



REVEALING THE LOST GARDENS OF EL PEDREGAL

Pre-Diploma, Fall Semester 2022. Jordi Doménech Bórquez

TABLE OF CONTENT

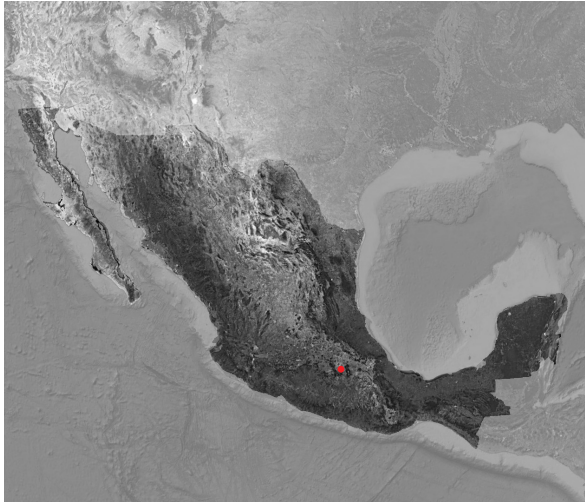
1	ABSTRACT	4
2	INTRODUCTION	6
3	LANDSCAPE HOUSE	15
	3.1 Shinden-zukuri	16
	3.2 Mosaic of references	18
4	GARDENS OF EL PEDREGAL	25
	4.1 Mexico City	26
	4.2 Xitle Volcano	28
	4.2 Diego Rivera manual	30
	4.3 Armando Salas Portugal	32
	4.4 Barragan´s retreat	34
	4.5 Gardens of El Pedregal	35
5	THEORETICAL FRAMEWORK	59
6	OPERATING TOOLS	69
7	BIBLIOGRAPHY	88

ABSTRACT

This project is based on the legacy of the landscape heritage and the architectural modernity in Mexico City, Jardines de El Pedregal. The process is to explore possible articulations between city, house, and garden, addressing the theme of The Landscape House, where relationships will be identified to link the natural characteristics of the site and architecture, towards integration of harmonic dialogue between one and another.

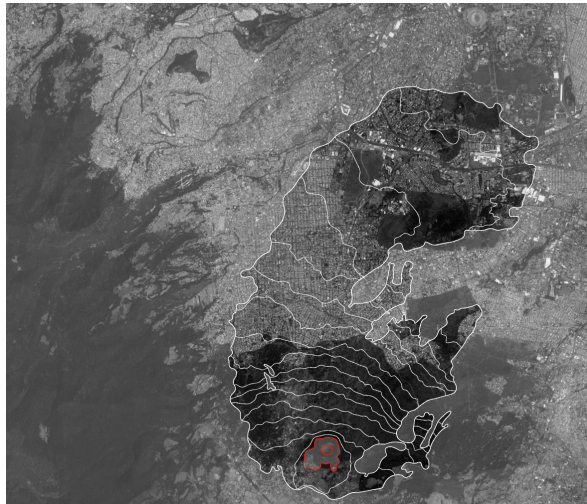
INTRODUCTION

Mexico



Mexico is a country integrated into the so-called “ring of fire” of the Pacific, characterized by a high frequency of volcanic events. In historical times, countless volcanoes have deposited lava, ashes, and other materials that have subsequently been colonized by communities. In this project, I will focus on the Xitle volcano and its wonderful Pedregal.

Xitle Volcano



Xitle erupted about 2,500 years ago. The Xitle volcano is part of a mountain range made up of more than 200 small volcanoes that make up the Mexican volcanic belt. New evidence suggests that Xitle's eruption was around 2,000 years ago. Due to the morphology of the Xitle volcanic cone, which has a crater tilted towards the North, it caused the lava flow to be directed mainly toward the North and Northwest. The spill covered a relatively low kidney-shaped area, a total surface of almost 8,000 Ha. (from 2,250 to 2,350 m above sea level).

The Pedregal

petra = “stone” -*al*- (relationship, place where it abounds)
Pedregal “place where stones abound”

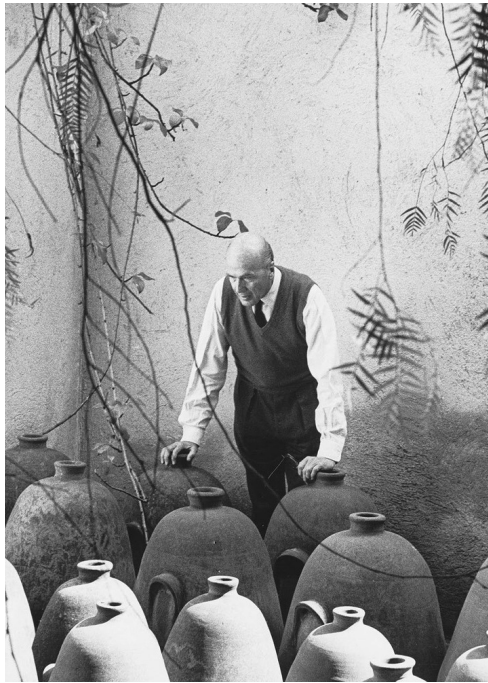


An article about the Pedregal de San Ángel appears in a tourist magazine from the 1930s, signed by the historian Federico Gómez de Orozco. To visit it from Mexico City, you could get there by tram and then continue on foot along one of the paths that took you into an irregular landscape of caves and rare plants. Leaving the paths was highly inadvisable since the rough and even thorny stones would end up with any footwear. Also, off the beaten track, visitors could more easily miss snakes, spiders, and other poisonous animals, or even run into thugs hiding in some of its caverns. The encounter with the ruins of the ancient preclassic city of Cuicuilco in that inhospitable and endless wasteland would be well worth any risk.

This renewed interest in the pedregal as a landscape, as a place for recreation, foreshadowed its greatest transformation. If the bowels of the planet threw lava on its surface, now it would be the surface city that would cover it in turn with its mantle of concrete. The imaginary of a mystical and mysterious rocky area that fascinated writers, painters, and residents of Porfirian Mexico City, fueled the interest in integrating it into the city without ignoring it. We label the architectural and landscape project of Pedregal that began in the 1940s with the label of “modernity”. The other city, the old city, ended up beating the ambitious project. More than 60 years later, few windows remain revealing El Pedregal in places we call “reserves.” And the memory of him must be fighting against oblivion.

El Pedregal de San Ángel
Book, Salas Portugal Armando. "Barragán"

Luis Barragán





“The walls are for the shadow of my tree to rest”

Luis Barragán

Can we adapt the city into entities with nature?

