



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.

1922
Jan. 3. 4' light snow
preceded by 3' rain.
So far winter has been very
mild & warm 3° above normal.
No frost in the ground. Very
little snow or rain & wind.

Jan. 17, 1922, Su. and 2 p.m.
Fog 4' light snow. Had
melted 4' of heavy snow a
week earlier. Weather very
cold for last 5 days. Down
to 10° above zero. 0 at
10° at night most of the time.
Pipes freeze leading to house.
Cold 9 days today will
be cold at night of all
tonight.

Jan. 20, 1922 Thermometer
at 8 am. -10°, night
before about -5°. Cold &
still, 4' snow on ground.

Snowed 4' light Jan 20.

Feb. 2. 6'

Weather milder but pipes
still frozen.

P. M. 4. 5' light snow. Still cold.

Feb. 9. Tured warm on
th 8th & 1.5° snow ^{had} ~~had~~
almost all melted now.
Windy, s. w. & apron out
of tent about 100 yds out.

Feb. 10. 2' snow last
night & a little rain.
Mostly gone today. Still
still clogged with water.
Windy, s. w.

Feb. 12. 6' wet snow last
night. ^{and yesterday} Warm still & clear
today.

Feb. 21. snow 1' wet snow
no sun. Very hot about all gone
& ground nearly thawed. Warm

Feb. 22. Dismaying last night
& began early this morning. I
saw all ^{before} ~~about~~ 4' deep.
Pipes still frozen.

Feb. 26. 6' wet snow in
am. Frost nearly all of
ground. Roads very muddy.
Ants skid badly.

Feb. 27. Traffic used
very much last night
& this forenoon n.e.
Blew all day. not cold.

March 2 1922
Blew hard with 28th.
Temp. went down to 10° at
night also on the 1st of Mch.
Warm up this p.m.
Box elms tree bleeding again.
Has just begun to thaw.
Spent again frozen 3' down.
Felt as cold in the house
as any time this winter & ice
found as much in house.

March 5. 4' light snow
last night. Cold.

March 6. 1/2' light snow last
night. not cold.

March 11. 7' snow last
night from n.w. Frost nearly
out of ground. 60's weather
until to Sat.

March 13. Yesterday warm &
clear & melted some in p.m.
Today clear & cloudy, dry
spells. First real warm
day & snow going fast, some
mud but frost not out of
ground yet. No birds started
yet. Sap running free from
hemlock trees.

March 16 1922. Snow all gone except in shaded & cliffy places. Frost not yet all out of ground. Did not freeze last night (first time), quite warm & cloudy today. March 17th Day on Douglas St. Sap of Magnolias not flowing now, but buds not started yet. Soft maples not in bloom either or apparently started. A little wind today.

March 19 1922
Continued warm weather.
Lilac buds swelled $\frac{1}{2}$ in.
Larunculus larunculus
seem swelled a little.
Gloss on beech spats is 2' long, but otherwise not visibly green.

March 21. Still warm.
Evident signs of spring.
but rose buds not started
nor fruit. Herbs starting
up a very little. Frost about
out of ground. Mud drying
up. Snow all gone since the
19th. Hedges, quads & lake
beginning yesterday.
Spawners making nests.

March 22 1922
Soft maples in full
bloom on 13th & 14th. Quite
warm & veg. starting, fast.
Roads nearly dry. Bottom-
wood buds swelling.
Still freezes a little at
night.

March 24 1922
Rained last night & stayed
Drops in am $\frac{1}{2}$ inch. Herb
cleared up some by 9:30 am.
Lettye, that I saw last
winter in cold frame came
up yesterday.
Saw hole in this am.
Heard another meadow lark
yesterday, clearing. Barnyard
did not indicate storm.

March 26 1922
Lilac buds well 2-3 in.
Hiccup, sibacius stem 2' l.
first leaves showing.
Fog 3-4' long. Frost last
2 days. Fog in the 24th at
night.

March 27 1922

Snowed & cloudy last night
snow & leaf & saturated. Not
cold.

March 29 tailed $\frac{1}{2}$ leaf

March 31. Rained & spit
snow by turns in p.m. - but
not cold. Lilac buds $\frac{1}{2}$
long. Young raspberries leaves
showing at base. Fruit buds
not appreciably swollen.
Grass getting green.

Populus not yet in bloom.
Muddy. Got first night
yesterday. Crocuses in
bloom. Violets in bloom.

April 4, 1922. Broom
crabapple & cloudy, bald
daisy today.

Paeonia & lilac buds with
first really opening cent.

Rose buds starting.

Cherry buds swelled.

Apple & pear not yet. Tulips up

4". Mature grasses green.

I visited most walk up gate

drag up hedge at back of

house. All fruit buds started.

a little at tip

April 4 1922. Things are
growing, prof in spite of the
cool & cloudy days. Spit
snow a little today & again in
even. Snow nearly to base of
mts. all streams somewhat
& swelling. Snow all gone
in valley for some time.

April 8, 1922 2" ^{heavy} snow
at noon, with cold
things growing but little.

April 9, 1922. Snowed in
am, 2" deep, light. Freeze
last night. Day cloudy &
still. (T. Delmon & Jan 7225)
Snowed in p.m. 2" more. A
blizzard of snow all over.

April 10, 1922. Freeze
broke last night. Clear today
& snow melted off to show bare
ground in p.m. but clouded up
in p.m.

April 11, 1922.
Snowed 2" day, last night
but not cold. still spitting snow.
Everything white again. My tomato
coming up in cold frame.

melons have been coming up
for 4 days, everything very
slow (no coal) Peas mostly
up in open. Abnormally cool
water. Temp. 23° Daily below
normal since Jan 1. Rainfall 1.5
+ to date. Veg. apparently at a
standstill.

April 12 1922. Freeze 1'
last night, cumulus
clouds today. Warming up.

April 15 1922. Rained all
evening yesterday & then turned
to snow. 4' dry snow on ground
this a.m. ^(Total 87.5') Weather still cool &
cloudy. Vegetation at a standstill

April 16 1922. Snowed 7'
deep last night & still snowing, no
wind. Not cold. Ground 2.5' more
in a.m. cleared off & warmer in p.m.
(Total snow to date 90')

April 17 1922. 1' light snow
last night. Warmer & clearing
today, freeze some last night.

April 18 1922. Freeze last
night, 1' snow still on

ground. Warming up today &
clearing.

April 21 1922. Warm &
sunny last 2 days. Snow
went in north slopes of plateau.
Vegetation started to grow yes-
terday. Lemn. buds much
swollen, peach buds above
white, berries at tip. Windy last
night but really clear now &
high barometer.

April 23 1922.
Cottonwoods in bloom.
Lilac buds 1' long, 2' blossoms
showing first leaves 1'
long, a few buds 2' long.
Apple buds 3' long, the upper 1' with
white tips of leaves. 1' just leaf-
less, leaves 2' long. First rose
leaves 2-3' long, pear buds 3'
long, white cherry buds 2' long,
plum buds 1' long. Peach buds
showing green tips. Garden
stuff coming up, (peas, radish,
lettuce), lawn grass 4' long.
Tulips 6' long. Stumpelias not
showing bloom yet. Weather warm
& sunny for 4 days. Things
growing fast in last 2 days.

April 28 1922. Continued warm & dry weather till this a.m. when it rained early & cleared by 8 a.m. First male *Hegnmals* fls. first cherry fls. and first *Asparagus cibarius*. Tulips 1 ch. lilac flower shoots 2-3 h. with 4-7 pairs of leaves showing. Nites & *Impatiens* buds starting. *Populus* males just gone. Grass 4-6" h. Peaches & peach not yet in bloom (chrs). Apple leaves long, pear buds ready to burst but no fls. of either yet. Alfalfa 6" d. The cherry flowers have not opened yet but the spires of bracts have.

April 30. Fruit not yet in bloom. Everything growing fast. Weather cooler. Rained yesterday.

May 2 1922. First cherry blossoms out. Been cool for 2 days. Warm today. Male *Hegnmals* nearly in full bloom. *Asparagus* began bloom for 4 days. Melon seeds did not start at all till temp. was 70°. Lettuce started at once when still cold. Tomatoes started late.

May 3 1922. 9 fl. clusters in bloom on white cherry tree, none on others. Plums ready to bloom. *Asparagus cibarius* in full bloom. Cloudy. Peas 5 high. Local.

May 4 1922. Hot in p.m. Began to warm up today. White cherry tree with 100 clusters in bloom, red one not yet in bloom. Plums began to bloom today, one peach blossom out. Apple fls. showing red among leaves. *Asparagus cibarius* in full bloom at house, no pbs yet. Peas & cumzimpe & *Agrostis longipes* in bloom, also *Vicia Nuttallii*, *Hydrophyllum* Rhin. bel., *Balsamorhiza* just beginning.

May 5 1922. A few fls. of red cherry out, white half out. Hot & windy. Mosquitoes.

May 6, 1922. Plums in full bloom. White cherry will be tomorrow. Hot & still.

May 7 1922. First apple,
pear & strawberry fls. out.
Raining. All streams at high
flood.

May 8-1922. White, heavy in full bloom.
Plum petals falling. Cold raining.
Corn & tomato, but, bean, seeds
sown last week come up in less than
a week. Much lower high temp. & still
nothing gained in sowing seeds till
temp. is 70°.

May 10-1922. Seed & smoke
last 2 days. Veg. at stone hill.
Almost frost last night. Tomato
begins in & leaf. Woods
subsiding.

June 14, 1922. Had my
first strawberry on the 10th.
Ben day for 10 days or more.
Rained terrifically last night.
Cold today. June grass
spring & about 4" as long
as last year, near me, when
I burned it off. Had pear this
week. Melons growing very
slowly, not over 2' high.

June 15, 1922. Still cold
& raining today. A complete
change in our weather & cold,
not very cloudy.

Oct 21. Hoar frost
on the ground here for the
first time but no sign of
damage to the tomatoes. There
was hoar frost below 2 weeks
ago, saw it twice. Cosmos 10"
high. Ben day for nearly a
month ^{and a half} with rather delightful.
Oct 23. Frost every night on
grass. Tips of a few tomatoes
touched last night. Still's char.
Cosmos in full bloom.

Oct 25. Watermelon vines showing
very many flowers fresh.
Mushrooms barely so. Tomatoes
hardly at all but growth stopped.
Hoar frost at night.

Oct. 28. 1922. Began to
drizzle early in a.m. & turned
to rain 2 p.m. Flowers in
full bloom. No frost here so far.
Full rain in 4 or 5 days.

Nov. 2. Snowed 4' deep.
Last night. Had to get out
this a.m. & shake snow off
the trees to prevent breaking down.
Berries mostly flat. no frost yet.
About 8:30 am. snow began to
sift down in minute flakes
 breeze starting up from n.w.

Nov. 3. snowed 2' more ^{heavy} yesterday.
froze to ice last night.
Leaves of fruit trees still on.
Ber elder leaves falling fast.
bottom wood berries on & branches
heavily broken down.

Nov. 4. 2' snow ^{heavy} last night.
Snowed much all p.m.
Had to break snow off trees.

11/13/1922. F. & blue quite
faded last night. Ice about 1'
deep. Snow gone. Aster & chrys-
anthemums still alive. Petunias
just some, all others dead.
Snowed 2' deep about the 15th.

Nov 24-1922.

Most of apple leaves still
on. 3/4 of cherry leaves fallen &
pear. All peach leaves gone.
Snapdragons & Petunias still alive.

F. & blue quite faded at night.
warm in day & berries some
last night. steady night. day.
Ideal fall weather for 2 weeks.

Nov. 29 1922. Snowed 6'
deep last night & today, w. s.

Dec. 3. Snowed 4.5' deep.
deg. considerable frost.

Dec. 8 snowed 2' deep last
night. <sup>(21st Nov
& date)</sup>

Dec. 14. Blue hard & wind 10
times to snow at night. 6'
snow in ground this a.m. was
bare before. Slightly storms have
turned warm after but cold.
Rem. foggy for 2 days. 5' snow.
Very dense snows south & north. ⁽²⁷⁾

12-15-1922. Snowed 2' last
night, light. foggy still. ⁽²⁸⁾

12-16-1922. Snowed 1.5' last
night & still morning. Small
flakes. no wind for 2 days, fog.
seems like local precipitation
from fog. Snow now on ground
2' deep. Not much below

Nov. 2. Snowed 4' deep.
Last night. Had to get out
this a.m. & shake snow off
the trees to prevent breaking down.
Leaves mostly flat. no frost yet.
About 8:30 a.m. snow began to
sift down in minute flakes
 breeze starting up from n.w.

Nov. 3. snowed 2' more ^{heavy} yesterday.
Froze to ice last night.
Leaves of fruit trees still on.
Box elder leaves falling fast.
Balderned leaves on Ilex
heavily broken down.

Nov. 4. 2' snow ^{heavy} last night.
Snowed most of p.m.
Had to brush snow off trees.

11/13/1922. Treez & blue quite
dead last night. Ice about 1'
deep. Snow gone. Ashes & dog-
anthemums still alive. Petunias
just some, all others dead.
Snowed 2' deep about the 15th.

Nov. 24. 1922.

Most of apple leaves still
on. 3/4 of cherry leaves fallen &
pear. All peach leaves gone.
Snapdragons & Petunias still alive.

