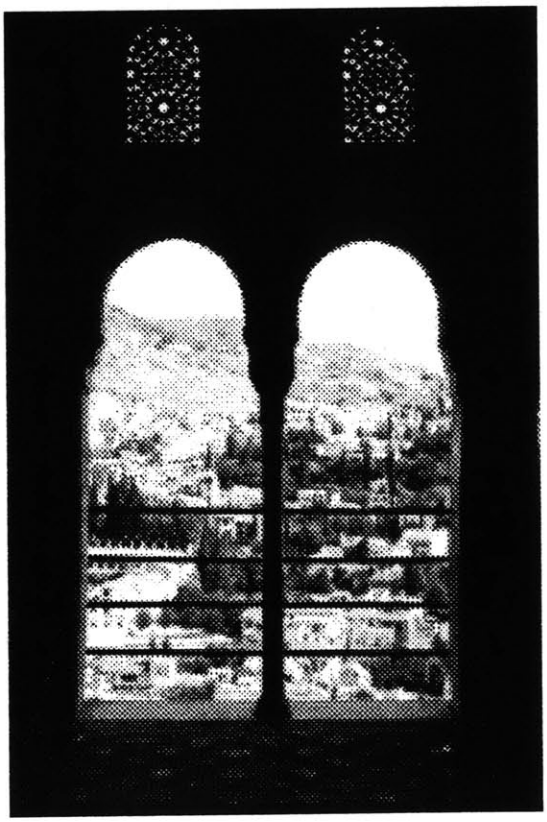


Fig. 20

a moments time the lights are shut off. And now the moon has replaced the sun as a new light enters the walls of the Alhambra. As my eyes adjust to the darkness they move up the walls surface. Along the top, a row of dark columns are projected. And where daytime allows an opening to bring in light, nighttime hides the openings in blackness. I was surprised at how well my eyes adjusted to the darkness and how the moonlight still left enough light to see deep shadows of details on the dark ceiling.

This same Hall in daylight is rich with color. Open to the north, east and west by arches framing the landscape and to the south by the arcaded Sala de la Barca leading to the Court of the Myrtles, the Hall becomes full of air--of midnight breezes where voices are faintly heard from the plaza below. It is extended from the court as it overlooks the city below. At sunset and sunrise the glow of bronze fills the entire Hall. The openings themselves are a transition of space. Extending from the central portion of the Hall are alcoves which hold two arched openings within a larger single arch. (Fig. 20) The alcoves are divided by a single, very low step. The tile continues in the alcoves unifying the Hall. The colors of these tiles dramatically change from sunrise to sunset.

I leave the Hall of the Ambassadors by returning through the Sala de la Barca and back out to the Court of the Myrtles. This time the daylight is replaced by nightlight and the feeling of space is very different. The moon is reflected upon the surface of the pool bringing more light into the court. The surface of the ground is smooth and light. It reflects the moonlight and gives a calm glow to the court. Now the surfaces of the walls have a bluish glow from the night-sky. The myrtles become dark with shadows and their bright green richness is no

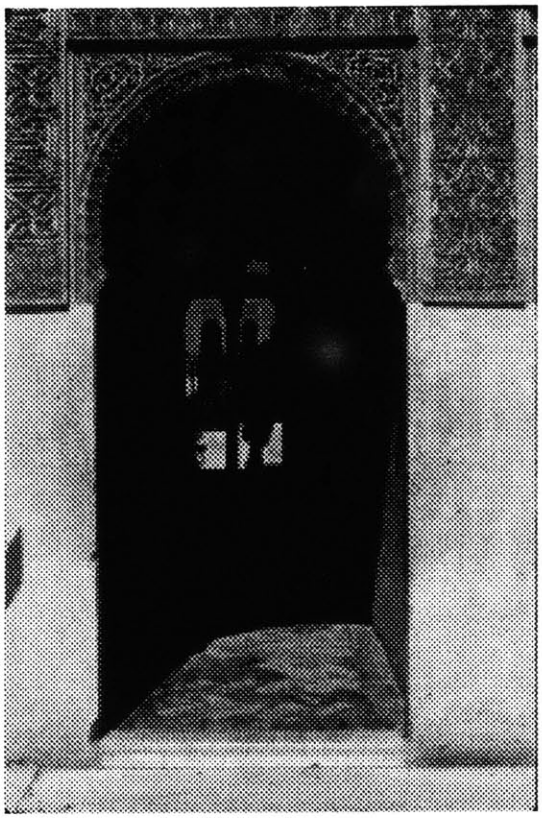


Fig. 21

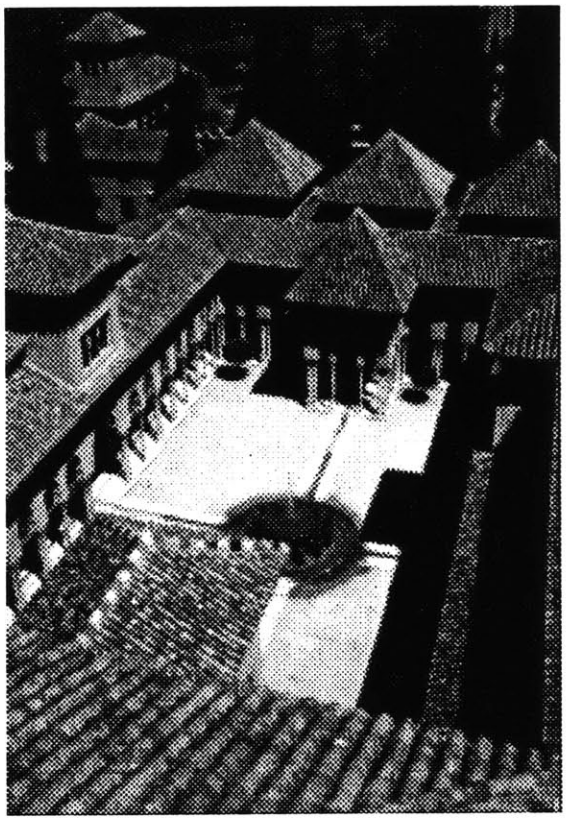


Fig. 22

longer seen. The sky above becomes a dome of stars that canopy the court. Just as the sunlight transformed the surfaces of the Alhambra, another transformation takes place. The evening sky, filled with birds flying to their nests built within the intricate lacing of the arcades, becomes transformed into a night of bats--clinging to walls and ceilings, searching for insects and filling the courts with sound.

I headed towards the opening to the Court of the Lions. It is a narrow passage with an arched doorway on either side. (Fig. 21) Each of the doorways has a relationship to the court in which it occupies. It is a celebrated continuance of the movement through space. The arch is finely decorated with attawrig details in plaster. The doorway leads you through a passage of darkness that is about ten feet long. As I was about to go through the doorway I could see the shadow cast by it from the moonlight within the Court of the Lions. Once again, the spaces move together and overlap. I didn't feel as though I had gone from one court into another. Instead, the two seemed linked by a very delicate passage. As you walk through this passageway, your shadow is cast back into the Court of the Myrtles. It is in this passage that you leave the sounds of one court and enter into the sounds of rushing water from lions mouths. What is probably most interesting about this passage is that it links two courts that are very different in proportion, scale and atmosphere so delicately. I felt it was as though the pieces were fit with care and attention.

The Court of the Lions in moonlight is mystifying. It is much smaller in scale than the Court of the Myrtles, but it is filled with finely crafted surfaces. Its rectangular shape addresses a hall on each side (Fig.22). There are two symmetrical canopies that break the consistency of its outline. These canopies

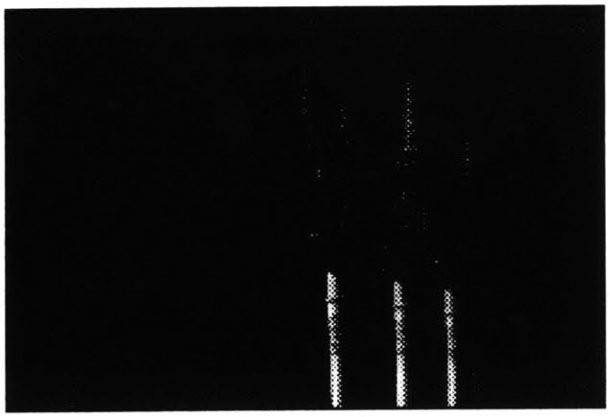


Fig. 23

are roofed by a pyramidal roof of dark clay tile. The canopies, arches and walls are decorated with rich muquarnas, or stalactite plaster-work. The intricate detailing of this plaster expresses the delicacy of the craftsmanship. In contrast, in the center of the court lies a fountain of twelve lions. Made of granite, the lions are roughly hewn, yet each has its own individual expression. The fountain rushes water from the lion's mouths and reverberates from the hard surfaces, echoing throughout the court. Their sound is louder than I had experienced during the daylight hours.

It is natural for each of us to have a varying level of perception with each of our senses. When the daylight turns to darkness, our ears become more aware of the sounds we hear. Not that they are any louder in physical reality, but in perceptual reality they become the focus of attention and in this sense, they become louder.

The columns are expressed in duplicate by the blackness of their shadows becoming forest-like (Fig. 23). There is a band of darkness above the whitened touch of hands upon the marble columns. The moonlight magnifies this intensity and the columns seem to float as the surface of the ground is illuminated. The shadows of the columns have created men, arms at sides, large and broad upon the surface of the ground. A walkway divides the court into four segments. Running down the middle is a path of water leading from the central fountain to each of the halls. They terminate just at the entrances with small circular pools and a low step divides the space as you move around the arched portico. The ground surfaces enclosed by the walkways are of white graveled stone. And as I walk on their surface, their sound magnifies within the court. In the light of a 5/8th's moon, they sparkle and glow. The

cool air is full and the sky becomes milky as the hours pass. I look up into the sky and the stars hang, framed within the boundaries of the court, providing a ceiling of protection. It evokes such a powerful feeling from the light of the moon that it is difficult to describe in words.

The path of water leading from the central fountain of the lions leads me into the Hall of Two Sisters. The passage into the Hall is created by a short series of arches. Each one richly decorated as I progress up a single step and into the center of the Hall. The ceiling is a mocarabe vault, rich with detail. A band which surrounds the vault has several windows that welcome the light into a playful interaction with the mocarabe detailing. At night, there is a dull glow hovering above the walls of the Hall. Certainly the most fascinating moment to see this Hall is just at sunset. When the sun aligns perfectly entering at just the right angle through the cupola windows to create a shimmering band of gold that lifts the top of the dome from its walls. Because of the geometry of the vault and its details, light is reflected in many directions, casting shadows and bringing a range of colors to the surfaces.

I walk along this path leading me to the Hall of the Abencerrajes. Both of these Halls are on a slightly higher plane than that of the Court of the Lions. This simple division through vertical distance gives an expression of privacy that each hall contains. The plan of the hall is rectangular but as a look above to the ceiling, I am reminded of the ceiling of the Hall of Two Sisters. Those same mocarabe details cover the plastered surfaces. Attawrig designs and religious inscriptions fill the walls. It contains sixteen windows that bring light into the hall, but it does not meet the splendor of the Hall of Two Sisters. At nighttime, the light from the moon does not enter through the windows of

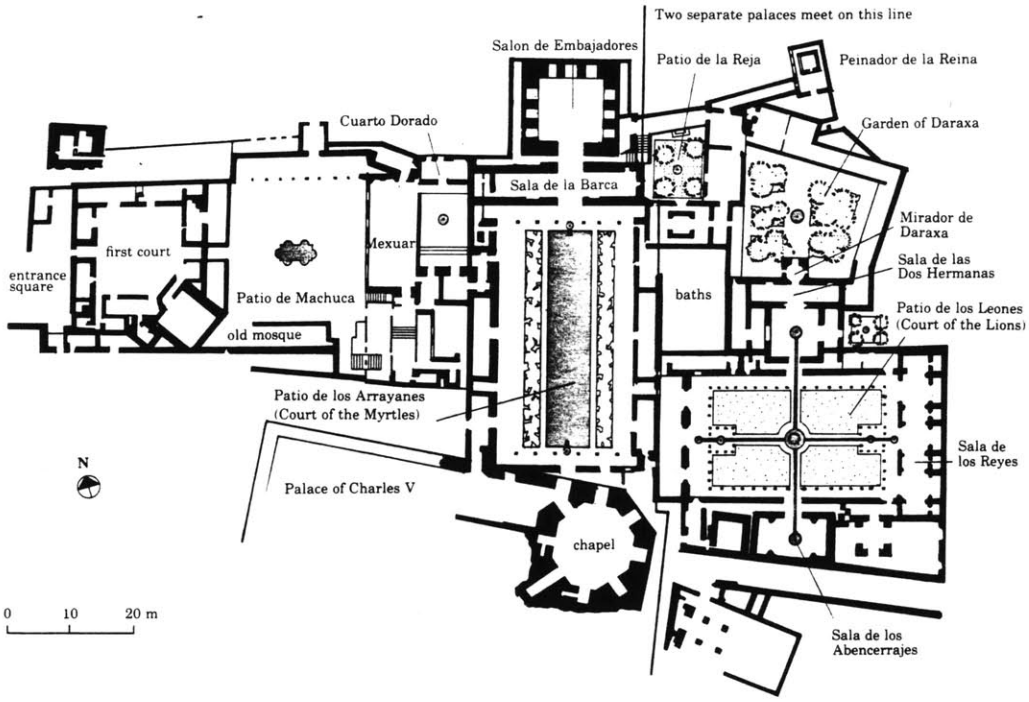

Two separate palaces meet on this line
Salon de Embajadores
Patio de la Reja
Peinador de la Reina
Garden of Daraxa
Cuarto Dorado
Sala de la Barca
Mirador de Daraxa
Sala de las Dos Hermanas
Patio de los Leones (Court of the Lions)
first court
entrance square
Mexuar
Patio de Machuca
old mosque
baths
Patio de los Arrayanes (Court of the Myrtles)
Sala de los Reyes
N
Palace of Charles V
chapel
0 10 20 m
Sala de los Abencerrajes

Fig. 24

the cupola as it does in the Hall of Two Sisters. Little light makes its way to the lower portions of the room. Its glow can be seen, but it is not a rich glow. Only one that is a result of moonlight making its way into the Hall. Perhaps this is because the mocarabe detailing is surrounded by squared edges of attawrig decorations. This would mean that much of the reflectance of light falls upon a much fewer number of surfaces, not allowing as much light to enter and the light that does enter, does not have the interaction with surfaces as it does in the Hall of Two Sisters (Sala de las Dos Hermanas) (Fig. 24).

Leaving the Hall of the Abencerrajes, I pass along the covered pathway to the Hall of Kings (Sala de los Reyes). There are three large alcoves from which to enter. Each is divided into three segments. This used to be the main room in the Palace where entertaining took place. At nighttime, this Hall is filled in blackness. You can only see your way through the alcoves from the Courtyard, but once you reach into the Hall darkness takes away any light. Because there is no light in the Partal Garden, even the opening from La Rauda, or Arab Cemetery, cannot be seen. But during the daylight, you can see that there are openings within the Hall that lead into smaller private rooms. The surfaces of this hall are adorned with ornamentation that glows. It is vibrant and colorful. The detailing is so rich that it becomes overwhelming at times. These same methods of carved plaster and stuccoed walls with colorful tile-work are again seen throughout the hall. The ceiling of the left alcove is covered with miniature scenes of the conflicts between Christians and Arabs finely painted on leather. The Hall is long and narrow and is divided only by the alcoves that lead into the courtyard. These are the openings that bring sunlight into the Hall, creating a variance of light and shade along the walls

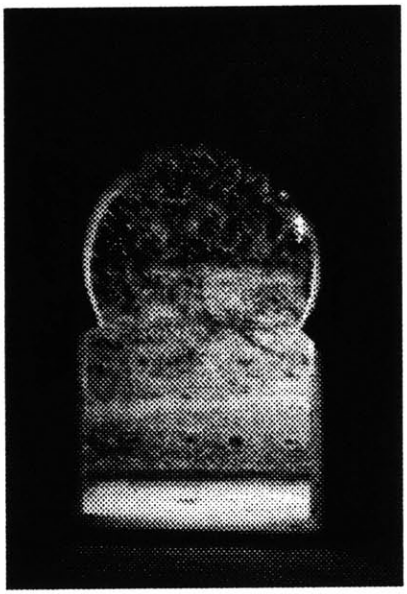


Fig. 25

and floor surfaces. As I walk through each alcove, I am led a square-shaped building called La Rauda.

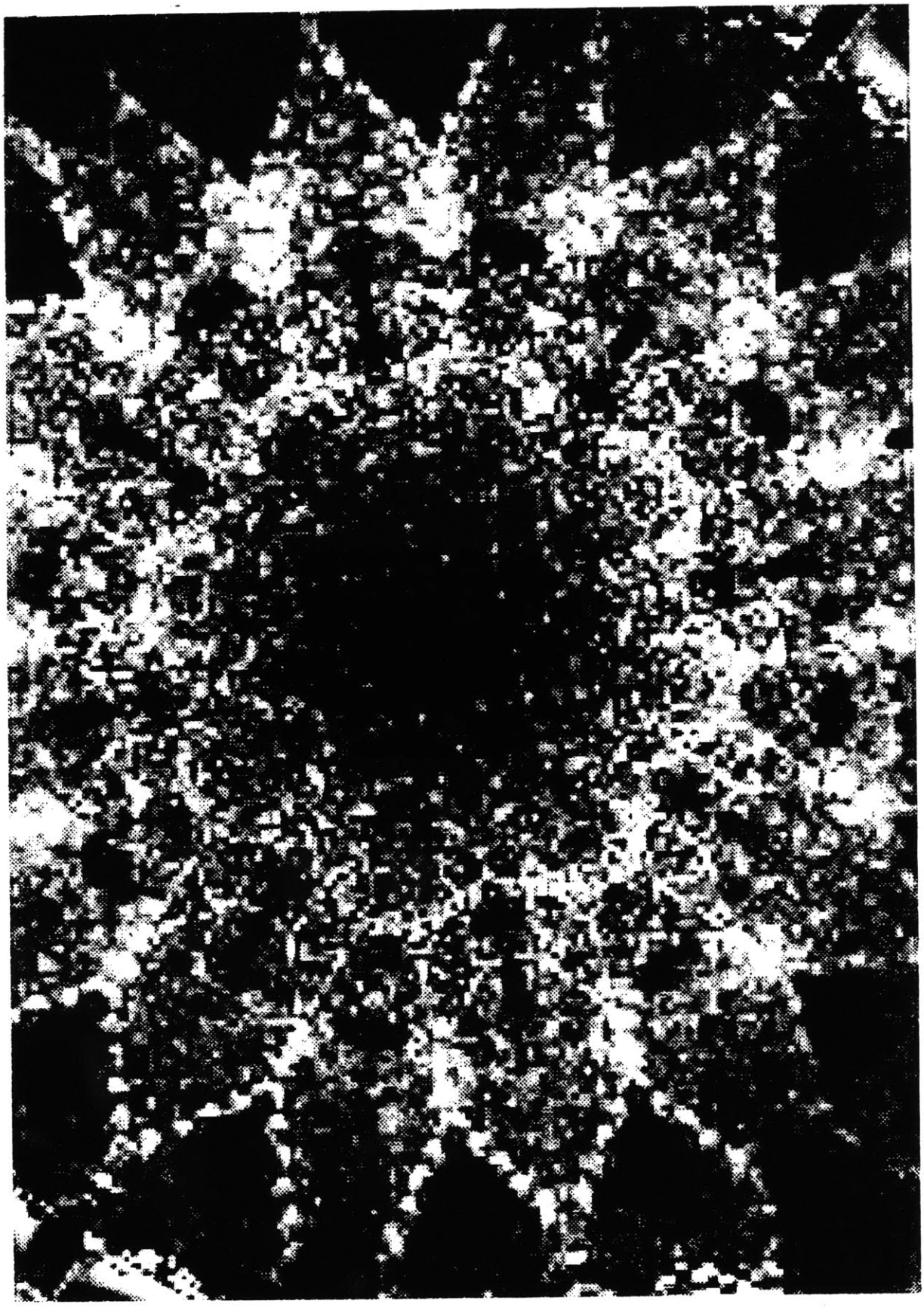
Each side of the building has a horseshoe arch (Fig. 25). What is most evident about this is that it addresses the surfaces of the Gates found on the outer segments of the Palace. Its surface is rich with red rough brick similar to that of many of the towers. There is a small lantern that hangs from the cupola and a single line of small square openings that stretch the length of the wall. As you look through the arch and to the outside you see the vines of the Partal Garden wrapping along a wall. The path that I walked upon when entering the Palace is again evident. Vegetation grows along the buildings surface as the two meet in harmony. It is a subtle representation of architecture meeting nature.

The Partal Gardens are a series of spaces created by small walls, terraces and vegetation--and water, lots of water. There are intimate ponds with water lilies blooming. The colors from the tiles of the interior are complimented by the colors of flowers filling the garden. Now these flowers become analogous to the details of architecture within the garden walls. As you walk along narrow pathways water runs along its boundary, just as it did on the path leading up to the Alhambra. These detailed paths open into small fountains and then return to direct another pathway. They form pools and fill fountains to drink from. There are places to sit and places to walk. When you leave the Palace, there is a pathway that leads you to the Comares Bathes. It is the same path that takes you into the garden spaces. You can understand a special relationship between landscape and building. Where spaces of inside spaces and outside spaces are found both within the Palace and in the garden.