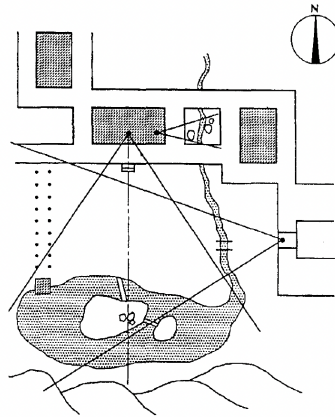
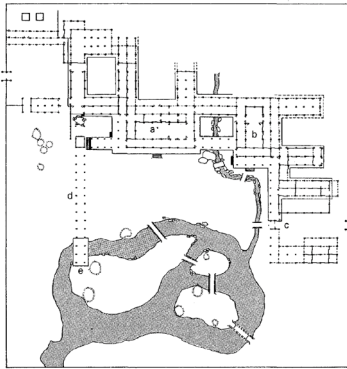
LANDSCAPE HOUSE

Shinden-zukuri



The pattern for shinden-zukuri did not originate in ancient Imperial Japan but was adopted from the architectural style used for palatial buildings in Tang China. These buildings had hipped roofs (in Japanese, known as azuma-zukuri or, more commonly, yosemune), which the Chinese thought added monumentality and dignity. They were completely symmetrical, in the plan and structure of the individual buildings as well as in the arrangement of the buildings on the site. The shinden-zukuri “formula” required furnishing a seiden, or shinden, with east and west tainoya, east and west sukiro, east and west chumon, a pond, an island, a fishing pavilion, etc. It is essential to remember that the formula for shinden-zukuri emerged from an existing symmetrical pattern.

Illustrated Handscroll of the 'Tale of Genji'



1062-1141 Shinden - Zukuri, Heian period.

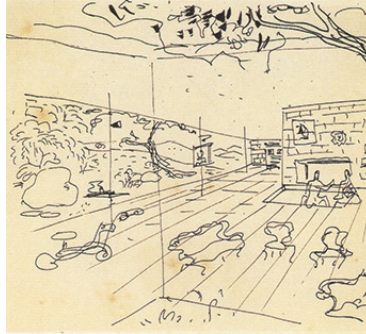
Landscape First Then Architecture







Glass House - Lina Bobardi
<http://www.redfundamentos.com/blog/es/obras/detalle-156/>



From the first sketches of the house, Lina works on the idea of a shed perforated by tree-lined patios, prefiguring not only the current interweaving of the residence with the plant species that cross it but also the exuberance that they have gained over the years. This initial image of the future of the house, coexisting in perfect harmony with nature, will acquire as many versions as projects carried out by the architect later.

The Glass House, named after the neighbors, arose from respect for the environment and the desire to experience nature intensely. In response to this idea, the house is born, ordered, and grows around a magnificent tree that was there long before Lina and her husband decided to build her residence.

In this work, you can see the complete mastery of the language of modern architecture as well as a pictorial use of the natural scenery of the context. Continuous windows, an open floor plan, and white walls make up the basic outlines of the house, handled with great delicacy, simplicity, and clarity.

Can we transfer the vocabulary of the Landscape House to intervene in an entire landscape?

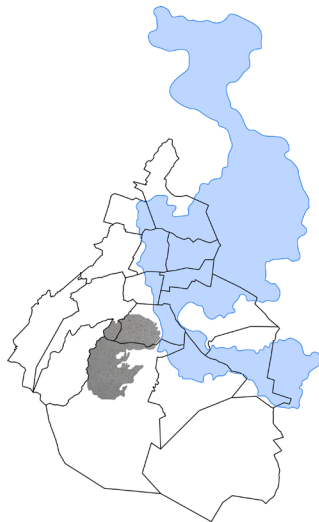
GARDENS OF EL PEDREGAL

Mexico City



Pre-Hispanic settlement envisioned on a lake

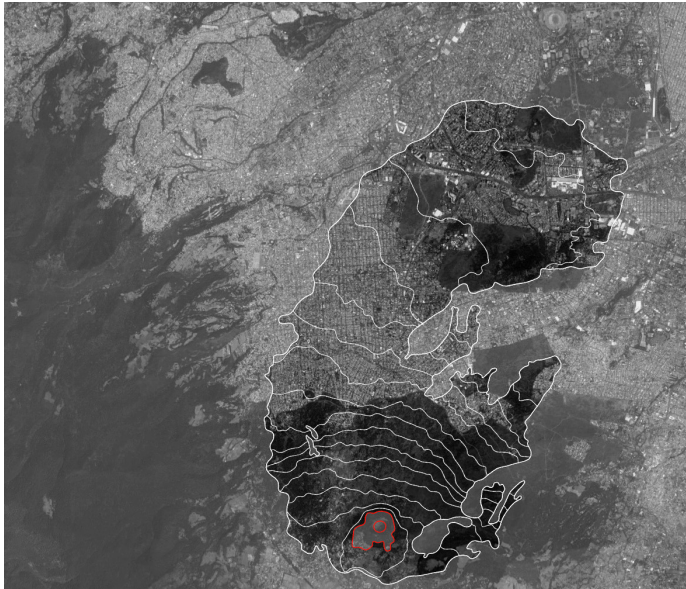
The Texcoco Lake, National Museum of Anthropology.
PDF Hacia Una Ciudad de México Sensible al Agua



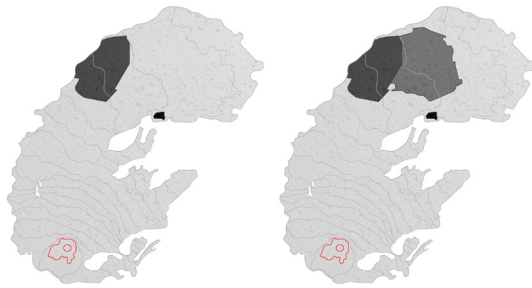
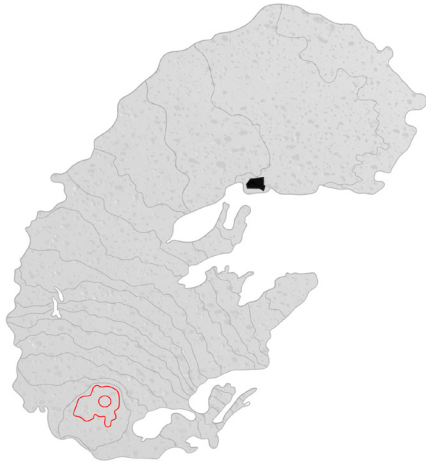
- Ancient Lakes of the Valley of Mexico
- Xitle volcanic spill
- Mexico City

Diagram Mexico City Settlement
Reference Thesis, Rivera Garcia Arturo, 'La Biopilla en la Arquitectura'