Treez quite bare at night.
warm in day & harden since
last night. pretty nearly dry.
Ideal fall weather for 2 weeks.

Nov. 29. 1922. Snowed 6'
deep last night & today, cont.

Dec. 3. Snowed 4.5' deep,
considerable wind.

Dec. 8. snowed 2' deep last
night. (21 Nov
& 20 Dec.)

Dec. 14. Blue hard & wind. 10
turned to snow at night, 6'
snow in ground this a.m. was
bare before. Slightly stormy have
turned warm after but cold.
Bem foggy for 2 days & now.
Very much snow on north.

12-15-1922. Snowed 2' deep
night, light. Foggy still. (28)

12-16-1922. Snowed 1.5' last
night & still snowing. Small
flakes. no wind for 2 day, fog.
Seems like local precipitation
from fog. Snow now on ground
2' deep. Not much below

freezing, Below zero in Pecos
tells & farther.

12-26-1922. Snowed 45'
yesterday, about 8' on ground.
Not cold. (48.5)

12-30-1922. Snowed yesterday
2' high. Today 1' high. (38.5)

1-1-1923. 5' snow last night
& 2' today. Sky blue. (42.5)

1-12-1923. Very warm & sunny
no wind for 3 days & spring
like. Frost all out of ground
& snow all gone. Roads much
improved.

1-13-1923. 2' snow. (38.5)

Nightly cold, very little snow
on ground. Warm during days.
Skies blue all the time now.

1-21-1923. Grass has started a little
buds have not. Weather still warm.
freezes hard at night. Ground has
been warm about a week. Has been
warm for 3 weeks.

1-25-1923. Snowed last night
following a heavy 2' deep
& snow 3' more today to 4.80.
No in & still snowing. (43.5)

(45.4)
1-27-1923. Snowed 2' last night
cleared off today but cold last
night. (47.5)

Jan 29, 1923. Snowed 2'
last night. Became cold &
still. (49.5)

1-30-1923. Snowed 2' last
night & today. Cold &
very cloudy & squally.
Spit snow all day. Roads
very slick did not thaw.

1-31-1923. Spit snow all day.
1'. Cold, did not thaw. (50.5)

2-1-1923. Snowed 1' last
night, cloudy & cold. Still. (51.5)

2-2-1923. Snowed 1' last night.
Light. Cold than before
yesterday & sun shone, much
smoke & still, but clearing. (52.5)

2-4-1923. Temp. close to zero
last night & night before.
Still & clear. High bar.
earthquake yesterday.

Feb. 9. Pipes froze today about
2pm. Heavy cold wind all
day. The first we have had. A
blizzard.

Feb. 10. 1923. 3' light snow
last night. Still but not
warming up much.

Feb. 11. 1923. Warmest up to then &
snow today.

Feb. 12. Spits snow & blew today.
Heavy S.E. Thawed a little in streets.
Blizzardy. Clear.

Feb. 13. 1923. Thawed very much
yesterday. Cold & still last night.
Will be warm today. Sparrows
seem to be getting ready to mate.
Soft maple buds appear to have
started to swell. Snow still 5' on
ground. Clear.

Feb. 17. 1923. Strong fog
last 2 days. High barometer
cold.

Feb. 19. 1923. Heavy fog
last night. Barometer still high.
Warmer today.

Feb. 20. 1923. Very foggy
in a.m. Snow going
pretty fast today.

Feb. 21. 1923. Warm &
spring. Bare spots showing.
Snow going fast. First
spring day since Jan.
Robins & juncos out.

Feb. 22. 1923. P.M. Snow only in patches.
No birds visibly swelled not
even maples. No. Arctog. cat
appearing showing yellow.
Meads of grass straightening
up. & clover leaves getting out
we & on pebbles. Real spring
day. Roads getting muddy.
Water on street for 24 hours
no flow yet. Much green
vegetation close to ground
from the early Jan. warm
weather. Very few cult. plants
billed near ground.

2-23-1923. Warm & spring-like
Snow gone except in. v. s. where
it is P. d. s. Saw first shoots
of lilies emerging, & on Arctog.
cibarius, & some phlox leaves
but not all out yet.

Feb. 24, 1923. Tulip
shoots just appearing through
in several places. Pacing
birds moving. Lilacs not
started. Elymus canadensis.
shoots 2-3' long. Populus
birds not visibly swollen.
Still warm & snow going.
Barometer really normal. Snow
falling from high, snow off
still.

Feb. 24, 1923. (54.75)

Light snow to last night.
Cloudy. P.M. 2' wet snow
fell today. (57.75) Still cloudy

Feb. 25, 1923. Clear & windy
from N.E. & E. clear, but with snow.
Snow about gone at night.
Mts. very clear. Bar. going up.

Feb. 27, 1923. Clear & cold
in am. High, wind from ^{N.W.} in
am. Thunder some.

Feb. 28, 1923. Clear & raining up.
Was quite warm. No birds started
yet. Grass starting. Snowy & still.
Ground bare except drift in m.
Nepes & shaded places.

March 1, 1923. Clear & warm. Still
barometer really normal. 38 tulip
shoots showing. Maple buds
started & male Populus swelling.
Lilacs not yet.

March 2, 1923. Hardly froze
at all last night. All day.
Started yesterday. Warm & wind
today, clouding up & barometer
falling. Roads started to de-ice.
Most fruit out of ground &
cows getting more. Light frost at
night. Not nearly as cold as before.

March 3, 1923. Started to spit
snow last night about midnight
& now on the ground & blowing
and drifting & cold. Barometer
a little lower still. Second snow
by night. Warmer. (42.75)

March 4, 1923. Bright, clear
& still. Froze hard last night.

March 5, 1923. Bright, some
cloudy, ~~thawed~~ a little, very
cold last night. Still.

March 6, 1923. Cloudy &
spitting snow. melting some. Still.

March 7, 1923. Warmest day

of year so far. Last snow mostly
gone, all day. Still a few
white fleecings. Last freeze
killed much veg. that had last
over winter under the snow. Many
maple seedlings started
T. up at 3 p.m. (dark) 56°.

March 8, 1923. Very cloudy
& did not thaw much. But did
not freeze last night. Lilac buds
some green about the with of a
hair with of a hair. Some
show some green spots. Ground
almost thawed out. Epidemic of
9. 49°.

March 9, 1923. Cloudy &
cool but thawing. Ozark
buds up. Still a few white
fleecings. Lilac buds with of a hair.

March 10, 1923. Clear & still.
Roads very bad. Warm &
spring-like.

March 11, 1923. Had a snow.
Breeze last night with 2 in.
blow off warm early but
still windy. Snow very early.

March 12, 1923. Warm &
still. Clouding up. Freeze
last night some. Have
seen a few seedlings for
week. Roads drying up.
Lilac buds at tip spread
1 in. Wild onions one the
first to show above ground
& now are 4 in high.

March 13, 1923. Cloudy,
snowed & last night. Still

March 14, 1923.

Started to rain last night. 60°
& found snow, 3 in. ground
by am. & still raining. Wind
clearing & windy by noon.
Total snow today 3 in. (68.7°)

Thawed some in p.m. & cleared
out still mostly from s.w.

Two robins are around
getting ready for nesting.
Warm up & thawed in p.m.

March 15, 1923. Cold, still, clear
Thawed in p.m.

March 16, 1923. Cloudy but
very still up. Melting a little.
Still snow going.
My first geranium with
blossoms today. The first

in 3 mos.

March 17 1923. Cold
9 hours, then a little snow
1/2". Very windy (N. W.) all day.

March 18 1923. Clear & warm.
72 tulips up. Mildly.

March 19 1923. Cloudy
& warm. Bar. high.

March 20 1923. Snowed &
firmed all day, snow did not
lie on the ground. A little N.W.
wind bar. low. Neither maple
buds nor cottonwoods swelled
appreciably. Petioles, etc.
just starting. Water pipes still
frozen. All veg. at standstill.

March 21 1923. Snowed 2 hours
mid. of a heavy storm N.W. Clear
today. Cool.

March 22. Snow 1" today
cleared off & warm in p.m.
& merris gone.

March 24. Warm & sunny
& still. mud drying up. 125°
tulips up, grass growing.
F. froze a little last night.

First real spring day.

March 25 1923.
Water came on today.
at 11 a.m. Warm & sunny.
Petioles, etc. stems 1-2" long.
Blackbirds in. Swelled. Things
starting now. Snow in north
shaded areas nearly gone.

March 26 1923. Still warm
Every thing starting. Made
hot bath this a.m. Snow in
shadows about gone.

March 28 1923. Still
warm & sunny, blue last
night. Soft maples out.
Cottonwoods not swelled
much. Violets out. Snow
gone.

March 31 1923. Continued
warm weather, all veg.
coming on fast. Lilacs bud
opening, some buds 1/2" long.
Weeping full bloom. Populus
much swelled. Set out several
indica tulip bulbs.

April 1 1923. Showery &
windy today, 60° & 65°.
Every thing growing very fast.

April 4 1923. Night before
last it rained hard & to next morn
mixed with snow. Cold but
did not freeze. All veg. growing
very fast. Lilacs green. All buds
started a little. Lilac buds is
long & opening. Even peach buds
starting, apples about the same.
Tulips 6" high. Iris, hot bed
& planted it on this m. 2 ind.

April 6 1923. Spent snow,
& cloudy. Cottonwoods per-
coming into bloom.

April 6 1923. Rained all p.m.
& turned to snow. Cold Rain

April 12 1923. Been warm
with rain day before yesterday
Hot today. Cottonwoods in
full bloom in places. Lilac
leaves about 1' long. But
tree showing tips of buds
white. Grass ready to cut
& got a load of hay when warm
today. Rose & raspberry bush
leaves 1' long. Tulips 6" high

April 14 1923. Cold last
night but did not freeze.

Will be cold tonight.
Ceanothus ferganensis is out
& has been for several days.
Cottonwood all over city
in full bloom. Terminal
leaves of apples nearly 1' long
in the big house, yellow buds
open. Peach buds showing
white. Plum buds started, pear
getting large & white, cherries
showing somewhat. Plores
showing not yet in bloom.
Kilag. ~~some~~ a pair of long.
Regnolds ends mostly open &
leaves showing red.

4-17-1923. Ceanothus ferganensis
malacanthus falling.
Bombardier plant in bloom.
Regnolds just in bloom.
Hot yesterday. Things growing
very fast. Roads dry.
Rained some.

4-18-1923. Kilag. Citrinus
growing into flower. Lilac shoots
1' long showing fl. clusters. Red
arise in bloom. Buds coming up
in hot bed. Good. Roads dry.

4-21-1923. Spent snow in a.m.
Rained hard last night.

4-22-1923. Snow 1' deep
& still snowing, no wind.
Saw very fine & small. hitting
down. Total fall 2' by 9 a.m.
Snow on ground all day
but did not freeze.

4-23-1923. Spent over this a.m.
Clearing. Cool. Roads muddy.

4-24-1923. Heavy frost.

4-29-1923. ^{thaw} Cherry & Peach
just coming into bloom ^{with 2%.}
Plums & red cherries wither
tomorrow. Cool & rainy
yellow tulips in bloom. Peas
coming up.

4-30-1923. Snowed today
& rained much last night

May 28, 1923. First ripe
strawberries. Beans cold
& doing so far. Beans
in fruit & only 6" high.
Polea. Stems a little past
full bloom. Peas, cut
in fruit. Beans not yet.

June 1-1923. Cold & raining
still. Hail & ice
today & drizzled last

night. Set out all my
beans but the potatoes.

Clairmont 1920

Left 2 1/2 a.m. It sprinkled
a little & ground was wet
in a.m. First rain in 3
mos.

How we arrived not far from
the measure must record. One day of any
value to anyone? Some of the people
were given, broken, people, broken, & broken
day value, Mrs. Chalmers. Will you find out
by phone whether they must allow?

Howard. Is this of any
use?

Climate Record ¹⁹²¹⁻

11986 Douglas, Ar.
Salt Lake City.

4.1.1921. Peach tree in front
of house just in bloom. Grass
3 high, Lilac leaves 1.5' long.

Warm.

4.2. Still warm & clearing.
Second peach tree just blooming.
Tree seems killed on both trees.

4.4. Turned cold & cloudy.
Second cherry tree just in
bloom (first fls.).

4.5. I rained all night
& all day. Ice on ground
Broke down some trees, did
not hurt fruit yet.

4.10.1921

Continued snow & cold till
the 9th. Killed about all the
fruit. Warmer today & a little
yesterday but very windy till
10 a.m. today.
Snow to base of Mts. today.

Dec. 20, 1921.

The year's date is about
3° a day warmer than normal
& nearly 5' shorter in rainfall.

There was an excessive amount
of snow in the mt. falling early
& the water supply was extra
good & summer ^{snow} ~~snow~~ ^{proving}
so that the water vegetation
was the best in 40 years. The
summer was not extra hot as
dry. Veg. did not die up
till a month later than usual.

Frost held off till October
& at my house till November
when it was light. Flowers still in
bloom Dec. 1st.

Nov. 17 4' snow, wet, Dec. 18
2" wet snow.

Dec. 2 Hailed all night & had
white frost. 5' dry ground felt
thru night the 3rd 5' more
snow.

Dec. 20 began to snow last
night half again as much. at 3 pm
1' on ground. Still more dry
till today. Very little snow in
the mt. yet.