Through a series of towers, you are constantly reminded of the complex of buildings and their connection to each other. At the highest terrace point within the garden you can look across at the large pool that leads to a portico of five arches. It is a part of a palace that frames the city below.

Many level changes take you into walls of landscape as you reach the opposite side of the hill. At one point you reach a wonderful series of tightly woven bushes that are finely trimmed and create two walls far above your head. You feel protected by the calmness of their leaves. The surface beneath your feet is smooth earth of red. It directs you along a long path and then opens you to the vista beyond. There are rooms created by trees and bushes with places to sit in privacy. You hear the movement of leaves as the wind passes through and water from the many fountains.

Even though so much of the Alhambra was built in different centuries, the attention to what seems to be its underlying nature remains consistent throughout it progression. Even the Partal gardens, which were some of the latest additions to the Alhambra, contain the same elements of transition from light to shadow and the attention to detail that is evident throughout the Alhambra walls. Here landscape becomes the material that creates the spaces and walls of the garden. And water continues to link the entire experience.



Chapter Two: Defining the Dialog Between Nature and Architecture.

In the architectural experience of the Alhambra there is a dialog between nature and architecture. This dialog relates to how architectural materials are transformed into experiences of nature and how natural materials are transformed into elements of architecture and architectural experiences. The sensitive attention paid to these aspects enables us to feel the experience of the Alhambra as an integration of the two. There are moments in the experience where nature and architecture become so integral that the distinction between the two becomes diffused. The layering of elements plays an important role in this integration. Light and shadow are primary factors in the understanding of the expression of this architectural relationship. But in order to understand this, one must first become aware of what elements help to define this dialog and what makes it occur. Then we can look more closely at the role of light and shadow in the dialog between nature and architecture.

There are two elements which define the architecture and nature in order to more closely understand their relationship. They are *surfaces* and *openings* and both exist in architecture and nature. *Surfaces* are those elements in architecture and nature which are formed by material structure. *Surfaces* are further defined as: walls, floors and ceilings. In architecture they are created through wood, stone, plaster and tile. In nature, this is done through earth, grass, plants, flowers, hedges, trees, sky and water. *Openings* are defined as: doorways, arches and windows. *Openings* also function as elements which provide a visual or physical extension from one space to another. They create space and their integration helps to form the interaction between architecture and landscape. This interaction is experienced in relationship to the human

body. It helps to create a definition of *surface* and *opening* and to link other elements to the experience. Scale is an important issue in the perception of the experience and will be discussed in further detail at a later point. Just as words combine to create sentences and form a dialog with language, the elements combine to create rooms both inside and outside and these rooms create the progression through space, integrating nature and architecture.

The dialog that is in part made up through *surfaces* and *openings* can be more easily understood in the context of inside and outside. In the experience of the Alhambra the distinction between inside and outside is complex. At times there is a clear distinction, but at other times, inside becomes outside and outside becomes inside. This interaction creates the dialog between nature and architecture and landscape and building.

In addition, layered upon these ideas is the relationship between what is inside and what is outside. The way elements define these spaces results in the complex interaction between nature and architecture in the architectural experience. In the experience of the Alhambra there is a subtle diffusion of this meaning. It is important to look closely at the relationship of surfaces and openings as a part of the vocabulary in the dialog between nature and architecture within the context of inside and outside.

Elements are used in many contexts in the experience of the Alhambra. Separation of these contexts isolates the elements so that they may be more clearly understood. Elements such as water, steps, sound, light, shadow, passage, movement and scale all become unifying factors which weave the

experience of the Alhambra together. They will be discussed in this context in chapter four.

There are three ways to subdivide the interaction between inside and outside in order to more clearly define their meanings. They are: Nature becomes an architectural element 'inside' the structure; Nature 'outside', where it is transformed into architectural experience; and architecture transformed into the experience of nature. This occurs when architectural elements become so integrated with the experience that they evoke the perception of the natural environment. The elements which create *surfaces* and *openings* are the foundation of the vocabulary within the architectural experience of the Alhambra. These elements of the vocabulary combine further and begin to define larger spaces that result in a dialog between inside spaces and outside spaces. This is completed through movement, erecting a complex dialog between nature and architecture.

Nature transformed into architectural elements:

When nature is transformed into an architectural element, it expresses the complexity of this dialog. One element of nature that expresses this is water. There are two primary ways in which water is used in the experience of the Alhambra. Water as a *surface* and water as a unifying element. The latter will be discussed in detail in chapter four.

In the Court of the Myrtles, water in the reflecting pool spans almost the entire length of the court. Because of its size in relation to the dimension of the floor area in the court, it becomes a floor surface. This surface acts as a mirror. Movement around the court, reflects in detail many images of the

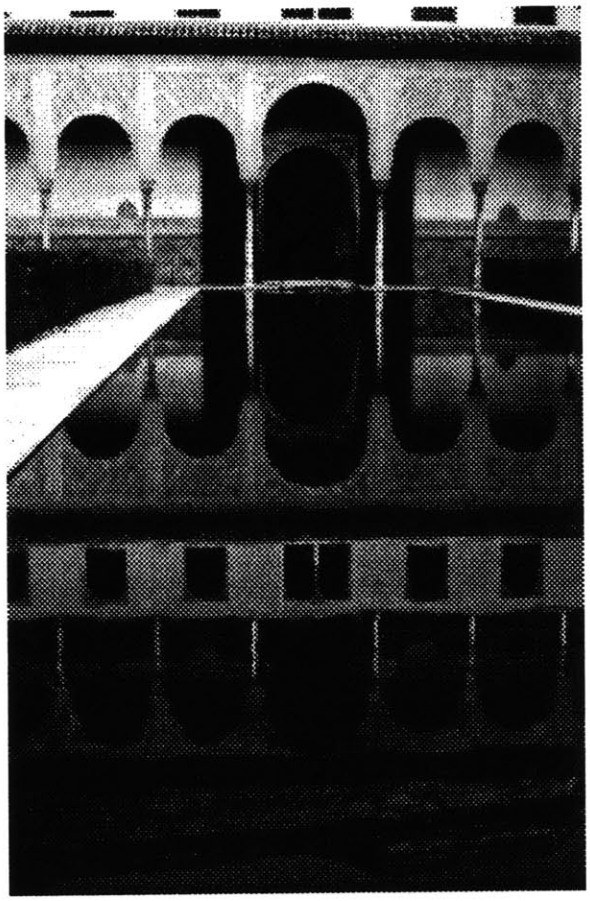


Fig. 26

architecture. At one point, standing along the north end, it mirrors the image of the facade of Charles V. Walking around the pool, the colorful details in the tile along the base of the walls are vividly magnified. A view from the south end displays the reflection of the facade leading into the Hall of the Ambassadors (Fig. 26). It is in this way that water becomes a mirror-like surface and has the ability to magnify space, expanding the scale of the court. This expansion of space is also seen in the reflection of the sky along its surface. Normally, the sky is seen above, but for the first time in this journey, it becomes an integral part of the floor surface. It is important to understand that the size of the reflecting pool is crucial in this perception of space. If the pool were small in relation to the court size, it would not expand the space as it does. Instead, it would react in much the same way as it does in the Cuatro Dorado. Here, the fountain is small. The shape of the fountain is that of an octagonal shell. It is only about four or five feet wide and about ten inches above the floor level. It does not reflect the surfaces in the court, but, like fluid glass, water pours over the edge and into the recessed pool beneath the floors surface. In this case, scales helps to transform water into the architectural object of fountain.

The interaction of *surfaces* and *openings* help unify inside and outside, fusing nature and architecture. Rooms are created inside, as well as outside. For example, the Cuatro Dorado, for a variety of reasons, has the feel of a room rather than a court. And even through it has no physical roof, the sky becomes the roof allowing nature to complete the proportions of the room. It expresses another example of the transformation of nature into an architectural element.

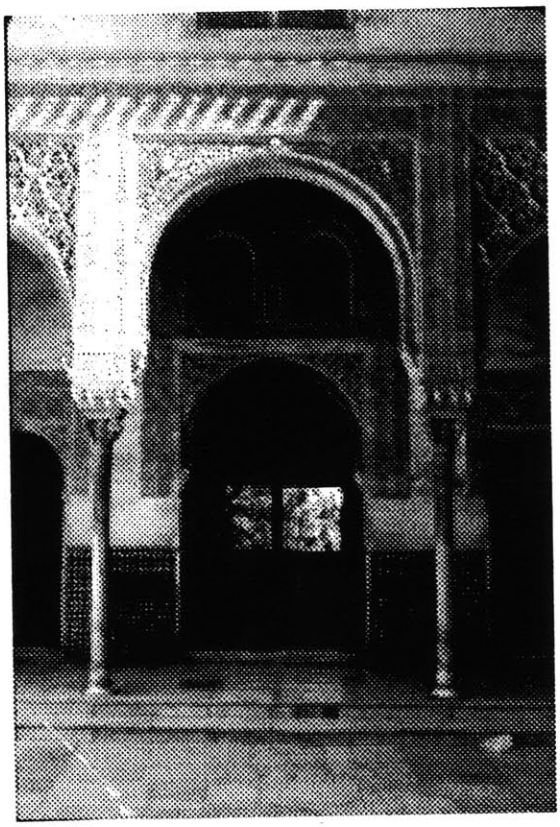


Fig. 27

It is important to look more closely at how nature is transformed into an architectural element and how the transformation from a court to a room is created. In the court of the Cuatro Dorado several elements are working together to create a feeling of a room rather than a court and the room evokes a magical sense. This sense is made through the unity of elements throughout the court. The elements which create *surfaces* and *openings* in the court represent nature through architectural elements. The surface of the wall surrounding the Cuatro Dorado and the arcade which introduces the court express this with richness (Fig. 27). There is a division in the scale of the wall, where a band with star and leaf-shaped patterns of various colored tile wrap around the walls of the room. The tile leads into the arcaded area of the court connecting one space into the next and unifying the progression of movement. The details of the column capital with acorn, shell and leaf motifs further suggests the use of nature represented in the architecture (Fig. 14, p.16). Although these elements are only representations of nature, they begin the basis of the dialog that fosters the magical feeling of the court.

But the transformation of nature into architectural elements is the link to this complex dialog. The introduction of water in the center fountain becomes a mystical focus. This is derived from the simplicity of the fountain, the central meditative focus, and the enclosure formed by the walls which wrap around the body within the court. Water becomes the source of life within the court. The surface of the water as a natural element acts like the a the architectural material of glass with its reflections and opacities. Because of its scale in relation to the materiality of water, water becomes transformed into an object. This same kind of transformation of a natural element into an architectural

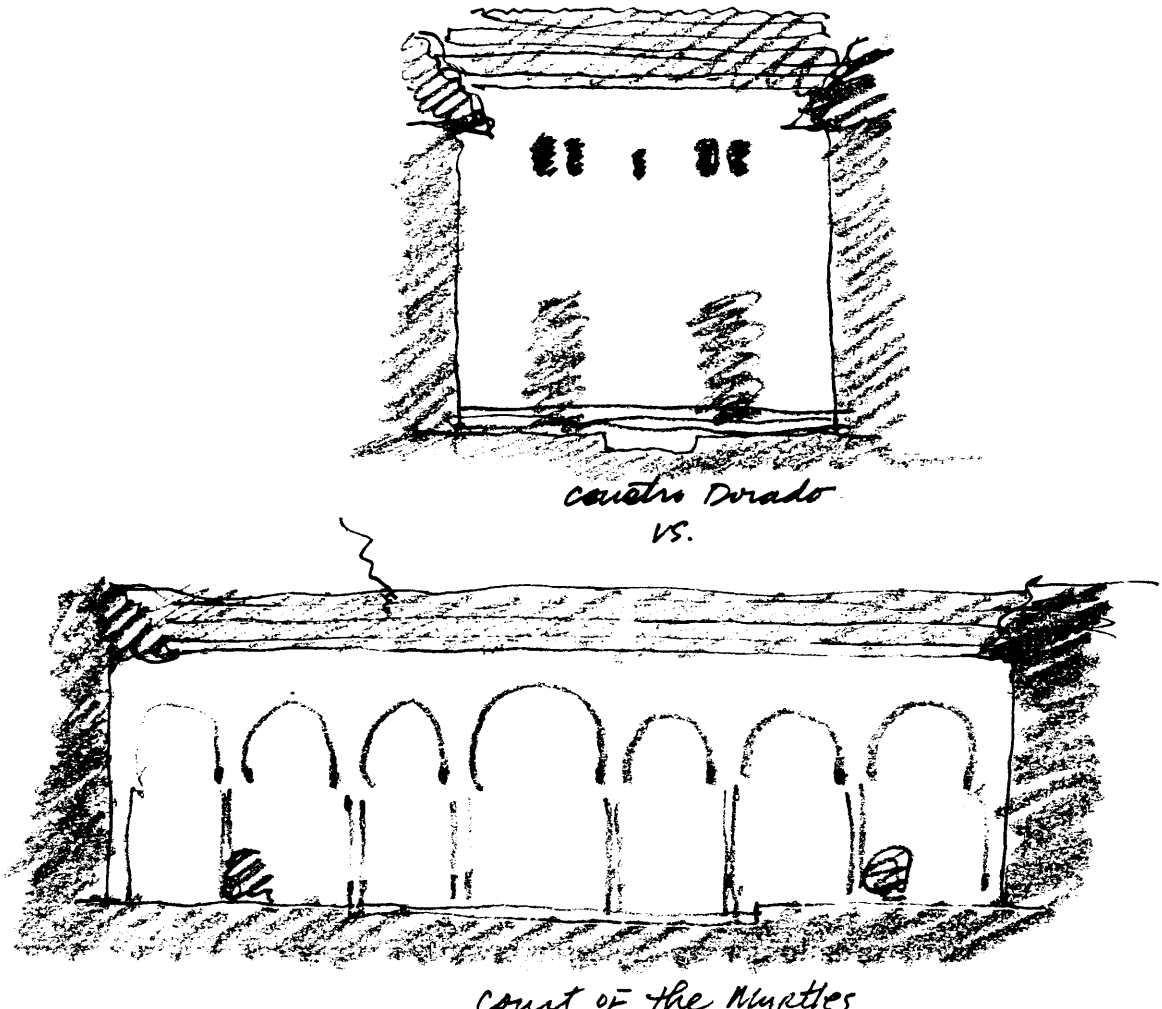


Fig. 28

element occurs when the sky in the Cuatro Dorado becomes the architectural element of ceiling.

It is important to understand how nature becomes an architectural element of the ceiling for this court. Scale plays an important role in creating this experiences through the scale of the walls in relation to the area of floor space within the court. The floor size is about 20'x32'. The walls are approximately 24' tall. Instead of feeling the sense of openness that is typical with a court, the feeling is of roomness.

Comparing the Cuatro Dorado to the Court of the Myrtles helps to illustrate the importance of this point (Fig. 28). If the floor area were greater in relation to the wall height, the feeling would be significantly different. We can see this expressed in the Court of the Myrtles where the scale is much larger. The relationship of wall height to the floor area creates a feeling of openness that is typical of a court.

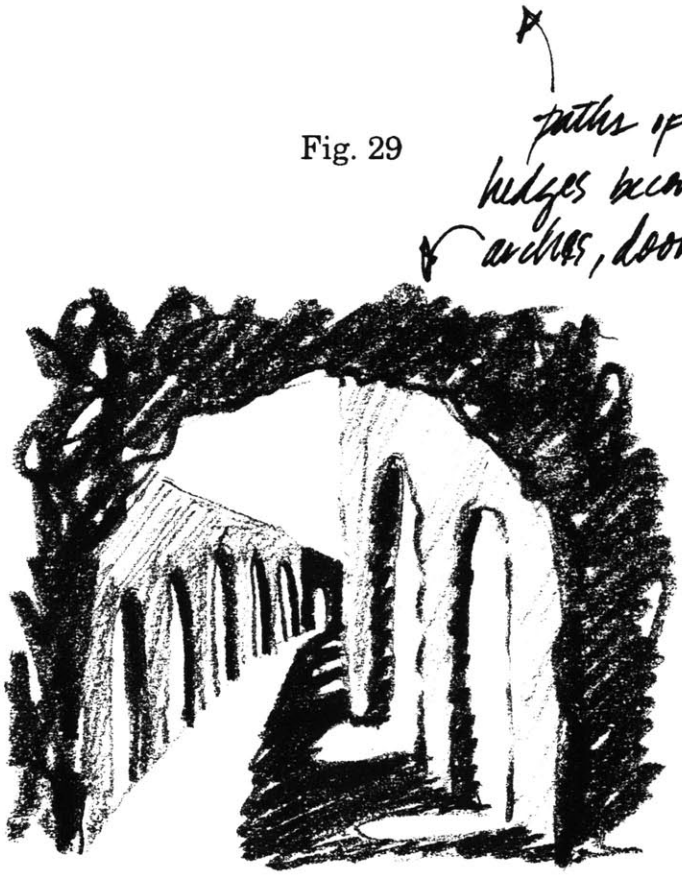
The way nature is transformed into elements of architecture expresses the careful relationship between inside and outside. In the example of the Cuatro Dorado, outside is expressed as inside... and the court is transformed into a room where natural elements and material becomes an architectural element.

Nature transformed into Architectural Experience:

The complex dialog between nature and architecture and inside and outside is also expressed through the transformation of nature into an architectural experience. This is expressed outside in the making of spaces. It involves the making of spaces from natural elements, turning landscape elements into an

where arch is
formed by hedges.

Fig. 29


paths of
hedges become walls
arches, doorway

architectural vocabulary. But these elements of nature no longer exist just as elements alone. Integrated, they create a more complex architectural experience.

The hedge alone is only an element of nature that is grown rather than constructed. It is simply a hedge. (Fig. 29) Once it develops a dialog with scale and context, it is transformed. It has the ability to become more than a hedge, perhaps a wall and at times, even the wall becomes an element in the making of a corridor or hallway. Natural elements such as hedges, earth, planting, sky, stones and water are transformed into walls, floors, ceilings, and steps. It is this unity of natural elements that create an architectural experience 'outside'.

In nature, architectural experiences are created through the making of doorways, arches, windows, rooms, courts and passageways, all parallel to those elements experienced within the Alhambra. This use of nature happens both inside and outside. In some spaces, nature is used in both ways. In the Partal Garden, where walls and corridors are created by hedges and in the Cuatro Dorado, where the sky becomes a ceiling and water is transformed to become a surface of floor or glass. While in other spaces, nature is singularly represented, as when natural motifs are placed in column capitals, providing the imagery of nature, but not the transformation into an experience of nature.

Analyzing spaces that are constructed through this dialog helps to further understand the complex ways that the experience of nature and architecture are connect and intertwine in the Alhambra. Rooms become the most

Fig. 30

important factor that links nature and architecture. Elements such as surfaces and openings combine to articulate this experience.

In the Partal Gardens, there is a section beyond the series of terraces that leads up to the Generalife and overlooks the opposite side of the mountain range. In this middle section, the pathway is clearly defined. It is lined by small plants and occasionally a small bench or fountain has been placed along the path. It leads to an opening, defined by hedges, planting and sky. It does not feel like an outdoor garden space, rather an outside room. And the room becomes nature transformed into an architectural experience. The opening has the scale of a doorway. It leads into a space that is shaded from the bright sunlight and is surrounded by hedges and plantings in a circular pattern. Just as in the Cuatro Dorado, the ceiling is formed by the sky. It is an intimate room created by man. It is shaded by the filtering of light through the hedged walls and by their height. The walls extend about twelve feet and the floor space is about fifteen feet in diameter. Even though the sky is transformed to roof, this relationship of height to floor area provides a shaded room outside. It creates a doorway, wall, ceiling and room through the simple combination of natures elements in a garden space. Nature is transformed into architectural experience. A hedge becomes a wall, but the *surface* is made from natural materials outside. This surface is interrupted by *openings* formed by the alteration of hedges and coverings. The wall combined with other elements creates a room and the progression of rooms create movement through space.