Xitle Volcano



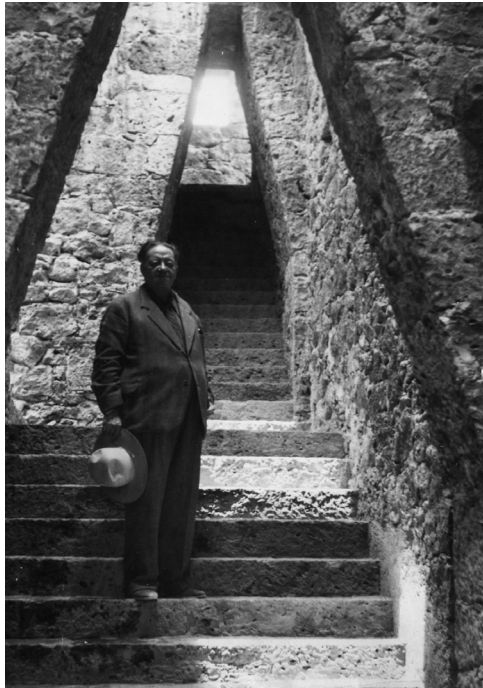
When the Xitle volcano erupted, its lava covered a radius of 80 km² and, as it cooled, the rock created an environment conducive to the development of flora and fauna. This is how the Pedregal de San Ángel was born, the most biodiverse place in the Basin of Mexico City



- Cuicuilco 22,000 years
- Xitle volcano 2,000 years
- Gardens of El Pedregal 1945
- National University campus 1950

Diagram Xitle Volcano Spill
Reference Thesis, Rivera Garcia Arturo, "La Biopilla en la Arquitectura"

Diego Rivera
The Artist



Written sometime between 1943-1946 Rivera opens an essay by propounding the Pedregal's advantages over Mexico City:

"The Pedregal as the place of a possible new city has none of the climatic or economic disadvantages, pertaining to the construction of housing, that Mexico City suffers from in its old location." Throughout the essay, Rivera's thoughts are dominated by a concern for the existing landscape.

Requirements for the organization of El Pedregal written by
Diego Rivera

1. The country's authorities must establish, in agreement with the owners or companies interested in El Pedregal, a minimum type of extension of lots, which ensures the conservation of the geographical character of the site. One-sixth of the area of the lot should be designated for construction, this being less than 10,000 m².

2. Nothing will be achieved if the constructions destroy the natural beauty of the place. To avoid this, it is enough to set a few construction conditions that, of course, would be entire to the benefit of the owners:

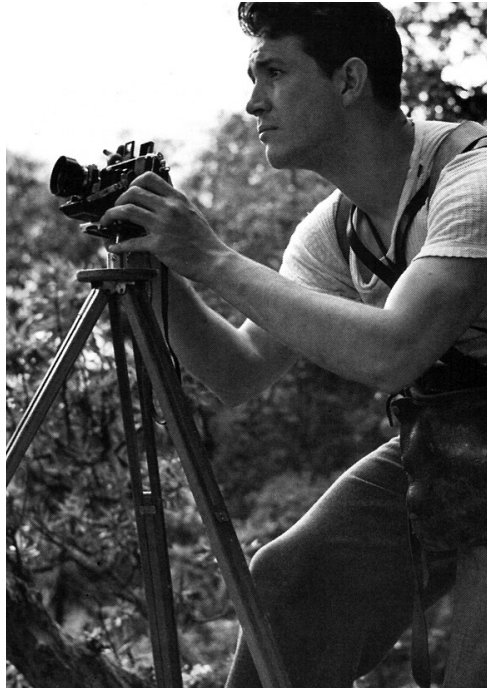
It would not be allowed to destroy more than partially one of the three layers of lava that make up the basaltic mantle, limiting their use as quarries to the current exploitation and setting a time limit on surface and volume. The foregoing does not exclude the national use of concrete, iron, glass, and wood, but the non-construction of tile roofs must be established as an absolutely essential condition, with terrace roofs being preferred and in case of need and for certain parts of the superstructure of the buildings, the traditional thatched roof, but no pop-up roof of solid material.

It would be established by an aesthetic council composed of representatives of the Central Department, the Ministry of Public Education of Mexico, the National University, the National College, and the regularly constituted societies of architects and engineers, in order to establish with wide limits the style that would be allowed. used in construction, and this must be within the tradition of Mexican architecture, opening the field, of course, to materials acquired again by science such as concrete, iron, glass, and others.

Many of the wonderful cacti areas of Mexico are practically inaccessible to the traveler who does not undertake a true expedition. All the species could be brought to El Pedregal, and as a whole, it would constitute by itself a universal attraction. In the horizontal cracks where airborne topsoil, vegetable, and animal organic matter accumulates, they are marvelous receptacles for planting flowering trees and shrubs, being of extraordinary fertility, much greater than anywhere else in the Valley of Mexico. The fact that the rock retains the heat from the sun's rays received during the day makes El Pedregal a true greenhouse, where it is possible to grow orchids and other species of intertropical and even tropical plants. In addition, the fact that the subsoil of El Pedregal is virgin land and is crossed by numerous streams of water from springs that sprout under the rock contributes to the special fertility of the place.

All of the above makes El Pedregal an enormous potential wealth that must be duly exploited since it solves the problems of housing from the point of view of climate and construction costs that Mexico City faces.

Armando Salas Portugal
The Photographer



At the beginning of the 20th century, photography evolved in technique and composition like other arts and became one of the main tools for understanding a work of architecture: both for the analysis of the project and for the dissemination of the work. Likewise, it has been used for the interpretation and analysis of modernity.



When we talk about the photography of Luis Barragan's work, it is necessary to emphasize the value that Barragan adds to it, not only as a technique but also as a process. Luis Barragan was able to see the photography of Armando Salas Portugal as an inexhaustible source of possibilities, which built an indissoluble bond between them. For Barragan, photography was not only an instrument of visual communication to promote his own work or to design a corporate image in order to show Los Jardines del Pedregal to the world. For him, the value of photography laid in the potential that its own meaning has - phos (light)-graphs (writing) "writing or drawing with light" - throughout the whole design process. El Pedregal de San Angel is the first work where Luis Barragan, hand in hand with Armando Salas Portugal, introduced the use of photography as a design tool in the creative process.

