Hunt Institute for Botanical Documentation
5th Floor, Hunt Library
Carnegie Mellon University
4909 Frew Street
Pittsburgh, PA 15213-3890
Telephone: 412-268-2434
Email: huntinst@andrew.cmu.edu
Web site: www.huntbotanical.org

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About the Institute
The Hunt Institute for Botanical Documentation, a research division of Carnegie Mellon University, specializes in the history of botany and all aspects of plant science and serves the international scientific community through research and documentation. To this end, the Institute acquires and maintains authoritative collections of books, plant images, manuscripts, portraits and data files, and provides publications and other modes of information service. The Institute meets the reference needs of botanists, biologists, historians, conservationists, librarians, bibliographers and the public at large, especially those concerned with any aspect of the North American flora.

Hunt Institute was dedicated in 1961 as the Rachel McMasters Miller Hunt Botanical Library, an international center for bibliographical research and service in the interests of botany and horticulture, as well as a center for the study of all aspects of the history of the plant sciences. By 1971 the Library's activities had so diversified that the name was changed to Hunt Institute for Botanical Documentation. Growth in collections and research projects led to the establishment of four programmatic departments: Archives, Art, Bibliography and the Library.

Philadelphia Botanical Club

The ACADEMY of NATURAL SCIENCES
LOGAN CIRCLE, PHILA. 3
Entrance on Race Street

STATED MEETING

THURSDAY, NOVEMBER 15th, 1951 - at 8 P. M.

"Botany Among the Aztecs"

(Illustrated by Kodachrome Slides and Herbarium Specimens)

IDA K. LANGMAN

WALTER M. BENNER, *Secretary*

Also, our members are invited to a lecture by Dr. T. P. Haas, *"A Plant Morphologist goes to the South"*, at Phila. College of Pharmacy and Science, 43rd. St. & Kingsessing Ave. on Nov. 17, at 3 P.M.

Some months ago when Dr Pennell was lining up speakers for the meetings this fall - he asked if I would be willing to help out at one of the programs. I said I'd be happy to try - but that it would have to be about Mexico again since that was where my study has been concentrated in recent years. And since I had already presented the results of my travels — collections in Mexico at earlier meetings, I suggested as a possible topic - Botany among the Aztecs. The idea ~~was~~ seemed satisfactory to Dr Pennell at the time - but when the time came to choose a date this fall

Dr Pennell expressed a little doubt as to whether the topic would really be ~~sure~~ of interest to any ~~sufficiently~~ large number of our members ~~to warrant [illegible]~~. I think that perhaps he feels that most of us ~~were~~ are not really enough acquainted with the Aztecs - their culture to be interested in their botany. Of course I feel no such doubt. Ever since my stay in Mexico, I've been so deeply interested in all things Mexican that I just take it for granted that everyone else shares my interests. In any case, do you know what Dr Pennell has been doing ~~[illegible]~~ in preparation for this meeting

He's been reading George Vaillant's excellent book - the Aztecs - I know he recommends it very highly + so do I. But I don't think many of the rest of us have prepared ourselves in a similarly thorough manner. So I'm going to take the liberty of giving you just a quick fill in on the Aztecs + their place in Mexico - geographically + historically - before I start on the botany - Mexico was of course settled by Indians who came from the north.

1. Preperation - Aztecs of Mexico - Vaillant.
2. Map - Various Mexican tribes
Olmec, Toltec, Maya; (Lacandones) 600 B / 1100 A.
(500 B - 1100 A.)
Otomi - Totonac - Tarascan - Zapotec - Mixtec
Yaqui - Tarahumara - Huicholes -
3. Aztecs - more 800 - 1100 A.D.
1325 - Tenochtitlan
4. Source Material - Botany -
Sahagun - 1578 (1529 - 1590) pub. 1830
Hernandez - 1577 (1570 - 1577) Kingsborough. 1651 - Rome
Rer. Med. Nov. Hisp. Thes; Hist. Mex. Pl. An. Min.
Jimenez - 1615 - 4 Libros
Paso y Troncoso - 1867 -