In the upper level of the Partal Gardens, running along the edge of a cliff-side, are two rows of hedges creating walls about fourteen feet high (Fig. 30). They are sharply trimmed and squared along the tops. They are about ten feet apart

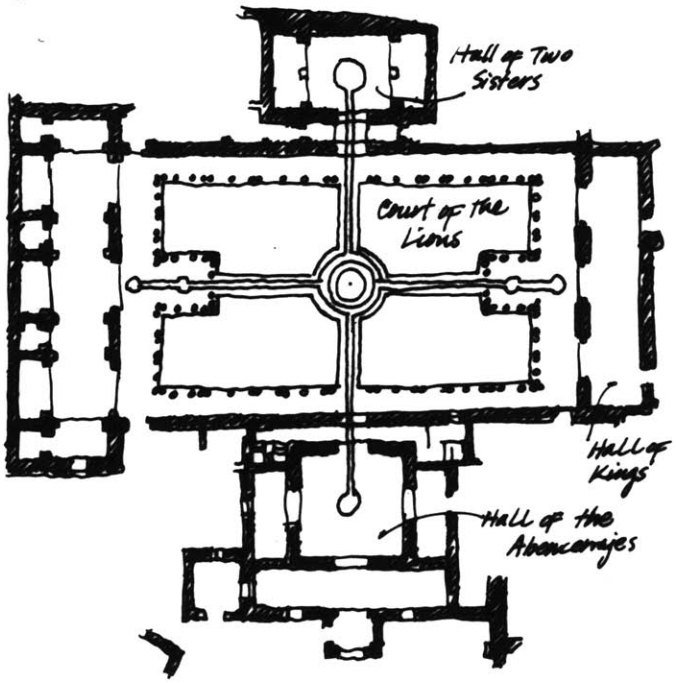

Hall of Two Sisters
Court of the Lions
Hall of Kings
Hall of the Abencerajes

Fig. 31

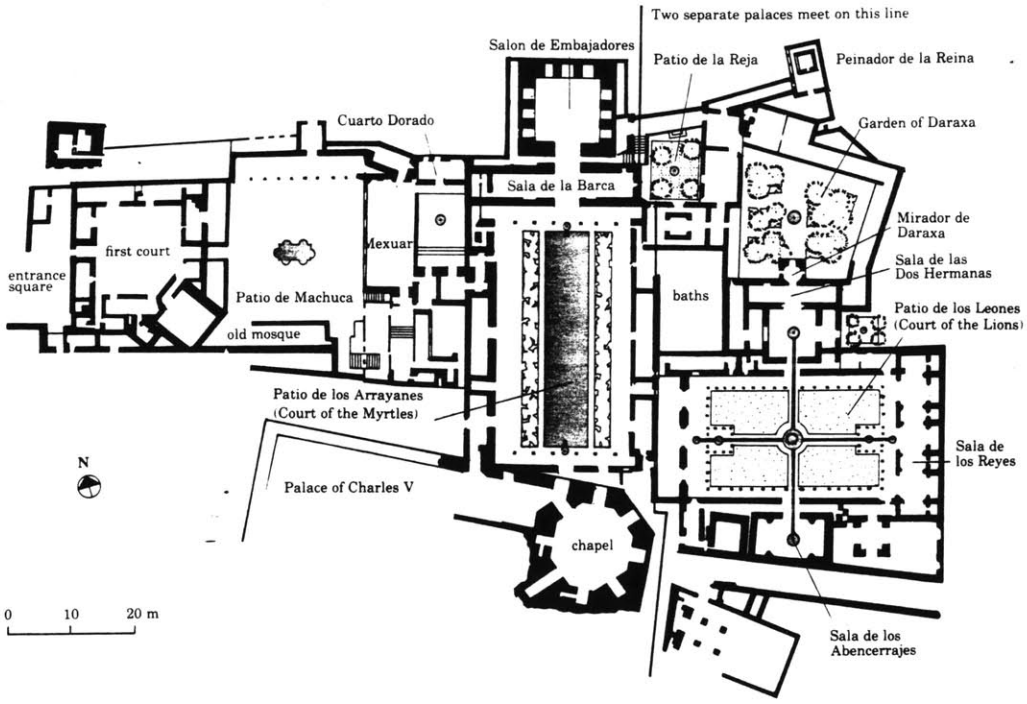

Two separate palaces meet on this line
Salon de Embajadores
Patio de la Reja
Peinador de la Reina
Cuarto Dorado
Garden of Daraxa
Sala de la Barca
Mirador de Daraxa
first court
Mexuar
entrance square
Patio de Machuca
baths
Sala de las Dos Hermanas
Patio de los Leones (Court of the Lions)
old mosque
Patio de los Arrayanes (Court of the Myrtles)
Sala de los Reyes
N
Palace of Charles V
chapel
0 10 20 m
Sala de los Abencerrajes

Fig. 32

and run about twenty-five yards in the path is curved. As you walk through this passage it feels as though you are being led through a corridor. This is because of the relationship of the height to the width of the passage. Because the path leads in a curve, you cannot see its end, thus extending its length visually. The walls open-up only to address another pathway similar to moving inside the Alhambra where passage leads to another passage. Once again, nature has created the expression of architecture through *surfaces* and *openings*, where hedges become walls and walls create passageways and corridors.

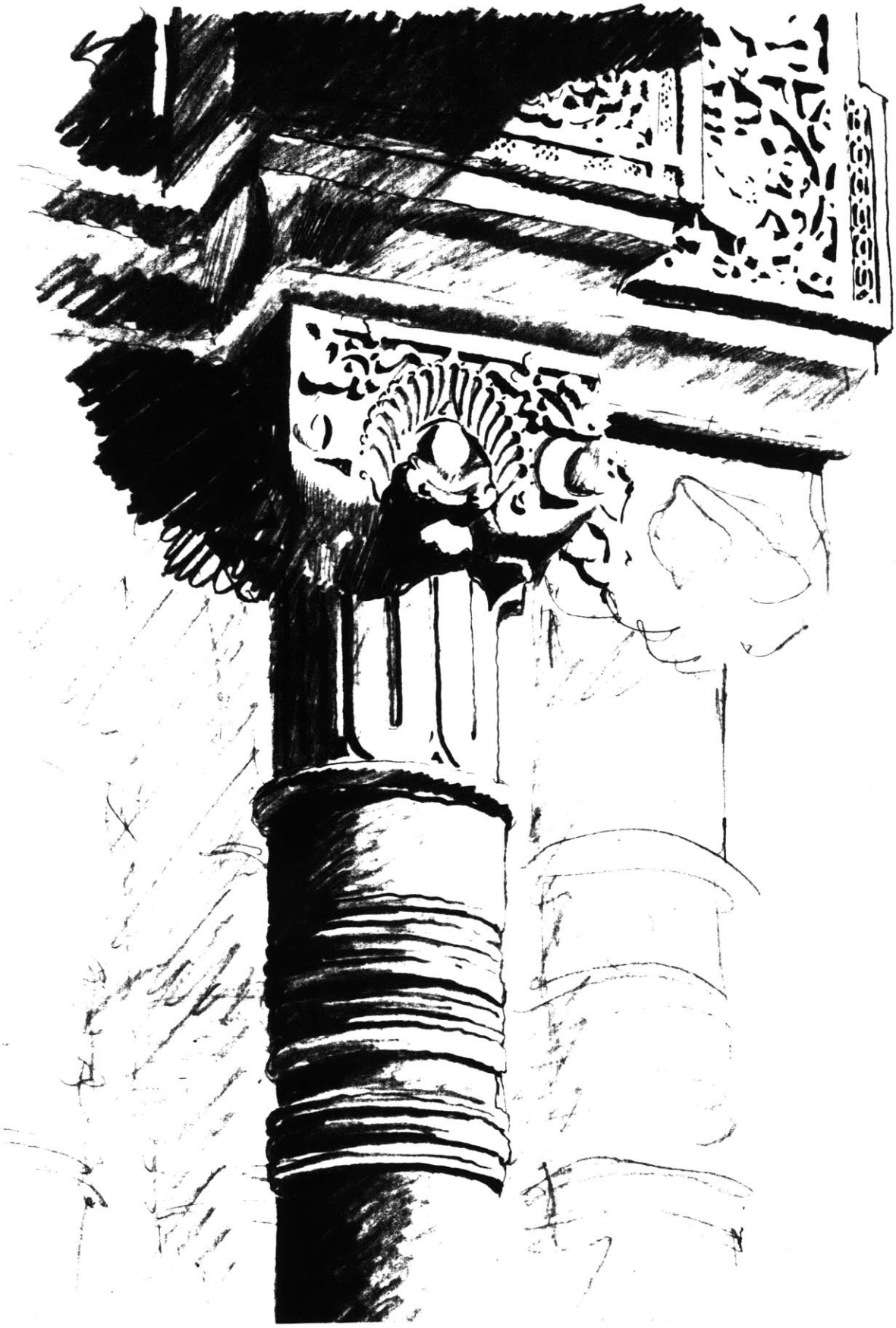
Architecture transformed into Experience of Nature:

It has been shown that in the dialog between nature and architecture, nature is used in two primary ways. Natural elements are transformed into architectural elements and nature is transformed into architectural experience. But architecture is also transformed in this dialog. 'Inside' the Alhambra, it is transformed into an experience of nature.

For example, in the Court of the Lions, there is a central fountain which is made up of twelve stone lions, surrounded by four arcaded facades which create the court. A plan of this court will help to explain this more clearly (Fig.31). The series of columns are seen from various points of the court. Passageways address them and paths of water connect adjacent halls. The column capitals are detailed with fine scrolls of natural motifs. Like the lions of stone, they are only representative of nature, but as the night ascends, these columns are transformed into a forest of trees, shadowing the courtyard in the bright moonlight. They are surrounded by roof-tops which are no longer distinct in their making of clay tile. Their silhouettes become prominent and

they hover over the court like large tree-tops surrounding the columns of trees below.

Another example of architecture transformed into a natural experience is in the Hall of the Ambassadors (Salon de Embajadores) (Fig. 32). It is located adjacent to the Court of the Myrtles. The ceiling of this hall is finely carved in wood with detailed star shapes and geometrical patterns. During the day, this surface is seen as an intricate expression of architectural craftsmanship. But as the light of day descends, the surface of the ceiling is transformed into a night sky filled with stars. The light from the moon that travels into the hall is just enough to reflect the gold painted on the carved surfaces in the ceiling. Patterns create shadows and star-like shapes are expressed. The darkness of the wood disappears, becoming the darkness of the sky.



Chapter Three: Light and Shadow.

Through light and shadow we become more aware of the richness in the relationship between nature and architecture. This dialog becomes richer through the progression of movement through time. The progression through time not only involves daylight, but also nightlight. The following chapter deals with the understanding of light and shadow as an integral part of the relationship between nature and architecture as experienced through sunlight as well as moonlight and it discusses their affect on the transformation of the experience.

Light and shadow are primary in the experience of architecture and one naturally implies the other. They define objects, create space, and transform experiences. Through light and shadow we become more aware of the importance of the relationship between nature and architecture in the experience of the Alhambra. Architectural elements are defined by the way in which they react to the light that touches their surface. As light changes throughout the day and into the night, so does its affect on these elements. Both are integral in the experience and without one the other cannot exist.

Most important to this chapter is the transformation of experience which takes place when the day turns into night and how the atmospheric conditions effect this experience in both the physical and the temporal sense. This transformation further enhances the dialog between nature and architecture. The issue of light and shadow, as it defines spaces through the progression of movement, is discussed in the following chapter.

NOTE: Light is ephemoral. It can only be seen through its interaction with objects or materials. This quality enriches the transformation of nature and architecture. It may seem as though architecture transforms or nature transforms, but in actuality, this is a result of light and shadow.

The importance of light during the day is usually one that is clear to all of us. Most of us spend the majority of our waking hours during the daylight hours and usually experience architecture within this context. But the light of night is also very relevant to the experience of the Alhambra. Not just because it was once a palace to sultans, with lanterns lighting the halls and courts, but also because the experience of the Alhambra in the nightlight brings about a further understanding of the dialog which exists between nature and architecture. The transformation which takes place between nature and architecture is integrated and fostered in the experiences that are paralleled in the changing relationship between light and shadow.

There are few artificial lights in the Alhambra. For practical purposes, the entry hall which holds the administrative office and the restrooms are lit artificially. Bright lights shine on the exterior and bring some light into the openings of halls and courts. But the type of nightlight which I am speaking about is the moonlight and its attendant shadows. This is the type of light which enriches the dialog between nature and architecture in the experience of the Alhambra. This is the type of light which transforms the experience.

In order to simplify the understanding of the role of light and shadow, I would like to discuss them within the context of daylight and nightlight. This includes heat and coolness. (See Note)

In the Court of the Myrtles, each individual has his or her own perception of the experience of the court and the dialog between nature and architecture influences this. Throughout the transformation of day to night, many color changes take place within the court. These changes have a personal affect on

Fig. 33

NOTE: An interesting point to understand about the dialog that exists between nature and architecture in the Alhambra is the human factors that are brought into the experience. Analyzing the experience helps to understand that the dialog provides consistent elements which exist between nature and architecture and these elements influence the individuals sensibilities, creating their own perception of the experience. What may seem like a simple integration of basic elements becomes a complex weaving of the dialog that exists.

the experience. The surfaces which are struck by sunlight reflect this light in different ways. For example, the ivory surface of the plastered walls reflects much of the sun's rays changing the color of the wall throughout the day. At mid-day, the sun's rays are traveling through less atmosphere, so the intensity of the light is greatest and is seen as white light reflected from the surface of the walls. During sunrise and sunset, since the sun's rays are traveling through more atmosphere, the light colored surface of plaster reflects the red range of the spectrum and these colors are translated upon its surface, expressing the time of day. Once night falls upon the court, the darkness becomes intensified. Because the walls are much lighter than the eaves of the roof during this time, they reflect more rays from the moonlight and create a dull, bluish glow on the walls surface. But the green from the vegetation absorbs much more light and during this time the the moonlight that strikes the surfaces of leaves is absorbed, displaying a much darker tone. The moons reflection is seen upon the surface of the water, but the other elements are not reflected because the moons light is borrowed from the sun and cannot always reflect all the surroundings.

All elements remain consistent from day to night except the amount of light which strikes surfaces and the atmospheric conditions. During the daylight, the walls of the court surround and protect, but during the nightlight, they expand the space and open up to the star-filled sky. It is the light and shadow that transform the scale and proportions of the space, effecting the experience. (See Note)

It is important to understand that nature is transformed to create the architectural experience in part due to the amount of light, and therefore heat,

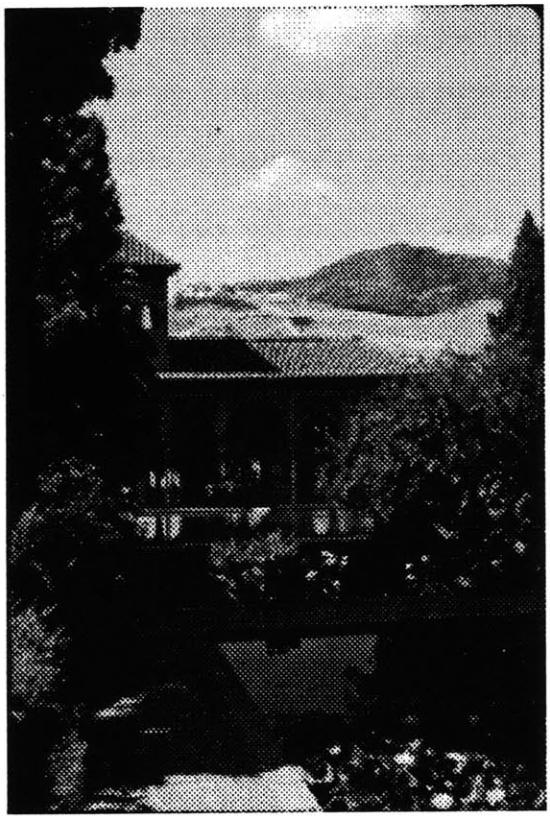


Fig. 34

that engages the garden spaces during the day. On a summer day in the gardens, temperatures will reach as high as 115 degrees Fahrenheit. This temperature is addressed through a variation of elements in the garden. For example, water is a key element in transforming the intensity of heat from the bright sunlight into to calmness and refreshness of the garden space. (Fig. 33) There are fountains and pools throughout the space that allow reflection, solitude and relief. Vegetation absorbs heat and provides the sounds of breezes

In the garden spaces, where nature is transformed into architectural experience, surfaces interact with light. The hedges which form a corridor in the upper portion of the garden not only provide a physical protection of walls leading the individual through the space, but they also indicate the suns position as it provides shade in intervals throughout different times of day. The garden is filled with a variety of textures and scales which create spaces of shade and openness to bright sunlight (Fig. 34). Just as the spaces that make up the court and halls are varied in detail and scale, so are the space of the Partal Garden. The upper terraces are more open that those below. They address the views to the Partal Palace below and the landscape beyond. The articulation of hedges and flowers in the central terrace area are enclosed with stair paths and water channels leading to the large Partal Pool below. Drinking fountains are surrounded by semi-circular hedges providing a backdrop. This protection shades the fountain and creates a focus on the sound of the water as it pours continuously. From the upper terraces, trees over-hang the middle terraces and provide a shaded roof, breaking up the intense sunlight and heat. The temperature changes in various sections of the gardens as a reaction to the hot summer days. For example, the room which is created in the garden space provides protection from the heat of day and

Fig. 35

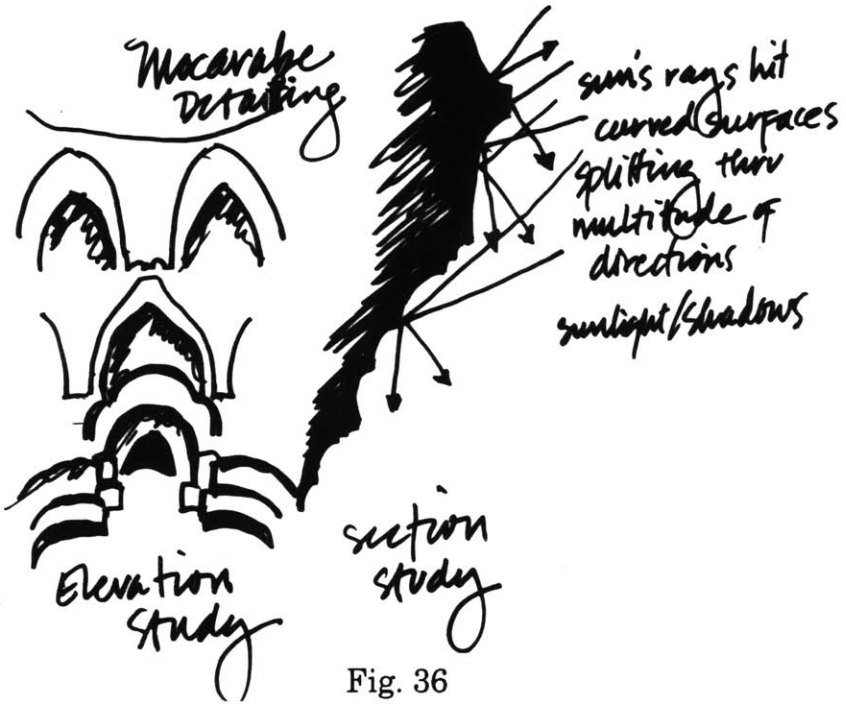

Macarabe Detailing
sun's rays hit curved surfaces splitting them multitude of directions
sunlight/shadows
Elevation study
section study

Fig. 36

solitude from the continuous spaces. The variation of light and shadow as a unifying element in the experience of the Alhambra forms another layer which is woven into the complex dialog between nature and architecture.

The transformation which takes place between nature and architecture is enhanced by the interaction of light and shadow. In chapter two, I mentioned the elements which are representations of nature as the beginning basis of the dialog between nature and architecture. I would like to look more closely at the impact of light and shadow on a single detail and how this detail, when multiplied, interacts with light and shadow and transforms the element into an experience. Before, (on page 31) I spoke about the description of the experience with light along the cupola in the Hall of Two Sisters. It is in this hall that the effect of light upon the architecture transforms the experience beyond architecture and into the realm of imagination. How does this happen? The hall is double-story and was once used as a place of meetings and social gatherings. The mocarabe vault (one which involves the geometrical formations resembling stalactites) is based on the Pythagorean Theorem, where the central star spreads over the entire vault in three dimensions. At the precise time during sunset, the sun aligns at just the right angle where enough light rays travel through the cupola windows and hit the surfaces of the mocarabe detailing resulting in a shimmering band of gold reflection that lifts the top of the dome (Fig. 35). It only occurs for about two minutes and the transformation back into the reality of the architectural form itself sends a range of colors along the surfaces. A diagram will show the form of the mocarabe detailing (Fig. 36). Breaking this down as a single detail will clarify the intensity of the transformation. This one shape will form hundreds of rays which reflect from the surfaces, multiplying themselves. When the rays of

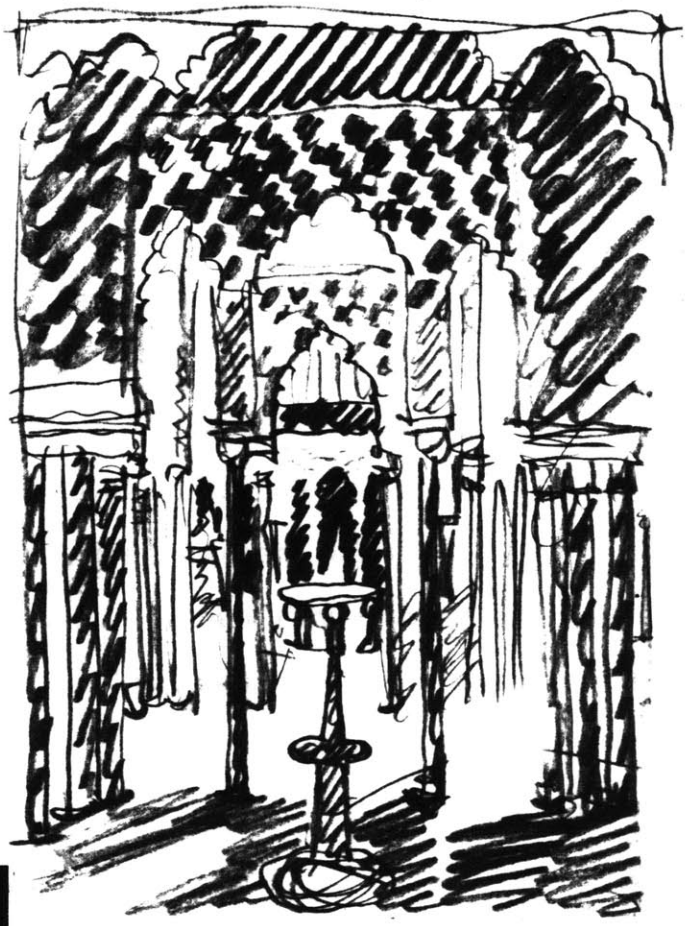


Fig. 37

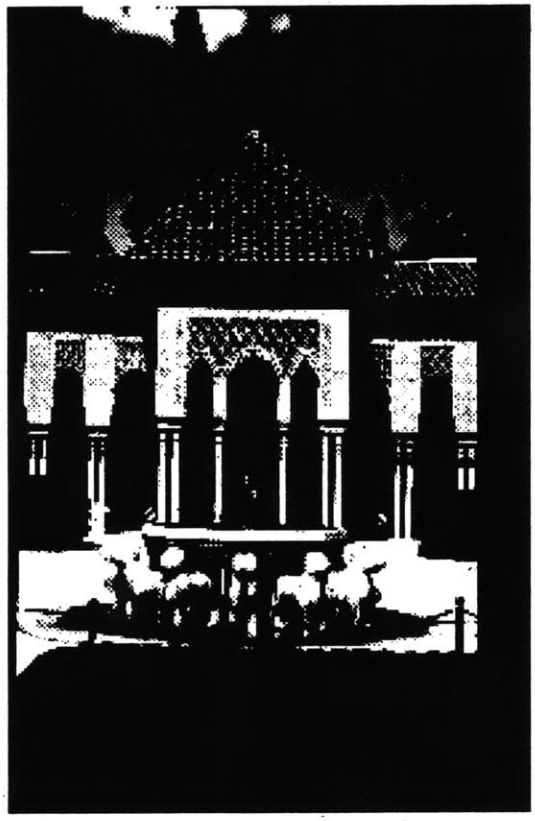


Fig. 38

light interact with the shadows created by this one form, it takes one color through a range of shades. As the rays of light hit the mucarnas detailing of the cupola, it becomes transformed into a band of gold which lifts from the hall. It allows the imagination to develop new meanings in the experience. The representation of nature as a single form or detail is transformed into a temporal experience and the powerful sense of sunset is brought into the experience of architecture within the Hall.