El Pedregal de San Ángel
Book, Salas Portugal Armando. "Barragán"

Barragan's Retreat

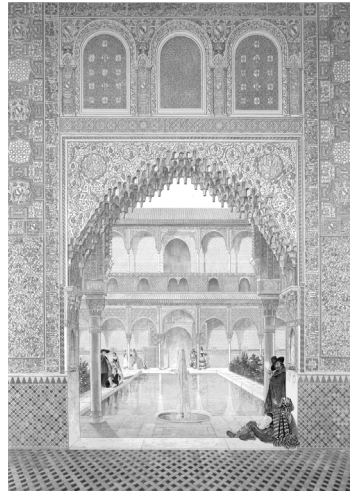
In 1940 Barragán, disenchanted by the commercial purposes of architecture and tired of so much activity and pressure from his clients, decided to “withdraw” from dealing with them, and here we would have to wonder how much it influenced finding the land in Tacubaya suburb in Mexico City, where initially between 1940 and 1942, he built his first house and gardens, the latter being the main motivation for this realization, the Casa Ortega today, according to how he imagined them: his memories of the haciendas of his childhood, the gardens of Bac, the Alhambra, the Generalife and his vision of modern European architecture. But these gardens will also be a sample of his landscaping ideas from now on.

He lived in this house for five years from 1942 to 1947 when he sold it to the master and silversmith businessman Alfredo Ortega, a visionary of the quality and depth of the design of the “engineer” Barragán’s house. Then in 1947, he built what will be his last house, modifying it and inhabiting it until 1988, the year of his death, the now-museum house, in one of the gardens and next to Casa Ortega.

Of course, his “retirement” is temporary since he resumed his professional activity and from 1942 to 1944, he built 5 houses, one of them in his native Guadalajara with its garden, as well as a duplex house, and 4 private gardens, one of them being the so-called “El Cabrio” on the edge of Pedregal.

“The soul of the gardens”, said Ferdinand Bac, “houses the greatest sum of serenity that man can have”. And it was Bac who awakened in me the longing for garden architecture. He used to say: “In this small domain (his gardens of Les Colombiers) I have done nothing but join the ancient solidarity to which we are all subject, which is nothing more than the ambition to express with matter a sentiment common to many men. in search of a link with nature by creating a place of rest, of peaceful pleasure”. It is already seen that it is a condition of a garden to combine the poetic and the mysterious with the serenity of joy. There is no better expression of vulgarity than a vulgar garden.

In a vast expanse of lava south of Mexico City, I decided, enraptured by the beauty of that ancient volcanic landscape, to make some gardens that would humanize, without destroying such a wonderful spectacle. Strolling between the lava cracks protected by the shadow of imposing walls of living rock, I suddenly discovered. Oh, delightful surprise! Small secret green valleys surrounded and limited by the most capricious, beautiful, and fantastic stone formations that had been sculpted in the molten rock by the blow of prehistoric gales.



Barragán returns to work with the geographical and historical conditions of the place.

“When walking through a narrow and dark tunnel in the Alhambra, the beautiful courtyard of the myrtle trees of that ancient palace gave me, serene, silent, and solitary. It contained what a well-executed garden should contain: nothing less than the entire universe. Never has such a memorable epiphany abandoned me and it is no coincidence that since the first garden I created in 1941, all those who have followed him humbly seek to reap the echo of the immense lesson of the plastic wisdom of the Moors of Spain.”

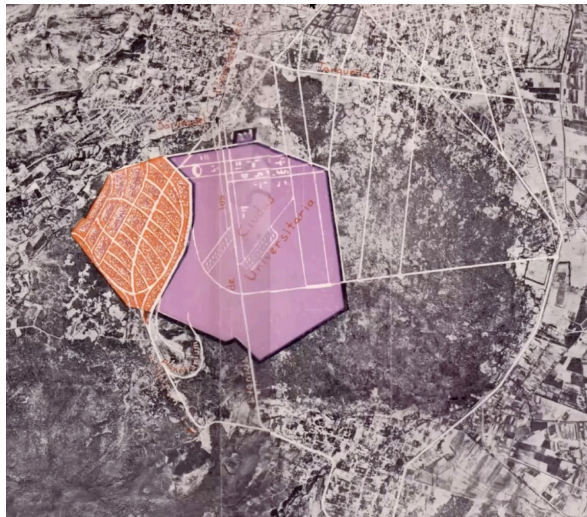
Garden Casa Ortega 1940
Book, The Architecture of Luis Barragán

Gardens of El Pedregal
The Architect



In 1945, he began to change his architectural interest from internal to external and from private to public spaces. with the development of the Jardines del Pedregal, he began to project fountains, squares, and gardens. The few houses that he built, he chose for the interest of the realization of his gardens and patios, beginning with the Merelles house (ca. 1948), the iconic Prieto López house (1948-1950), and the house and garden sample (ca. 1950-1952) in collaboration with Max Cetto.

Luis Barragán 1951
<http://www.beaudouin-architectes.fr/>



A New Modern City Envisioned on a Volcanic Field

The minimum lot size allowed was about one acre; the house could not occupy more than 10 percent of the lot, and the rest was to remain free space. The lava was to be protected, and the natural vegetation was preserved. Any new planting was required to follow the contours, and any new construction had to be subordinated to the rock.

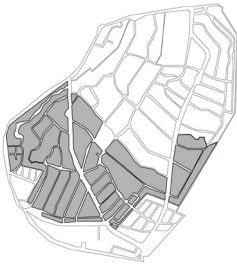
*Original Urban Layout
Gardens of El Pedregal*



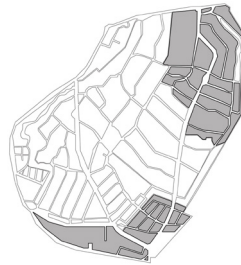
Luis Barragán and a realtor, José Alberto Bustamante, both acquired 865 acres of El Pedregal very inexpensively. The streets of the subdivision were so laid out that they followed the natural contours of the lava formations within its crevices. The contrasts were violent, but all parts maintained their separate integrities.



First section 1950



Second section 1954



Third section 1958

Diagram Xitle Volcano Spill
Reference Thesis, Rivera Garcia Arturo, "La Biopilla en la Arquitectura"

Original Plan



By 1960 El Pedregal had grown to more than 2,500 acres, with more than 900 houses built, in most cases without respect for the founder's vision. Paradise, once more, was lost.

a. El cabrío
b. Fountain Square
c. Sample House Max Cetto
d. Sample houses
e. Sample Gardens
f. Prieto López House

g. Public Gardens
h. Traffic ring and Service entrance
i. Cigar Square
j. Commercial Center
k. Catholic Church

El Cabrio
1st Garden in El Pedregal



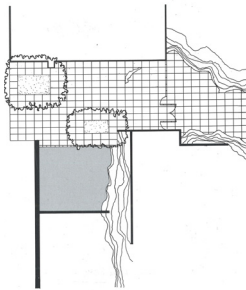


Barragán's plan was to create a residential area, respectful of both the existing lava formations and the extraordinary natural vegetation. Rather than houses, Barragán had in mind perhaps a vision closer to the ancient Persian concept of living quarters: he conceived of the garden as the soul of the house, the place, where guests are received. He perceived rooms as simple retreats meant just for sleeping, storage of belongings, and shelter from hostile weather.