Flores - 1888
Gerste - Not. s.l.m. et l Bot. des. Anc. Mex. 1909
5. Badianus Manuscript - college 1536
students spoke Latin as elegantly as Cicero
Authors - date - discovery
Gates - tr. 1938
Emmart 1940 Smith. Pharm. Garden Club.
6. Botanical Achievements
Herbal Stage
Botanical Gardens. where - orn. med. ind.
Maldonado - first true bot. gardens in the world.
those founded earlier did not merit the name
those that did - were founded in 16th cent. + later

xoco xochitl
yztac xiloxochitl
atoyac xocotl chichiltic

Basis of classification
tree, herbs etc.
taste - physiology - aromatic; sharp bitter
salt - sweet; sour insipid.
uses - medicinally
structure
cempoalxochitl - Tagetes cimatl
cuitlaxochitl - Euphorbia
genera -
metl -
Give out sheets.
Show pictures

Aztec Terms Used in Plant Names

quahuitl- tree
quaquauhtzin-shrub
xihuitl-herb
xochitl-flower
qualli-fruit
tlapalli-le aves
xochiatlapalli-petals

chichic-bitter
xocotl-sour
iztac-qhite
tlil-black
matlal-blue (deep)
xoxouhqui-blue (light)
chichiltic-red

atl-water
tetla-stone
tepetl-mountain
xal-sand
tonala-summer
ecatl-wind
texcal-cliff

amole -soap source
cochia-sleep
mecatl-cord
coatl-serpent
quetzal-plume; precious
yolloyl-heart
cihuatl-woman
papalotl-butterfly
macpal-hand

iztac cihua patli

nacpalxochiquahuitl

texcalamate

yolloxochitl

matlalxochitl

patli-medicinal
quelite-edible
uitzli-spiny; humming bird
teo-sacred
tontli-little

tomatl-tomato
ocotl-pine
otzocote-sweet gum
mezquitl-mezquite
chilli-Capsicum
zacate-grass
acatl-reed
chichicastle-nettle
tule-cat tail
hule-rubber
camote-sweet potato
ayacotli-Phaseolus
amatl-fig
capulin-cherry
elote-ear of corn
cacauquahuitl-cacao
ayotli-squash
c hayote-Sechium
tzapote-sweet fruit
itzcuinpatli-Senecio canicida
tzauhtli-orchid
chictli-chicle
oceloxochitl-Tigridia

Philadelphia Botanical Club
Academy of Natural Sciences, 19th and Race Sts.

The April meeting of the Club will be held in the rooms of the Mineralogy Dept., Thursday, April 24, 1942, at 8 P.M.

Program:

Plant Life along a Mexican Highway
(from Neuvo Laredo to Mexico City)
illustrated with Kodachrome

Mrs. Ida K. Langman

R.W. Pohl, Secy., Dept. Botany, Univ. Penna.

In the interest of time economy, I have written out my introductory remarks. I hope you won't mind my reading them. First, however, I want to offer a correction. According to the notices you received, this talk should be illustrat with Kodachrome. But I have only a few Kodachrome slides among the pictures I am going to show you tonight. The reason for that is that when I was collecting along the Pan American Highway, we were using a camera for which we could not get Kodachrome. Later we did buy a smaller camera, but then we did not get back to the highway until we were on our way home, and it is only those few Kodachrom pictures which we took on our way out of Mexico that are included I am using tonight. All the rest are black and white.

Do you all have a copy of these 2 mimeographed maps? One is a detailed sketch of the highway from Laredo to Mexico City, and I plan to use it as a kind of outline for the major part of my talk. (I suppose my teaching habits got the best of me, and I prepared enough copies for my class.) The other, the map of Mexico, is the one I would like you to refer to now, while I trace very briefly the various routes we followed and the various parts of the country which we visited on our 2 trips to Mexico.

Our first visit was in the summer of 1939 and it was the usual tourists' trip. We entered at Laredo and went right to Mexico City, stopping overnight at Monterrey and Valles. During the five weeks we were in the country, we used Mexico City as our base.

