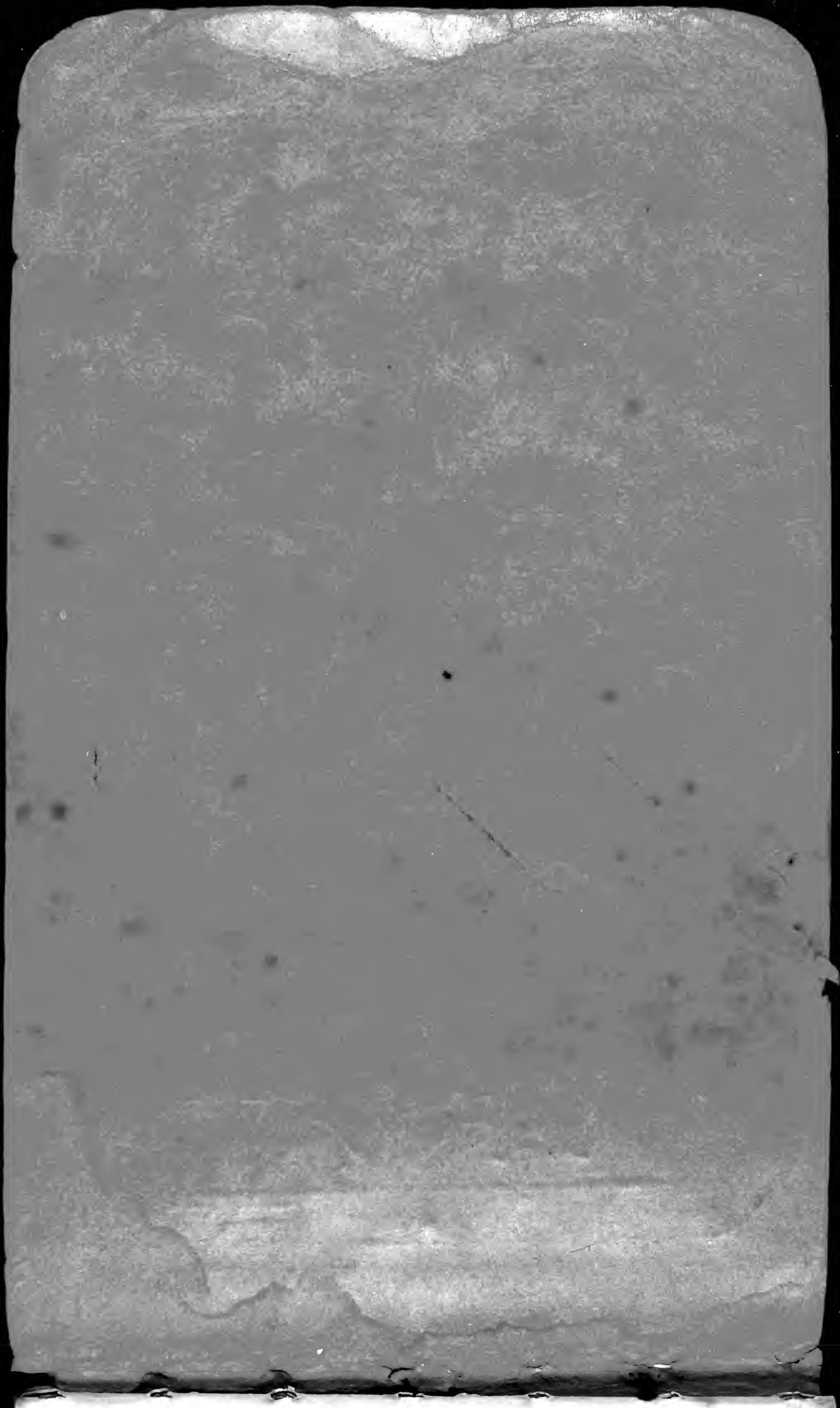




Botanical notes  
No. 1.

Ometepe. (San Carlos)



Botanical Notes.