Dec. 20 2' wet snow last
night. Thawing & raining.

Got to Sant Jose del Cabo Sept. 14. Vegetation very dry and only lowland stuff any good. Rambled out to the river and got some stuff. On the 15th. we went to the beach through the fields and got much material. *Bambos vulgaris* is very common. There is one big clump of *B. aculeata*. Saw one big tree of *Attalea Cohun* near the beach, a fine tree with smooth and white bark. Dates are all yellow now. Grapes are full size but green. Bananas green. Pomegranates ripening. *Washingtonia Sonorae* fruits more common than with us, and ripe now or nearly so. There are no *Erytheas* here. Coconuts frequent. Sugar cane not ripe yet. Got a *Potamogeton* like *Zannichellia* in habit in fresh water pond at beach, also a *Chara*. There is a plant like *Veronica* here that is prostrate and rooting and creeping, in the water it is erect when submerged. *Jouvea* is dioecious, and with very pungent leaves that stock won't eat, it grows on mounds at the storm line. The flame tree of Los Mochis grows here and has fiery-red flowers in big clusters. There is a *petaiya* (*Thurberi* here. No cardon (*C. Pringlei*) so far. The white fig is cultivated here, and so is the grape and guava. There is a beautiful shrub here that ends in a vine. Flowers blue-purple and large, Apocynaceous. Cultivated fields are lousy with annual *Euphorbias*. There is a fleshy-rooted *Abronia* on the sand dunes, with purple flowers, and is prostrate. There is a *Calliandra*-like tree, a large one cultivated for shade. There is a large fig tree like *Palme Palmeri*, with shining and elliptical leaves, and buttressed trunk and snake-like roots. It is 50 feet high and erect, looks as if it might grow on rocks. There are many mango trees. There are many cottonwood trees on bottoms and *Salix Bonplandiana*, and *Baccharis viminea*. *Philibertia* covers bushes to 20 feet high. The flowers of *Cereus gummosus*, the *petaiya*, are white, open in sunlight, 5 inches long by 3 to 4 inches wide, purplish on the outside, with tube 4 to 5 inches long. Fruit is globose and 1 to 3 inches wide, sparsely spinose, and full of (venous) blood-red pulp and small seeds, very juicy. It blossoms sporadically now. *Cereus Pringlei*, the cardon is scarce, but *C. Thurberi* is common but not quite so much so as the *petaiya*. *Echinocactus* *Waltoneri* is frequent and with spines flat, cross-ringed and normally hooked. Lateral ones thread-like and many, no wool. There is a little *amillaria* here which grows in small clumps, apparently the same species that occurs all over. Also there is the big-leaved one (probably an *Echinocactus*) that I first found in large clumps at La Paz. There is an *puntia* (a *cylindropuntia*) with abortive purple flowers which for want of a better name I call *O. abortiva*. It belongs to the proliferous group with proliferous fruit and is in flower and fruit now. There is another which looks like *Cereus* *Emoryi* but is a *cylindropuntia* with sheathed spines and smaller joints yellow. There is a flat *puntia* with yellow joints. There is a shrub, 6-8 feet high, openly branched, with fruit like *Tetracoccus*. *Acacia guthriei* has a tapering tail, is blotted with gray all over, no yellow ring, carries its tail straight and is swift. I saw one with flat sides. Saw a jackrabbit. Temperature at midday is 90 degrees plus, humidity 80%. Things dry slowly. I hear a California quail calling. Buzzards are common. I saw few other birds I got two snails, like those I found two years ago under rocks but they were on the shady side of a bush 2 feet up in the air, resting period.

Todos Santos. I remained at Cabo four days, then hired an auto and came here 65 miles. Road fair but bumpy in spots, much up and down and curves on it. There is more cardon as you go north, also *C. Thurberi*. *Yucca valida* is more common, and up to 10 feet high, just coming into bloom. Panicles sessile, ovate, mostly 1.5 feet long, though rarely 3 feet long. Flowers white, pear-shaped in bud, rotate in flower with tips incurved, petals oval-oblong, obtuse, flowers drooping, panicles erect, very many-flowered, flowers about an inch long, same shape as in *Treculiana* but not over half as large, seem uniform. Leaves very pungent, rough on the edges (minutely serrate) no threads., thin, 1/8 to 1/16 inch thick, rather flabby, quite concave and erect, blue, contracted below ~~the insertion~~ above the insertion, taper-pointed, with dark spine tips. The mango is ovate and with an oblique, terminating smooth and shining and about 4 inches long, with yellow and very juicy fruit and not as stringy as the species growing in Mexico City. The avocado here is the gourd-shaped fruit I took for a persimmon, it is balloon-shaped and shining and 4 inches long and nearly as wide at tip, and hangs from a long peduncle. The mango hangs in small bunches from the ends of twigs and is green. The guava is plum-shaped and about 1.5 inches long and does not droop. The avocado does not look like ours, and is not warty like ours. When ripe it is soft and easily eaten with a spoon, and not so utterly worthless as ours. I never could see any sense in eating our avocados.

My objective at Todos Santos was to ascend the very difficult Laguna mountains. I had to have a reliable Mexican with two mules as pack animals

and two riding animals. Being a stranger in the region required getting assistance in selecting an outfit. It so happened that I had a friend mining at

Pescadero, the first town south of Todos Santos, but the mine was 5 miles out in the hills. So I hired an auto to take me out there. I found my friend and he offered to let me have his wood foreman who was bringing in wood from the hills, and who had suitable animals. I left all particulars to him. So the next day his man came in and said he would take me to the Laguna for 10 pesos a day, I to furnish feed and grub. I will leave the details of this trip to be given in a personal letter to a friend, written on the way home.

Here comes letter to Midge.
We left on the 20th. Humidity had been saturation for two days. Reached to Coda ranch 20 miles toward the mountains at 1500 feet alt in 4 hours. Humidity 55%. Excessively hot and dry, was nearly finished by the heat. Had to get off and walk five times on the way, and had to lie down in the shade 3 times to endure the temperature, but got there at 1 P.M. Water was very short at the ranch. After an hour's rest we rode on to the Porrego ranch at 1700 ft. alt. and 42% humidity. The ranch is a few hundred yards up a side canon near a water seep in a box canon. We camped here. At the seep is a sterile grapevine (Arizonica), Adiantum, Notholaena, and much Selaginella lepidophylla. I got a few interesting things here. The ranch consisted of two shelters which we may euphemously call houses, consisting of a roof held up by four posts and covered with a thatch of palm leaves, and walled in by wattles of willow. Their beds were made of poles laid parallel and raised on crotches driven in the ground. Their tables were similar to the beds. Their cooking outfit consisted of a similar contraption covered with dirt on which they cooked on an open fire. The floor was of dirt, and chickens, pigs, goats and dogs shared it with the people. In front of the houses was the corral where they had ten calves which they released morning and night to suckle the cows as they came in from the hills. The women did the milking, and tied the knees of the cows to the tails while they milked. They gave us supper and breakfast of tortillas, milk and meat. There were no palms growing here. There were a few live oaks at the Coda ranch and on the way here but none here. The mountain sides are covered with palo blanco and like shrubs and trees. Also there was much Tecoma stans. It was not so hot in the p.m. and the brush was a little taller than below and more of it. Saw one Cereus Pringlei with asciation on the top. Saw a very few fruits of Cereus Thaurberi which are like Pringlei but smaller and rarely flowers. The flowers are like C. Pringlei but narrower and a little shorter. Apparently flowers are on the mountaining the humidity was 80%. Barometer reading the same as yesterday. The leguminous shrub or small tree here has a spray like and rather flat top. Tecoma stans is common and in flower and fruit. There are some big and dark green leguminous trees with wide pods flat and 6 inches long. Most of the brush has very light-colored and blotched and smooth bark darker and brownish below, very few have rough bark even on big trees. The big cardon and Thaurberi still occur but scarcer, possibly also the petaiya also. The big candelabrum like shrub with a big flowers came in at the Coda ranch and is still here. It is Apocynaceae. They have cottswold sheep and Angora goats and 20 long-horn cows with small bags and 18 calves. The sheep are long-tailed. The pigs are red. The white banded pigeon is here, also the gray breasted jay with long tail and blue all over but breast. There are few birds.

The next morning, the 21st, we followed up the river bed some 6 miles to the Pelota ranch. Here we engaged two young men to go along and show us the trail and cut out the brush so that our mules could follow the trail without tearing off their packs. We stopped for noon at the first live oak tree at 3800 feet alt, and unsaddled and the men went down in the gulch for water at the only water hole on the trail. Humidity 38%. Ocean breeze. Here a few herbs came in. At 4:30 we reached the Laguna after passing a beautiful one a mile back. As we neared the top of the range the live oaks covered the region and the weeds became quite tall 2 to 3 feet high. The elevation of the top was 7800 feet, while the highest point some miles farther north must have been at least 8500 feet. The reputed height of the range was 6500 feet, but it is much higher by actual measurement with my Tycho barometer, which has proved remarkably accurate so far. As we dropped down off the ridge through the timber the trail was obliterated by the high weeds, but we made a new one. The exertion of climbing the mountain about finished the whole outfit. Our mules were about all in, and we were only a little better. But there was no place to stop on the way for there was no water. When we got to the Chic Laguna, the first little meadow, I wanted to camp there because of the condition of the outfit, but the men said "No, let us go on to the real Laguna. So on we dragged ourselves through the timber. After another mile or two we came out on to a beautiful plain hemmed in by the mountain rim, and to an apple tree full of ripe fruit. Here the men dismounted, and threw off the saddles under the tree. It was an ideal place to camp. High enough to see all over the plain, and not 50 yards from a pretty stream. The men were soon in the tree munching the apples, but the fruit was hard and small. I inquired why the tree was here. The reply was that long ago there was a ranch here, till the gatos grandes (panthers) drove them out. It was beautiful to see how the mules spread out on the plain greedily eating the grass. AG

We were soon greedily eating our own³ supper. But I was too fagged to do much botanizing that night, however tempting it was to see the great masses of Sphacele, acres of them in full bloom before us.

The name "Laguna," a pond, was given to the valley because there is a little pond down near the southern end. It is really a gently sloping mesa, 3 miles long by half a mile wide lying between the split rim of the mountain. The soil is a coarse granite gravel, and covered with the same kind of vegetation as of our western plains, in appearance, but really there are very few of the same species such as *Bouteloua oligostachya*, and *Aristida*, but the general appearance is the same. The grasses are bunch grasses. The margins of the plain are clad with live oaks and *Pinus cembroides*, which also go to the top of the mountains. The camp under the apple tree was 6000 feet alt., 1800 feet below where our trail came over, and apparently 2500 feet below the actual highest point of the range, a few miles farther to the north. On our arrival we saw no stock of any kind, but soon a burro came braying toward us, and later on we saw a band of horses and a few head of cattle.

I turned in early, while the men stood around the camp fire chatting till late. The night was very cold for us accustomed to the Tropical heat below. The men were up before dawn getting thawed out again around the fire. Then they borrowed my little 22 rifle and went out after deer. Soon one of them came running back and wanted more cartridges, saying the other man had shot a deer through the heart, but it had got away. So my moso hurried off with him. But in the middle of the forenoon all were back without any game. I did not comment on the stupidity of trying to kill a deer with a 22 by shooting him through the side. If he had shot at his head he might have got results. Mexicans are poor shots, and the bigger the mark the better they like it.

As soon as I could get my breakfast I was out on the plain gathering the flora. There is much *Erigeron Canadensis*, some *Lepidium medium*, *Verbena hastata*, *Gnaphalium Scouleri*? In the woods adjoining there is a *Madrona* may be *Arizonica*. On the plain is *Carex filifolia*? *Cosmos*, *Cyperus inflexus* Tuna. Among the trees is a *Nolina* ten feet high, glaucous-green, leaves 3 feet long, 1/2 inch wide and sharp but spine-tipped. There are a few small *Erythe Brandegei* but not in flower or fruit. *Pinus cembroides* is common and with the pinon cone but leaves very different. It is a taller tree and more symmetrical. Humidity 60%. *Sphacele* occurs in great patches, many square rods in extent. It is literally alive with humming birds.

I took a walk down to the southern end of the treeless plain, nearly 3 miles. It is very beautiful and has some running water and a little pond full of weeds, and seems to end against a granite cliff, under which it seems to seep. Got a great mass of specimens. In one place I found a tree with a grape vine (*Arizonica*?) having clusters of ripe blue grapes. Near by was a patch of wild potatoes. *Solanum* *Andleri* among the rocks. A band of men with horses came in from the north in the afternoon, and my moso seemed to think them to be horse thieves.