Among the places we visited, were Taxco and Apapulco to the south; Puebla, Tehuacan and Oaxaca to the southeast; Orizaba, Cordoba and Fortin in the tropics to the east and in the west-Toluca, Morelia, Patzcuaro, Uruapan and Guadalajara to

When I made arrangements in 1940, to spend my sabbatical leave in Mexico. I at first had hopes that we, (my husband and I) might be able to visit most of the other regions of Mexico that we had not seen on our first trip: Chihuahua, Lower California, the West Coast and even the more primitive south and east-Chiapas, Tabasco, Yucatan. But a rise in the exchange rate and a general increase in prices made that impossible. We found we had to be satisfied to visit mainly places that could be reached by car, and to settle down in chosen localities for at least a month at a time, and explore more intensively the places we had rushed thru the year before.

Our time, therefore, was spent somewhat as follows: July and August in Mexico City, exploring the valley and nearby mountains; September and October we were in the north of Mexico-visiting Tampico, San Luis Potosi, Monterrey Saltillo, Torreon and Durango (which we reached by train from Torreon.)

November and December we spent in Guadalajara, with a train trip at Christmas time to Colima-the town that was destroyed the following April by an earthquake. January we were in Uruapan, and February back in our favorite Acapulco. In March we travelled near the east coast, visiting Jalapa, Vera Cruz and for the second time, Orizaba, Fortin and Cordoba. April was spent in Oaxaca, May in Cuernavaca and in June, 1941, we were on our way back to the States.

(2)

The country we saw was so varied in its topography and flora that it overwhelmed me. In the north and northeast there is flat, scrubby desert (chaparral, I suppose most of it it is called) in the tropics, hot, fertile land-jungle when untilled, very productive when cultivated; the entire central section is a plateau, ranging, on the average from 4000 to 8000 feet in altitude. It is quite barren and produces for the most part only cactus and maguey, in the wild state. But when cultivated, it brings forth, in the rainy season the 2 staple crops of Mexico, corn and beans.

Mexico City is in a valley in the center, on a lake which has now dried up almost completely. This lake bed is surrounded by towering mountains which rise to elevations of at least 9 and 10,000 feet on all sides

(3)

You must be prepared to cross these mountains whenever you take a trip outside Mexico City, unless you plan to remain within the valley itself, which is quite considerable in size. It measures approximately 60 miles in length from north to south and approximately 30 miles in width, from east to west. It covers more than a million acres.

On climbing the mountains around Mexico City, one ascends first into a forest zone, which begins with mixed trees and changes into stands of pure conifers. Brilliantly colored salvias, pentstemons, lupines and composites add a gay note along roadsides and in open places in the woods. On the highest peaks, like Popocatepetl, one can ascend into an area of true arctic alpine vegetation and then of course into permanent snow.

(6)

Toward V. Cruz

Dropping over the mountains on the windward side, we find a region, fog bound most of the time, but because of that, as one would expect, characterized by a most exuberant flora.

From such a wealth of material, it was most difficult to select the highlights for a talk. I decided to concentrate on the Pan American highway, from Laredo to Mexico City, partly because I know it better (Having been over it six times) and partly because it, in itself, presents an almost complete cross section of Mexico's life zones. (The only one that's missing is the Arctic Alpine region)

(7)

Now a word about my collecting. I started out to collect originally for the Academy, with duplicates fo the Department of Agriculture, so that I could ask the staff there to identify the problem specimens for me. After I was in Mexico a short time, I added 2 other agencies to my list of recipients: one the Mexican Dep't of Agriculture, because it requires that, before any plants may be sent out of the country, duplicates of all plants collected be deposited with them; the other, the University of Mexico, whose staff helped me identify many plants while I was in the country. So almost allmost all my specimens, you see, were collected in quadruplicate.

Naturally, I was very anxious to bring back an extensive collection of plants with perhaps, a new species here and there for excitement. But I did not collect as much as I might have, because so many other interests competed with botany for my time. (8)

The first was sightseeing. I must confess I am an indefatigable sightseer and Mexico offers a tremendous lot to the person who follows guidebooks: places of historic interest, buildings outstanding from an architectural point of view, remarkable archaeological sites likethe Pyramids near Mexico City and the Monte alban and Mitla ruins near Oaxaca; artistic displays like the famous Rivera and Orozco murals, etc.