The transformation of architecture into the experience of nature depends greatly on the changing effects from day to night. In the previous chapter, I spoke about the Court of the Lions and the unique transition which takes place during the light of the moon. The light of day reacts to the surfaces of the court very differently than the light of night. During the day, since the court is filled with many light colored surfaces, the sunlight is intensely reflected. The pitched roofs are distinct with their terra cotta clay and dark wood eaves and the contrast between this and the light colored stone porticos frame the court. The space feels intimate, but grand with the fountain of the twelve lions rushing water into canals leading to surrounding halls (Fig. 37). The boundaries are distinct and give clear definition to the space. The spaces leading into the court from all four sides are filled with shadows and this intensifies the brightness within the court. But as night falls upon the court, and the light of the moon becomes its source, transformations take place and the court from day to night becomes a temporal experience. The darkness transforms the scale of the court, opening it up to the sky above, and framing it by tree-tops. The contrast between materials becomes more diffused. The eaves of the roof are only subtle shadows bordering the court. The moonlight is reflected from the ivory-colored stone columns giving them clear definition and

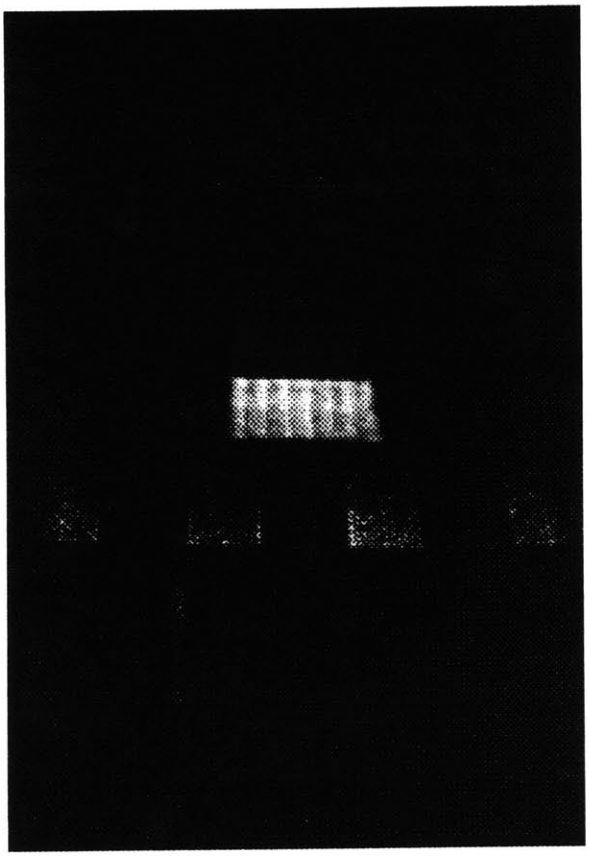


Fig. 39

NOTE: There are a few basic principles about light which will help to understand its role in the experience of architecture. Light is only one segment of the electromagnetic spectrum. That segment is radiation and this is what the eye sees. The color differences that occur in the spectrum are due to color temperature and the scattering or filtering of rays. Because our eye is not capable of separating the various colors in the spectrum, a mixture of these is seen as white light. The separation of colors in the spectrum occurs through refraction. In the case of atmospheric conditions, droplets of rain act as a prism and separate the rays. This is what causes the visibility of rainbows. Refraction also occurs when some of the wavelengths are filtered out, blocking some and allowing others to come through. So, the reason an object is a particular color is because it absorbs certain parts of the spectrum and reflects another, thereby displaying its color.

Color temperature is the other way other in which to see color differences. As an object is heated its temperature rises. This is seen through the change in color from red to orange to yellow to white. (most objects will melt at this point, but if they did not they would slowly turn to blue) The reason the sunset and sunrise appear reddish-orange is because the sun's rays must travel through more atmospheric filtering which is seen by the eye at the reddish end of the spectrum. During the mid-day hours, the sun is at its greatest intensity and is seen as white light because it travels through less atmosphere and it strikes a greater area of most surfaces. But, once the sun has reached about forty degrees above the horizon, it is at its peak brightness. This is why there is less variation seen in the color of the sky during mid-day hours. I should note that the reason for the color of blue sky is not due to color temperature, but to the scattering and absorption of short wavelengths as it enters the Earths atmosphere. When the suns rays enter the atmosphere they are filtered by the smallest molecules. These molecules have an effect on the shortest wavelengths, which are blue. This scattering results in a blue sky.

connecting them to the roof overhead. The white crushed stone on the ground within the court reflects light and glows in the night, whereas during the daylight its color blends in with the floors surface (Fig. 38). The movement of time from day to night transforms the architecture into the experience of nature and what is a richly detailed court during daylight becomes a forest of trees looming overhead during nightlight. This transformation gives life to the lions of the fountain as they growl with the sounds of water spewing from their mouths.

Another space in which we see this transformation take place was also discussed in the previous chapter. It is important to understand the a the transformation that was described is largely due to the reaction of light upon the surfaces within the hall. What is the effect of light on the ceiling in the Hall of the Ambassadors? During the day, the ceiling is rich with details painted on its surface. The light of day brightly displays this. But the light from the moon that reaches the ceiling, brightens only the patterns carved in wood and the gold leaf displaying a ceiling of stars. This, along with the breezes blowing through the arched openings and the sound of water off in the distant, evoke a feeling of a night spent outdoors under a star-filled sky (Fig.39).

It is important to discuss how the atmosphere affects the experience (See Note). When I speak about the atmosphere, I am specifically referring to clouds, sun, rain, and temperature change. If we understand that all surfaces are material -- this means that the landscape is a material just as the plaster of a wall or the stones of a street-- then we can understand the relationship the atmosphere has to our perception of an experience.

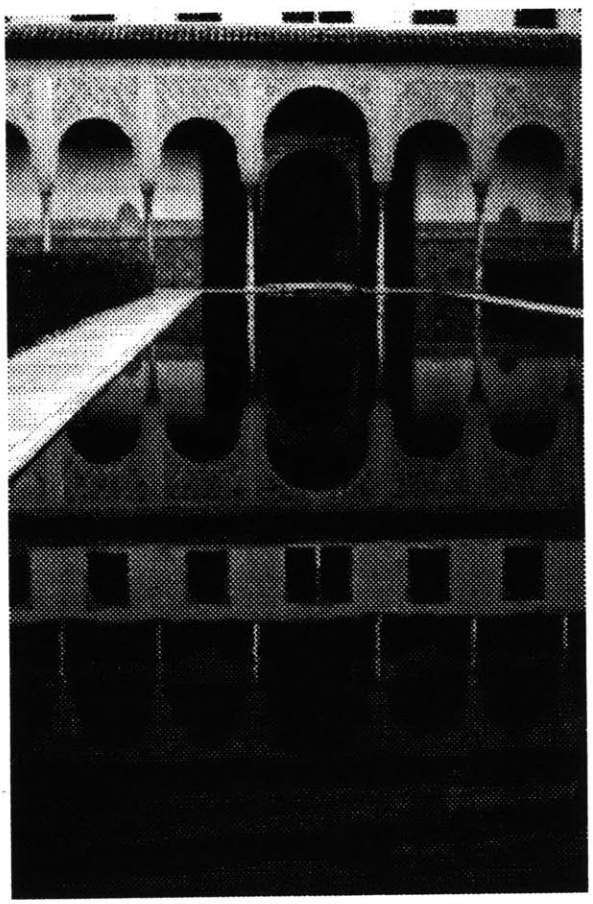


Fig. 40

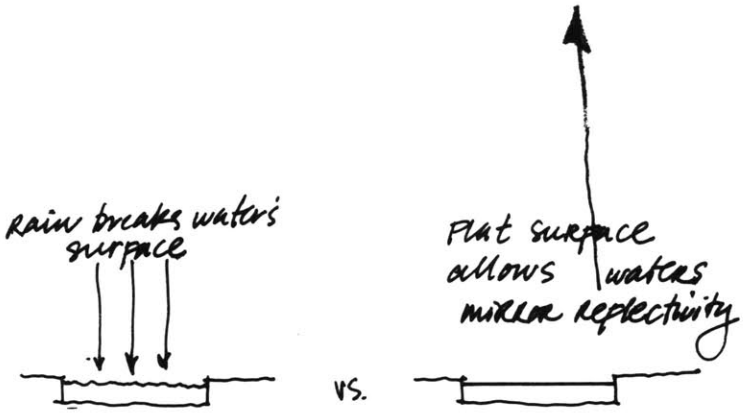


Fig. 41

NOTE: When water iis diffused and rippled it loses its mirror-like image and no longer is nature transformed into archtecture. But when it is clear and reflective, this transformation of scale enriches the experience.

Landscape is included in all types of architectural experiences because in order to be inside a space, one must encounter outside. Because the atmosphere directly affects the way in which light touches a surface, it affects the quality of light and the perception of the experience, introducing the temporal qualities of light and shadow.

Light and shadow enable the transformation of the dialog between nature and architecture. In the previous chapter, I spoke about the element of water as a natural element which becomes an architectural element through the experience. Light and shadow play a major role in this transformation. Water as a surface in the architectural experience can only become material through its interaction with light. The atmospheric conditions are a key point in this understanding. Although, I should clarify that I am referring to the mechanics that enable the experience and not the actual transformation which takes place in the experience.

In the case of the reflecting pool in the Court of the Myrtles, water acts as a mirror reflecting images along the surface. The flatness of the waters surface and the clearness of the atmosphere enable a direct reflection. This is shown in Figure 40. When the court is encountered by other atmospheric conditions the effect is very different. For example, when it rains, the surface is no longer smooth and flat but rippled and the droplets of rain diffuse the sunlight in such a way as to reduce the amount of reflection possible along the surface of the water (Fig. 41). We can compare these two diagrams and see that this simple principle becomes an important aspect in the transformation of nature and architecture. It is interesting to note that such simple principles

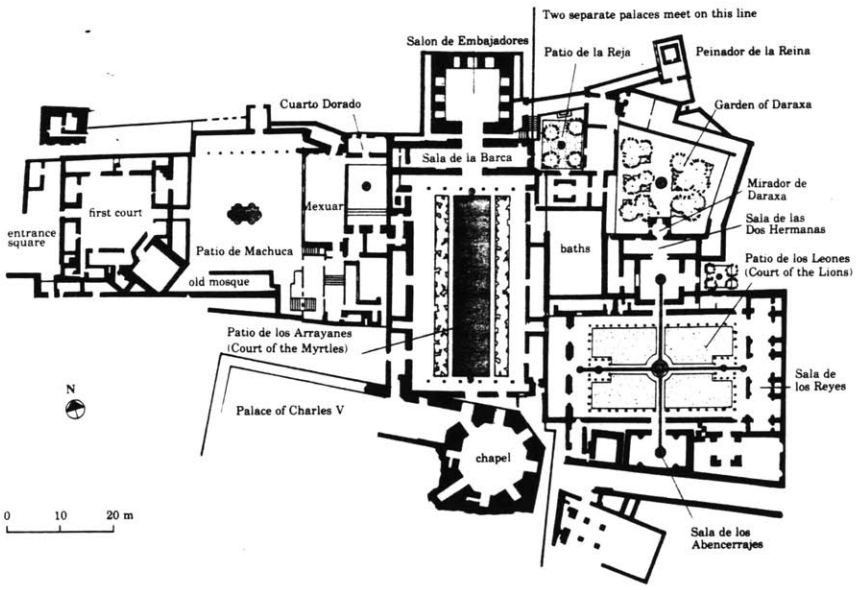

Two separate palaces meet on this line
Salon de Embajadores
Patio de la Reja
Peinador de la Reina
Cuarto Dorado
Garden of Daraxa
Sala de la Barca
Mirador de Daraxa
first court
Mexuar
Sala de las Dos Hermanas
entrance square
Patio de Machuca
baths
Patio de los Leones (Court of the Lions)
old mosque
Patio de los Arrayanes (Court of the Myrtles)
Sala de los Reyes
N
Palace of Charles V
chapel
0 10 20 m
Sala de los Abencerrajes

Fig. 42

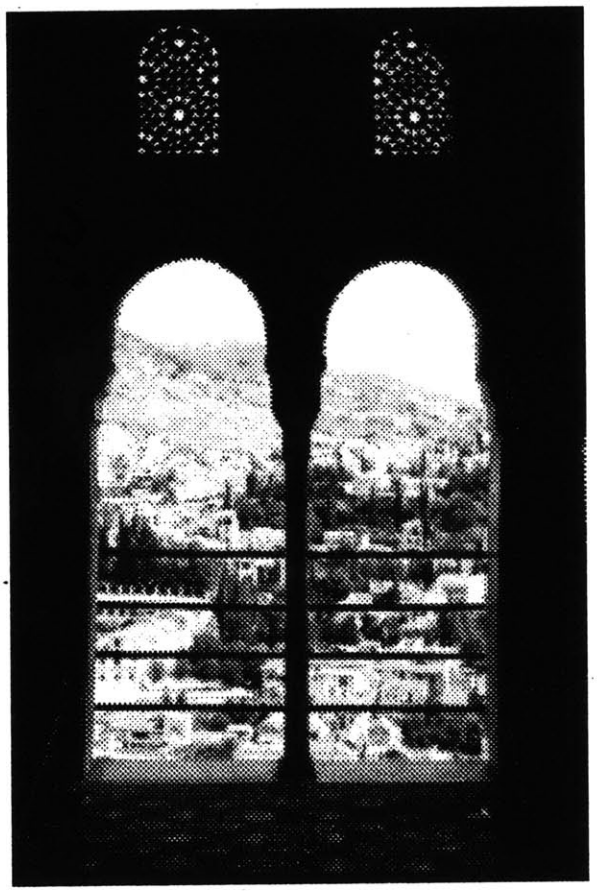
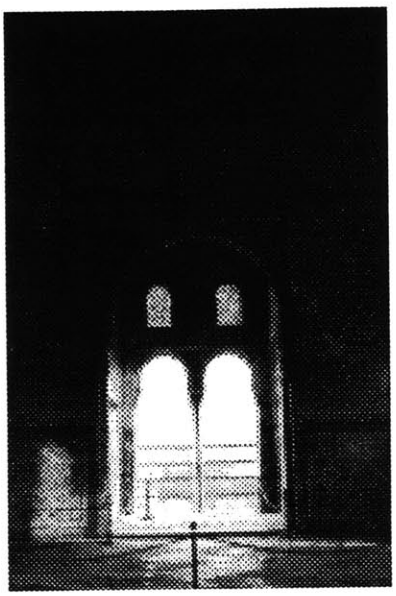


Fig. 43

addressed by the human experience transform into such a complex dialog between nature and architecture.

The pool becomes a way to expand the space of the court. This is done is through the reflective quality of the waters surface, which is altered by the atmosphere, and the size of the pool (24'x114') in relation to the court (77'x38') (See Note,p.76). Other factors which influence this effect involve the relationship between human scale and movement. This will be discussed in chapter four.

The dialog between nature and architecture responds to the bright sunlight and heat of the Andalusian climate. The analysis of openings as a climatic response will help to explain this more clearly. In the experience of the Alhambra, openings were defined in chapter two as those elements which provide a visual or physical extension from one space to another. This includes doorways, arches, and windows. Breaking this down further will help to understand a fundamental response to the level of light, and therefore, heat that is encountered in the Alhambra palace and garden. 'Inside' the Alhambra, openings provide circulation of air movement to allow cooling of the courts and halls. Figure 42 illustrates the various spaces which are linked by the breezes throughout the day and night. 'Outside', in the garden, spaces are designed to engage the issue of sunlight and heat. There are places of brightness, pools and fountains for cooling, and shaded areas. Although these are all practical solutions responding to the level of light and heat, they also enrich the experience by creating a variety of spaces to encounter in a single architectural experience.



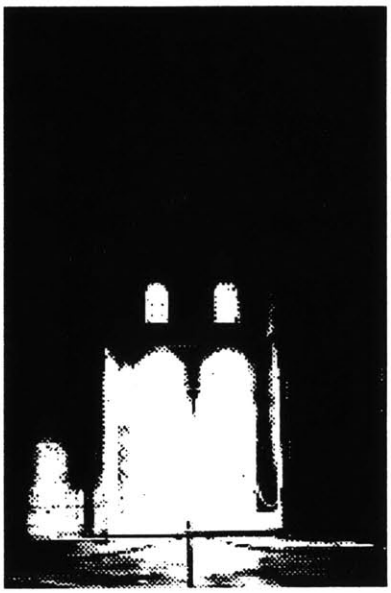


Fig. 44

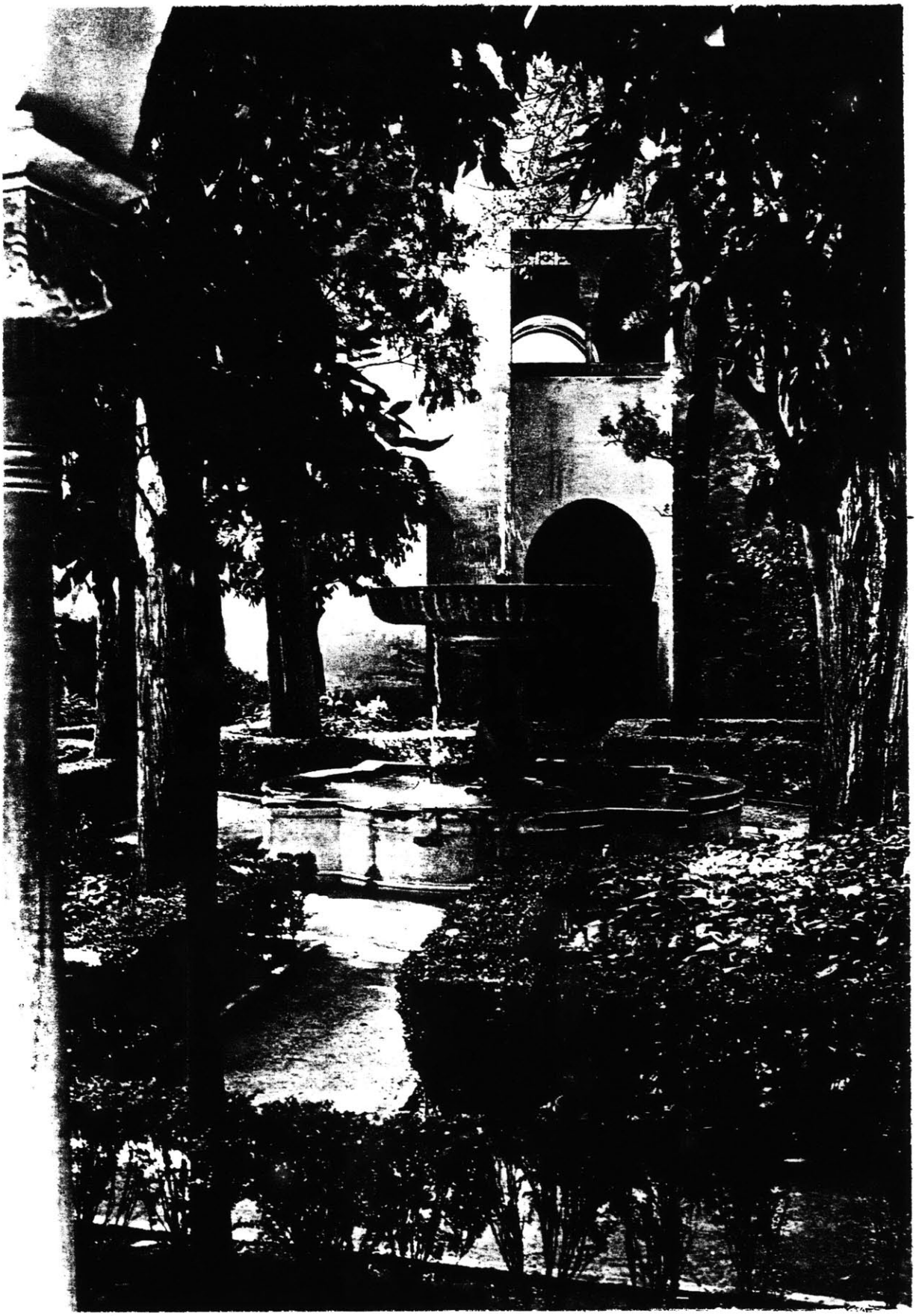
Fig. 45

I am suggesting that this reaction to environmental conditions creates an even greater link between nature and architecture. Architecture must respond to the conditions which it inhabits. The Alhambra is a response to these conditions.