On the next day I completed botanizing, combing the area for everything in bloom or fruit. Humidity about 40%. Big cumulus clouds in the eastern sky and it soon rained a good old fashioned thunder storm, with heavy rain and many sharp cracks of thunder and flashes of lightning. Very hot and dry before the rain. The soil is a coarse granite and very porous. There is much *Bouteloua oligostachya* here in small tufts, also some *Hubbardsia*, two species, and a peculiar grass like *Aspalum* with filiform stems from a little tuft of short leaves about an inch wide. I got 2 orchids, one with peltate leaves single from a tuberous root, growing in damp and shady places. Ferns were common in the forest, *Adiantum Capillus-veneris*, *Pellaea*, *Echeopteris*, *Cystopteris*, *Asplenium trichomanes*, also a big *Aspidium*. *Lobelia*, slender, small and erect, also a *Valeriana* annual, erect and weak. There is a peltate leaved umbelliferous plant, common below, also two small lupines, *Astragalus ervoides* not yet in bloom but common, prostrate. 2 *Lesmodiums*, a *Mimosa* species, the *Arbutus* (*Madrona*). *Salix bonplandiana* is rare. Only the black oak is here. *Pinus cembroides* is often 4 feet thick and 75 feet high and not as openly branched as the pinon. There are several cups cut in the trunks indicating that they got turpentine and rosin from them. There are evidences of long-time occupation here, but all old. Humidity 65%. *Populus monticola* grows here. It is a true aspen, with the white bark and strict and erect trunk 75 feet high, horizontally branched and with rounded top. Twigs tough and not brittle, leaves falling as if it were fall, and wholly unlike any other *Populus*. grows along water course. *Arracacia* has the habit of *Myrrhis* and is common in the timber and of all sizes, 1-6 feet high with a big and

5

the mules' backs, for they were all sore, though my mule was in the best condition of all of them. When one considers that Alvarez never went to school in his life, and wore nothing but sandals, overalls, shirt and hat, and took along no bedding, and is just one remove from the cave men, he is a pretty fine sample of native man. When it came to settling up with me he was perfectly square and fair about it, not trying to gyp me in anything. So one does not have to be educated to be decent and honorable. He was accustomed to walking all day in his sandals, and never seemed to tire, and seldom had to drink any water. On the contrary I had had no riding to amount to anything for 30 years, and had never been in such blistering heat for so long a time. As a result saddle soreness was excruciating agony to me, and my feet soon gave out from the heat. So when I got back to Todos Santos I was about all in and surely glad to slip off my mule at the end, even if I had to fall off to get off. The women folks got busy at once and got us a fine meal, and everybody was tickled to know that we had escaped the big cats and got back safe and if not sound. It did feel good to get out on the plain from the Coda ranch and feel the coolness of the ocean breeze. When we got to town the barometer read 450 feet, which is 150 feet too high. This showed that it had kept pretty accurate through the 8000 foot climb and back.

Going up I found a marked change in the vegetation, evidently marking a zonal difference at 3800 to 4000 feet alt. There was nothing local to cause the difference. I also found the same condition on the eastern slope of the range in 1928 at 3500 feet alt. The *Jatropha* stopped here, and most of the *Leguminosae*, *Yucca valida*, and *Cereus Pringlei* and *Thurberi* and *gummosa* and *Schottii*. At 400 feet alt. there came in a white oak which has a deeply fissured bark, often an inch thick, in flat-topped and narrow ridges. It is an open-topped tree, 30 feet or more high. Probably *Quercus devia* Goldman.

At the Coda ranch and also at Todos Santos there is a black oak, a large and widely spreading tree, *Quercus Brandegei* Goldman. This has narrowly oblong to lanceolate and mostly entire mature leaves, but young shoots have leaves inclined to be spinulose-tipped and toothed. There is a similar oak in the Laguna region.

There seems to be a species of *Anona* along the trail to Todos Santos from the Coda ranch, and also along the river above it, just out of flower. It also occurred along the fence as far west as the Coda fence, a bush 10-15 feet high, openly and rigidly branched, and with tufts of leaves on the ends.

Sphacele did not seem to go below 5000 feet alt. At the Laguna the oaks are 5 times as abundant as *Pinus cembroides*. Underneath the trees there *Arracacia* grows abundantly and in all sizes up to 6 feet high, with the habit of *Myrrhis*. No other *Umbelliferae*. The spotted leaved *Desmodium* is common on rocky slopes as far down as 4000 feet or a little less. *Thalictrum* I saw only at Laguna along the creek., it is 4-5 feet high and erect. Mudger

Sept. 27 1930. Went out to the beach at Todos Santos in a.m.. It is 2-3 miles. Waves were beautiful. Loafed on the rocks for two hours listening to the high waves as they beat on the shore. I also got quite a load of stuff but did not see the *Oenothera littoralis*, nor *Drymaria* which were so common there in 1928. There is a caespitose *cereus* like *Engelmanni* but smaller with red flowers, and fruit red and shiny when ripe, several hundred joints in a clump 3-6 feet wide., common by the sea on the rocks. The petateya (*Cereus guzummosus*) is rather creeping here. *C. Thurberi* also is low. Guavas, mangoes and avocados ripening now. The ciruela plum is also ripening. toward the Coda ranch as we came down.

Sept. 28 1930. Got to La Paz at Hotel Palacio at 9 a.m. by auto truck. It was a cold ride since we left there at 4 a.m.. Feels good to be here. The folks knew me and were glad to see me. Called on Carlos Leon who welcomed me. Will do odds and ends today. It is getting hot. Weather clear. Barometer 100 feet.. No mail yet. Will have to stay a week before mail

boat goes to Loreto. Can get fruit here, mangoes, oranges, lemons, avocados and coconuts. Vegetation is greener here than at Todos Santos. Humidity must be higher.. There are 18 pearl fishing boats in harbor. Saw the antelope chipmunk in several places between Cabo and Todos Santos., also a pure blue bluejay.

Sept. 29 1930. Did not do any botanizing yesterday, but spent the time arranging for trips to the islands.. Will go out this a.m. to photo some viejo cactus. Boatman is to come ~~tomorrow~~ to arrange a trip to Espiritu Santo island tomorrow. No storm in evidence. Barometer normal (100 ft.) Humidity at 9 a. m. 90%. Walked out half a mile beyond leather factory to photo Viejo cactus (*Cereus Schottii*) and abortive cactus (*Opuntia*). Got tired in my feet., but not very hot yet..

The viejo cactus is a case of fasciation in *Cereus Schottii* where the nodes between the spines are a half shorter and spines 2-4 inches long instead of half an inch as usual. Fruit red, an inch by half an inch. Seeds black and smooth, fruit edible. *Cereus Pringlei* is also viejo sometimes. The petalia (*Cereus gummosus*) is larger here, with a main stems sometime a foot diameter, but branches 2-4 inches thick. Flowers all alike (see sp. *Cereus Thurberi* has flowers about as in *C. giganteus* (apparently) and a globular fruit about an inch long, spiny as in *gummosus* and red when ripe. we seldom see fruit or remains of flowers in this ~~area~~ now. . The abortive *Opuntia* is taller here, often 8 feet high and corymbosely branched at top. Fruit proliferous, light-colored, and nearly free from spines. *Cereus Pringlei* is here very large and thick. All the cacti are common. I saw the little *Grahami* one today. The petalia flowers and fruit are frequent now. The flowers of *Schottii* are about as in *giganteus* but apparently red.. The fruit is oblong, 5.-1 inch long, red, smooth, with black seeds. The spine fascicles are 2-4 inches long instead of half an inch as normal. Stems 3-4 inches thick.

I learned today that the Victoria mts. are the southernmost ridge of the laguna mts. Going east and west, whose culmination is San Lazaro pk. *Racachilla* is the name of the mts. southeast of La Paz.

4 p. m. have arranged with boatman to take me to Espiritu Santo is. at 8 a. m. tomorrow, and hope to find some botanizing there. Humidity 80%

Sept. 30 1930. Off at 9 a.m. in a 20-foot boat for island. Sea smooth. Fleecy clouds. Reached island in 3 1/2 hours. On shore saw a jackrabbit black all over at the waterhole. More vegetation there. More cardon, petalia, and abortive *Opuntia*. Also an *Opuntia* like *Cereus Emoryi* in color. No *Cereus Thurberi*. Vegetation rather scarce. Lycoun narrow leaves sp. Saw a little Cocurb., may be the wild muskmelon. *Euphorbia* flat on ground the usual one. Got a little *Euphorbia* shrub with habit of *Eriogonum* *Thomasii* with innumerable drooping stems inextricable intertwined, near shore. *Simmondsia Californica*. *Prosopis*, *Cercidium*. Vegetation all dried up. South end of island is eruptive of volcanic ash and isolated flows

7

mixed and tilted 10 degrees plus to the west. North end seems sedimentary with a slope to the northwest. Many shells on the shore. Very sandy beach. Gentle breeze from the n.e. Got the Lucide shrub at the waterhole. Got back to La Paz at 6 p.m. Took in all the islands on the way back.. A lovely but fruitless trip.

Oct. 1 1930. It is sweltering hot, and threatens rain. Cumulus cloud in sky.. 11 a.m. humidity 78 % Barometer normal. They say it is raining at San Jose del Cabo, very cloudy and little wind. weather at 6 p. m. excessively hot, and it is raining hard to the south of us.. The soaring birds are all down. , but some swallows still flitting around. Clouds barely moving. Barometer an eighth of an inch out.

Oct. 2 1930. Looked very much like rain last night and still does.

Pigs here are the red variety mostly.

Took trip to the Cacachilla mts 20 miles south., but did not get beyond the foothills at 2000 feet alt. and still in tropical life zone. Got a wild guava, and some other shrubs. Was rather a disappointment, for the road went farther.. Sand rather bad. All granite and rounded blocks on the hills. Here and there is a little schist. . No water. Looks very much like a storm. Wind strong from the east.. very heavy and black clouds from the south and s.w. but no rain yet. No mail boat in yet.. 5 p.m. a fine and misty rains is falling. Cooled off a great deal. Every where are black clouds and the sea is rough but not bad yet.

Oct. 2 1930. 9 a.m. rained hard last night about 3 a.m. and looks very rainy yet. Steamer came in at 11 p.m. Cool and delightful. Rained most all day. Got a stack of mail. Stomach bothering me.

Oct. 4 1930. Went east 5 miles to get Coulterella. Saw many bushes, but all but one dried up. Very hot and dry. Got very thirsty and tired. Barometer still $\frac{1}{4}$ inch out, but looks as if storm was over. Steamer still in port. Got a pretty Prosopis (?) about 3 ft. high, much branched and spread out very wide, full of fruit. Got Spiræstachys in full flower, common on flat beyond slaughter house, with some bushes out in the sand but most on the tidewater flat where brackish water is. Did not find the Agave on the rocks that I saw when I was there before.

Oct. 5 1930. Arranged to go to Triunfo tomorrow by auto. It is 53 miles from La Paz and 1500 ft. alt. . Vegetation very dry, but same as at La Paz. Water in creek in places, road washed considerably. Capt. Anderson was with me but went on to San Jose del Cabo.. Quite hot here still, but not so hot

as at La Paz. Hotel with thatched⁸ roof of Washingtonia palms leaves set 6 inches apart each way, with petioles stripped and a foot long, tied to horizontal canes laid on rafters 3 ft. apart of 2-3 scantlings. Makes a pretty roof. Leaves at least three deep and set petiole up.. On the hills in cravices of granite rocks is a *Polypodium* (se sp.) rather common. No other ferns. Hills are mostly rounded granite masses, with some obscure quartzites, and some white quartz veins. . The old smelter had a bank of reverberatories, and 8 sets of 5 stamps each in mill. Also a roaster. All abandoned now and rusting up with nothing under cover. *Parkinsonia aculeata* here, also dates and Washingtonia but no *Erythraea*. Some *Cereus Thurberi*, one bush of an elongated *Cereus Emoryi* but no fls. nor fr. One flat *Opuntia*, some abortive *Opuntia*. Much shrubbery, *Echinocoma stans* Gracca, *Prosopis*, etc. *Jatropha* with smooth leaves. The horrid nettle like *Euph.* herb of the cape. *Antigonum leptopus*. a little annual *Verbena*. *Aplopappus diffusus* 8 ft. high.

Oct. 7 1930. Triunfo. This has been a place of several thousand people with mostly substantial homes well-built of adobe brick, but with the fall of silver and shutting down of the smelter everything has fallen to decay, roofs rotted and walls falling in. It is a typical case of disaster, even the store that two years ago had a big business is closed, and some Chinese men are running a little excuse for a store, and that and the P.O. are the all that is left. They have a girls school with a dozen girls, may be 25 children in all. Can't see where they all come from. The ^{cemetery} ~~country~~ is also in a state of decay. Luisa Nesbitt's is the best preserved, a Mormon? Never saw a better illustration of the collapse of a town except Rayolite Nevada, which I saw in full blast in 1897.

Went up gulch west of town today. The *Cereus Pringlei* is mostly whiskered here (^{el} ~~vijo~~) at tip. Vegetation more vigorous, but the whole country is like that around the cape appearing all sheered out.. The nearer you are to water the less is the herbaceous vegetation. The petalaya is less common here, and so is *Thurberi*. The little *Mamillaria* is common on the rocks on the rocky hillsides. *Prosopis* common, also *Antigonum*. Foggy this a.m. Was cold last night. I unexpectedly met Coda and had a nice visit with him. He owns the Coda ranch east of Todos Santos. . He says people are very hard up and starving, and cattle dying from draught. Guess he is about right.

9

Oct. 8 1930. Waited all day yesterday for auto to come back with Anderson. Then went to bed. Was waked up at 1 a.m. by Anderson and men who were on way back and wanted me to go in with them then. So I dressed and went. We got to La Paz at 3 a.m. Anderson was pretty boozy by the time we got there. They had two bottles of tequila. Will dry out today and put plants in press. Weather cooler, but clear. Barometer reads 180 ft. which is 100 ft. too high. Humidity 70%.