Secondly, Mexico as a workshop in social change is intensely interesting, and, more than once, I took time off from my botanizing to find out what was going on in Mexico, on the educational, religious, economic, political or social scene. (9)

But the most insidious source of temptation away from botany was the native life itself. We visited the markets to see and taste at first hand Mexico's foods-especially the fruits and vegetables strange to us: mango, mamey, zapote, jicama, chirimoya, etc.-and to observe th Indians in their colorful costumes. We attended fiestas where we might see the picturesque native dancers; we we went to the homes of the natives to watch them work at their varied handicrafts like weaving, pottery making, wood carving etc.

Mr. Langman, who had agreed originally to help take pictures of the mexican plants, became so entranced by these other aspects of Mexican life that I'm afraid the botanical end of the photography suffered considerably. In short, we were on this trip again, more the tourists than the botanists At no time did we camp out; we alway returned to our hotel or boarding house for our evening (10)

meal and a comfortable bed. We took no trips on horseback or burro and all our hiking was done on wagon roads or on well travelled trails.

When all these points are taken into account, and are added to the fact that in most of the places where we lived there is no rain from October to May, and a marked decrease, therefore, in the number of plants in flower, it is not surprising that my total collection for the year was quite small (less than a 1000 different species) most of them however in quadruplicate, as I have already mentioned. (11)

But what is surprising is 1.the number of plants I brought back which we did not seem to have had in the Herbarium(and I say this with all due allowance for changes in names)and 2.that even with my limited collecting I seem to have turned up a number of plants which the experts in Washington think are new species,and even one which Dr.Hermann thinks is a new genus in the Legumes.

I do hope you will remember,however that all I did really was ~~no more than~~ scratch the surface in a few scattered localities,~~and if I am not able to answer some of your questions,I hope you will take what I have said into consideration.~~

Almost half of my collecting was done while we were riding along in our car(at anywhere from 15 to 45 miles an hour)my husband watching the road while I watched the vegetation.Whenever I saw a sudden flash of red,or yellow or blue or white,I would shout," Oscar, a plant!"Usually by the time the car had slowed down and we had picked a safe place to stop,I generally had to walk back about a quarter of a mile,and I collected of course,all the way back,along both sides of the road. Then,on returning,I collected near our stopping point and a little farther ahead.Specimens were usually put into the press before we drove on.

(17)

If there were natives near when I was collecting or if they came walking by,I always greeted them and if they seemed interested in what I was doing,I always asked them if they could tell me the name of the plant and whether it was of any use.Sometimes the only answer that I received was that the plant was a "hierba del campo"-plant of the field-the equivalent,I suppose,of saying "It's only a weed".At other times the information was quite interesting,tho not perhaps very scientific. For example,on one occasion an Indian woman brought me a Cuphea,the common aequipetala,with the statement that it was a positive cure for cancer.The common Tecoma stans was often pointed out to me as a cure for stomach xxxxxxxx disorders.In fact,it was rare to find a plant that did not have some medicinal value to the ~~Indian~~.native people.

(18)

Once when I was talking to an Indian who seemed puzzled by what I was saying,I hastened to apologize,explaining that I was just learning Spanish.He amazed me by answering that that was just what he was doing.He was an Otomie Indian,and was just being introduced to Spanish,as has been done with many Indian tribes xxxxxxxx xxxxxx in recent years,thru extension of the educational program.

These friendly contacts with the natives were among my pleasantest experiences in Mexico.The people we met were always kindly and helpful.If a plant were difficult to reach or cut,out came a knife and in a twinkling the specimen was in my hands.Often these natives,strangers to me,scattered across the fields to bring me what they thought I wanted-a big bouquet of flowers to take home with me.

(19)

The plant families that I found most common in

Mexico are the mints, especially the genus Salvia, the legumes, and of course the composites. with the Solanaceae Scrophulariaceae, Boraginaceae and Rubiaceae following along in second place. Onagraceae and Malvaceae were well represented also and there were two families that became fairly familiar with, for the first time in the field: the Acanthaceae and the Malpighiaceae.