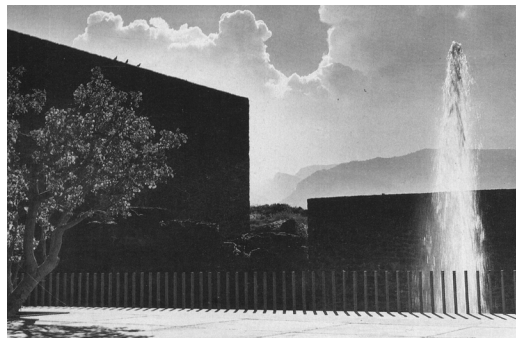
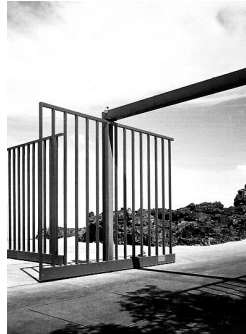
Gardens of El Cabrio 1943-1944
Book, Salas Portugal Armando "Barragán"

Fountain Square
Main entrance square





Entrance Plan Plan

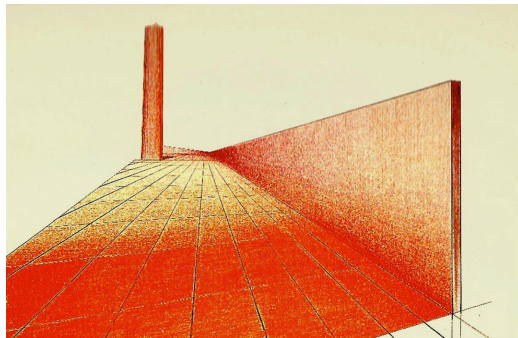
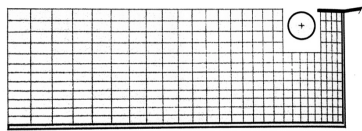
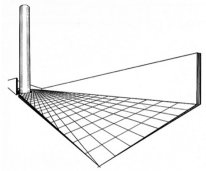


To define entrances to the subdivision, Barragán opened the walls here and there with fences of tall iron pickets painted phosphorescent reds and greens, and built decorative fountains and plazas. The main entrance to the subdivision.

Fountain Square 1947-1948
 Book, Martínez Riggen Antonio, "Luis Barragán, Mexico's Modern Master,

Cigar Square

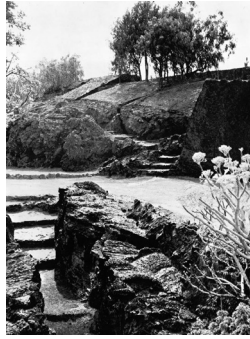




Cigar Square 1947-1948
<http://www.beaudouin-architectes.fr/>

Sample Gardens
Private Gardens With Public Aspirations

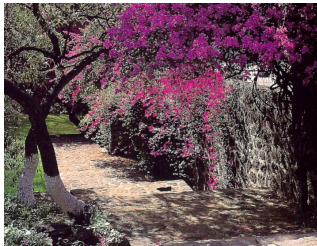




The showpiece gardens were created by bringing in topsoil and using the native Pedregal cacti, wildflowers, graceful pepper trees, and gnarled Palo bobo (crazy tree). Steps and pathways were carved into the rocks; water pools and stone walls were disposed of in such a seemingly effortless manner that the gardens seemed to have been born together with the sea of lava.

Public Gardens
Barragán Garden





Sample House
Max Cetto & Luis Barragán





Barragan designed the Model Gardens for public inspection and planned them as models for the development of private space. The sample houses were intended for publicity and sales purposes and were built in 1950 according to the project by Max Cetto in collaboration with Luis Barragan.

Sample House 1949-1950
Book, Arnazs Emilio, "The Architecture of
Luis Barragan.

Prieto López House
Luis Barragán





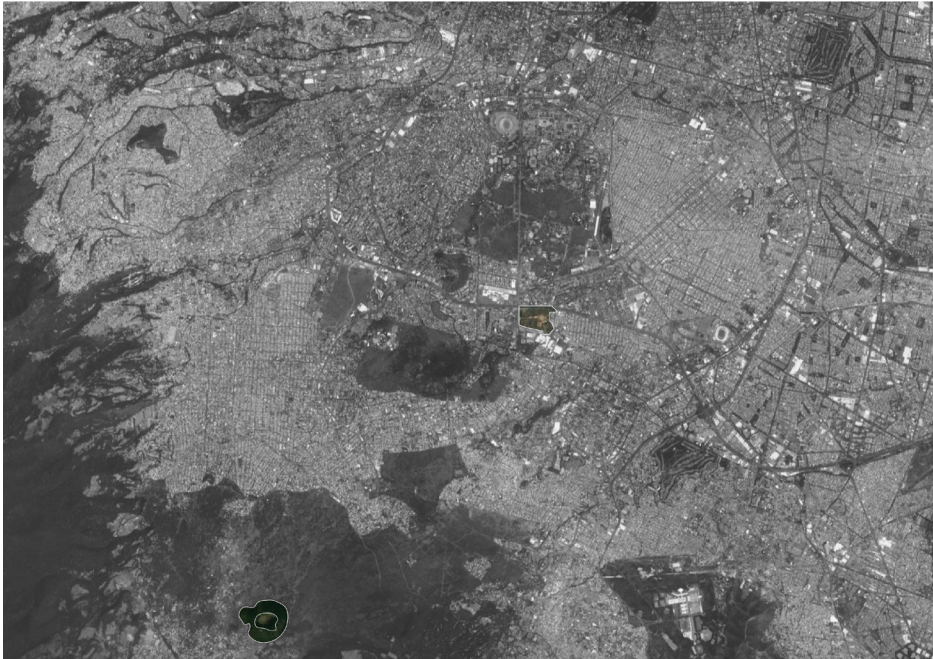
All houses were to be contemporary in design the colonial style was expressly forbidden. The houses were to be surrounded by high lava rock walls. In this manner, Barragán paid his respects to the traditional Mexican home, which emphasized living on patios, behind walls. As each plot was to become a room open to the sky, an immense lattice defined by high lava walls was to emerge, following the contours and varying subtly in color and contrasts. The surrounding somber mountains and the rising wilderness, juxtaposed with geometry's logic, lent to these creations the aura of inexorability which classical myths once possessed.

Prieto López House 1948-1951
Book, Amasz Emilio, "The Architecture of Luis Barragán."

Can we design cities as gardens?

THEORETICAL FRAMEWORK

Previous settlement & The Origin of a New Landscape



The beginning of a new landscape is born from the volcanic activity that will generate the future identity of the south of the valley of Mexico.