Oct. 9 1930. Barometer 75 ft. . Clear, going to be hot. Mangoes are ripe, also bananas, and dates getting so. Grapes are out of season. Sweet potatoes on the market. and 6 centavos a pound. Corn is very high in price, and so are potatoes. Very little hay on market. Stock are dying from lack of pasture.. The last rain will help. Business everywhere is flat. No pearl fishing to speak of. . They say the beds are depleted, by too much fishing. Went to Techelunga island in a.m. Got photo of Fouquieria Borragei, and specimens of it. It seems like a good species, the flowers are yellow and not red. It is shrubby and low, not over 8 feet high and widely branched from the base. ^{light-red and buds red,} Flowers with very short and round lobes. which are about as long as tube and spreading at right angles. Stamens much exserted. Pods short and appressed. Should grow on the mainland. Did not find Atriplex macropoda anywhere. This is the type locality.

Oct. 10 1930. It is clouding up as though going to rain. Barometer normal. Humidity 75%.

Oct. 11 1930. The little boat SoMora came in at 10 a.m. Last night was ^{fully} delightfully cool.

Oct. 13 1930. Boat has been here and goes out tonight.. Got all my stuff on board in evening. Sea is calm, a ^{very} ~~dear~~my afternoon. The Sanvitierra came in this morning. This is the Copper Company's big boat from Santa Rosalia. The Bolivar and one other boat will be in tomorrow. Corn brings \$2 a bushel here and hay \$4.50 a bale. Cocoanuts and dates are ripening fast and mangoes seem a little past the peak. Avocados are on the market, the shiny kind.

Oct. 14 1930. Our boat did not go out last night but goes tonight. The Bolivar came in at 8 p.m. last night. They say the tide here is 7 ft. There seemed to be no tide in Pechilinga bay, for the brush grew almost at the water's edge. This is a beautiful morning. There is a fine boulevard a mile long just finished along the water front. The white and black-like

Mexican houses nestle among the cocoanut and Washingtonia palms with some ceiba trees intermixed. . The leather facotory has one small steamer in th bay, idle from lack of work, money too tight. All is as quiet as a Sunday at home.

Oct. 15 1930. Early and before morning we stopprd in a cove and landed some freight. Then took a small boat in tow for an hour and then let it go and it put in to a little ranch among dates palms. Formation here all sedimentary except a little island of eruptive. Seems to be ^Triassi but may be Tertiary, but too much strata of older age above it., certainly not Carboniferous. There are great escarpments colored red, greenish or wh whie, with here and there sandy beaches. , but coast line mostly precipitous. , ground color some shade of red. These hills look rather bare, but must be a great place to botanize in January., no end of chance for n. sp. with a boat. formation very regular and horizontal clidds at the back are 2000 ft. more or less high. All Tropical. There are pretty little recesses with sandy beaches. . No evident signs of water but vegetation greener and taller in the draws. We are now very much nearer shore, a mile or so off, very beautiful as we go along. The formation slowly dips under as we go north., probably all Triassic. No big and hard boulders. Just passed an alcove with dates in it but no sign of habitation, but a white row boat seems to lie on the shore. . We now round a point and see a launch near shore.. Country now rather chocolate-colored., and looks like a series of lava flows, horizontal. Came across two other ^Pearl fishing boats On the shore are Cardons, petaiyas, and Cereus Thurberi. Some pelicans fishing. Off the coast in the morning were three islands, can see them still far to the south.. We have now taken four pearlers in tow, one of them is named to M. louisa, the one that took me to Espiritu Santo island. One of the boats has quite a load of peralshells unopened, t the Krueger. Certainly this region is a series of lava flows, but all apparently stratified, one flow is rather big to the n.e. Wind is freshening and our two boats are shipping some water. Our skipper signaled them t to set their sails, and now the boats are steadier. N. w. wind. 1.30 the wind has now died down and we are nearer shore. We are now approaching an island half a mile long, and east of it is another ¹/₅ miles. long, La Gaddia, and has a big range in the middle.

One of the boats has quite a load of unopened pearl shells, The Kreuger. Certainly this region is a series of lava flows, but all apparently stratified. One volcano being rather big to the n.e. Wind is freshening and our two boats are shipping water. Our skipper signaled them to make sail to steady the boat and now they are not shipping water Northwest wind. 1 30 p.m. The wind has now died down and we are nearer shore. We are now approaching an island half a mile long and east of it is another 15 miles long La Guardia which has a high range in the middle. There is a high range on shore, maybe 4000 to 6000 ft. high, very steep on shore side, does not go much south of La Guardia, seems to end in a high peak which must be Cerro Lorto. Our tow riding fine now sails barely drawing now. The long island seems to be made of some kind of strata as shore is barely 1000 ft. high, The shore mts should be a fine ~~field~~^{home} for ~~mountain sheep and goats~~ ~~for botanizing~~. Loreto. We had to land in the surf. Got safely through. Boat hire \$2.50 and cartage to town \$2.50. Got her at 6.40. Good room and quiet place. A little town on a flat where a dry river runs through to the sea, and practically on the seashore sands, 200 yards from the water. seems to have plenty of water but no running stream, all water being pumped up from shallow wells.. Date trees everywhere and Sonora palms and ceiba trees enormous Prosopis trees 40 ft. high and 2 ft. plus through., No figs nor sugar cane Water 10 ft down. Cathedral in ruins. a fine old building of lava blocks Calm and still as sun goes down. Children stare at me. Quite a number of husky women and girls.

Oct. 16. Bright and clear and still. Timbers of cathedral all rotting and falling in, a picture of desolation was once a fine building with walls 4 ft thick made for defence. Fine fruit orchard behind it. Went out along beach in a.m. to the hills. and got some stuff., very dry, rather hot Got back at 2 p.m. At 2 p.m. Got a Celastraceae shrub with green flowers and fruit and looks like maytenus, 6-8 ft. high with many straight stems from thick roots. Fruit having the seed with red cover, stems gray and bark smooth.. Farther in got another shrub but taller and more branched with dark bark, green flowers, fruit like a small Amelanchier and drooping, 5 stamens, disk, no

petals, white sepals and ridged in the middle within, acute, fruit a hangover from spring. The abortive Opuntia is here but larger, some Cereus lampy like Opuntia., C. ringelii is common and very bald big and glaucous, Murberi is occasional and more racemously branched, low the petaliya 20 ft. long and decumbent. See note the viejo cactus is common as is Bouquieria in full leaf, and branched like an ordinary tree. but not Bursera flowers few and fruit in clusters small. Mycium flowers lead colored and fruit red berry and small. Many shells on the beach. The natives seem to think the univalves have pearls in them too for they gather them for pearls.. The pearl shell here most sought is like a big and round clam shell. The beach is shallow and not steep as at the cape. for the bottom of the sea is close to the surface apparently. Carme island is in plain sight southeast. The dates prefer alkaline soil The Monora palm is ripe and 50 ft. more or less high and growing with the dates. none of them self shedding. Got a Jatropha with smooth leaves, purple tipped, flowers drooping like Vaccinium and cylose., Bark gray. Bursera has smooth white bark not shredding up in fruit has Copal swellings. Viejo cactus has 5 ribs as a rule, sometimes 6, often almost spineless below. Humidity at 3 p.m. 70% Have seen no Tecoma yet.. Just arranged for trip up the mts at 5 pesos a day for 4 mules. with Garizar son. Prices seem cheap here.. Went down the beach west and got a lot of shells.. There is an Erythea growing here that seems new I have named it E. Loretensis. It is glaucous like armata, Petioles spineless, seeds obizetely round and black, 3/4 inch wide. Trees not self shedding. Paniccle on stalk half as long as petioles, lanceolate and a little longer than leaf leaves, bracts very small and green, not sheathing, acuminate, inconspicuous, segments of leaves taper to threads and size of Washingtonia .. Erect tree 25 to 30 ft. high.

Oct 17. Bar. 75 ft. Humidity 67%, Still and clear at 8. a.m. Getting warm at 9 a.m. Boys helping me dry driers, began to do things. Breeze from northwest. there are 2 ceiba trees with spread of branches 20 ft. and fig-like trunks 4 ft. diameter, leaves lanceolate-elliptical. Night. Went east to mt today horseback and got pretty sore, found quite a bundle of plants. One Frijonum

of the perenne type but new with capillary stems, glaucous and branching 1-2 ft in all directions, in sandy draw. Got *Stegomyia* shrub 1 ft. high, white flowers, glaucous leaves. Very dry. The *Fouquieria* looks peculiar, has some flowers and fruit. The cardo is glaucous-gra, with white spines, often almost abortive, probably this gave the name calvus bald. a good varietal name. stems very big. Got a coarse annual 3 ft high with habit of *Sesuvium*, but very coarse, May be a *Argythamnia*. One specimen in sand *Sebastiania sarmentosa* Jo There is a shrubby *Duaeda* 4-6 ft. high. *Xyrostachys* is about 4 ft. high and woody almost to tip, Very common on salty flats.. Went to base of the mt. but strata coarse there, got some fossil shells there like those now living on the sea bottom, Strata in black mud 500 to 1000 ft. below tip. Pleistocene.? Humidity at noon on mt. 18%

Oct. 19 morning. Humidity 68% Bar. normal. Primera Agua 9 miles west of Loreto 400 ft. alt. Humidity 28% Vegetation the same as below without alkali stuff. *Washingtonia* common and some *Leucodermis*, no *Yuccas* nor *Erytheas* *Cereus Thurberi* (*Petalas dulce*) and *gummosus* absent. Water rather much in the seeps from volcanic ash on the north, is good Has a *Polygonum* in it apparently the same as at Cabo, and another aquatic. That *Gentianaceous* herb, *Eustoma* is here., also *Cyperus*, *Cenchrus*, and *Eleocharis*, No grasses to speak of but devil grass.. *Olneya* is common from Loreto up., dayessweet limes, oranges, mangos guavas and pomegranates are grown here., 2 Fremont Cottonwoods are here also. Hills very dry. Saw one spec. of the tufted *Cereus* from Cabo also with red flowers .5 inch across., also the Cabo *Mamillaria Poselgeri*. is frequent.. They have a warty big lemon which is sweet and with less juice and very thick skin, also another lemon with a big navel on the tip, sweet much like the big lemon in flavor. Their oranges are beset with a chocolate scale that yellows them too early, Trees 30-40 ft. high and full of fruit Valencia *Verapendula* with large but no seasons. Under is *Cucurbitas* *Sesuvium* *Samanea* the figs and grapes are out of season, Much *Washingtonia*. There are several ponds with *Typha* and *Scirpus* in them and one *Cyperus*, *Seymeria* is in the water. In the orchard are 2 *Euphorbias*. Also saw the *Sebastiania* and got specimens. *Petalas* ripe and in flower *Thurberi* has 14 ribs, the cardon not over 10 Viejo

mostly 5. Soil all volcanic in horizontal flows. Evening. Went through the garden twice and got a great load of stuff but nothing startling, but all good. Capparis here is a tree 30 ft. high with gray and smooth bark, trunk fully a foot thick erect and apple tree like, flowers look like those of the oak but fruit an oval seed, berry or drupe. Baccharis sergiloides just in flower, very graceful and like Astenostoma sparsiflorum about 8 ft. high. in bottoms and moist places. Eucnide is in the bottom and 3-4 ft. high, saw Jatropha urens. The evening is delightful with no wind. the day was hot. Water about 2 miners inches and coming from side of draw and enough to water the garden. Fine water. Moss had to go a long way to get Palo blanco for the mules. Watermelon Cucurb has smooth and green ~~fruits~~ fruit and striped the vines 20 ft or more long.