Among the common genera outside the families just mentioned were such old friends as Commelina Tradescantia, Allium, Sisyrinchium, Ranunculus, Polygonum, Oxalis, Geranium, Verbena, Lobelia, Bidens and Senecio, and even at times the very species we have here such as Prunella vulgaris and Lobelia cardinalis. 16

Ipomoea, Cassia and Arbutus and Arctostaphylos surprised me by becoming shrubs and trees in Mexico, but what was an even greater and constant source of amazement to me (although I suppose I should have been prepared for it) was the great number of plants growing wild in Mexico which have become with us cherished pets in garden and or window sill. As examples I would name: Dahlia. cosmos, begonia zinnias, cannas, 4 o'clocks, marigolds, ageratum, lantanas, Buddleia, Peperomia, Plumbago, Calceolaria, Poinsettia, and Fuchsia etc.

Lilies were not overly common in the herbaceous forms, nor were the orchids I had expected but the family I missed most, believe it or not, was the Rose family.

~~But there are~~

17

But there were many genera common in Mexico

that I was to see there for the first time in the field: Stevia, a composite, Sphaeralcea, a mallow, Loeselia close to Gilia, Bouvardia, Cuphea, Eryngium, Ruellia, Calliandra and Caesalpinia, 2 beautiful legumes, Dodonaea, Bocconia, Wigandia, Dalea, Inodes and Tamourou xia, the most beautiful of all the scrophs, I think.

I have specimens of most of these on display. If my pronunciation seems queer at times attribute it to the fact that I am probably using the mexican pronunciati For example Cuphea aequipetala will always be to me C. aequipetala and so on.

16

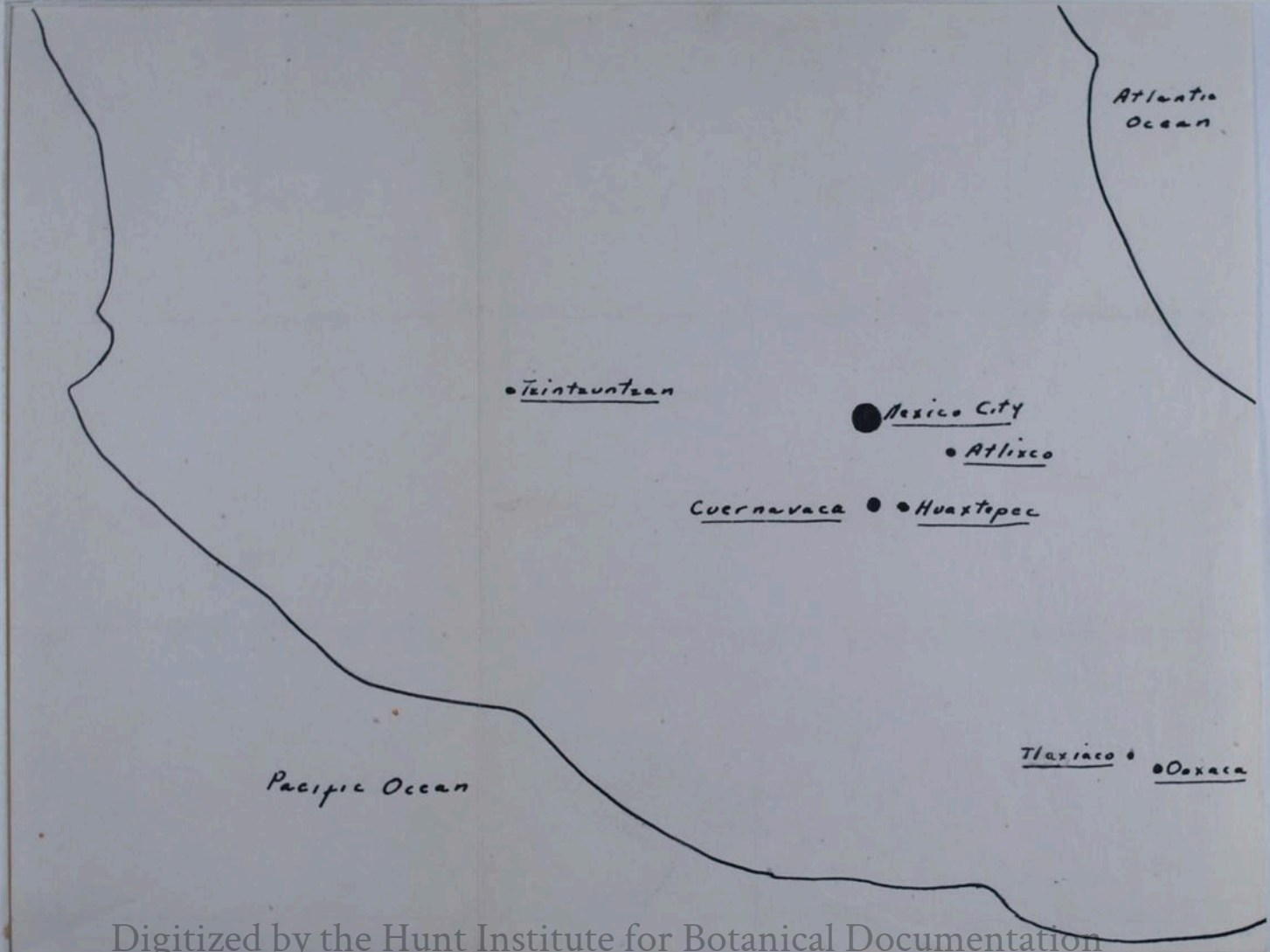
1- just s. of Laredo - first roadside in Spanish grasses, compositae, few other herbs. ✓
2- Mesquite - Prosopis juliflora not shrub - but tree - exc. food ✓
3 - Tuna - opuntia - food ✓
4 - Grato - Cordia - gracheri - anacahuite ✓
5 - Cordia - closeup
6 - Cordia - " - color ✓
7 - Cenizo - scene. ✓
8 - Cenizo - close up - cultivated in Texas ✓
9 - Agave - in flower. ✓
10 - Sabinas Hidalgo - first view of mts. ✓
11 - Encinillo - Loasaceae - lemon yellow - Cuesta de Mamulique
12 - Flowering Legume - fragrant ✓
13 - Saddle Mtn - Monterrey
14 - Horse Tail Falls -
15 - " " - Hermit
16 - Chipinque Mesa - road ✓
17 - Chipinque Mesa - house ✓
18 - Cerro de la Mitra - from Chipinque Mesa ✓ (13)