On the way up to Castillo  
saw many ferns, orchids, trees of  
various kinds, etc. that we will  
probably have an opportunity  
to study more closely.

Cavilari = tree <sup>(acacia)</sup> with pinnate leaves <sup>compound</sup>

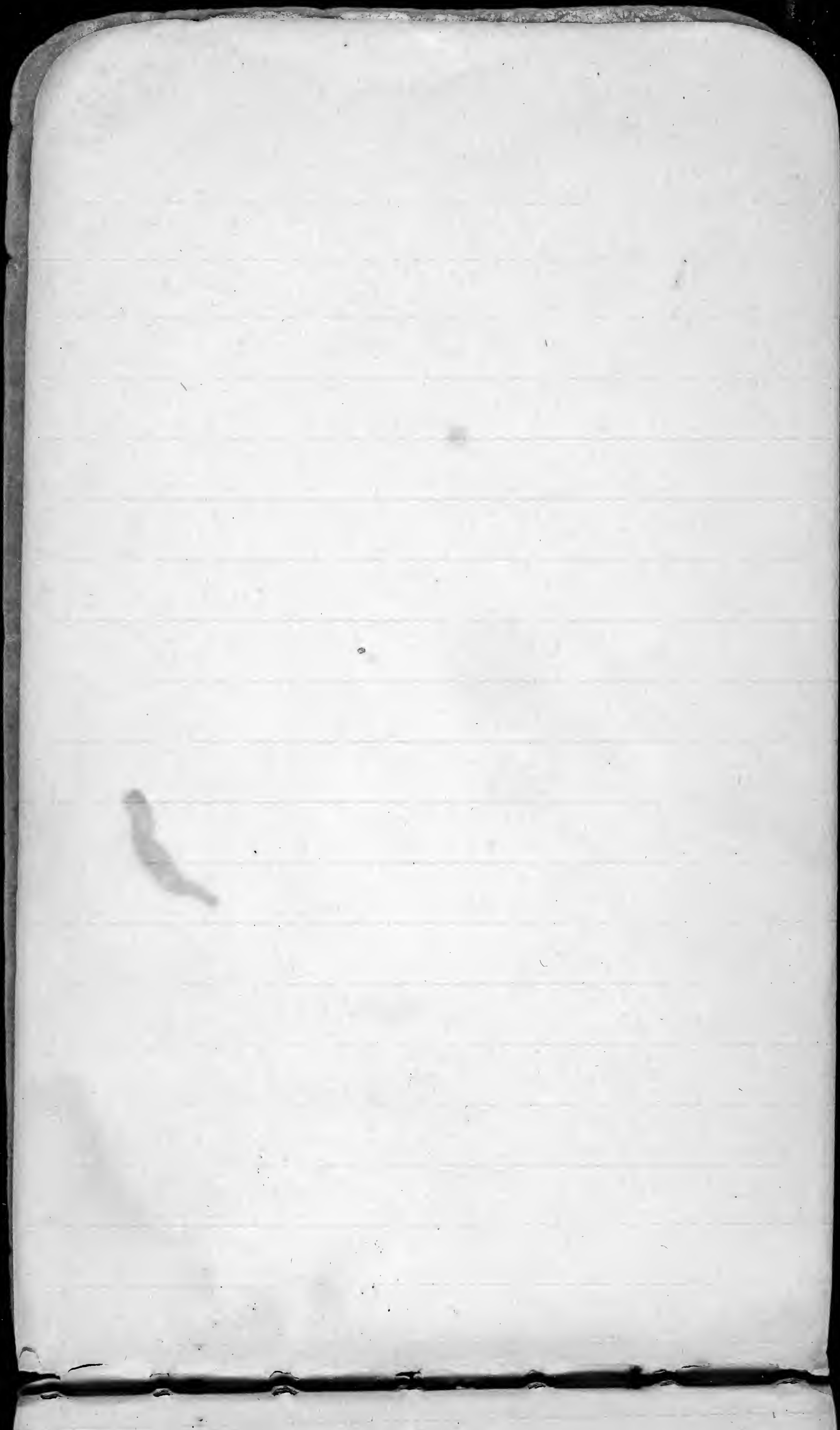
Uarium " (tree with palmate  
mamma leaves <sup>like</sup> castor oil)