Oct 20. Humidity 88% bar high. Clear and still, will be hot. left bundles here and went horseback to upper ranches. Incha ranch 800 ft. alt. Very dry with water in a gulch, little, coming back got an Agave on the rocks. Also Mam. Poselgeri. Humidity 70%. My mose cuts Parkinsonia microphylla for the mules, and also the ciruela. No grass here, sheepled out. Magnificent scenery all along for 5 miles. Strata level and lying over eruptives with here and there a dyke of eruptive cropping out. At Primirera Agua there is a split in the strata and the east side tilts down 10-20 degrees, the rest still level apparently. At about 4000 ft. alt there are no oaks visible. The Palo blanco is everywhere, Cereus Pringlei is scarce, Thurberi is more common and so is the petaiaviejo near the middle ranch. Got a magnificent Plumiera growing wild on the trail to the upper ranches. It has the habit of a willow with smooth and red flowers and pods 3-5 inches long and with cottony seeds and is 2-valvate. On the cliffs near by I got an Agave like the one I got on the Cacachilla mts. The flowering stalk is 10-15 ft. high and the last floriferous on the upper third with alternate clusters. Got a Compositae plant with narrower panicle stalked but not over 2-3 ft. in all. The Eucnide does not grow here on rocks. Saw a dead Mentzelia aspera. There is a Hymenoclea shrub 10-15 ft. high with rough bark and trunk 4 inches thick, with panicles airy at the ends. Saw a Passiflo

in waterhole on bed rock below ranch all dried up along the creek.. Went up half a mile and got an oak and then turned back because it was so dry and saw our mules kicking it down the trail. for home and so told moso to leave men and stop the mules. which he did. Here we are at the upper limit of the varde but the other species are here. Celtis coming in, brush taller, Much Sapium 100 15 ft. high., The many stems greenish brown, many Ficus almeri. Still dark volcanic soil with nigger heads all over, trachyte, little sign of basal. Looks like it had been worked over in water., decided not to go farther because it is so dry. We are 25 miles from Comondú. Trail poor. Coming up here we ascended 1000 ft. in a mile in a very steep ascent. Shrubbery the same as below but the Ochotilla less abundant and broad-leaved, and Jatropha almost gone. Saw some walnuts among the oaks but no fruit 2200 ft. alt Humidity 78% at 3 p.m. Fleecy clouds There is an Acacia here with white flowers and hooked spines. that is very annoying it is the same at all elevations. rarely 10 ft. high. The persimmon is a shrub about 15 ft. high. but have seen little fruit of it., also got it at Primera Agua and could not tell what it was till I cut the fruit. There is a wasp here with nest hanging horizontally like an inverted plate 4 inches wide Others tongue-like hang from tigs and cloffs, The wasp is narrow and yellow and rests on the water like a skipper and does not wet its feet and flies from it easily, Have seen hundreds of the nests There are other wasps that make nests on tree trunks like a dirt covering, and 1-3 ft. above the ground. The Sapium has almost every fruit bored through and eaten the berry is 1-3 seeds in each fruit mostly 2, hemispherical striated and dotted when not eaten up. Erythrina Mexicana is frequent here and has a trunk in one case 20 ft. high and 1.5 ft. diam. smooth and gray and rather tuberculated on some branches like ginkgo., fruit pendent, long-faded with seeds scarlet and with filling between the seeds, ~~traced next to the seeds~~ Saddle up and went back to the Cayuca ranch which is just a shelter beside a big corral, and thatched with palm leaves.. It has a stone wall 4 ft. high, and is the merest excuse for a house.. Will not rain tonight.

Well we are on our way back. Am now satisfied with what I got because

ra with white flowers several times 3 inches long. weather hot and dry.. See
Scenery magnificent. Distance to first ranch a short 3 miles and 2 more to
the upper one. About the same water in each . A very fine grotto on the first
e. a bat hing place,

Oct 21. Primera Agua . Humidity at 7 a.m. saturation Barometer 2)) ft. Clear
and still and no sign of storm but humidity too high. Slept well last night.
Mt skin oarms got sore yesterday and feels tender today, Moso says the mules
will not eat palo blanco but very fond of palo verde and cerhuela. The highest
peak south of here seems to be like the first one, an abrupt escarpment on the eastern side and rather sharp on the west also, at least near
the top and seems to have palo blanco all the way to the top., little evidence
of oaks anywhere The Pleistocene sediments go about to the middle ranch and then quit.

1130 just got to Loreto Bar.) Warm.

Oct. 22 .Loreto. Bar and humidity 86% Clear and still.. At 1 p.m. got 12 mile
north. and stopped in a draw where there was plenty of palo verde for the mules.
Mules. Very warm, Alt 900 ft. Vegetation very dry Much palo blanco and verde, Bu
Bursera, Sapium, Olneya and some Antigonum, cardon, and Thurberi, and petaiya
The cardon shows the calvus character very well. Saw one fruit the first I have
have seen at Loreto. Mules like the palo verde much, Got to ~~XXXXX~~ Garizat mill
ranch at
6-15 Alt 675 ft. Humidity 30% Getting cloudy at the west. Mesquit large, palo verde
is very common. Vegetation greener than at Loreto. We are now 3 miles from
the Cayuca ranch and 20 miles from Loreto. 8 a.m. Bar 600 ft. humidity 92%

Fleecy clouds., looked a little like rain last night, but did not rain. It is
still this a.m. The old mill here is a quaint old ruin, there is water in a
well here, and water seeps out from the strata in a gulch 200 yards up. and
from the rocks on the bottom and never seems to dry up. Sun just getting up
Got a new Jatropha shrub 8 ft. high with gray bark.. The mesquit we camped
under has a spread of 81 ft. and trunk is 40 ft; high and 3 ft; diameter

Cayuca ranch 2.30 p.m. 1000 ft. alt. Humidity 58%, 3 miles west of the mill

Got many things in the box canon here. and some ferns.. Clouding up with some

fleecy clouds. We are about amile from the pr3cipitous mt. to the northeast.

Oct. 23 .Bar 1000 ft. alt, humidity 85%, clear and still, looked more like rain last night but no rain. . Warm.Moso cut Trenera for the mules and they ate up even the small twigs, Thurnera is the cerhuela flum.. Last evening we went 2 miles up the big barranca almost to the cloffs and then turned and came down the main water canon.. Got a great load of stuff., mostly shrubs.. The Franseria was 8 ft. high with woody canes and bright-yellow flowers.. Got a yellow ,antana 6 ft. high.but branched like the rest.. Ruellia is very com mon, but with few blue flowers. Saw one cardon with 27 branches each a foot thick. TThere is ome hybrid of Thurberi with the cardon here, never saw any before.. I p.m. Got back from trip to cliffs and reached I499 ft. alt., Vegte tation the same but greener, and got quit a mass of stuff. but nothing very m marked. . Followed uo the main c anon where we left off yesterday From specim mens of Fouquieria seen in Lorettthere is a tendency to the Idria fiem which m muat be a variety of it. and which would make peninsularis a variety of col- umaris,that is F. columnaris var peninsularis, which is specdifically distine from splendens.. The formhre e branches like other shrub genera, the flowers are red and elongated. The little Mamillaria occurs everywhere and with scarl et fruit linear- clavate the yellow spined Opuntia is a little more sleoned Than the abortiva, with spiny or smooth fruit. and does not proliferate.. Eve Evening. Saw the same agave as at primera Agua in full fruit, May be hechtia 3 ft. high, with linear ans rather open leaves There seem to be 2 species of 3bstidaghtnavevzoihearedndonepwithTheesetentblack spineci,sand agathekewith agave here besides the long and narrow-leaved one with clesset black spines. remote spines inclined to be flexuous, with flowering stalks 10 ft. highplus

Oct. 25. 8 a.m. Bar 1000 ft. Humidity 90%. Clouded up some last night but soo soon cleared off af er dark a still and warmish night.. Ready to start. Veget ation here mostly petaiya , Fringlei and Thurberi and spme flat Opuntias and 2 cylindropuntias, 2 sp Jatrophia. Fouquieria, 2 Acacias, Palo blanco and verd Prosopis 2 ? sp.and a few othershrubs., annual Cevaria, Pan yun Tribuas small sp. Amarantus, trianthema2 sp. 2 sp Agave om cliffs by warno ruccas. anywh where nor native palms.. ^{in cactus} ~~Palmer~~ very big. 3 p.m. Go to Arroyo Undo ranch and water at 11.30 Fine water fenced in in gulcha mile to the south., Water

flat [^]puntas here with yellow spines and big joints. *Asclepias subulata* is here. In gulch got a beautiful [^]abiate shrub [^] ft. high with many slender stems, gray and erect in gulch among the loose rocks of the bottom. Also a small tree 10 ft. high may be *Prunus ilicifolia* but no fruit.. Beautiful amphitheater here a mile wide with precipitous face near the top 500 ft. plus high with many live oaks along the ~~tax~~ upper slopes and in draws below cliff Strata horizontal, all eruptive rocks at least 2000 ft thick. Saw 3 people today, passed on the way to Comondu or Loreto. Figs very tall, One puddingstone boulder in gulch 30 ft. diameter overhanging gulch. Well we are this much on the way back, am getting over being sore from riding

Oct. 26. Arroyo Undo 7.10 a.m. Just began to rain, gently, sky all overcast by a thin cloud. Sun coming up over mt to the east.. They say it may rain all day. The owner of the ranch came down from waterhole which he reached yesterday at noon. and stayed all night with us.. Another man came just after rain began and so there are four of us. under the meager shelter. Got all our stuff out of the rain. Mules are tied to the brush up the trail toward the water. Bar. 2100 ft. alt. and indicates no rain to speak of. Humidity saturation. Seems good to have a little rain, Cool night. Yesterday my anus was plugged in a.m. and I had to dig out This showed that it was caused by Mexican cheese. which I ate. and from no other cause. for as soon as I began to eat cheese my feces got hard. SO I took a pill yesterday and this a.m. early and had soft feces. After a while the men took my tarpauling and tent and put them on the roof. and now we can keep dry.. My tarpaulin leaks a little at first, probably will swell tight soon. / 8 a.m. steadily raining, everything outside is wet. Shelter leaks some Tent does not leak, soon a boy came along on horseback and now there are 5 of us.. Rain keeps falling but looks thin to the east my waterproof covering to helmet hat is handy this a.m. There is some wind from the west. 8.30 a.m. Has stopped raining but looks dark all around still. probably 1/4 inch water fell in all. Wind still strong from the west Bar 2000 ft. 8.45 a. m. heavy clouds from west falling below mt top. and moving fast to n.e. Sprinkles a little now and then. Does not look good yet. Brighter to

the n.w. but clouds still low on the mt. and raining.. Wind still a breeze, but barely sprinkling. The palm thatch on shelter seems to have too narrow particles, many of which have no evidence of prickles, and with few thorns probably are *Erythea*. My paraffined tent is not entirely waterproof. It looks to me as if 10-oz duck would be about as waterproof as my new tarpaulin, which were guaranteed to be waterproof, but are not by any means.. Weather cold. The owner says the palm leaves came from the mt. on the s. there are no signs of palms here., whether he means *Jarras* or *Primera Agua*. I don't know. Have not seen any sign of *Erythea* since we left Loreto. Just out of Loreto we passed a clump of *Larrea* in full bloom. Cloudy at the west and still low but much brighter to the n.w. but no sky visible. This shelter has a 3-foot wall of stone and a fine stone corral. Bar. 2050 ft. They say this is an exceptional year, usually much rain in Aug and Nov. The waterholes are so dry in many places that the ranchers have moved out, but the stock still find waterholes in isolated places. Cattle look in good condition, mules also, 11 a.m. Went down in canon n.e. and got quite a load of stuff. The red *Mentzelia* was there on the rocks, Saw *Eucnide* on rocks coming up. Got a bush *Brickellia* like a shrub and stragglingly branched. 3-4 ft. high. Saw the *Stegodperma*. Got *Evolvulus*, *Fraseria* low like *ambrosioides* but perennial. The big bush one is common see sp/ Got a bush *Anoda*., rains by spells a little and looks brighter very black east but storm comes from the west. The boy seems to have gone was here when I left. The young man who came in first started to go but waited. It is now sprinkling some the men are loafing. 11 a.m. clouds far down on the mt. and below us to the east.. Mists a little now. and then liable to be here all day, Could as well go to *Cayuca* ranch but Mose is not inclined to start. Horns of mt sheep and white tailed deer here. They say the they are frequent/ *Argemone* white fls is here. 3 p.m. Storm is over and clearing. Very blue sky. I feel fagged and have done nothing much today. Mose has taken mules down the road. for feed. Probably will tie them there. This means we stay here the rest of the day

4.30 p.m. Went across the gulch to see if I could find anything. Got a Selaginella spreading over the ground by rooting, in large patches, 1-3 ft. wide. Also a tiny Cheilanthes under rocks, barely in fruit. Got a few others also. Clouds still hang low on the mt. but no rain. Mose is gone to water horses at spring. Getting darkish.

Oct. 27. 8 a.m. Rained a little last night, very cloudy but clearing now. Bar. 29.20 ft. alt. Humidity saturation. Will be clear and hot today. Everything is wet. Mules look a little gaunt. Vegetation looks perfect this A.M. Cobi and delicious. Will get off by 8.30 a.m. Hope to get to lower Garizar ranch today 4 miles below Cayuca early so that I can dry out. Clouds going s.w. In the center (S.) of the amphitheater is a big draw with many dark-green trees, probably Celtis, goes to bottom of the big cliffs. If it were a little more humid it would be fine for ferns. The so-called palo fierro is an Acacia, for I saw the flowers, not papilionaceous but with few anthers. Palo blanco common. Both Jatrophas are here one with smooth and glassy surface of dark-green leaves, ~~xxxxxxxxxxxxxxxxxxxx~~ but never is common. The small shrubby plant with spike of small, greenish flowers on rocks seems different from the taller one on bottoms. in leaves. Will get off at 8.40. Got to Cayuca ranch at 10.40. Changed driers there and put new plants in driers by 1245. Got dinner of coffee and cakes and fish or cheese and am about to the end of comida. What get to Loreto tonight. if we drive late. Should get off at 12 p.m. Bar. 29.00. 50. Feel tired. ~~Wind xxxxxxxx~~ Coming down hill it was 800 ft. to the level there area. the drop from here being 200 ft. Rained here as much as it did with us. C. thurberi starts to branch here near the ground. Pringlei starts 2-6 ft. above ground and the branches seldom have nodes. Thurberi almost never. Some men passed us on the way to Loreto with dates as freight. came back today empty. The Acacia (palo fierro) of mose has long straight spines an inch long and has much gray fruit 3 inches long, and is common here. 4 p.m. reached Salto ranch 1/2 below mill. They have a well here 30 ft. to water now. Usually there is much water in the place where the creek runs over the bedrock but it is dry now. Fouquieria not in leaf here. Cercidium and Prosopis here. Much C. Pringlei, some Thurberi, and Capparis

along and forming new plants but still connected with the parent one. Thurbert
branches close to the ground mostly, Mules eat *Trianthema* greedily.. Got home
at 4.30 and pretty tired with the long 20-mile ride.. It rained here a little
windy from the e. this p.m. Sea rough. Got Larrea soon after leaving ranch and
it was common all the way till 10 miles out. It seems to be the same species as
as ours but a little taller. *Cercidium pallidum* and *Parkinsonia microphylla* lo
look alike except that the leaves of Mic. are very much smaller. Trees the s
same highth 20-40 ft. with trunk often 1 ft. diam. mic is best food for mules e
except Turnera. Mules eat *Trianthema* greedily and any *Malvaceae*. The top of
hill toward an run on the coast is 700 ft. alt. Had will have to be graded bef
for autos can pass. The Serra ^G ganta as understood by the natives is the sin
gle peak to the northwest of Loreto that ends the range on the north., but in
fact should apply to the entire range for 75 miles. The crest is about 6000 f
ft alt., with live oaks nearly to the top but all the rest is Tropical. The
range is formed of horizontal eruptives worked over in water and cut off on
the east by faulting at the crest along the axis, mostly free of shells except
below 4000 ft. alt. where pleistocene sediments begin on the mesas.. There are
many fine fossil beds particularly toward the San Bruno summit of the wagon ro
ad.. Trails are good except for the niggerheads, There is some alkali on
flats and much *Spirostachys*. and shrubby *Suaeda*s. The ground produces the best
dates on the peninsula if drained a little.