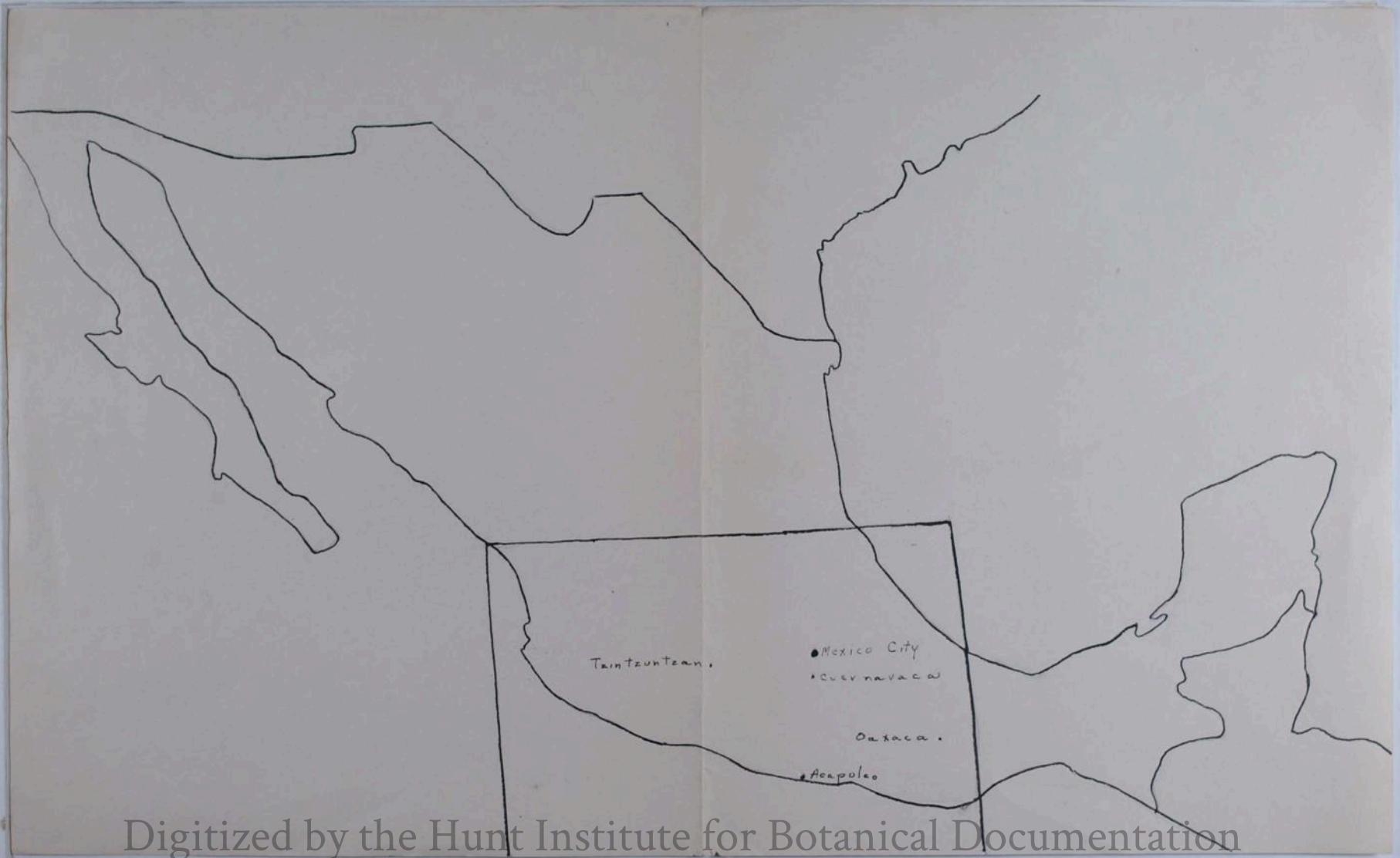
19 - Huasteca Canyon - Entrance
20 - " " - cliffs
21 - " " - "
22 - " " - climbing cliff
23 - " " - lechuguilla
24 - Garcia Caves
25 - Rd. to Saltillo - Cordia
26 - " " - Gutierrezia
27 - Gutierrezia - close up.
28 - Rd to Saltillo - mtn. pass
29 - Saltillo - view from Sr. Ballec.
30 - School - Gomez Palacio
31 - School - mts. near Mexico City
32 - Orange Grove - Montemorales
33 - Tropic of Cancer
34 - Niche
35 - Mesa de Llera
36 - Tropical Village
37 - Sugar Cane field
38 - Sugar Cane ox cart
39 - El Sombrero
40 - El Sombrero - closer
41 - Palmettos -
42 - Beaucarnea