Uaco - antedote

Spotted purple leaves

Jan. 2<sup>nd</sup> 1893

At San Carlos, Nic

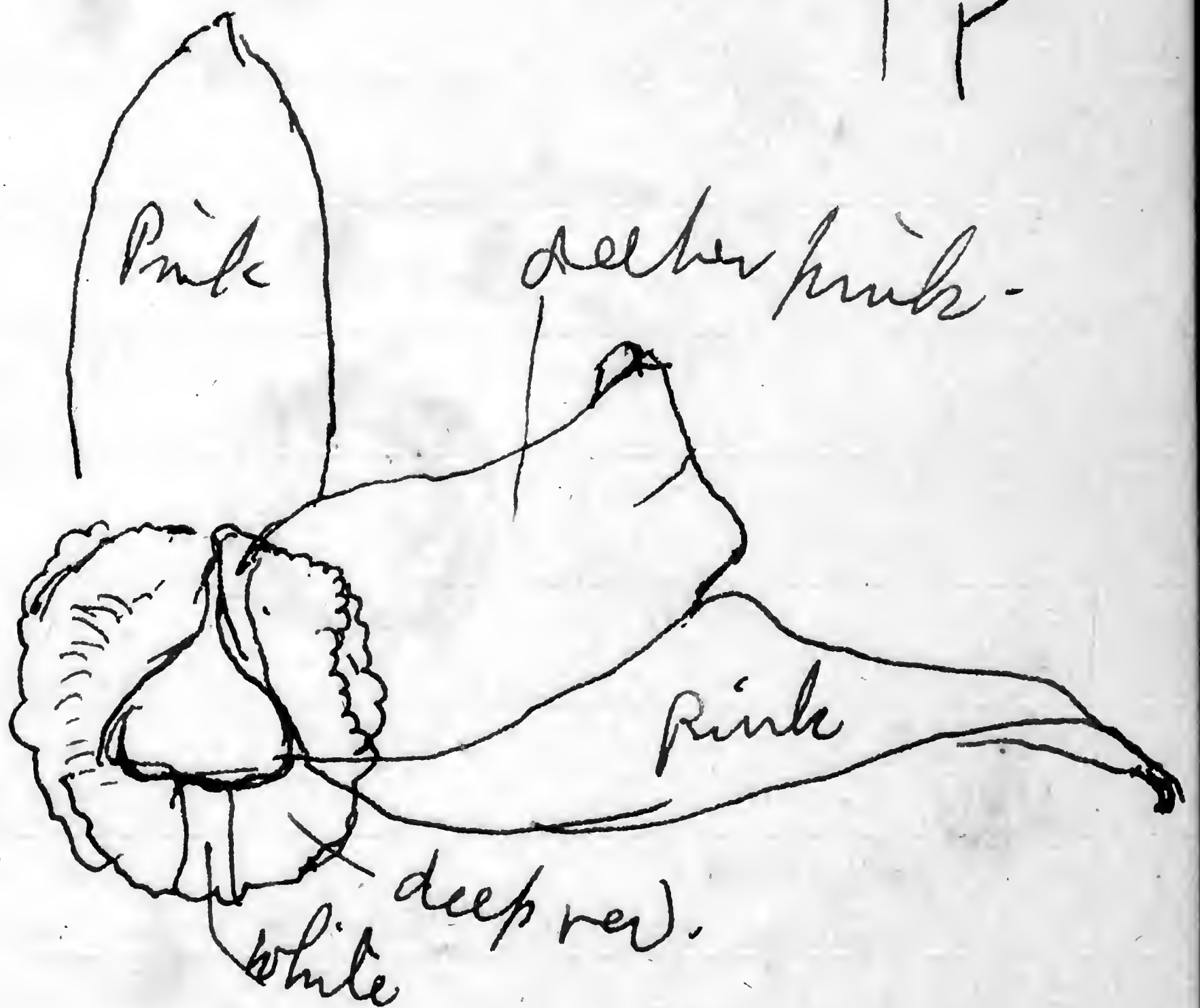
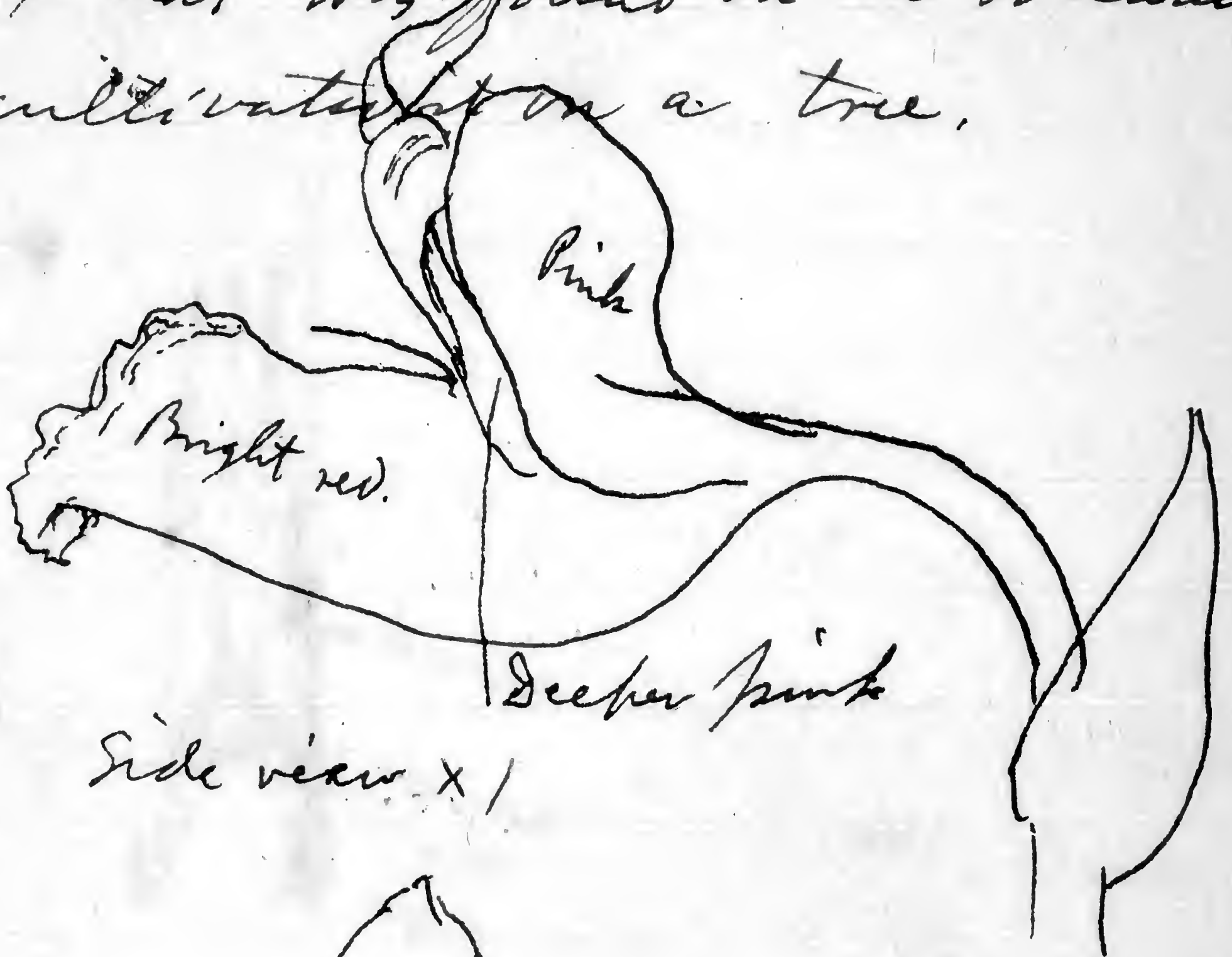