Nov. 1. No word about steamer yet but is due today from the north yesterday a
Chinaman merchant struck me for a trade for pearls. . Went out a mile or so t
to the n.w. and got a few species. An annual *Euphorbia* on ground by tank was v
very common there. Seems to be new. *Aplopappus diffusus* in full bloom there.
The Chinaman wanted 30 pesos for his pearls. I told him I did not want to buy
but he kept coming down to 25 pesos but I would only offer 20 pesos. which he
refused. So I left. Today he brought them to me and put them in my hands and
said I could have them at my price. So I took them for 20 pesos. Don't know
whether I was gypped or not.

Nov. 2 A copper company's boat came in today to load wood. Expected to h

hang around for some days. No word of the Sonora yet. Clear and still Bar).
humidity 91% Actual elevation is about 25 ft.

Nov. 3. The Sonora is going south. The copper co. Boat Coriente goes out to
morrow. Expect to go on it. A fine young man from Todos Santos called on me.
Weather lovely and hot, wet heat. No rain Bought ticket on Coriente for Sant
Rosalia for \$10. pesos. Went out and got *Suneda* sp. a shrub 3-6 ft. high
and straggles up among the bushes often flat on the ground.. There seem to be
2 sp. *Lycium* here both 4-10ft. high. Much *Spirostachys*. According to my ticket
this is Nov. 2 Steamer goes in p.m., almost packed up, Looks like a general
storm is brewing. Looks as if it rained a little last night.. Paid 36 pesos for
room and board last night here + this with the 5 I gave her makes 41 carriage
II. Drove 1.50 boat carriage 6 pesos Got a good berth and all set., waiting now
to start north. The men on the boat can talk English some and so it is nice
to visit with them.

Nov 4. Got to Santa Rosalia at 4 a.m.. Breakfast 1 peso per day Room will be
2.50 a day. Warm and still. Many people here. Hills very scarce of vegetation
and with very low brush. 3 palms in plaza, but none of them having bloomed.
but may be Sonora palm Some big ones in street as at Loreto. There seems to
be a palmetto palm cult. in garden, long knees.. Went out 10 miles on the Muleje
road by auto The vegetation there is more starved than any place I have
seen. *Larrea* is usually about 3 ft. high here on uplands and 6ft. on flats and

Also
as very common. *Ehretia farinosa*, *atropha canescens*, is rarely over 5 ft. h.
and the big bases of trunks very scraggly, So is the purple fruited *Bursera*.
Fouquieria peninsularis is also common and low.. *Aplopappus diffusus* is common
in some flats in full flower, *Stegnosperma* is 4-8 ft. high. *Prosopis* low
forms occur the *cactus gummosus* and *Schottii* and common but very low. *C. Pringlei*
in on flats only. The yellow spined *Opuntia* is the only one and scarce.
No grass. Nothing but scanty shrubbery. the big bracted Celastraceae shrubby
climber I also saw. 3 ft. high.. here were algae in an estuary s. of the road
The road is very tortuous, some roads follow near the sea. Rosario is 65 miles
north. Muleje is 41 miles s. At 5 p. m. took stuff to boat and am waiting to go

go aboard.. Many people going, Fleecy clouds.

Nov. 5 . Boat left Santa Rosalia at 8.30 p.m. and got to Guaymas at 6 a.m. Got off boat and to hotel at 8 a.m. Got mail at last. Very dry and warm here.. No rain in a long time.. Clear and still.

Am answering mail today. Took a launch to the mouth of the harbor and got a few things but too dry. In p.m. took an auto ride to Miramar and Empalme around the hills to the north and west. Saw none but cult palms and no *Erythea* anywhere nor native palms of any kind. Very dry everywhere. *Parkinsonia aculeata* on slopes and much mesquit. Dense *C. Fringlei* on islands but scarce elsewhere. *C. gummosus* scarce, *C. Schottii* frequent and small. *Bursera*, *Jatropha* and other L. Calif. shrubs the same but less. *Eucelia farinosa* very common. This is about the only difference except more *Larrea* and *Yopis*. *Apocynum diffusum* frequent. *Wielandia* is common in cult fields.

Nov. 4 Took baggage to baggage. They refused to check 9 of my bundles and bundle said I would have to send them by Express and so I took them to Express office where I got fixed up. There were 4.00 lbs extra baggage and they stuck me over 2 pesos but after an hour I am all fixed up and ready to start for Mazatlan. Clouding up some but not warm today. The porter here is very fit a help he is 50 and gray haired.. Been beautifully cloudy all day. Brandege was surely wrong when he said *Erythea Brandegei* was common on the coast.. The only fan palm is *Washingtonia*, known at once here by the strap-shaped white bracts. Up the canon from Miraflores and surely native is *Washingtonia Sonorae* and no others. I suspect that the stray palms I saw on the eastern side of the lagunes were *Erythea*. I saw only one of *E. Brandegei* at San Bartolo where Brandege said it was common. and there are none at Santa Rosalia nor Guaymas.. At 7 p.m. it rained enough to make the streets muddy. Heavy clouds and much sheet lightning coming up from the s.w. and no wind. Got to station at 11 p.m. and it began to drip and got worse all the time. Train plued out for Empalme at 12 where I had to change there and get on Pullman. Also stuck me for 6 pesos too much.

Nov. 8. Rained all night. Pools of water on the ground. Vegetation has been ve

going
very dry~~ing~~ out. Bar. 75 ft. Much *Prosopis*, *Franseria acuminata*, *Cereus*
pringlei and *Thurberi*, a Straggling *Puntia leptocaulis* also a *Cylindropuntia*
and a clat one The pink flowered *Echinocactus wislizeni* and a beautiful *Cae*
Caesalpinia in flower, No grass. Things just coming into leaf a tree *Cassia*
near Kil 7⁸ *Bombax*. *Capparis*, No *Fouquieria* some *Larrea*, now an occasional
Fouquieria in full leaf. Vegetation 15 ft. high. Ground bare. An occasional
persimmon at Kil. 723. Low mts on the east. *Bombax* inf lower Kil 726 Our he
heavy train is slow. *Stramonium*, *Tenarium*. Shrubby *Heliotropium* in flower. R
River 150 yds wide. at kil 729 Cross r.r. going down river. 9,20 a.m. Sugar ca
cane, ens dates. San Blas. Country looks now pretty soggy and wet, Much cyclo
now. *Prosopis* very common, *Lysiloma nor candida* 10.15 a.m. Raining again, s
Some chilly. Still soggy keeping near coast all the time, but cant see water
Kil 826 Much fan-shaped *Lysiloma* 30 ft. high, persimmon, cactus scarce, kil
828 Mostly leguminose shrubs coming into leaf. The *Manzanillo Mimosa*. Hot, h
heavy rain here. *Franseria ambrosioides* Some undershrub s coming in now Pumpk
kin vines along small river. Kil 837 Culiacan Guamochil, a small town. Had muc
rain here. Saw a grove of *Sonora pa'ms*. Very cloudy and still. Mostly Legumine
ous shrubs and few cactus such as *C. Thurberi*. Everything wet. There is a l
low, 4-5 ft. high *Jatropha* common, like *canescens* but now The settle ments all
have palm leaf roofs. Low mts far to the east. Crops all harvested and they
are plow ing up for next crop Vegetation 10 ft. high. Much the same as above
to the north, *Bigelaved* *Cassia* ?. More stock at Culiacan. Everything wet and
muddy. Clids slowly going, Vegetatopn very green. People all appear happy. M
Many scrub goats and sheep with tails all on.

2.30 p.m. Ours is a train of about 12 cars all passenger and Express.

4.20 p.m. Raining again. Much *Crotalaria* and *Antigonum leptopus*, Country s
woggy. Much *Lysiloma* species. Some *Cereus Thurberi* and *pringlei*. A few big
Leguminous trees 40-50 ft. high. Country really wet. Beans. babanass, suga
cane. Some wood. La Cruz, a prtetty town by a river 50 yards wide. Charcoal
pits, bananas, *Flumabgo scandens* in bloom. We are now down by the shore.
Still wet. Little cactus. Dimas, quite a town on the east side of tracks and

river 200 yards wide and showing traces of a great flood down it recently. Muddy water. Mazatlan and cool here. Got here at 7.30 and went to Hotel Del mar. Mud everywhere. Very cloudy outside.

Nov. 10 9.30 Slept well Weather muggy Rainy at sea. and sprinkling here. Calle on Miss Parsons whom I met two years ago at the Mission school, she looks younger and fresher than ever. Rained, She says the roads are bad with mud Looks squally to the s.w.

Nov. 11. Soggy and wet and rainy and very cloudy. All my baggage came yesterday. Got everything ready for the trip to Guadalajara Stored baggage and valise at hotel

Nov 12 . on train. 3000 fto alt. Grass kneehigh, *Epipactis grandis*, *Andropogon aristida*, *Big Tuna C. Pringlei*, passing a field of cult. *Gavies*, *Helianthus*, *Stevia*, flowers everywhere Some big Leguminous shrubs *Bocconia reticulata* On the east is a big volcano with a recent flow of white rock, and near it is a black lava flow more recent. Rained hard yesterday, 3300 ft. alt. Charcoal station, looks like *Atlix* is near. Near *La Barranca* Now many large shrubs with white and funnel-shaped flowers, *Bombax* of *Apocynaceae*., Much grass everywhere, *Dalea*, a little feathery flowers, tall 2-3 ft. Much red *Cosmos* or orange, 3700 ft. alt. *Bambos vulgaris*, Water very dirty now, we are near the live oaks now., Grass shorter, clouds lying low Kil 1613, barrancas 4150 ft. alt. Everything wet. Much charcoal visible now, have waited an hour or more here and no sign of moving. They say that tunnel no 19 has caved and we have to transfer there 10 miles from here. The town has not changed much since I was here in 1928.. Roofs nearly all covered with 5-gallon tins can roofs. See a few live oaks occasionally, got to *La Barranca* about 11.30 a.m. Stayed there till 3 p.m. and then went a few miles to tunnel no 19 and all got out and carried our stuff 1/2 mile through the tunnel and past the slide that blocked transit and then waited in the rain an hour till train came in from the south Then climbed aboard and now waiting for train to start. It is 4.30 p.m. Went to get to Guadalajara till midnight probably. Got a few things by the track while waiting.. We have a big load of passengers. and

are about at 4000 ft. alt.,. Dec no live oaks. 5 p.m. Still drizzling, 4400 ft. alt.. Good view n.e. several ridges or ranges, slopes very steep and all brush 30-45 ft. high. Senecio big leaved and with yellow corymbs of flowers, also one with white flowers, Dalea very small flowers, Eysenhardtia very feathery, 406 ft high Erect Saw a low Cucurbit with leaves like Megarrhiza. and a vine, Several Euphorbias. Much tall grass, at creek in fine shape People seem prosperous., but huts squalid. No sugarcane. Vorn long time past ripe and much in heaps ~~and~~ in field. Oranges about ripe. See some mango trees but no fruit. Flowing in places.. Water running everywhere. Tall grass 6-8 ft. high, like ^{Tripsacum} Eragrostis Purshii, 2 sp Oresine, Buddleia 1 sp. 3 mints white and purple.

Nov. 13 Got to Guadalajara at 10. p.m. in rain and went to Phoenix Hotel. Got room and was cold. Alt 4500 ft. Too much style here for me. Hired an auto to take me to La Barranca 5 m. s.w. it is very fine. a box canon V-shaped, 2000 plus or minus deep where the Lerdo river flows and makes a hairpin turn. Much vegetation. Called on the American consul but he is out. Rained all ~~day~~ a.m. Clearing a little at 1 p.m. Called on the Cong. Missionary and got him to recommend a place to stop where there will not be so much style and more service at the Villa Merida got baggage here duty and feel greatly relieved. to be well placed at last. Tried to find the Cong. Instituto Colon by car twice but driver did not know where the place was and took me far out into the country. Hired an auto and got there at last. Mr. Wright the minister directed me to a good place and am all set now.