A single opening, for example,a window, can be observed more closely to understand this connection. In the Hall of the Ambassadors, three side are composed of a series of arched niches set on step above the level of the primary hall space. Figure 43 shows a typical opening. Looking more closely there are several elements working together to provide responses to climatic issues. The proportion of a single arch involves the integration of two smaller arches. Above are detailed screens. Not only are they a representation of nature with their scrolls and geometrical patterns, they also provide a climatic response. During the mid-day hours, the level of heat is at its peak. The openings allow breezes to flow into the hall while the screens above vent out the excess heat (Fig. 44). The amount of sunlight that enters is filtered by these screens, yet it still provides some light into the upper portions of the niches. The openings created strong patterns of light and shadow. They allow light to react to the surfaces and colors of tile bordering the walls. The light from the screens is diffused and softened (Fig. 45).

This aspect architectural elements, where screened openings respond to light, can be paralleled to natural elements. In the garden spaces, on a hot, sunny day, the leaves of the trees act in much the same way as the screen of the arched openings in the hall. The leaves filter the sunlight which travels through the trees and provide a shaded reprieve from the heat of day.

Light and shadow interact with the experience of the Alhambra on many levels. They are discussed in each chapter because their role in the dialog between nature and architecture is a complex one. The following chapter discusses the role of light and shadow in unifying elements in the making of the dialog between nature and architecture as the final weaving together of the architectural experience. Although light has been described in concrete terms, in its truest sense, light is ephemeral. In order to be seen, it must interact with a surface. This interaction creates shadows. For this reason, light and shadow cannot completely stand alone as a unifying element, but they help to create definition of other unifying elements such as progression of movement and scale.



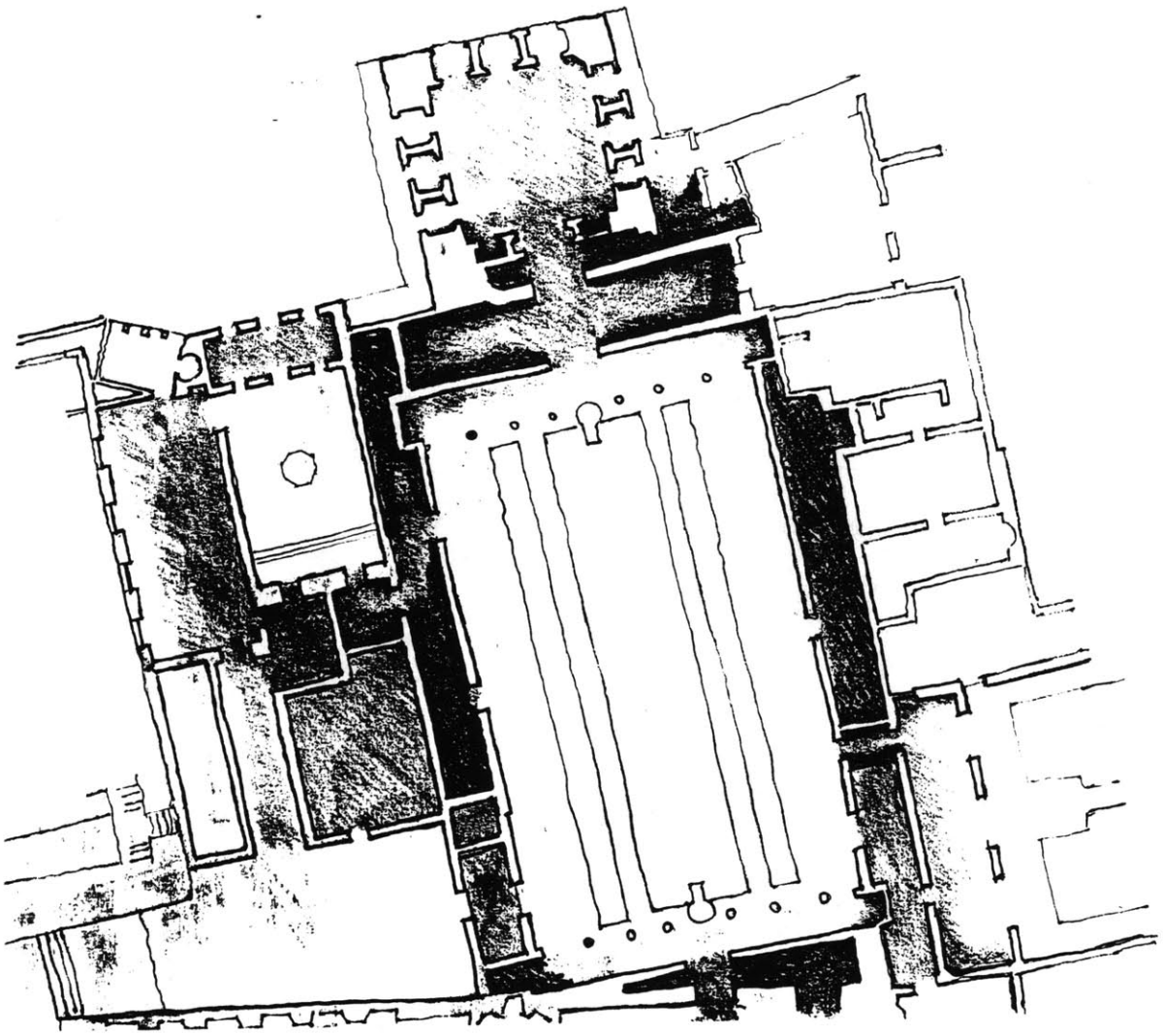


Fig. 46

NOTE: Although light and shadow unify the experience of the Alhambra, they are not discussed specifically as unifying elements. They do not stand alone as the unifier but instead, they interact with surfaces that define the unifying elements mentioned above. This interaction is within the context of a particular element. For example, the *progression of movement* and *scale* involve light and shadow, but they also involve many other factors. The previous chapter discussed light and shadow as an important factor in the dialog between nature and architecture. For the purpose of this chapter, light and shadow will be limited to its role in the definition of unifying elements.

Chapter Four: Unifying Elements.

Layered upon the dialog between nature and architecture are unifying elements. They are defined as those elements which weave the experience of the Alhambra together. Progression of movement, water and sound are all unifying elements that are the final link in the dialog between nature and architecture in the experience of the Alhambra.

Progression of Movement:

Light and shadow play an important role in the progression of movement. Through this movement, there is a progression of spatial sequences where small, intimate spaces lead through shadowed passages and out into light-filled courts. The following sketches were done as a way of understanding the rhythm of light and shadow through segments of courts and halls in the Alhambra (Fig. 46). The continual change in light and shadow draws the individual into the experience of the journey. Similar to the rhythm of light and shadow within the Alhambra palace, from court to hall, is the rhythm of light and shadow in the garden spaces. The transitions from inside to outside further link this aspect of the progression of movement, illustrating the unity in the dialog between nature and architecture (Fig. 47).

Looking more closely at a sequence of movement will help to understand the experience. Light plays an important part in the creation of movement that unifies the architectural experience in the Alhambra. In chapter one, I described the movement from the Cuatro Dorado into the Court of the Myrtles. This sequence of movement involves two courts connected by a passageway. The linking together of these spaces breaks up the brightness of the surfaces

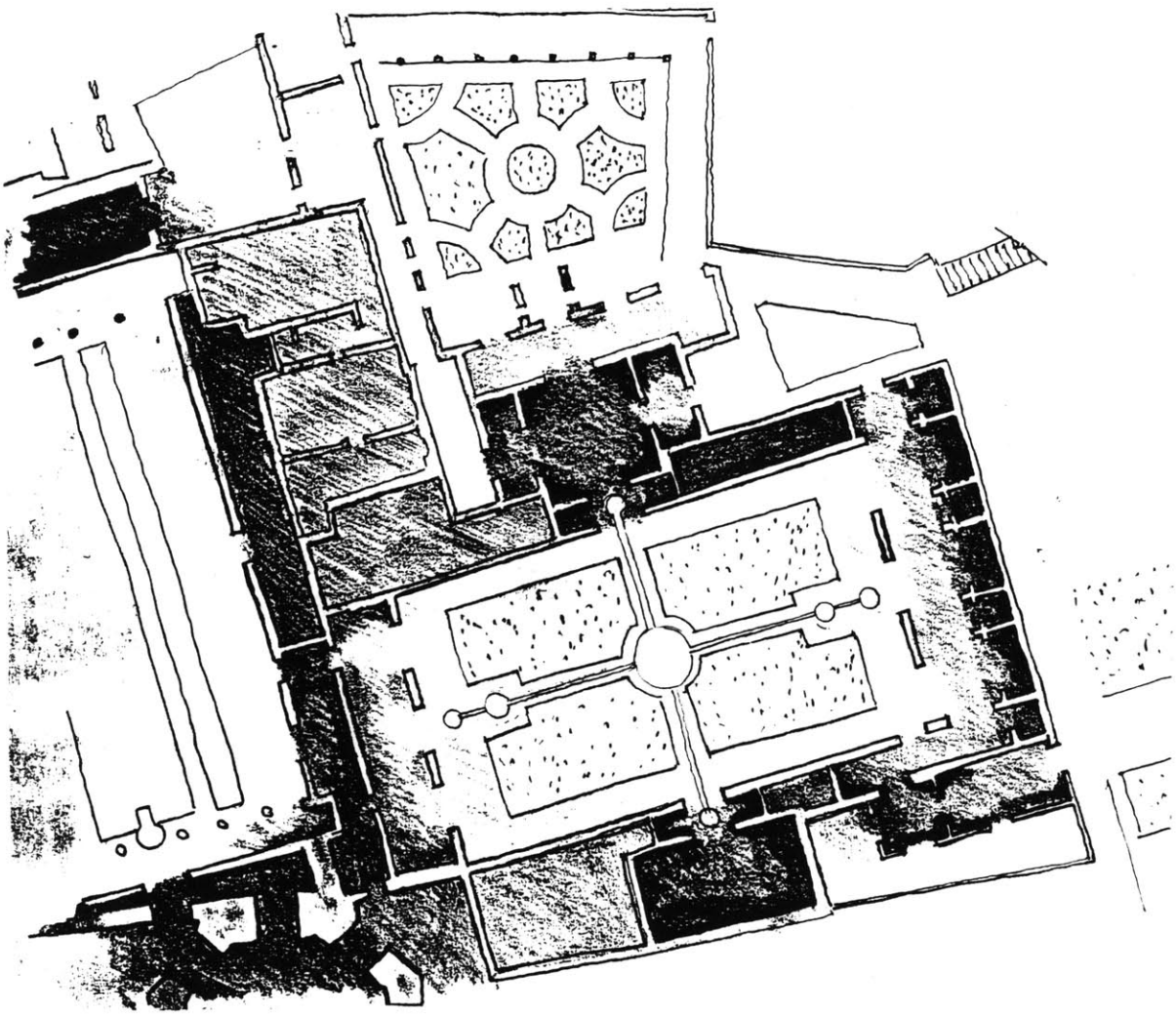


Fig. 47

patterns of light and shadow in the Partal gardens.

Fig. 48

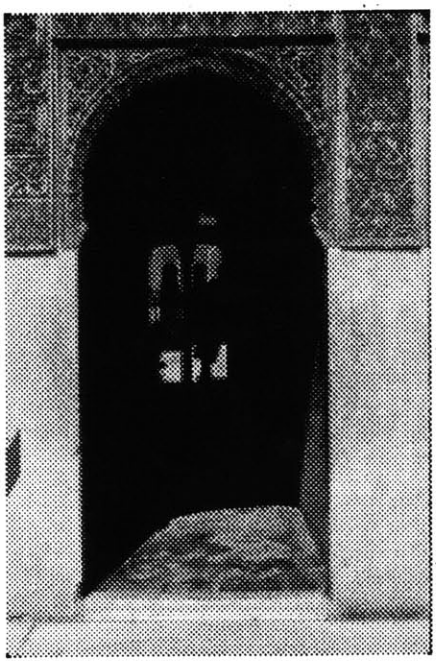
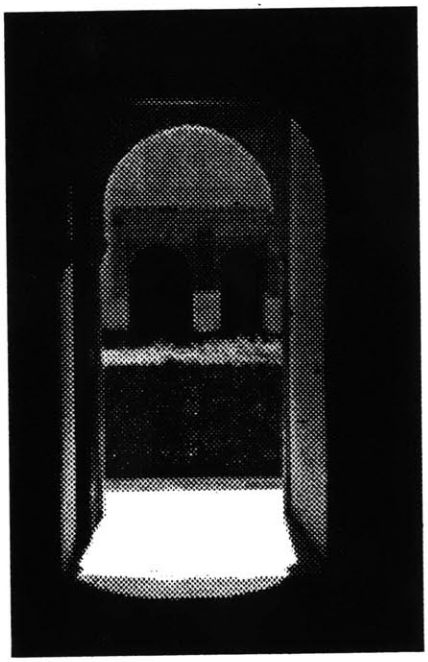


Fig. 49



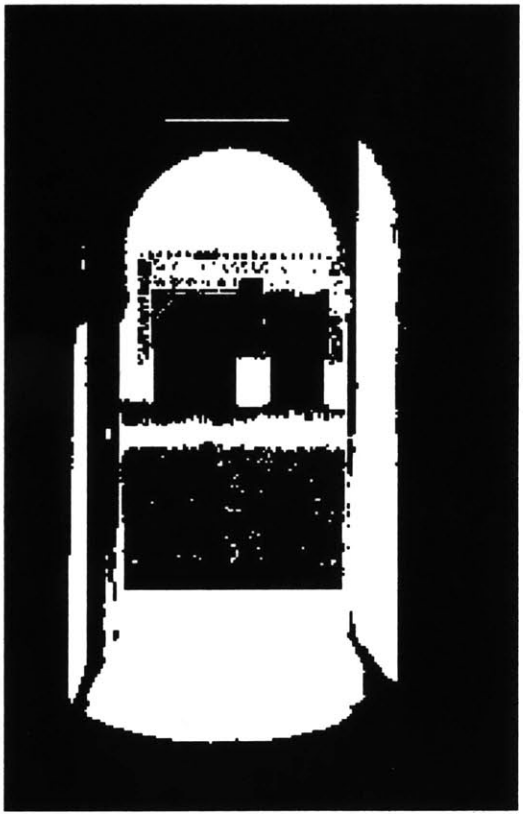


Fig. 50

struck by light within the courts and sets up a strong rhythm. After leaving the Court of the Myrtles, another small passageway leads into the Court of the Lions. Figures 49 and 50 show the shadows created by sunlight along the surfaces in the courts. These shadows create a physical link from one space into the next and are transformed by time as the day passes, drawing the two courts into a rhythm of light--shadow--light. A brief moment in shadow, as in the passageway between the Court of the Myrtle and the Court of the Lions, unifies the spaces creating a transition between spaces. This is accomplished through the passageway which links the two courts with a reprieve from the bright sunlight and allows a moment of silence in movement as it introduces the next court. The shadows create a rhythm that continues into the garden spaces.

In addition to the role of light and shadow, the *progression of movement* can be classified in two ways. As a *segment* of the experience, it includes movement through a single court, hall or natural space. As a *whole* experience, it ties together these *segments* from the beginning of the architectural experience through the entire journey. Because this progression is so varied, it further links nature and architecture. For example, the same patterns of movement exist in the *segment* from the bottom of the hill through the trees and to the entry of the Gate of Justice as does in the *segment* through the courts and halls in the interior of the Alhambra. And even further, through the garden spaces and up to the Generalife garden on the hill above. So, the link of these *segments* creates the *whole* of the experience of *progression of movement.*

The elements of *progression through movement* can also be categorized as horizontal and vertical. Both work together in the experience. Vertical