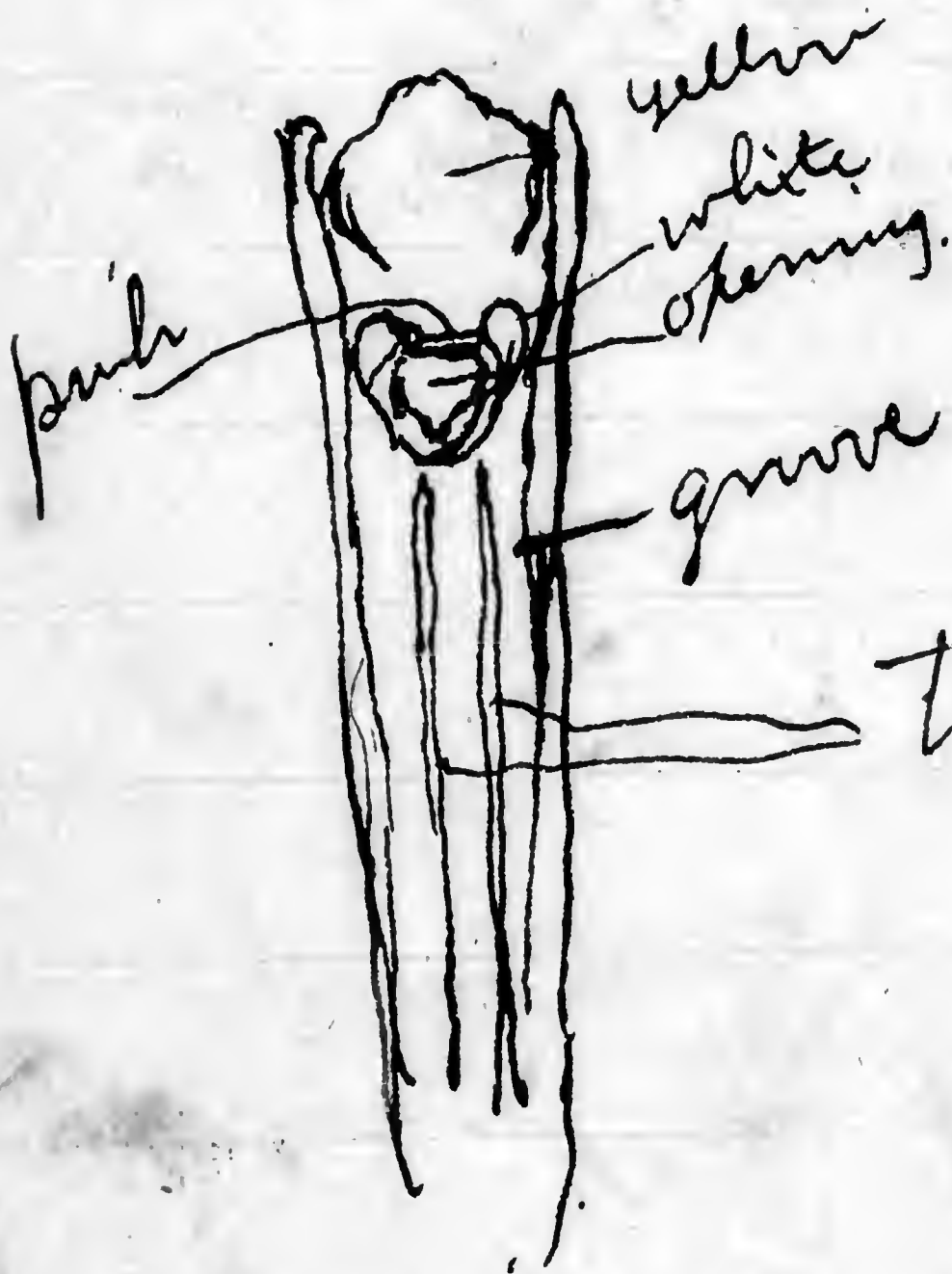