The Gardens El Pedregal & The University City



Today occupied Gardens of El Pedregal in contrast with the protected and preserved image of how originally El Pedregal used to be.

Overlap of Barragan's Urban Layout



An overlap between the current situation of The Gardens of El Pedregal and the original urban layout with the minimum lot size allowed.

Current Green Areas 2018



I intend to test the potential green outlines to reveal potential areas.

Revealed
Teololco Garden

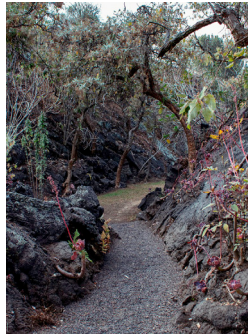
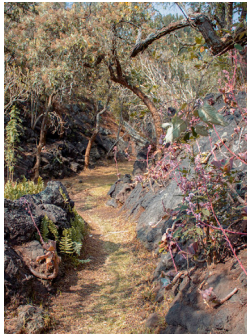
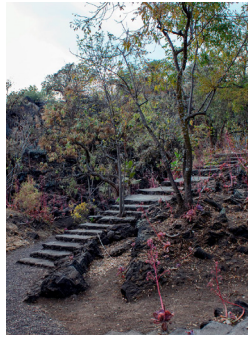


*Gardens and ridges to demonstrate the lost connexion between garden
and architecture.*

Before



After



Minimum Revelation Scenery
Empty Plots



There are residues that have the potential to reveal the original landscape of El Pedregal, between topography and original vegetation. These residues are mainly empty lots for sale, which could be a new preservation strategy in which the characteristics of the site will be identified together with the spaces or limitations that surround them.

Maximum Revelation Scenery
Recovery of The Original Plan



In this scenario, an “ideal” solution is proposed, which consists of rescuing the main areas according to the original plan of 1954. During its execution, Luis Barragán devised them as main circulation axes for public and private use, creating a succession of spaces under an authoritarian axis configured by the sample gardens, the public gardens, sample houses, and squares.

OPERATING TOOLS

Photographic Heritage Archive



The photography of Salas Portugal is fundamental material for my study process, as they were for Luis Barragán and Salas Portugal himself.

The archive will be used as a window to the lost landscape of El Pedregal, where abstraction exercises will be carried out to identify the visual logic and composition, as well as the relationships or articulations between landscape and architecture, public and private.

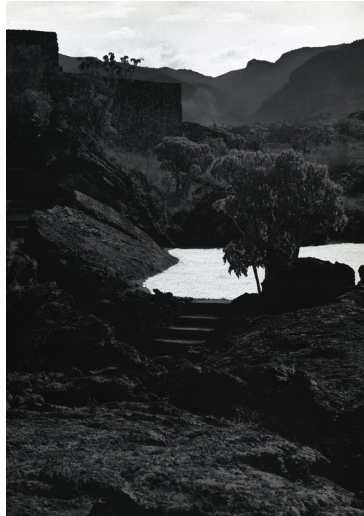
What preceded Los Jardines de El Pedregal is somehow still latent within this landscape that is now flooded, like the old city, but in this case by unregulated residential and commercial complexes.