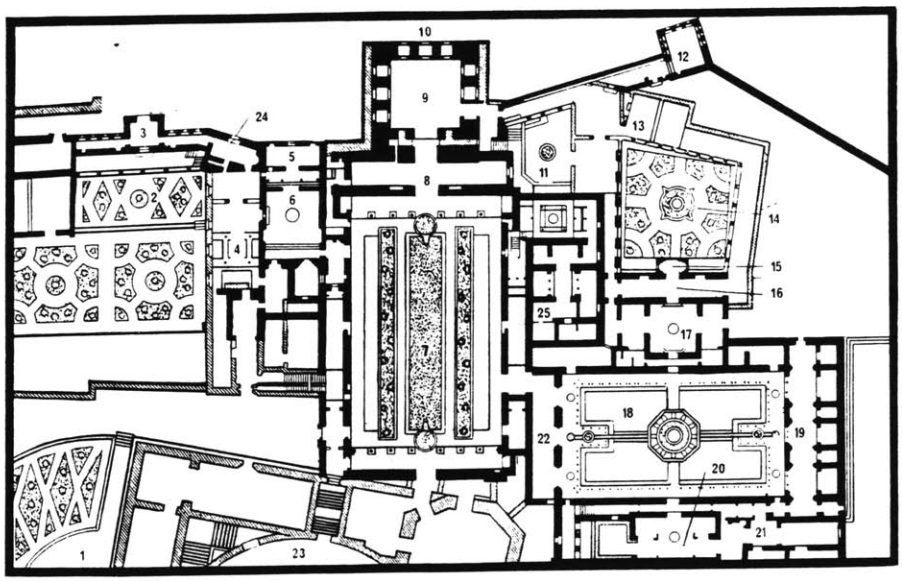


Fig. 51

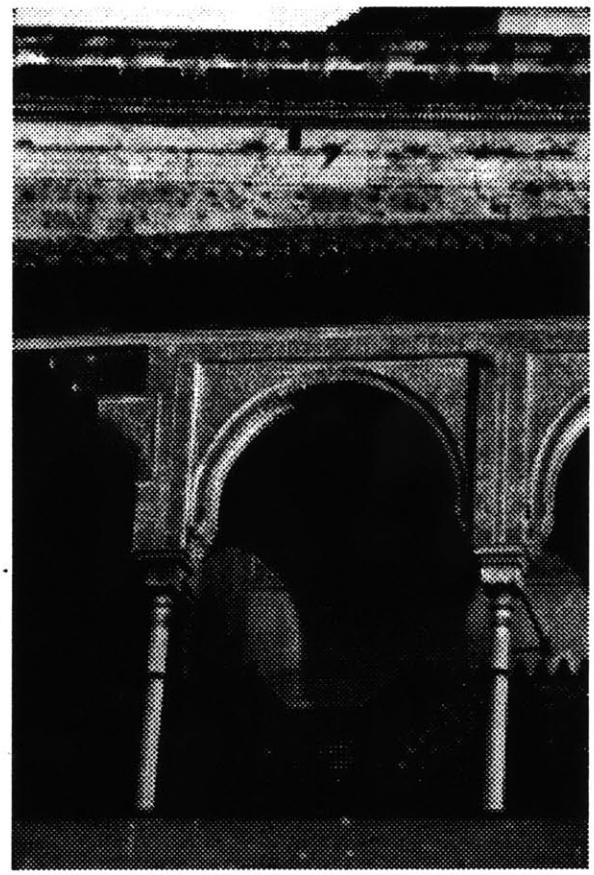


Fig. 52

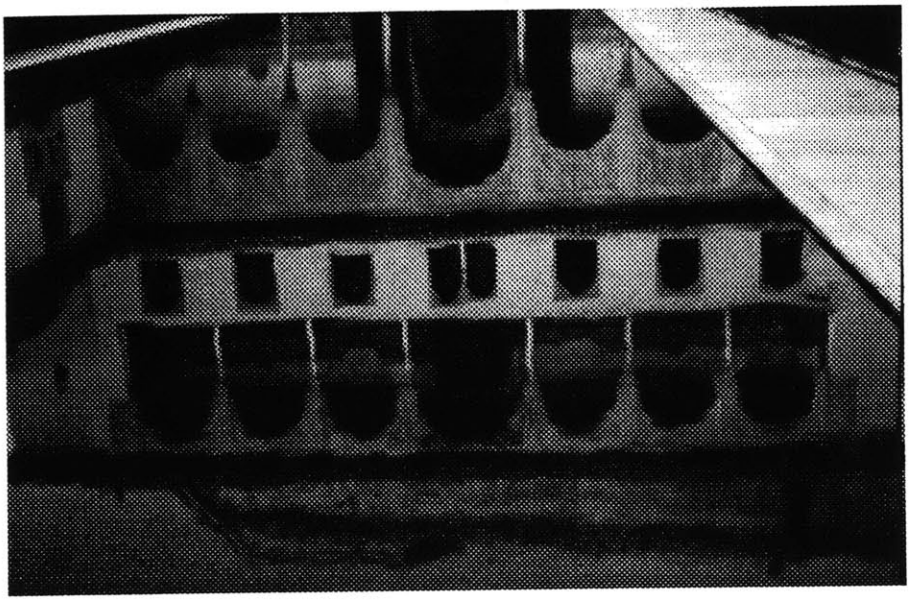


Fig. 53

Fig. 54

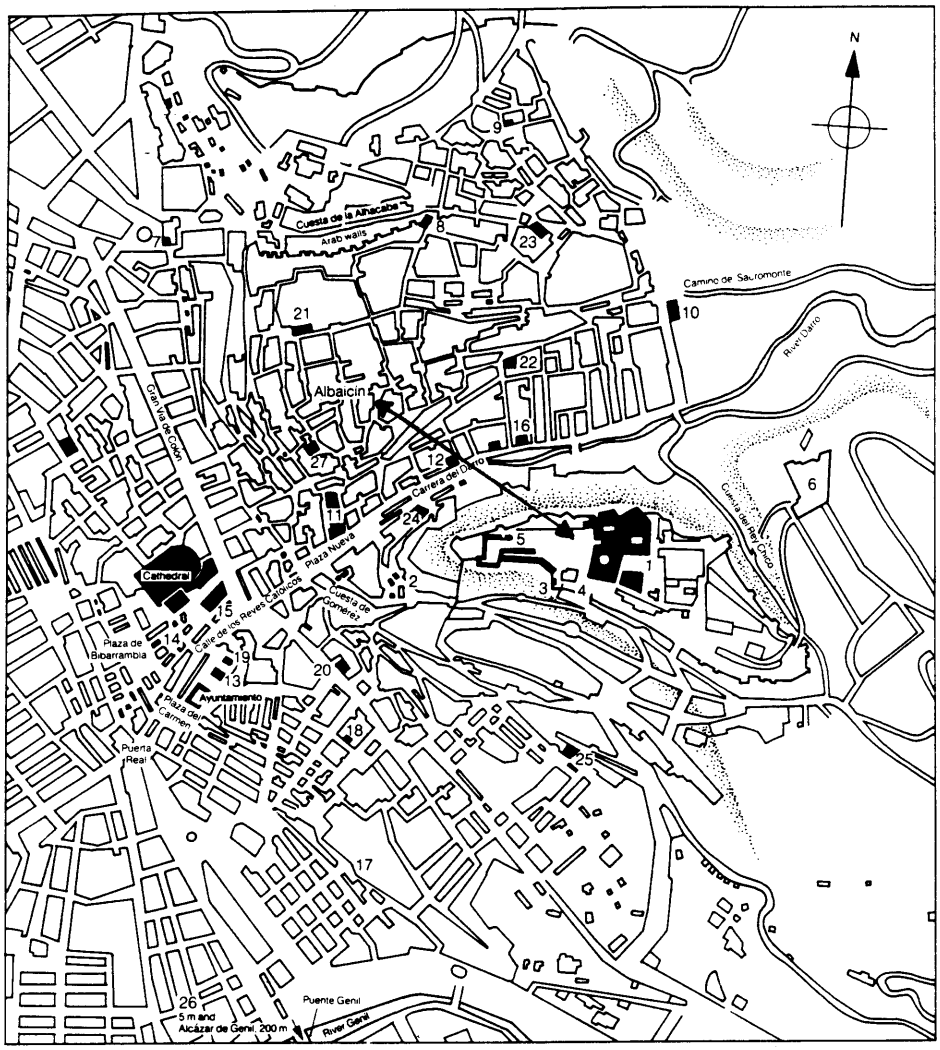

N
Cuesta de la Alhacaba
Arab walls
Camino de Sacromonte
River Darro
Albaicin
Carrera del Darro
Cuesta del Rey Chico
Gran Via de Colon
Plaza Nueva
Cathedral
Calle de los Reyes Catolicos
Cuesta de Gomerez
Plaza de Bibarrambla
Ayuntamiento
Plaza del Carmen
Puerta Real
Puente Genil
River Genil
5 m and Alcazar de Genil 200 m

Fig. 55

elements include steps, ramps, balconies, natural inclines and hills. Horizontal elements imply the physical movement of the body through space. The horizontal movement is shown in plan in Figure 51.

In the experience of the progression through the Alhambra, both the horizontal and the vertical are integrated. This integration provides the extension of space at a variety of levels and creates both the physical link and the visual link of spaces. For example, architectural elements, such as balconies, create views which link spaces together on separate planes.

In the Palace of Charles V, the balcony which overlooks the Court of the Myrtles creates a visual connection to the court below and further extends to the landscape beyond. Figure 52 shows this balcony as it is seen from the Court of the Myrtles. This idea of the extension of views is further expanded when a view of this facade is reflected in the pool below and integrated with the surface of the court linking nature and architecture (Fig. 53) It embodies the complexity of the dialog between nature and architecture.

Similar to balconies, esplanades and terraces help to create a visual link which unifies the experience. In chapter one, I mentioned the Arab quarters and the visual link between the terrace of a plaza, the view beyond the roof-tops and out to the Alhambra, atop the adjacent hill (Fig. 54). Comparing this to the diagram in Figure 55, helps to form the connection between these two points. This connection is completed when the journey leads you to the esplanade just before the entry into the Mexuar. The visual connection between the Alhambra and the city below becomes linked to the physical movement of the body through this journey. (Fig. 56) And even further, this

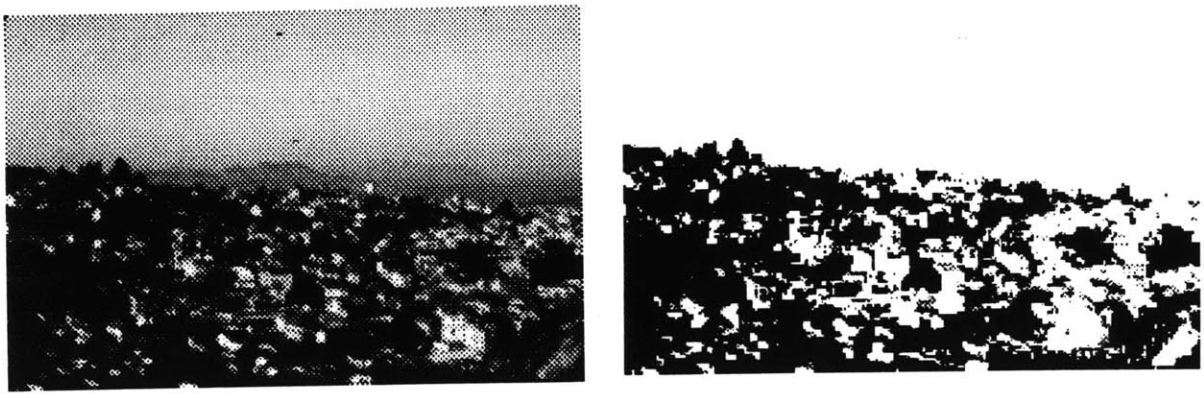


Fig. 56

Fig. 57

connection is layered in the Hall of the Ambassadors where arched openings address the city below and the continuance of the Alhambra complex above (Fig. 57). Looking more closely at the floor plan of the Alhambra will help to describe the physical and visual connections throughout the progression (Fig. 58). Scale also plays a role in the *progression of movement*.

The opening becomes important in the understanding of scale in the *progression of movement* because it provides a link to the human body. The articulation of the opening provides intimate proportions which link large spaces with the human body. For example, in the Hall of the Ambassadors, the arches which overlook the city and landscape are articulated so that their scale is proportioned to the human body. Figure 59 shows two people standing in the archway. The arch has been divided into two arches, separated by a single column. The screens above continue the arch and become a segment of the opening as a whole (Fig. 60). It extends the meaning of opening, where an opening is not just a void, but is also made up of layered spaces. The smaller arched opening engages the body, while the overall proportion addresses the entire scale of the hall.

The transformation of scale can be seen in the transition from the Court of the Myrtles to the Court of the Lions, where the scale continually changes as the body reacts to the *progression of movement* through space. The openness of the Court of the Myrtles is surrounded by intimate openings which lead into either shadowed halls or passageways. Figure 61 shows how this works. The focus on the human body as the scale for the opening helps to create a comfortable transition from one space into the next. It links the two courts by addressing the human body and its reaction to the movement through space.

The Alhambra
1. Puerta del Vino;
2. Tourist entrance;
3. Mexuar;
4. Oratory;
5. Cuarto Dorado;
6. Patio de los Arrayanes; 7. Sala de la Barca; 8. Salón del Trono; 9. Patio de los Leones; 10. Sala de los Abencerrajes;
11. Sala de los Reyes;
12. Sala de las Dos Hermanas; 13. Sala de los Ajimeces;
14. *hammam*;
15. Palacio del Partal.

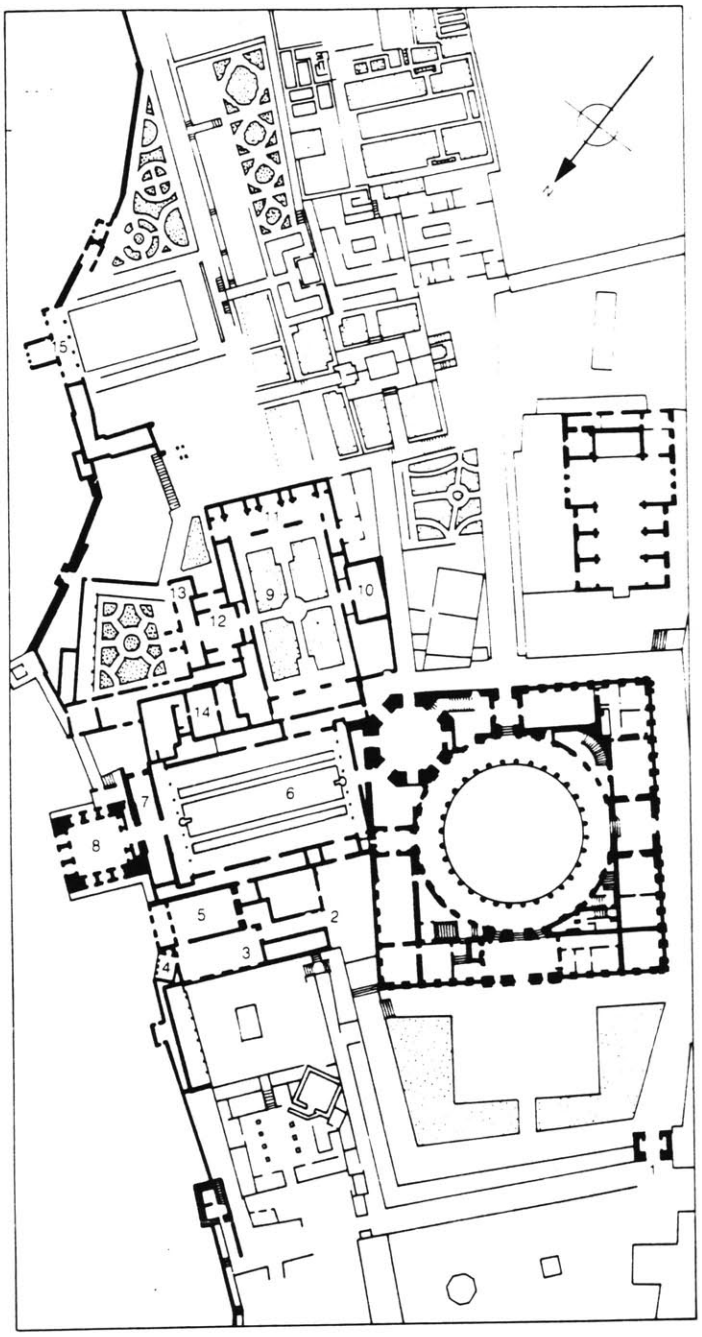


Fig. 58

Fig. 59

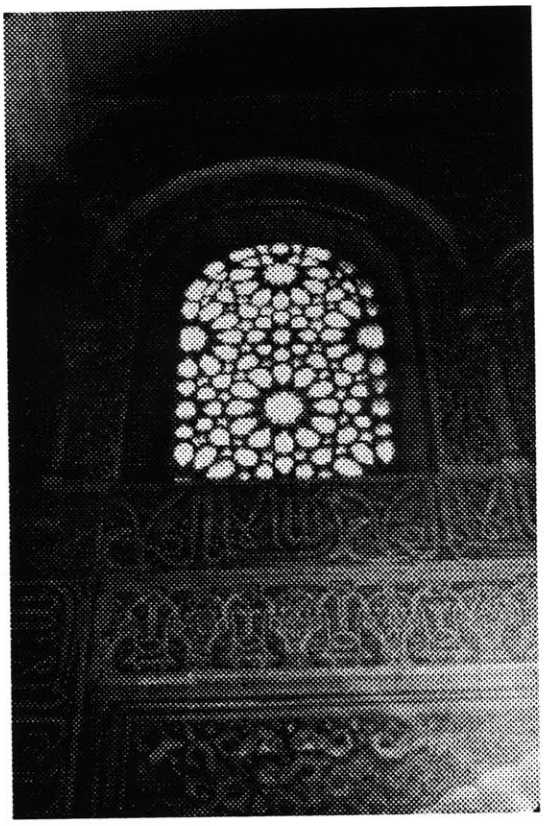


Fig. 60

Fig. 61

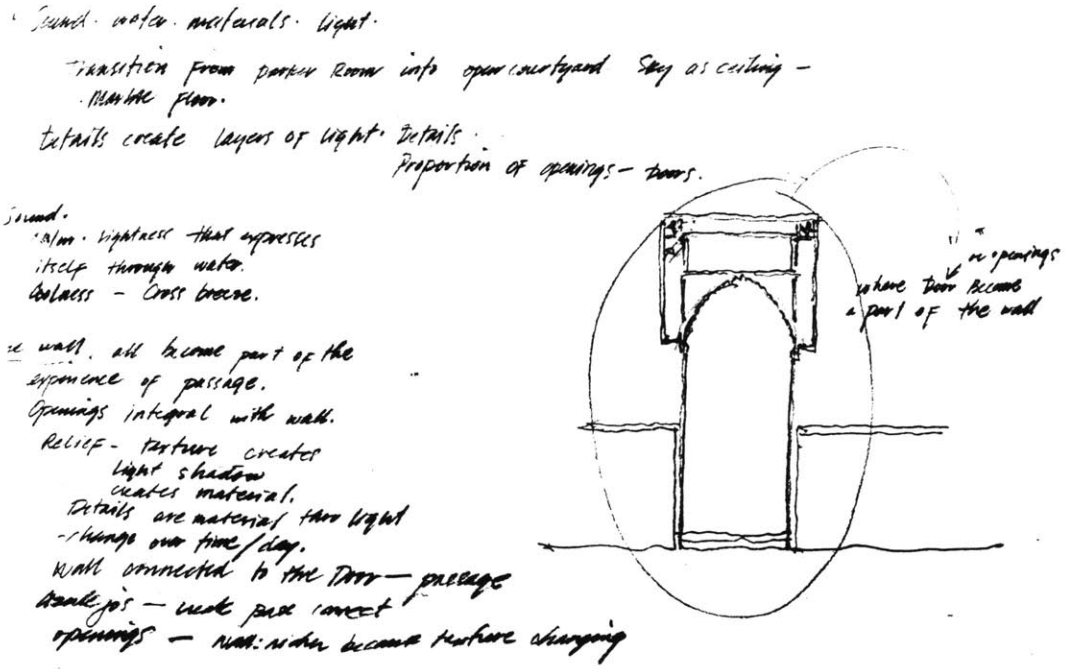

Sound · water · materials · light ·
Transition from parker Room into open courtyard Sky as ceiling –
Marble floor.
Details create layers of light · Details ·
Proportion of openings – Doors.
Sound.
Calm · lightness that expresses
itself through water.
Coolness – Cross breeze.
wall. all become part of the
experience of passage.
Openings integral with wall.
Relief – texture creates
light shadow
creates material.
Details are material thro light
– change over time/day.
Wall connected to the Door – passage
openings – wall: niches because texture changing
where Door Become
a part of the wall

Fig. 62

This attention is paid throughout the spaces of transition in the complex and provides a further link between inside and outside.

Another example of scale enhancing the progression of movement can be seen in doorway leading into the Cuatro Dorado from the Mexuar. It is finely detailed and extends from the surface of the wall to the door of the opening itself. (Fig.62) The scale of the opening has been expanded through the extension of the detailing which creates an arch. The physical opening is scaled to the body, but the articulation of detailing on the frame of the doorway is expanded to fit into the proportions of the court. (Fig. 63) This change in scale provides intimacy for the human body entering the court while also linking its proportions to the elements within the court. This is even more evident when looking at the doorway on both sides. The opening which is located in the Mexuar, leading into the Cuatro Dorado, does not have the same detailing above the head of the frame as in the Cuatro Dorado. It is a simple opening, void of articulation. The scale of this doorway is in proportion with the scale of the room where the ceiling is low and the room is shaded during much of the day (Fig. 64). It is not necessary to expand the scale of the opening through the articulation of detail, as is done on its opposite side because these proportion of the Mexuar are completely different that that of the Cuatro Dorado. These elements of scale which address the human body encourage movement through space.

Scale:

Scale as a unifying element defines the overall proportions of spaces as they relate to the body. By varying the scale, new experiences are created and linked together. Scale helps to create the complex dialog between nature and

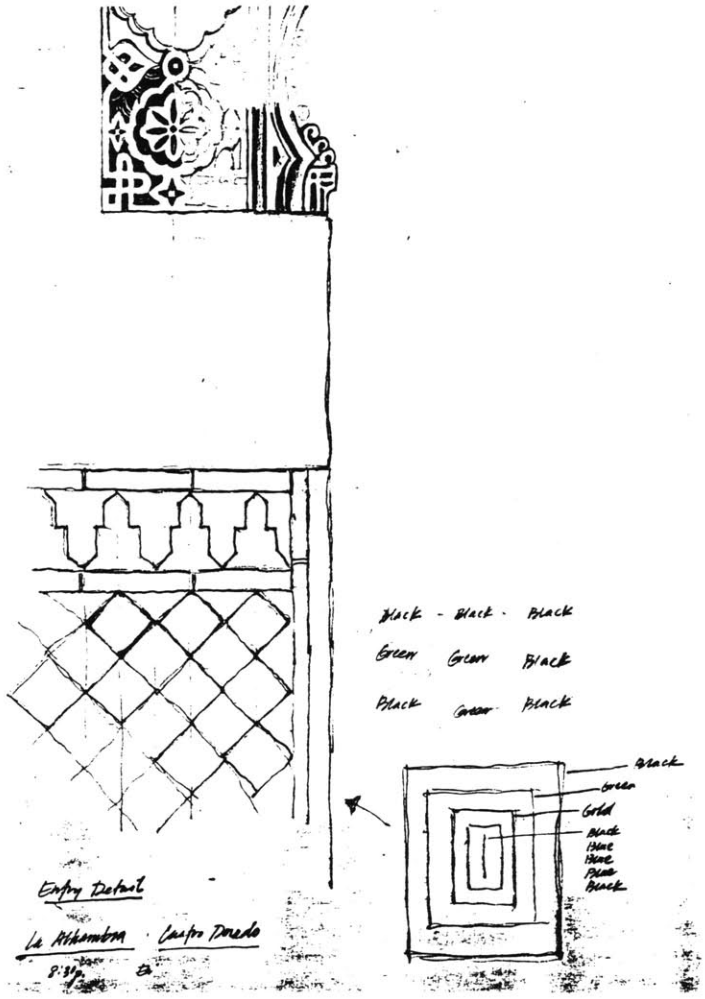

Black - Black - Black
Green Green Black
Black Green Black
Black
Green
Gold
Black
Blue
Blue
Blue
Black
Entry Detail
La Alhambra · Cuarto Dorado

Fig. 63

Fig. 64

architecture and inside and outside in the experience of the Alhambra. Scale allows the transformation from a court to a room. One example is in the Cuatro Dorado where the feeling of room prevails the feeling of court. The height of the walls in relation to its floor dimensions engage the human scale and transform the court into a feeling of room. It is important to understand that this kind of transformation is dependent on the scale of the body. The feeling of spaces within the experience results from the reaction of the body to the space.

In contrast to the scale of the Cuatro Dorado is the scale of the Court of the Myrtles. The feeling is of an open court and emphasis on the outside results from its openness. This openness is a result of scale. Just as in the Cuatro Dorado, the relationship between the floor area and the height of the walls are crucial. Nature is addressed through the water, the vegetation, the sky and the breezes passing through the court. The brightness of the sunlight covering the expansive surfaces increases this feeling. The articulation of the scale of spaces is again seen in nature outside, where the Partal Gardens creates an outdoor room. This room is designed with sensitivity to the human body. The arched opening is proportioned to the scale of the body. The walls of hedges are about nine feet tall and provide protection from the sunlight and its heat. It is an escape from the openness of the terraces and provides a room in nature. The relationship of scale to the body is important in the experience of the Alhambra both inside and outside. This engaging of the body creates the transformation of nature and architecture and inside and outside, expanding their meanings and weaving them together in a complex dialog.