43 - Trail to El Salto
44 - El Salto.
45 Acacias - red fruits
46 "Mala Mujer"
47 Tropical huts - Valles
48 - Papaya
49 Indian with Papaya
50 - Papaya
51 - Tarantula
52 - Bromeliad / Climb
53 - Cornfields on mtn tops - the milpa
54 - Jacal
55 Fog over Mts pentstemons
56 - Deep valley - Mtn. Section
57 - Pine + Oak
58 - Pine - mtn barren
59 - Tasquillo
60 - Yucca beyond Tasquillo
61 - Globe Cactus
62 - Organ Cactus
63 - Maguey + Barley

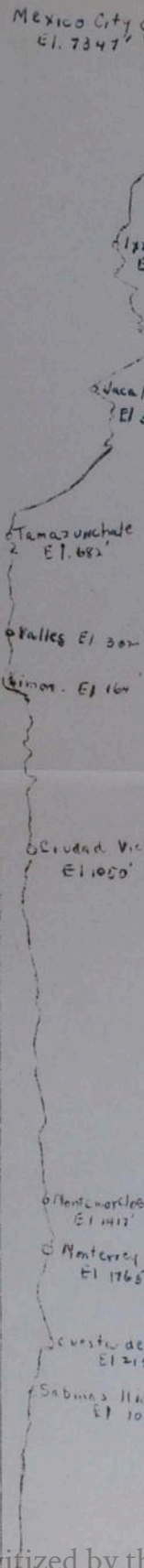
64 - Spinning Maguey.
65 - Los Frailes
66 - Poplars
67 - Lake Texcoco - distilled
68 - Oldest Road in Mexico
69 Mustard
70 - Casuarina
71 Entrance to Mexico City
72 Eucalyptus
73 - Laurel - Cuern.
74 - " - Out
~~75 Opuntia - nopal~~
76 - Pirul - berries
77 - " - Maguey field
78 - " - in " "
79 - Chapingo - palm
80 - Chapingo - laboratory
81 Cerro de la Estrella
82 - Valle de Mexico - Volcanoes
83 - " - from Cuern. Rd.
84 - [illegible]

85 - Mexican poppy
86 - Cerro de Ajusco
86A - Tripta
87 - Pedregal - Pyramid - oldest building on continent 4-10,000 yrs.
88. Pyramid - natives
89 - Tigridia -
90 - Natives watching plant pressing
91 - Ixtaccihuatl
92 Ixtaccihuatl - closer
93 - Popocatepetl
94 - Xochimilco
95 - " - sunset
96 - " cauliflower
97 - Flowers - ~~railroad cars~~ market
98 - " - railroad cars
99-100 - Chapala - Boat + Fisherman
101 - Colima
102-103 - Acapulco
104 - Conzatti
105 - Valley of Orizaba





Highway - Mexico City to Nuevo Laredo



I-Mexico City to Rio Tasquillo-Plateau

K.25-Lake Texcoco	Cultivated fields of corn
K.90-Pachuca	and maguey in the Valley of
K.110-Los Frailes	Mexico, changing to barren,
K159-Ixmiquilpan	cactus dotted slopes as we
K.181-Tasquillo	near the edge of the plateau

Characteristic plants-Yucca, Agave, Cactus (organ, cholla, globe, opuntia)

II-Rio Tasquillo to Tamazunchale-High Mountains

K.181-Tasquillo	Cactus desert in the begin-
K.206-Zimapan	ning changes to pine forest,
K.274-Jacala	then forest of pine and oak,
K.368-Tamazunchale	and finally dense, broad leaved rain forest.

Characteristic plants-Salvias, Composites, Pentstemons in the mountains; bromeliads, lianas and orchids in the tropical forests

III-Tamazunchale to Monterrey-Tropical Lowlands

K.368-Tamazunchale	Dense forests give
K.474-Valles	way to palmetto, then
K.543-Antiguo Morelos	spiny trees and shrubs
(road to S.Luis Potosi)	ending with low scrub
K.572-El Mante-sugar	at Monterrey. Numerous
(road to Tampico)	flowering herbs along
K.650-Mesa de Llera	the roadside.
K.669-Tropic of Cancer	
K.678-Ciudad Victoria	
K.863-Linares	Unusual Plants or
K.914-Montemorelos	Conspicuous Ones
oranges	Acacia, Beaucarnea
K.994-Monterrey	Morning Glories

IV-Side Trips from Monterrey

To Saltillo-Creosote Bush, Cordia-desert
Brilliant mints, composites, mallows in the mountains

To Torreon from Saltillo-very arid, but interesting for the results achieved by irrigation and "ejido" system near Torreon.

V-Monterrey and Its Environs

Cerro de la Silla, Cerro de la Mitre, Horsetail Falls, Chipinque Mesa, Huasteca Canyon

Interesting for the change from the desert valley to the temperate oak and pine forests in the mountains. Many bright colored herbs in the rainy season.

VI-Monterrey to Nuevo Laredo-Desert

K.994-Monterrey	
K.1060-3d Customs Station	
K.1098-Sabinas Hidalgo	
K.1202-2d Customs Station	
K.1227-Nuevo Laredo	

Chaparral-cactus, spiny shrubs-especially many legumes. In the rainy season, composites, lantanas, mallows, solanums.

Conspicuous plants
Cordia, Leucophyllum, Yucca, Mesquite