Compression + Release





Compression



Release

Coverings & Revelings

Barragán Garden



Original Condition

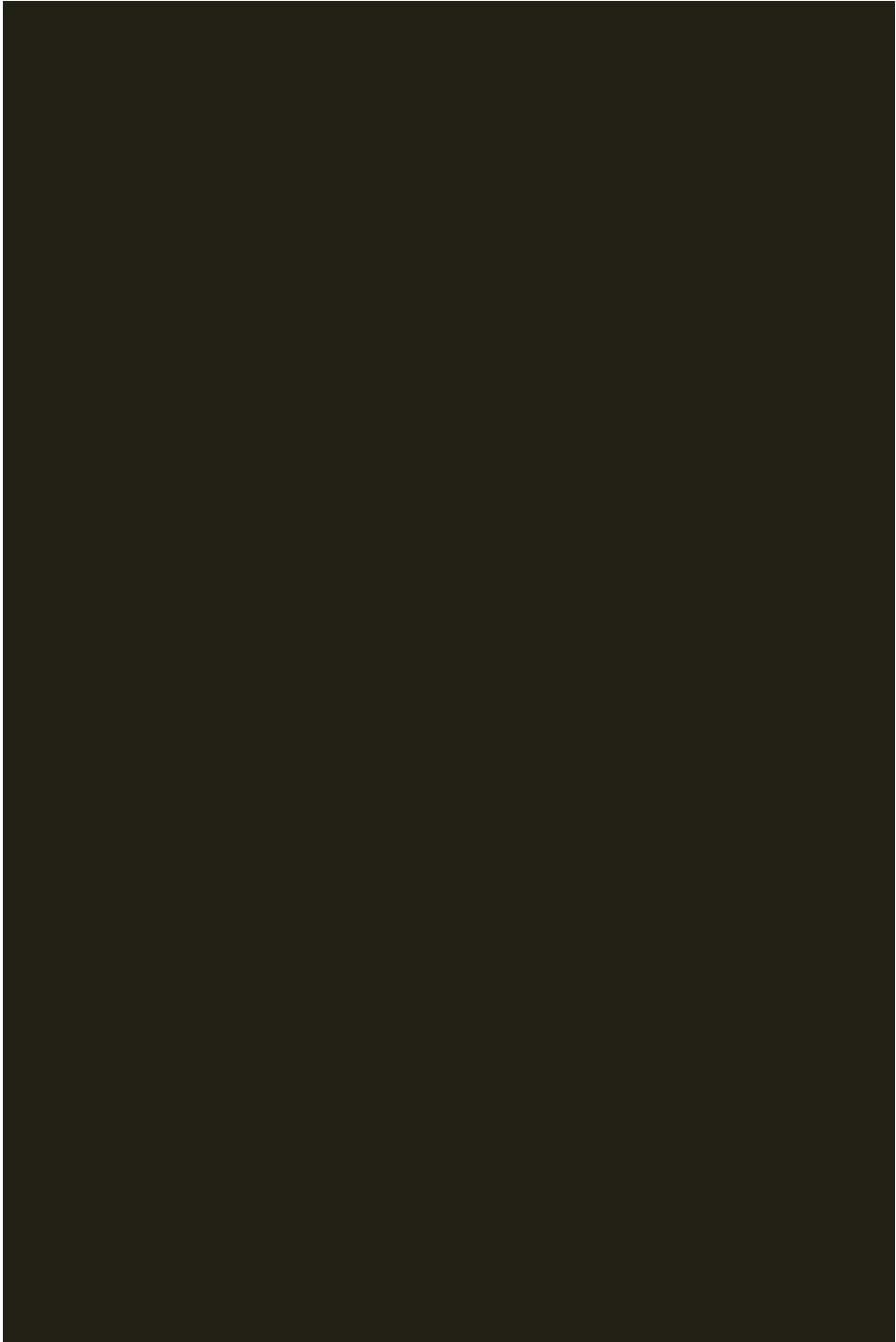


Current Condition

Stone



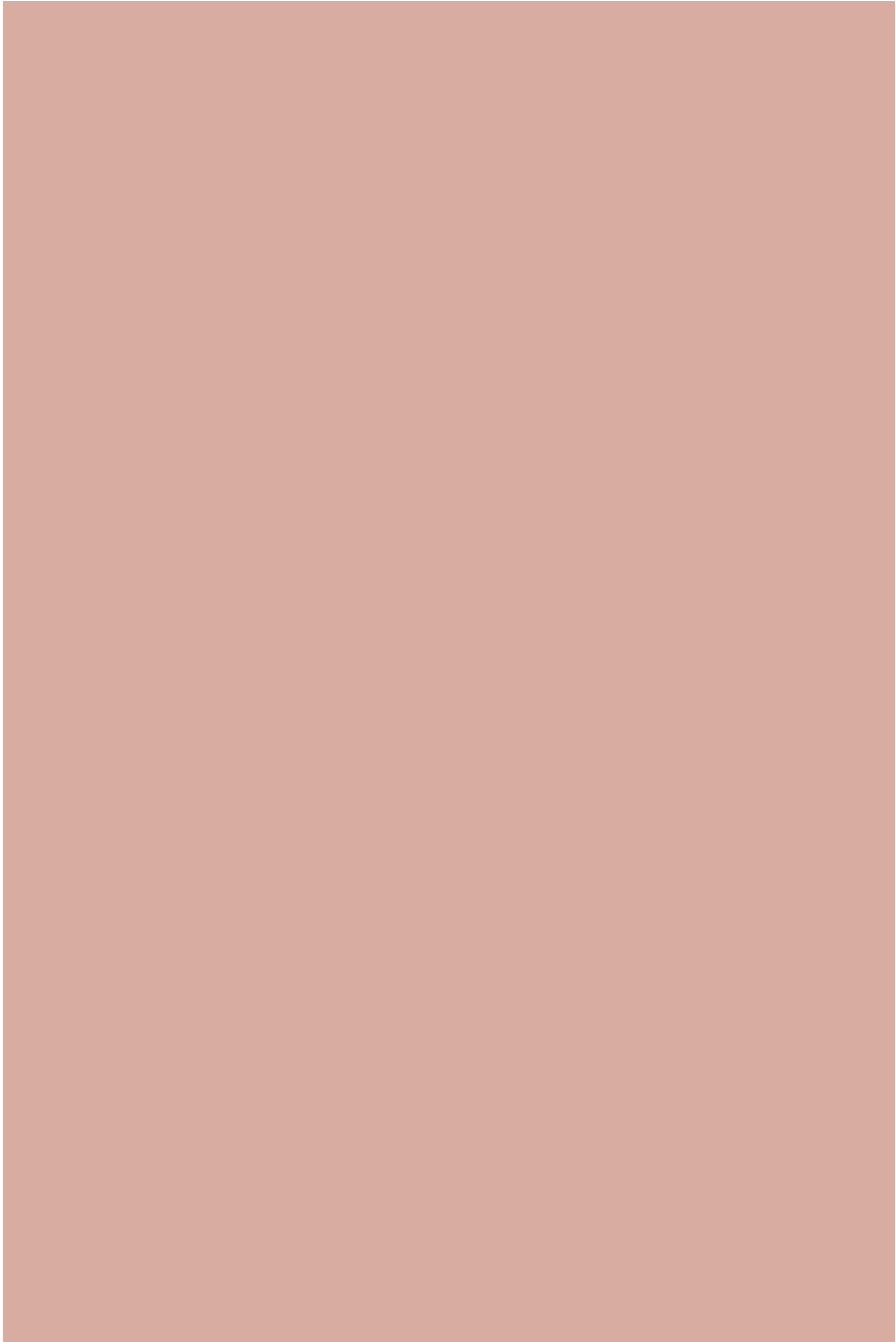
By a process of technical transformation produced by the stonemasons of the area, the elements such as stairs become very strong geometries on which clear contrasts are established with the site.



Paths



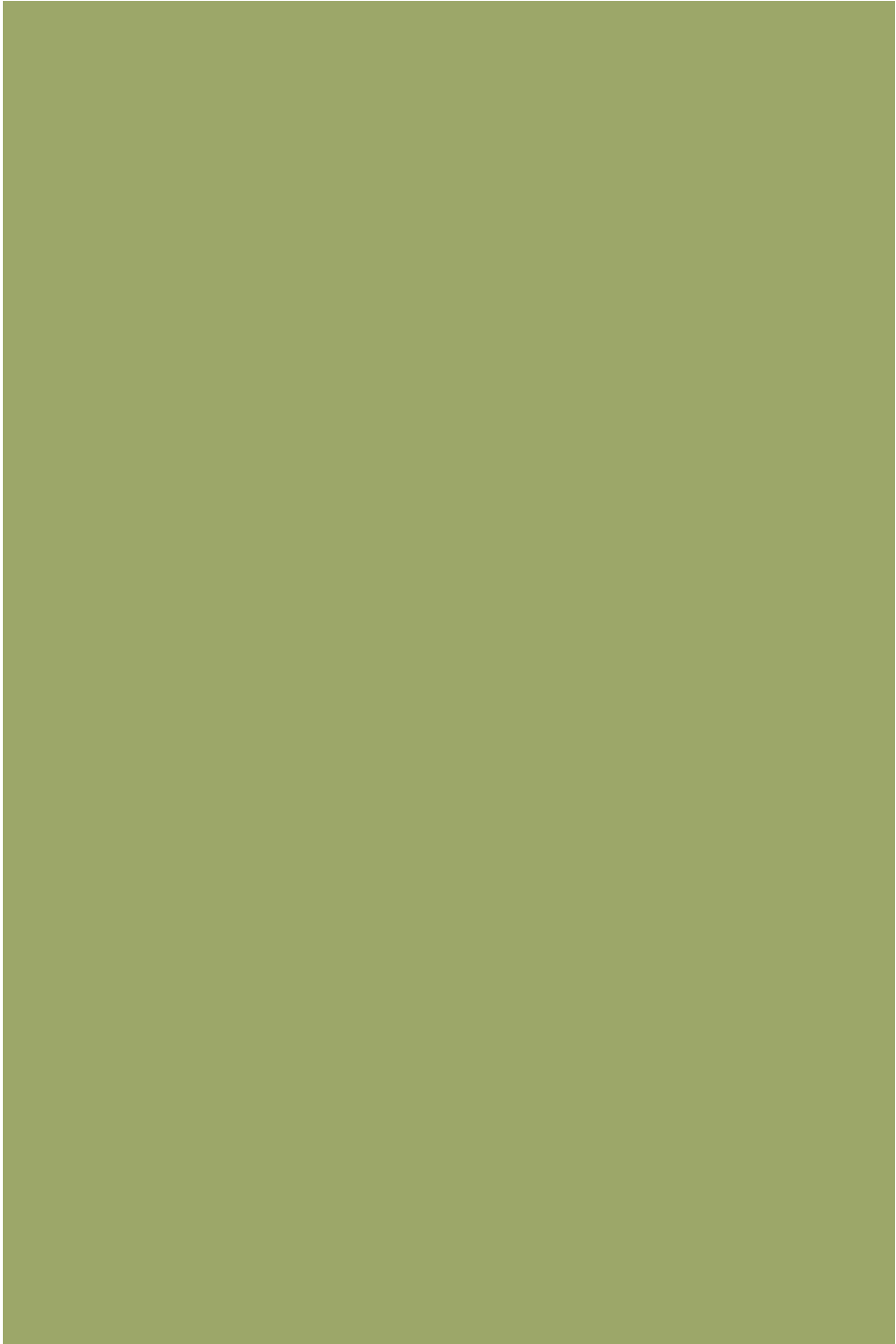
The use of local materials and their qualities to differentiate the principles between site and landscape.