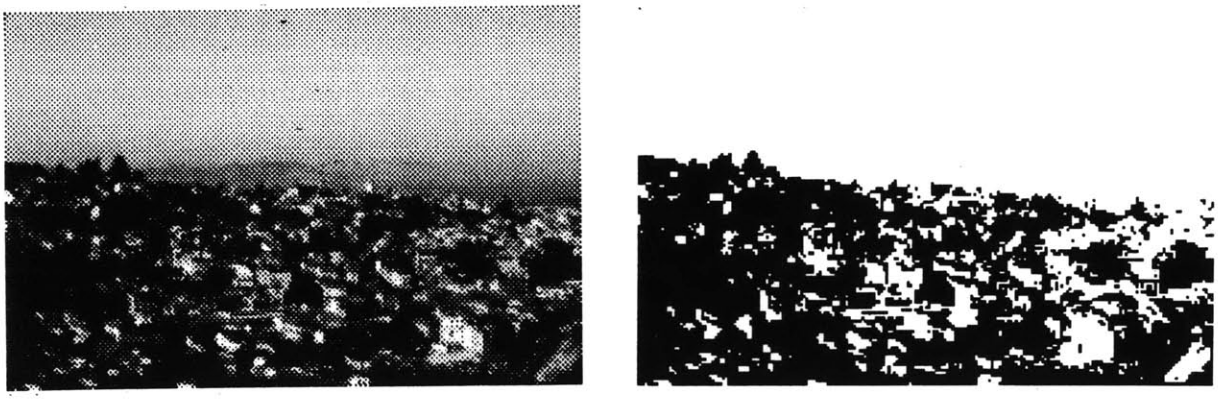


Fig. 65

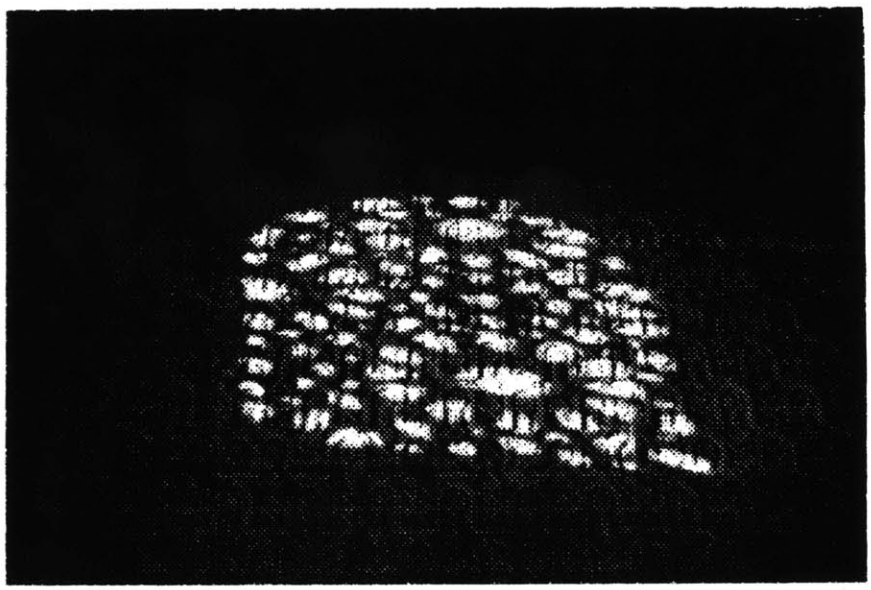


Fig. 66

Scale becomes extended as a link to experiences of the Alhambra when it addresses the relationship between views both inside and outside. In the Hall of the Ambassadors, the views which address the city transform the city into small patterns of light and shadow, similar to the detailing of a wall in the hall (Fig.s 65 & 66). This creates a relationship between the scale of the city and the scale of the detail. It links distant views to those within the courts and halls. And this continual pattern through views further links nature and architecture. As the experience of the Alhambra unveils, the complex weaving together of the elements which create the dialog between nature and architecture are revealed.

Water:

Water becomes a layer in the experience of the Alhambra. As a unifying element, it links the spaces within the Alhambra, it links the spaces within the Partal Garden, and it links both nature and architecture throughout the whole experience.

In chapter one, I described the walk from the bottom of the hill up to the Alhambra. Along this walk I encountered many changes that later linked the experience together. The physical link of water throughout the journey is a powerful element. The simple channel of water that runs along the path leading up the hill described in chapter one, becomes layered with other unifying elements such as the progression of movement and sound. As I walked up the hill I became aware of the patterns of light and shadow and how they defined surfaces. This progression set up a rhythm of light and shadow through nature where sunlight through the leaves created diffused light and diffused heat. Shaded spaces provided coolness as the breezes blew through

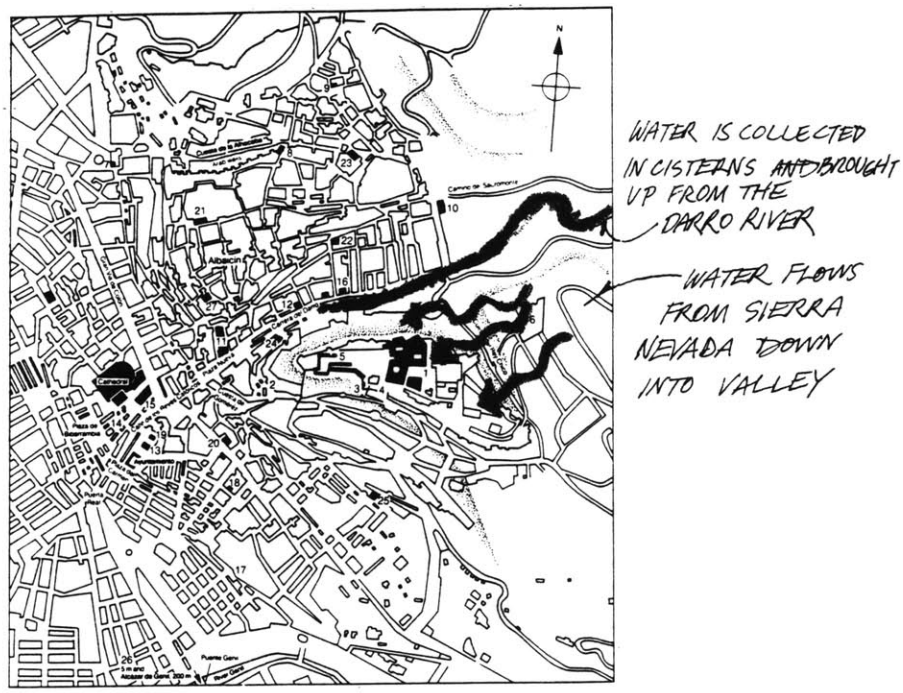

WATER IS COLLECTED IN CISTERNS AND BROUGHT UP FROM THE DARRO RIVER
WATER FLOWS FROM SIERRA NEVADA DOWN INTO VALLEY

Fig. 67

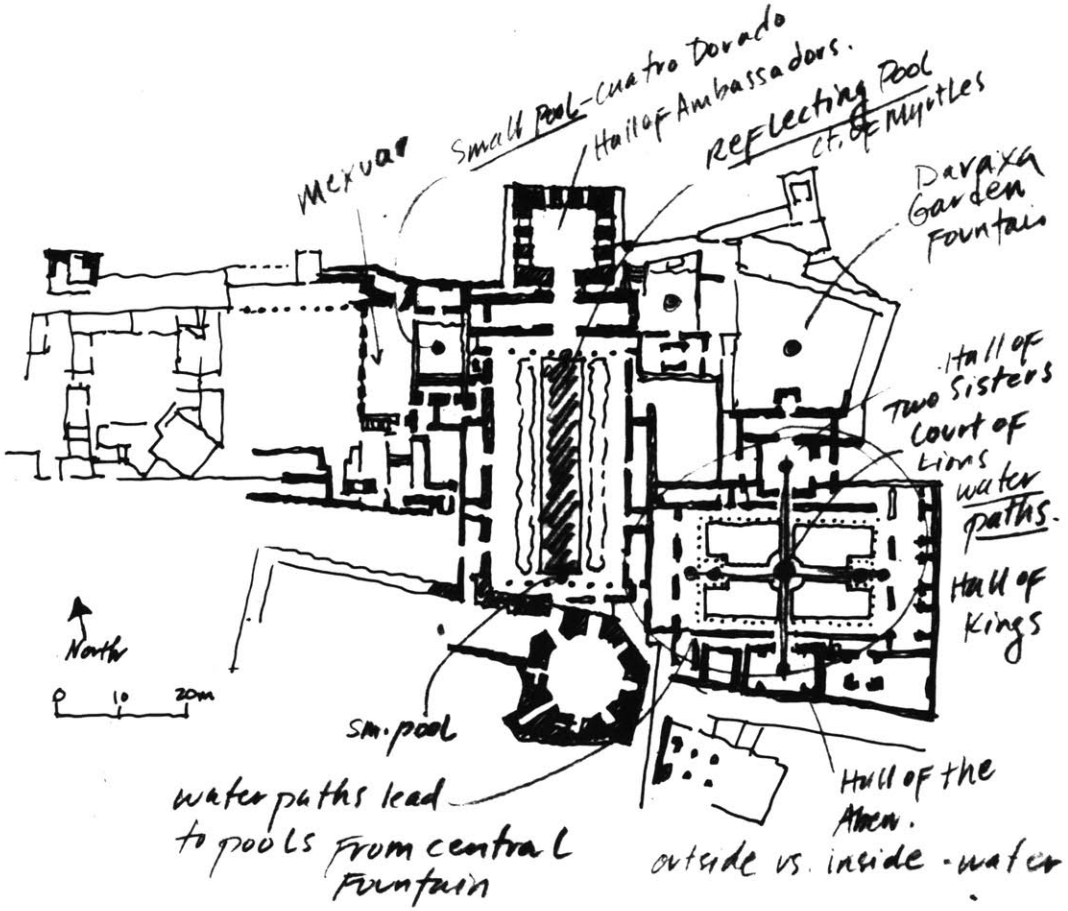

Mexuar
Small Pool-Cuatro Dorado
Hall of Ambassadors.
Reflecting Pool
Ct. of Myrtles
Daraixa Garden Fountain
Hall of Two Sisters
Court of Lions
water paths.
Hall of Kings
North
0 10 20m
Sm. pool
water paths lead to pools from central Fountain
Hall of the Abencerrajes.
outside vs. inside - water

Fig. 68

the trees and open spaces brought in intense heat and sunlight placing emphasis on the rhythm of movement. The sound of water and its physical movement provided a further connection between nature and architecture and further enriched their dialog.

In the overall plan of the area surrounding the Alhambra, the path of water can be diagramed (Fig. 67) This diagram can be compared to the connection with the paths of water within the Alhambra walls (Fig. 68). Even though the sequence of buildings is different today from the eleventh century, the link that was created throughout the complex through the use of water is evident.

Another example of the complex and unifying use of water can be seen in the Court of the Lions, where water is a focal point. Figure 69 shows a plan of this court. The water from the twelve lion fountain rushes from their mouths and into a circular pool in which they stand. This water leads through narrow channels, subdividing the court into four segments. On opposite sides, the channels terminate in a small circular pool with a small fountain in its center (Fig. 70) On the other two sides, these channels of water lead into the adjacent halls. In the passage hall leading into the Hall of Two Sisters, a small fountain of water located in a circular pool connects to the channel leading into the Court of the Lions. The water changes its plane as it steps down into the court.

Figure 71 shows how the level of water aligns almost perfectly with the floor surface. In plan, it may appear that the channels of water interrupt the movement in the courtyard space, but spatially, they create a link from one space into the next. (Fig. 72) Movement throughout the court involves the

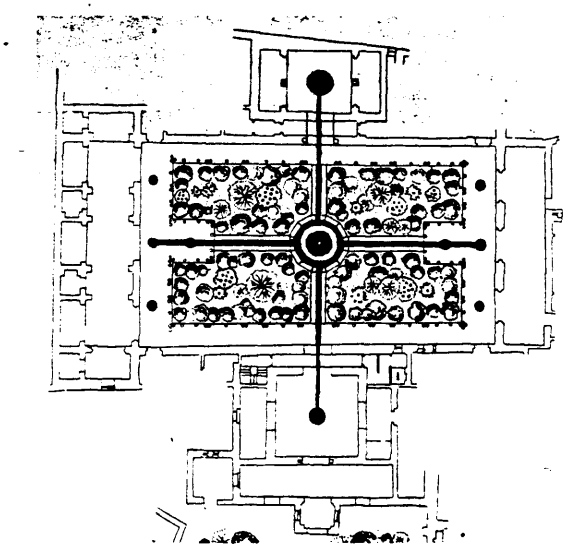


Fig. 69

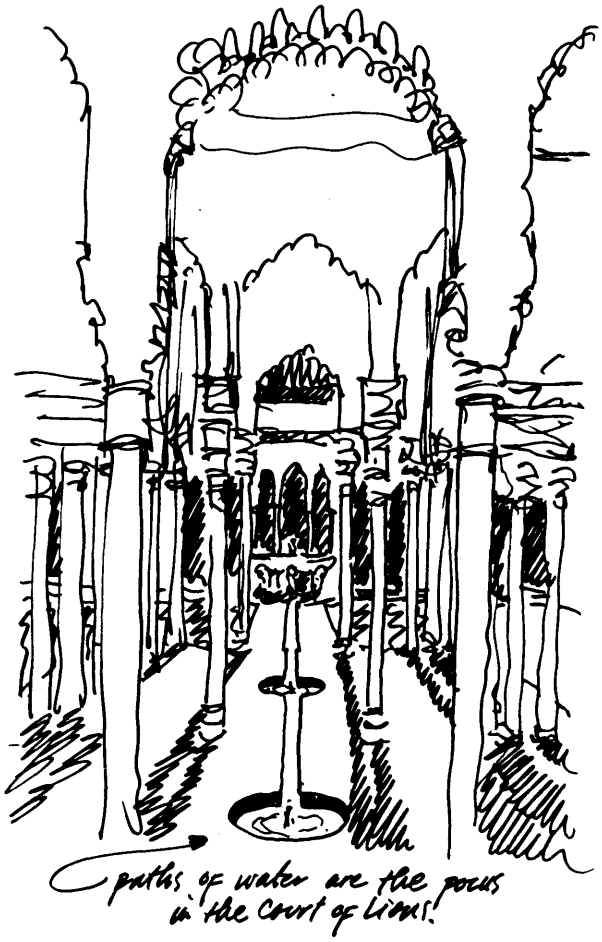


Fig. 70

integration with water. Stepping over the small channels and addressing the pools and fountains creates a physical involvement with the human body and the element of water.

In the terraces of the Partal Gardens, are a series of paths which lead upwards by way of inclined ramps and steps. The spaces are made up of a series of plantings, pools and fountains. Water is an important element in the making of these spaces (Fig. 73). As the heat of day increases, the fountains and pools ease the intensity. Not only does water provide a physical relief, it also provides a psychological relief. The visual aspect of the water can provide coolness, even though the temperature may be only slightly varied or not at all.

Similar to the channels of water in the Court of the Lions, are those which connect terrace spaces in the Partal Gardens. Like the court, these channels travel down steps, dividing paths and leading into various pools (Fig. 74).

Beyond this link, within courts and halls and gardens spaces, is the connection of water through the whole of nature and architecture. The spur which the complex lies on is fed in part from the range of mountains which make up the Sierra Nevadas where the water from atop, travels down the mountains and is utilized as it is articulated in the making of inside and outside spaces. This water continues its decent as it washes down the hillside which connects the city street to the base of the Alhambra. But it also is supplied by the traditional method of irrigation developed by the Moslems, utilizing water form the Darro River below.[5] This further links the city below with the Alhambra above. The link between nature and architecture becomes even more unified with the understanding that the source of water which

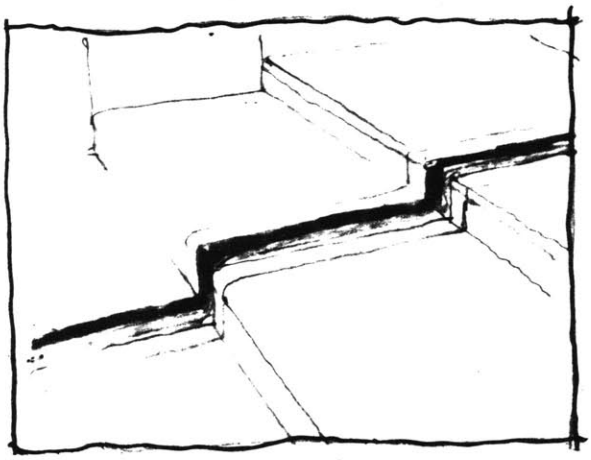


Fig. 71

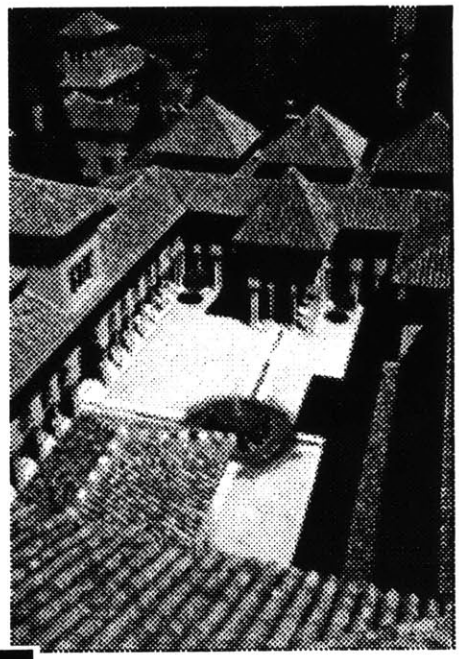


Fig. 72

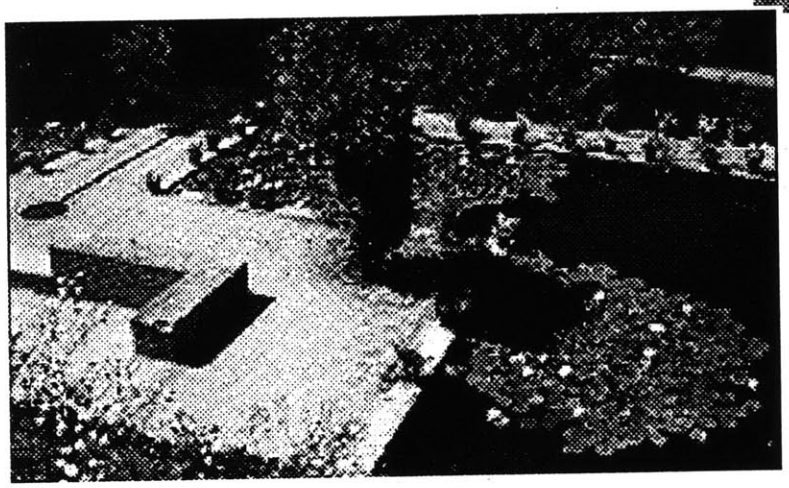


Fig. 73

Fig. 74

connects these spaces in part is derived from the rain and snow that falls on the mountain tops. As the snow melts, following the winter months, it cascades down the mountain side and becomes the water which facilitates the supply that fills the Alhambra complex.

Sound:

Another important unifying element in the experience of the Alhambra is sound. Like many elements which create a sensory response, sound must interact with other elements in order to exist. As a unifying element, *sound* within the experience of the Alhambra can be defined as: water; breezes; and voices. In the transition from one court into the next, the sound of water links the spaces together. In the Cuatro Dorado, the fountain in the center of the court has only a small spout of water rising from its center. It's sound is calm and quiet and it helps to create the magical sense that I spoke about in chapter two. In the Court of the Myrtles, the reflecting pool with small circular pools at either end, gurgle water through small spouts (Fig. 75). The sounds are only heard from a close distance, otherwise they escape through the openness of the court.

Daylight makes us aware of many other experiences surrounding us because, by nature, we perceive most of our experiences through our eyes. We tend to focus on our dependance of sight and we are not as attuned to our sense of hearing touch or smell.

It is natural for each of us to have a varying level of perception with each of our senses. When the daylight turns to darkness, our sense of hearing becomes more aware of the sounds we hear. Not that they are any louder in physical

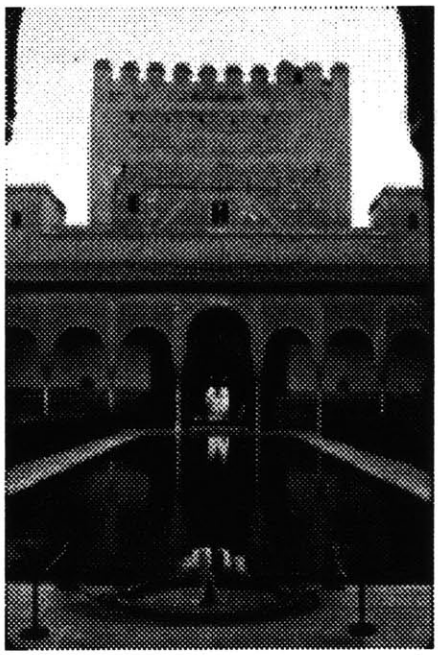


Fig. 75

reality, but in perceptual reality they become the focus of attention and in this sense, they become louder.