Nov 14 Still drizzling this a.m. and does not look as though it would ever drop or clear up. There are two magnificent trees in the courtyard here, 75 ft. plus high 3-4 ft. diameter, Ceiba? Simple lance-acuminate leaves, not fig-like trunk but more like oaks or ash. Houses here are more spacious and with large central courtyards. There are epiphytes growing on the trunks as in the jungle. Went down to the consulate to meet a Mexican botanist and am to call on him Sunday. Had a visit with him but he can't talk much English. Clearing up some or at least is not raining. Bought a leather punch for 2 pesos. Will botanize this p.m. Distances are long but I am getting oriented. My feet

hurt some. Get tired easily.. Feel fagged already some. I don't eat much. Palme and wife from Pomona are here. Night, Spent 3 hours botanizing to the east but did not get out of the city, but got a lot of stuff. There are bananas here., and all sorts of fruit they say it frosts some here. Down town at stand are places where they sell Cal navel, from Woodbridge. and Wenathee apples. These are the best fruit on the market. Very cloudy and little drippy this p. m. with very low clouds.. Did not get tired.

Nov. 16 Yesterday at 8.30 the parkers and I took an auto ride to La Barranca.

I stayed and they returned. I started down the tramway and then took a trail and soon came on a 6-foot trail all paved with cobblestones leading down to the bottom. It is the most twisty one I ever was on skirting precipices.

I got down it only 1/2 a mile before I was loaded with the ground with specimens, a very rich flora of all kinds including grasses and shrubs, *Ancimia* *Notholaena* 3 sp. *Adiantum* 1 Sp. *Pellaea* 1 sp. *Selaginella* 3 sp. *Mentzelia* ? *Rhynchosia atropurp.* *Dalea* several sp., *Salvia* also, I surely got loaded by 3

p. m. Rained on me twice, then I started back lugging my load. At the top there were 3 eating stands and I ate 20 cts. worth. and then left my load by the fence and went over to the house to see if they had a phone but they had not. but told me an auto came out to the eating place and took passengers in for 25 cts. each. I was too tired to walk the 5 miles back to town and so I went back to the huts and they said a machine would be back in half

a, hour. So I stooped to tie up my bundles better and the machine came up. But the driver could talk no English told me to climb in among the Mexicans which I did and was whisked home. I offered him 50 cts extra to take me home from town and soon was at the hotel at 4.30 I arranged with him to come for me tomorrow at 8 a.m.. Noon. Went today to visit Prof. Ruge at his place. Senata Guerra No 30. Visited a hour and looked over his herbarium and books. He is a pharmacist and had some plants in little books. Put all my collections of yesterday in driers. Will try to change some driers this p.m. but it is cloudy up. Am all ready for another day at La Barranca. The river is the term mo. that comes from the n.e.. The Santiago flows from Lake Chapala and the

hurst some. Get tired easily. Feel fagged already. I don't eat much. Palmer and wife are here from Pomona. Night.

Termo comes in at a hairpin angle and joins it here. The formation seems to be nearly level volcanic flows of soft basalt.. The canons seem to be all erosive ones.. At the corner 2 blocks up from Villa Florida on Hidalgo are 4 self-pruning Washingtonias. The leaves falling as fast as in Erythraea edulis.. There are no Erythraeas here. There is a brick-red Bougainvillea here and also the other species. Got a big navel orange for 4 centavos. Don't see how they can sell them at that price. 5 p.m., very cloudy again. Still cold.

Nov. 17 Ordered an auto at 8, not here yet. Am going to La Barranca again. Bright and sunny. Waited till, near 10 a.m. for auto, then phoned for one. Cost me 2 pesos. Got to La Barranca and went down it half way. Got another load of stuff, then back to top and an auto soon brought me home for 1 peso. A bug stole a strap from my portfolio when I was out of sight, cost me 90 cts. Got some Geosintea, obviously is a native of rocky slopes as the other is. Got a Clematis near the top, a new species.. Got all but the Apocynaceous tree with the long and white flowers.. not all ferns are in condition to collect. One more trip will take me to the bottom. Ground gets drier toward the bottom. Weather fine all day. The Parkers leave tomorrow for Tepic. Some liveoaks appear on the benches, no pines.

Nov. 18 Cold and clear this a.m. and got a good rest. Bought a genuine machete for 3 pesos. Dropped down to the scholl to get the name of the prin. Miss Barbard from Pomona 1927 will loaf the rest of the day.. Spent the forenoon drying driers. There are many self-pruning Washingtonias here, with various leaves. Have seen no true Erythraeas yet. The trees here are as big and more robust as our var robusta and the whiplike peduncles are conspicuous.

Nov. 19 went without my breakfast but got some eats at canon. Walked down the trail about a mile and got loaded again. It was hard lug to get back to the top at 2.30, but an auto was waiting and so I got home at 4 p.m. and feel tired. Found a peculiar Liabrum and got all sorts of stuff., but did not get the

Apocynaceous tree. Too much of a load. Got a big *Triumfetta* and a *Dalea* and I surely feel fagged. Weather fine all day. Got a big *Desmodium* and a peculiar Composite straggling upward and outward like our *Neapphila aurita* and with 3 winged stems, 6-8 ft. high. and almost a vine, spreads out all over and is coarse. *Verbesina procata*.

Nov. 20 Nearly clear. Will spend the day changing driers. Slept well but had a hard time getting to sleep/.

Nov 21. At 8 a.m. went to La Barranca, getting there at 9 a.m.. Went down 2/3 way to the meadows and spent the time botanizing on the right. Some boys came along and looked on and stole a strap off my portfolio, the second one in a few days. In La Barranca. Got a load of stuff, 3-4 grasses and the *Tripsacum* also a tall one-like *Andropogon*, also got the apocynaceous shrub. Will have at least one more day there before I get to the bottom. There is a composite plant like *Acantochloa's* *Shookleyi* not yet in flower. The meadows have more species than I imagined they had. Got a tall *Adiantum*, and got home by 3 p.m.. Will loaf the rest of the day and feel tired again.

Nov. 22 Feel quite rested up. Went down to get a glass for cover to hydrometer which got broken, but shop not open yet.. Got a couple of driers off this a.m. In p.m. went west to the outskirts of city and got quite a load of stuff among them 2 cucurbs One lilike a cross between a cucumber and watermelon fruit 2 inches long, striped lengthwise and smooth. The other a very spiny *Echinocystis*, all creeping herbs growing by ditches and in waste places.

Nov. 23 Got up and put plants in press, nearly clear and cold Put a rubber sponge in cap for use against the heat. Went to La Barranca by 9 a.m. and got down to and through the meadow on the left and got all that grows there, no ferns. One more day and I will be at the bottom and finish it. Weather fine but some cloudy. Found an auto waiting for me at the top at 3.30 and is waiting for more passengers, for I am the only one so far. Today is Sunday and there is less traffic on the camino.. Feel some tired.

Nov 24 changed driers and started west to botanize and stayed out till 5 p.m. and got some stuff but not much. Had a long walk. Got a fern that I did

get before, and also a few others. Have cleaned up this region. Feel well still. It looked some like rain today and was quite cloudy in p.m. The ferns I got in a ditch with vertical walls 6 ft. deep. Will go to the Barranca tomorrow.

Nov 25, Put plants in press. It is nearly clear today and cold, but normal. Got out to La Barranca by 8.30 and went right to the bottom at power plant and then south to where the trail comes down nearest the river and then back to top by 1.30 and got a big and heavy load of stuff. It took me til 4.30 to get to top and had to hurry some at that, Was getting dark. Got home at 5.40 after dark. really 6.30 Feel rather tired. No change in flora to speak of. *Salix Bonplandiana* was frequent on the levees, also a big leguminous tree in flower but could not get the flowers. It must be over 3 miles to the top. Completed work in the canon and am well pleased at its thoroughness. Had a nice visit with a mex civil engineer on the way in. a graduate of Cornell.

Nov 26 Rather cloudy They sell turnips here under the name of *Jicama*. Went out to Colonias today and got some stuff in p.m. Just on the edge of the town by the R.R. Went down town to get some old newspapers for specimen sheets and took car back and got on the wrong one which landed me at the market. Had to hire a cab to get home.

Nov 27 I plan going to Empalme de Orendain on train. Yesterday I got *Argemone Mexicana* in flower, lemon-yellow plant 2-3 ft. high biennial apparently petals evanescent, *Lacharis* 4-6 ft. high, *Nicotiana glauca* is common, as an introduced plant. The shiny fruited *Mimosa* is a weak annual. Went to Orendain and got a pile of stuff. When night came I dropped down to Santa Cruz 3 miles down from Orendain ~~and tried to get something to eat but could not.~~

I stayed there til dark and then it began to rain and I started out for Orendain on the path and got to a big fig tree where I tried to sleep but it was too wet for a fire and a place to lie down, and so I sat up till I got chilled and then had to get up and walk around by groping till I got warmed up and then sat down again and tried to rest but it was no go and I got badly chilled, but stuck out till mornig and then I posted off to Orendain

which is nothing but a switch and water tank, hoping to find some Mexican there with food to sell. Nobody there when I got there and so I ditched my bundle and went out to botanize. Then an old woman came over and had some milk and cakes to eat which I bought and ate.

Nov 28 Got up at daybreak and walked over to Orendain. Had nothing to eat since noon yesterday. Feel a little fagged. Partly clear, Grass wet. All prairie here with 2 species of oaks and our pine scattered over the hills. Got the big leaved oak on the hill, a tree about 25 ft. high., erect and narrow and rounded topped., with corky bark in vertical ridges. The other species is a white oak and rarely if at all is a tree, Got some new Composites, one 4 ft. high, with many stems and light-purple flowers, did not stay long for fear some one might swipe one of my straps on portfolio. Yesterday there were three freights going north, so far today only one going north. Bar. 4800 ft. No cactus to speak of (a few tunas). Humidity of the Guadalajara region is 70 to 90 degrees fahrenheit. This is a great place for the natives to gather with eatables for train passengers and crew. Maximum elevation on the way here was 5400 ft.

Nov 29 Will dry plants and pack up preparatory to going home tomorrow. Yesterday was my last one of botanizing. Bought 2 magazines for 1 peso each, a high price to pay. To the south of the track at Orendain is a section house, and here and there over the prairie is a *Cacalia*, 3-5 ft. high with the same kind of leaves as the one at La Barranca, but big white flowers and a very interesting plant. Leaves erect like the compass plant *Silphium laciniatum* of Iowa. The formation seems to be white and horizontal volcanic ash, and the draws have little streams with opalescent water in them. which comes out of the soil washing out the impalpable soil.. Saw the first *Pteris aquilina* on the steep slopes of the cuts on the creek. In the bottom of one is an *Eryngium* with broad and undissected leaves. In wet places is a *Downingia*. The dry prairie has a tuft of a Cyperaceous plant a foot high, as, well as 2-3 sp. *Cyperus*. The grasses there are *Eriocarpus* and *Aristida*, *Muhlenbergia* and *Sporobolus*. The wet places have paspaloid species. The vegetation on the mesas rather

scenty indicating less moisture and poor soil. The usual Hyptis is frequent, and some Labiates, Tuna scarce. Saw at Guadalajara some fields of wheat. The country has scattered volcanoes and big plains and low mts. ranges covered by live oaks and long-leaved pines or two.

Nov. 30 8 a.m. All set to go, packed up and ready. Been here 17 days. Bought a shirt yesterday. Gave the girl a peso for she has been Johnny-on-the-spot all the time in taking care of my room. It has been a very satisfactory place to stay the Villa Florida. It used to be a Cong. school. Weather clear and still. Got off all right after a little rushing. Got a seat in the 1st class car with a Mexican afraid of propaganda. Time to go but nothing doing.. Change time here from local to R. R. setting watch an hour ahead. A catlan a small town left of a volcano Much Agave is cult here.. Out of live oaks here at 4500 ft. alt., now about 40000 ft. alt.. Magdalena 4500 in a great flat plain surrounded by low mts., all prairie and grass. 2 ft. high, beautiful region 4.45 p.m. Jas struck a cow and cut it all to pieces Dec. 1 Mazatlan Got here at 7 a.m. in the dark and went to Hotel del Mar and rested all day.. Slept some last night. Weather lovely. Bought Mildred a Serape for 30 pesos. Sea a little rough.

Dec. 3. Bought my daughter Mildred a beautiful serape for 30 pesos. Left Mazatlan at 5 a.m. for home and all set for Nogales.. Will soon be off, As we go most of the country looks wet and soggy. Beans 4 inches high. They are cultivating crops, We pass a field of Castor oil beans, very rank. We are near the sea. a little cardon, Culiacan, cottonwoods big trees along the river Guamachil a quite a town, mts 4-5 m. east Dec. 4 We are now north and east of Guaymas Had a good night. Getting colder. Q Querebabi, everything dead and dry, Looks frosty, Clear and cold. Grass everywhere, but all dead, Board houses. Looks more American, a great plain Much cattle Got to Nogales at noon and got through both custom houses in an hour. Weather fair and still. Everything frosted. Left for Tucson at 3.40 with all baggage checked for Pomona and by Express for home.. Feel much relieved. Nothing to do but ride home now. Have had a sour stomach for 3-4 days and get a package of soda for it and feel some better. Flowing. No wheat up in