Vegetation



The horizontal rocky cracks where organic matter accumulates are wonderful receptacles for trees, shrubs, and flowers, where, at the same time, a clear difference is created between wild vegetation and flattened green areas.



Borders - Walls - Fences

*Sample House
(Max Cetto)*



Removing or highlighting elements that are considered borders could help to understand the relations with the landscape and to identify other elements that highlight the principles of design or possible new interventions in the landscape.



A Garden Before a House

*Prieto López House
(Luis Barragán)*



The forms sheltering the houses were to emerge from the substance of the land. A rigorous set of building restrictions was imposed upon construction and landscaping to obtain architectural harmony. The minimum lot size allowed was about one acre; the house could not occupy more than 10 percent of the lot, and the rest was to remain free space. The lava was to be protected, and the natural vegetation was preserved. Any new planting was required to follow the contours, and any new construction had to be subordinated to the rock.



This image tries to represent the essential architectural aspects with which Barragán worked. The rooms as simple shelters intended only for sleeping, storing belongings, and protection from the hostile climate. Contrast and abstraction operations of architectural elements that inform the relation with the lava stone fields in order to obtain architectural harmony.

The outcome will be expressed by three representations methods, each of them with a particular intention. Each exercise will define spaces with a garden where architecture will be evaluated by the connections, transitions, and articulations between public and private spaces.

- 1. The photographic archive that informs the project as memory and as an ideal scenario.*
- 2. Collages will consist of images and objects that refer to their own intentions of Barragán by recycling elements, materiality, and color to compose a visual approach.*
- 3. A tridimensional model will be produced with an adequate scale for landscape and architecture iterations, dimensions, proportions, and depth, in order to generate a controlled and appropriate approach toward the site and the particular places with the potential to be revealed.*



The Gardens of El Pedregal of México is a cultural legacy as a natural landscape and as the cradle of modern Mexican architecture, which must be rescued and reframed for its protection and preservation.

BOOKS

1. Ambaz, Emilio; "The Architecture of Luis Barragán
2. Anda Alanis, Enrique X de; "Clásicos del Silencio"
3. Consejería de obras Públicas y Transportes, Dirección General de Arquitectura y Vivienda; "Luis Barragán Obra Construida"
4. Pauly, Daniele; "Barragán, Space and Shadow, Walls and Colour".
5. Salas Portugal, Armando; "Barragán"
6. Van den Bergh, W., Zwarts, K; "Luis Barragán, The Eye Embodied".
7. Aben, Rob. De Wit, Saskia; "The Enclosed Garden"

REFERENCES

Articles:

1. "Pedregal gardens in San Angel. The Ideal Place to Live" By Claudia Rueda.
<https://autonoma.pt/en/jardines-del-pedregal-de-san-angel-el-place-ideal-to-live-by-claudia-rueda/>
2. Recovery of The Ridge in Jardines Del Pedregal.
<https://www.landuum.com/en/interventions/recovery-of-the-ridge-in-jardines-del-pedregal/>
3. "Sucesión primaria en derrames volcánicos. El caso del Xitle".
<https://www.revistacienciasunam.com/es/148-revistas/revista-ciencias-41/1227-sucesi%C3%B3n-primaria-en-derrames-volc%C3%A1nicos-el-caso-de-xitle.html>
4. "Uso de suelo ilegal impacta a Jardines del Pedregal".
<https://www.eleconomista.com.mx/politica/Uso-de-suelo-ilegal-impacta-a-Jardines-del-Pedregal-AC-20131017-0148.html>

Others

1. "El Pedregal revisitado" by Perla Krauze.
<https://muca.unam.mx/nonsite.html>
2. "Of Other Spaces: Utopias and Heterotopias" Michel Foucault
chrome-extension://efaidnbnmnibpcjpcglclefindmkaj/<https://web.mit.edu/allanmc/www/foucault1.pdf>
3. "Casa Manifiesto: Technological Reproduction, Reconstruction Technics"
<http://grahamfoundation.org/grantees/6284-casa-manifiesto>
4. "Construcciones visuales: miradas cruzadas de arquitecto y fotógrafo Luis Barragán versus Armando Salas Portugal, José Antonio Coderch versus Francesc català-Roca
<http://www.revista180.udp.cl/index.php/revista180/article/view/639/427>
5. Conversation with Elena TudelaC

Websites:

1. "El Pedregal, Texcoco y otras conquistas del concreto de México"
<https://arquine.com/pedregal-texcoco-conquistas-del-concreto-mexico/>
2. "La historia magnífica de El Pedregal, cuna de la mejor arquitectura y jardines sin fin"
<https://www.local.mx/ciudad-de-mexico/arquitectura/el-pedregal-arquitectura/>
3. "Barragán, El Pedregal"
<http://www.beaudouin-architectes.fr/2013/10/barragan-el-pedregal/>
4. "El Pedregal"
<http://otrootroblog.blogspot.com/2016/07/el-pedregal.html>
5. "Jardiens Del Pedregal"
<https://architectuul.com/architecture/jardines-del-pedregal>
6. "Grandes Casa de México"
<https://grandescasasdemexico.blogspot.com/2018/11/la-casa-de-la-familia-gomez-mun-guia-en.html>