For example, through the transition of day to night, the intensity of *sound* in Court of the Lions increases. Walking over the surface of crushed stone within the court focuses attention on the sense of hearing. The water rushing from the lions mouths seems to magnify. This aspect of unifying elements becomes a part of the transformation from architecture to nature that was described in chapter two. The experience perceived is transformed through the interaction of all of the elements mentioned thus far. Water interacts with breezes. As the breezes become stronger, they move the water spouting and rushing from fountains. In the Court of the Lions, the sound of water rushing intensifies when the breezes through the court heighten as the night progresses.

In the garden spaces and on the walk leading up to the Alhambra from the city below, the sound of wind passing through the leaves of trees has a cooling effect. It involves the unity of all senses and this enriches the experience. It can not be described as just a walk, rather it becomes the making of a journey.

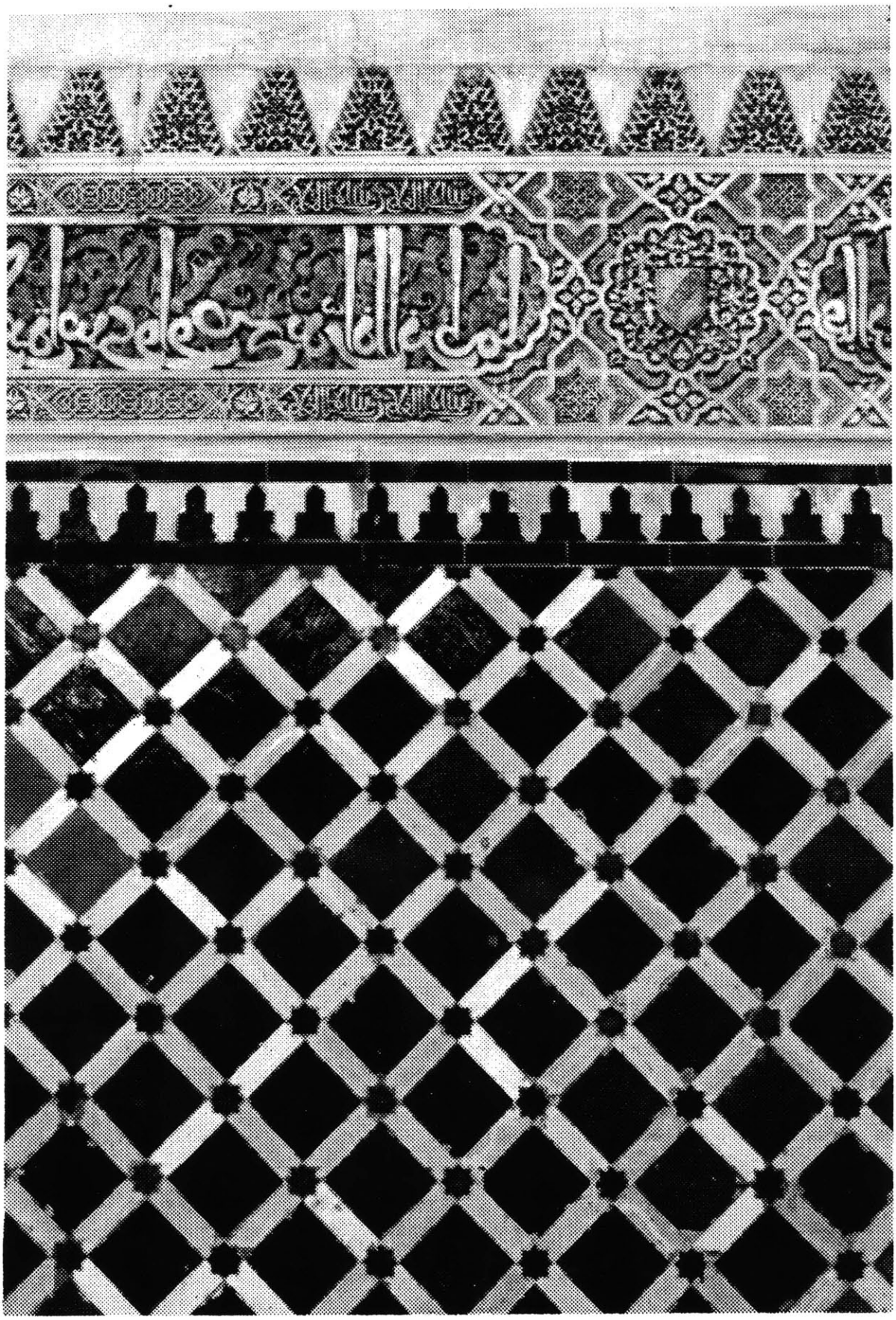
Like the visual connection between nature and architecture created by views through openings out to the landscape and city, voices connect the experience of the architecture within the Alhambra to the city below. In the Hall of the Ambassadors, as night-time falls, the sounds of the city below become more clearly heard. The openings on each side allow for the constant movement of breezes as the night cools the hall. During the day, the hall provides a strong visual connection between nature and architecture, but at night, the connection is made through sound.

Not all voices unify the experience of the Alhambra. There is a clear distinction between voices of tourists within the Alhambra and voices from the city below. Voices of tourists are not a part of the dialog between nature and architecture, but instead they become distractions from the experience. Voices from the plaza in the city below provide a link to the experience of nature and the experience of architecture. They form a connection through sound.

Although I have described the unifying elements in a variety of contexts within separate courts and as a whole experience, these unifying elements can all be seen in one section of the Alhambra as well as a section of the Partal gardens. The Court of the Lions best illustrates how all of these elements come together, reinforcing eachother and interweaving to create a complex architectural experience.

There are a number of complex elements which are involved in the making of the Court of the Lions. Surfaces and openings define the extension into three adjacent halls: the Hall of Two Sisters, the Hall of the Abencerrajes and the Hall of Kings. They are linked by shadowed passages and open to the brightness of the Court of the Lions. They are further connected by the passage of water from the central fountain of the twelve lions. These channels of water travel down steps and terminate into small pools surrounded by columns. The sound of the water reverberates against the hard surfaces of stone. Its visual intensity is transformed into an intensity of sound through the rushing of water within the court. The elements of nature are represented in the architecture and architecture is transformed into a natural experience.

The connection of these elements layered upon one and other create the complex richness in the architectural experience of the Alhambra. As the vocabulary which makes up the dialog between nature and architecture is expressed, the experience of space becomes an experience of place.



Conclusion: Transcending Experiences.

Mircea Eliade, in The Sacred and the Profane, writes that a symbol speaks to the whole human being and not only to the intelligence.[6] This is important because it helps to understand that the architectural experience is one that engages the body. And this is why the experience cannot be fully described in words. Because the language of the architectural experience, and the dialog between nature and architecture in the Alhambra is made through the use of elements in the transformation of experiences. And these transformations occur through the engagement of architecture with the body.

And just as the experience engages the body, so does the body engage the experience. It allows the transcendence into the realm of spirituality. In the experience of the Alhambra, the body and the spirit are primary. The understanding of the spirit--or the transcendence into a world beyond that on earth--occurs through the engagement with the body in the transformation between nature and architecture. This transcendence fuses together the body and spirit and earth and heaven.

Nature is used symbolically throughout history as a method of providing a closer understanding of the spiritual world. The mystery that is created in the spaces of the Alhambra could be described as a spiritual feeling. These qualities are typical of Islamic architecture and its gardens. But what I find most interesting about this experience is that, one does not have to be directly aware of the symbols in the architecture of Islam at the time of the experience in order to feel the transformation between nature and architecture and its spiritual qualities. It is this type of transformation that I believe is universal.

Note: The fame and attractions of the royal gardens were equalled by the charm of the domestic courtyard. House and garden were interrelated.[20] This was a logical response to climate that exists in most of the Islamic world. The origins of this type of gardens stem from the Roman atrium and the enclosed Iranian garden.[21] Even the origins of this garden express the link between eastern and western cultures.

It occurs when complex elements are woven in a seemingly simple thread to create the richness in the experience that involves the engagement of the body.

The body's senses become integrated in the experience. And the experience of the Alhambra derives richness from this integration. It offers a wide variety of stimulations through all of the senses. Each sense contributes a slightly different perception of the world, so the more senses involved in a particular experience, the richer the experience.[7]

Architecture has been evidenced throughout time to be dependent on specific cultural practices, the response to climate and basic human needs. Southern Spain is unique in that it embodies the meeting of two cultures, where Muslim influence meets that of the west. The integration of nature and architecture, exemplifies the influence of Islamic architecture on Spain. This integration forms the basis of a new architectural experience. The dialog created between nature and architecture provides imagination in its experience and transforms each into the other.

"There is no doubt that Christian influence had penetrated the Spanish Moslem world, and this was intensified by intermarriage, trade and relations between art , its philosophers and writers of the two nations. Clearly this accounts for the fact that in the buildings of the Alhambra, the Oriental tradition is blended with some medieval concepts that already foreshadow the Renaissance, although the architects and artists of al-Andalus were still dominated by intensely Arabic philosophical characteristics."[8] (See Note)

Islamic architecture is known for the dematerialization of solid matter, mirroring and distorting solids by light and water undulation, and a tendency to produce the illusion of magic.[9] In the Alhambra, these aspects of Islamic architecture are evident. For example, the dissolution of solid matter is seen through the articulation of the of the mocarabe detailing. This is most evident in the Hall of Two Sisters, where this dissolution creates the transformation of the architecture into nature. The imagery of stars are used throughout Islam. "These domes were designed to produce the impression of being rotative cosmic spheres, reminding one of the heavens."[10]

Geoffrey Scott, in The Architecture of Humanism, States: "Architecture , simply and immediately perceived, is a combination, revealed through light and shades, of spaces, of masses and lines. These few elements make the core of the architectural experience."[11] and that, "The whole of architecture is, in fact, unconsciously invented by us with human movement and human moods. We transcribe architecture into terms of ourselves."[12] This also describes the core of the architectural experience of the Alhambra, but this is not the whole of the experience. These are tools to facilitate the understanding of the meanings in the experiences created through the relationship between nature and architecture and the transcendence of the body into the spirit.

The basis of Islamic architecture and the Islamic gardens stems from its interpretation of paradise. The garden becomes man's paradise on earth. "And as for those who believe and do righteous works, we will cause them to enter gardens underneath which rivers flow, to dwell therein eternally: they shall have purified companions, and we will cause them to enter abundant shade." Koran,Sura IV, Verse 57.[13] "The celestial sacred remains active through

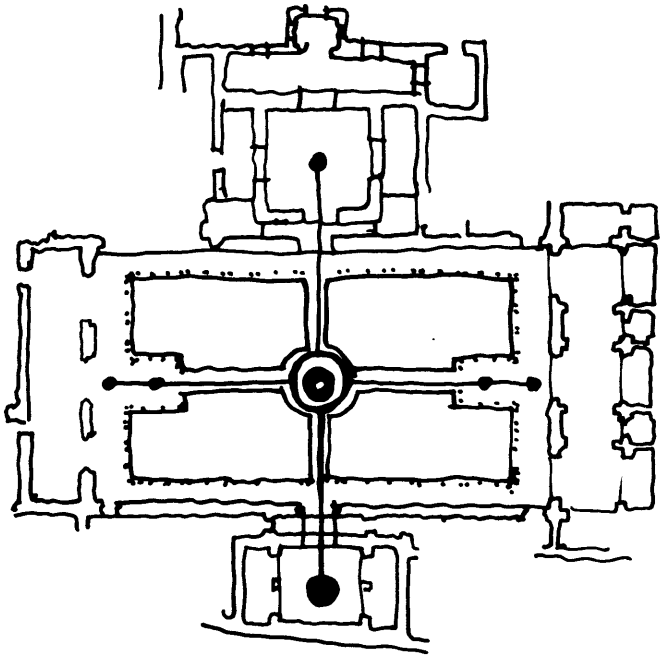


Fig. 76

symbolism. A religious symbol conveys its message even if it is no longer consciously understood in every part."[14]

Islam embodies in its architecture, the integration of nature and the transformation of each into the other. It transcends man on earth and extends into the realm of spirituality. Symbolism in Islamic architecture is used as a vehicle for this transcendence. It extends the body from the world on earth to the world in heaven. The transformation of nature into the spiritual world involves the symbolism of elements such as water, vegetation, light and shade.

The use of water in the Alhambra is derived as a symbol of the universal sum of virtualities. It becomes agricultural, religious and delight. The combination of these aspects enriches the use of water throughout the Alhambra. The Koranic descriptions were carefully studied to determine the proper geography of Paradise so that gardens could be laid out in the same form. In one Koranic verse, two gardens are mentioned with two fountains of running water, suggesting that paradise was made of two-times-two gardens. A fourfold division of paradise was also suggested by the four rivers mentioned in the Book of Genesis that flowed out from Eden. The cruciform division of the garden by four channels of water that meet in the center became traditional throughout Islam.[15] An example of this lies in the plan of the Court of the Lions, where water paths divide the court into four segments fed from a central fountain (Fig. 76). Here we can see the influences from both the Koran and the Bible. "The fountain of the twelve lions was placed in the center to symbolize the veneration of water. The lion is the sign of the zodiac is the month of July, when the inundations of the Nile took place; and water is the source of riches, and held in deepest respect by Moors."[16]

In addition to the use of water as a symbol which transcends one into the spiritual world, the climatic response through its use also enhances this transcendence. In the making of garden and courtyard spaces, water is continuous. The involvement of practical responses to climatic issues of Andalusia are important as a link to Islamic architecture and its influence on the Alhambra. Our bodies have the ability to sense even a small change in temperature.[17] Even the visual effect of water can make one feel cooler on a hot day. It provides both a physical and psychological cooling effect. When the body is physically and psychologically cooled and refreshed, it allows its transcendence into the realm of spirituality. Just as the visual effect of water creates a psychological cooling, the sounds of the breezes passing through the leaves of trees also provides this. Walking out into the garden spaces, the bright sunlight is cooled by the movement of water in the fountains and pools of the upper terraces. This water passes through channels and down to the lower terraces. The peacefulness and coolness created by water enhances the transformation from this world into another. The link between inside and outside through garden spaces and interior courtyards further expands the relationship between nature and architecture as a transcending experience.

The mystery and spirit of light is experienced in almost all religions. Light engages transcendence beyond the world on earth. It is one aspect which links eastern and western religions. They all share this element in common: the Universe revealed on a meeting with light contrasts with the worldly universe--or transcends it--in the fact that it is spiritual in essence.[18] God reveals himself as light. The celestial heavens address stars and the bodies of light.

Note: Muslim Spain was known as al-Andalus but the area known as Andalusia covers only the southern region.

Note: The Spanish have further responded to these influences through the use of tendidos. These are canvas canopies which extend over the opening of the courtyard during the hootest hours of the day, diffusing the light and heat. The tendido provides shade, helping to keep the courtyard as cool as possible. A central fountain is a typical element of this courtyard. At night, the tendido is pulled back and any heat that has remained escapes into the night sky. The cool night air send breezes into the interior rooms.

The absorption of light and the guidance of the eye by light itself is an aesthetic aim of Muslim architecture.[19] In the experience of the Alhambra, the influence of Islamic symbolism is represented. Walking out into the Court of the Myrtles from the shaded passageway, emphasizes the intensity of the light. This overwhelming brightness enhances the feeling of spirituality. The patterns of light and shadow help to create an awareness of the power of light in the court, as the presence of the reflecting pool calms the overwhelming space. The body responds to these elements and is transcended. As the body moves through spaces inside and outside, this rhythm of light and shadow continues. The alteration from light to shadow and heat to coolness within the experience is important to our perception. The spaces which represent the transcendence into the spiritual world, or paradise on earth, are courts and garden spaces of light, water, vegetation and breezes. They provide a link between inside and outside experiences of nature and architecture and the transcendence of the body to the spirit.

The same type of responses used in the gardens and courtyards of the Alhambra are also a part of the domestic architecture of Spain. The courtyard in the house becomes a room of reprieve. Brightly lit by sunlight during the day, it provides a connection to nature within the privacy of home. (See Notes)

The gardens of paradise are described as being rich with vegetation. They involve a weaving together of water and vegetation that evokes serenity and solitude. They provide a way of evaluating and experiencing the world of the spirit. The bower (or Glorieta) is a symbol of the Pearl Pavilion of the quranic paradise. It is usually located at the junction of paths and formed of cypress trees. Their tops are usually bent to form arches or vines are used to form a

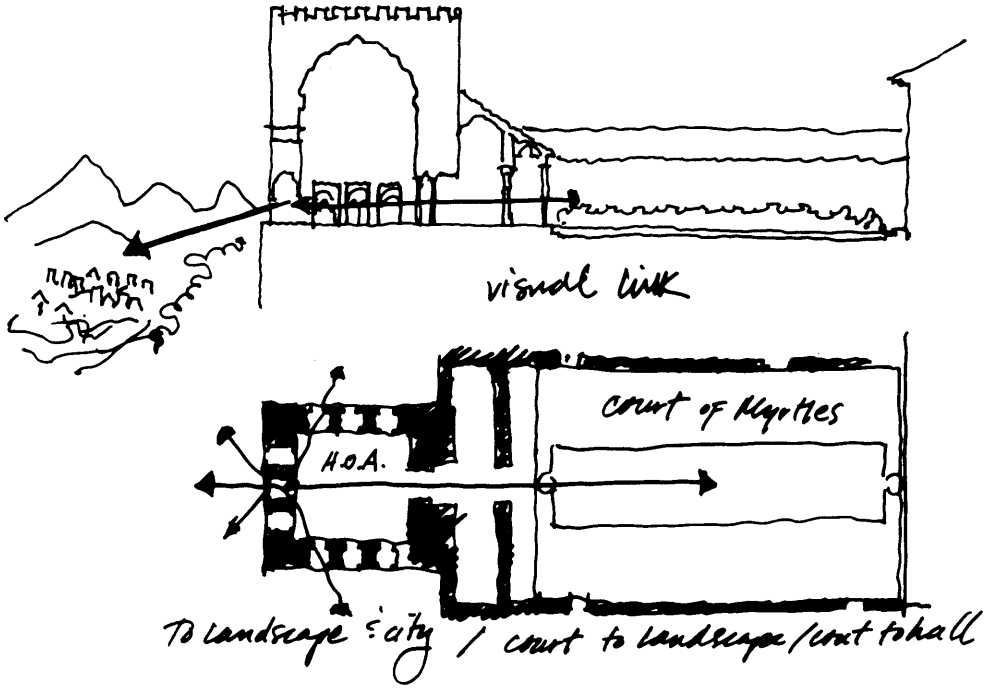

visual link
Court of Myrtles
H.O.A.
To landscape & city / court to landscape / court to hall

Fig. 77

light arch.[22] This element is a symbol of paradise through the articulation of vegetation.

The Partal Gardens have been described as diametrically opposed to the Muslim sensibility with its emphasis on the intimate and within.[23] But even though they are modern in their chronology in comparison to the Alhambra and Generalife, I believe they provide a link between the two. They are the gardens which lead you out from the Alhambra and up to the Generalife. They integrate the Islamic emphasis on visual connection of spaces with that of the west, where terraces extending views are more open. This same integration of inside and outside exists in the Hall of the Ambassadors where views inside extend to the landscape and city below as well as to the Court of the Myrtles (Fig. 77). The garden spaces continue the rhythm of light and shadow, the integration of water and vegetation, and the connection of inside and outside as is seen in the courts and halls.

The integration of symbolic elements also provides a practical response to the climatic conditions of Andalusia. The openness of these spaces allow the circulation of breezes to interact with the vegetation and water. In the Hall of the Ambassadors, the breezes from the mountains pass through all four sides. The heat escapes through latticed screens above the arched openings. This movement continues through into the Court of the Myrtles. And even though the space is open and filled with intense sunlight, the large reflecting pool along with the myrtles help to calm this intensity, both physically and psychologically. The myrtles shade the pool in part, slowing down the evaporation of water. As water is evaporated, the breezes cool the court. The simple use of water in the courts, through a pool or fountain, provide

refreshing sound and a sense of coolness. And this allows the transcendence of the body into the spiritual world.

The understanding of the experience of architecture of the Alhambra is bound in the tangible elements and principles that were described earlier. But these elements transcend their boundaries through the transformation of nature and architecture in the experience, creating a universality in the transcendence from the body to the spirit.

A Spanish writer, Prieto-Moreno believes that the architecture of the Alhambra possesses a number of valid contemporary concepts.[24] For example the use of the human scale as a module, the integration of buildings into the natural setting, the use of the center as stability, and the passage of time. All of these aspects of the architectural experience are true, but I believe this goes even further. It diffuses the separation of inside and outside, creating a dialog between nature and architecture, and it involves the transformation of experiences through the engagement with the body and all its senses. The architectural experience of the Alhambra provides a complexity of elements interwoven to create the transformation of man, nature and architecture. The careful attention paid to the elements and their relationship in the making of the architectural experience, enriches the experience of the Alhambra. And just as in the experience of the Alhambra, the architectural experiences we encounter can only become transformed through this attention and the engagement of the body.

illustrations:

*except where noted, all photos and sketches by author.

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footnotes:

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4 Ibid, p.37.
5 De Casa Valdez. Marquesa. Spanish Gardens, p.36.
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