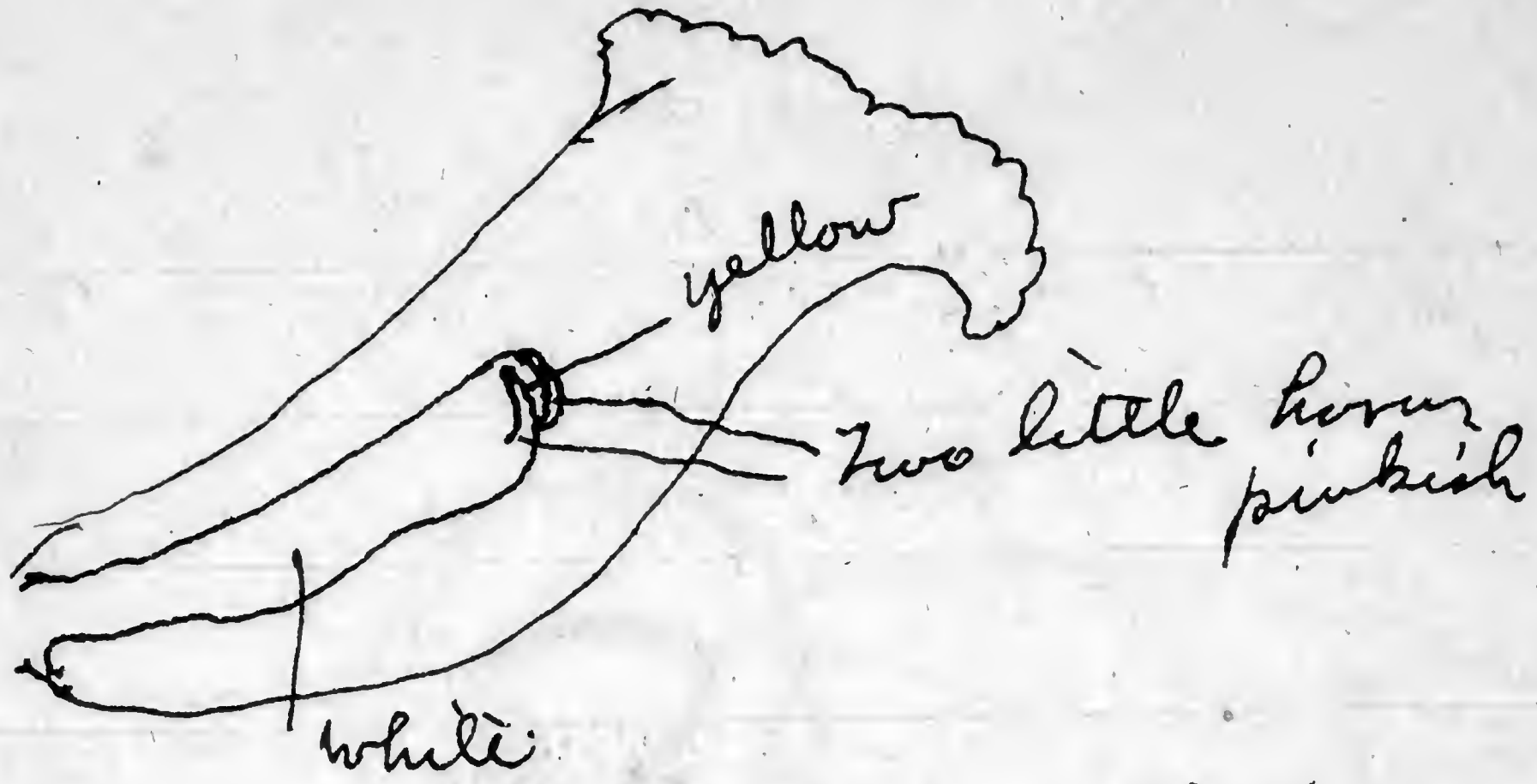
Q



Ometepe — Moyogalpa.

Mrs. Canton gave me an orchid  
Jan. 7 that was found on the volcano.  
She cultivated it on a tree.





view from below. X several.

two little white ridges (guides?)

See pic. no. 1 - Onetepe.



X wood <sup>!!!</sup>  
 Fruit Species no. 2 (yellow + brown fls)

Quasquite - used ~~for~~ in place of  
 quinine (infusion of flowers + lvs.)  
 in infusion with sugar (boiled)  
 for sweat in fevers.

A shrub which leans for support on  
 surrounding vegetation. Flowers when  
 an herb, but reaches 6'-8' as a shrub  
 + 1 1/2 in. in diam. Bark becomes rough.

Stigma - bright yellow  
 ♂ x 1 Corolla x 1 - brownish. Tube covered with short hairs.  
 Pistil Calyx x 1

Stamens come to point x  
 stigma to point y.

Corolla tube-funnel, somewhat irreg.,  
 5 lobed, but the 2 upper lobes almost one,  
 all obtuse, rounded.

Calyx membranous, white, with brown dots.  
 hairy, equally 2 lobed, lobes obtuse  
 a bract at base of each flower.

Stamens 4, in 2 pairs, the lower longer, epipetalous,  
 attached 1/2 way down tube.  
 Anthers 2-celled, (dehis. long, inverte) on sides  
 Pollen yellow, white (erect)

Corolla tube with ~~yellow~~ white hairs above stamens  
 Ovary superior, smooth, greenish style smooth  
 Ovary 2-celled, 1 ovule in each cell. <sup>Stigma one sided green</sup>  
 so that only 2 false partitions

wood  
Fruit

~~III III~~

yellow composite  
(shrub)

X Species no. 3

Moropolang -

Herb-infusion of used in place  
of quinine

shrub 2-7 ft high, 2 in. in diam

bark nearly smooth (except  
lenticeles), grayish.

Disc + rays both yellow.

Wood Fruit Species no. 4 (small fl. Cassia with small obtuse leaflets)

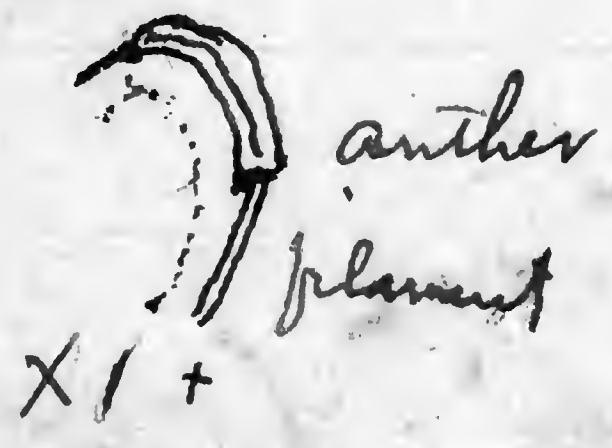
X <sup>b</sup> Avehou(g<sup>1</sup>) - infusion used for refreshing cattle.

Shrub, diffuse, 6<sup>o</sup>-7<sup>o</sup> high.  
(see sticks & fruit)

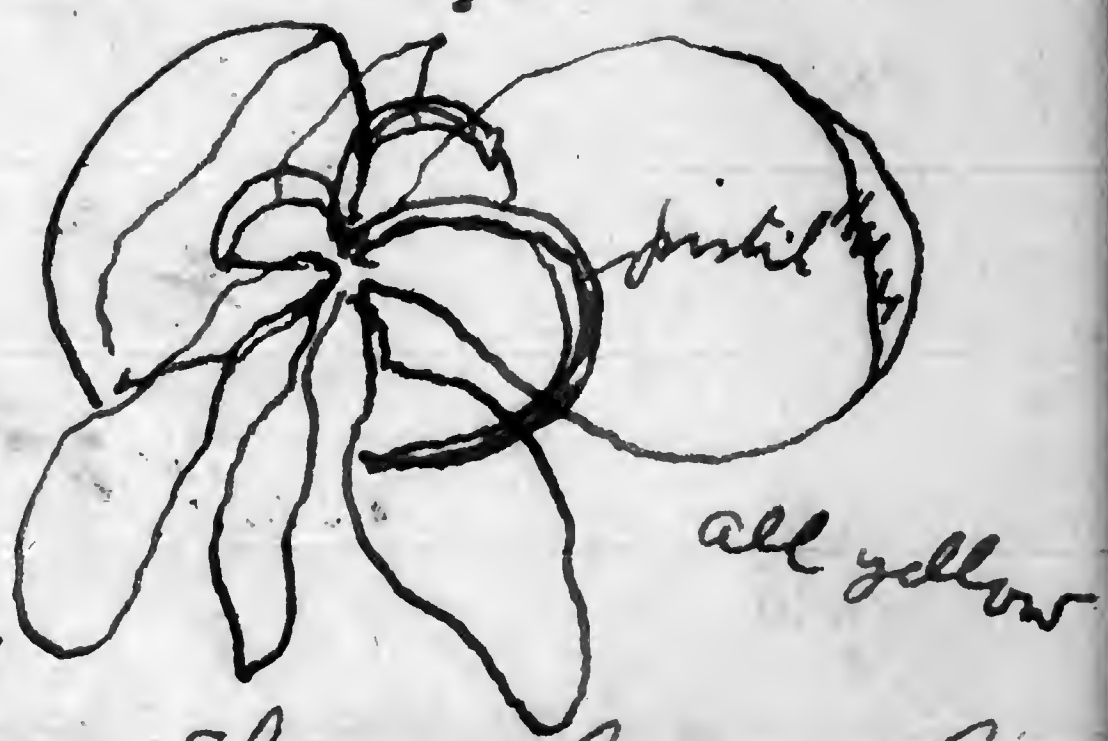


stamens 10, unequal, 2 or 3 usually abortive - hypogynous.

Anthers 2-celled, each 2-lobed with prolonged point, yellow, filament yellow stamen.



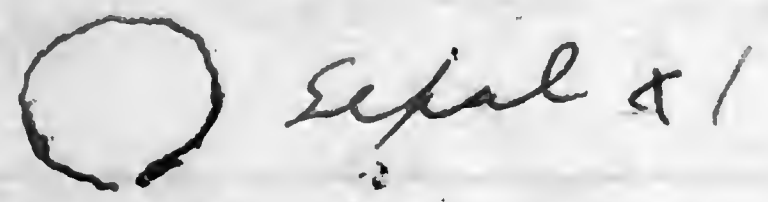
X1 +



all yellow

Calyx of 5 unequal yellow (greenish) rounded, very obtuse sepals,

Shows form of petals + variation in size. Lower 3 are clawed.



sepal x1

Ovary 4 sided, hairy at the angles.

Grows 4<sup>o</sup>-7<sup>o</sup> high & 2 1/2' in diam

fruit

Species no. 5 - Datura

used (the fresh leaves) to put  
on body in rheumatic pains;  
Whole flower 7 in. in length.  
Shaped much like ours.

Corolla purple outside, tube  
greenish at base; white inside.  
6 lobes, lobes acuminate.

Calyx  $\frac{1}{3}$  length Corolla, greenish  
purple, 5 lobes, lobes 2 on one  
side, 3 on the other.



Corolla purple  
modified stamens, united  
more or less to each other  
anthers purplish, 2 celled  
adnate.

hairy greenish Purple on back  
whitish inside  
Niche corolla double.

Style purple, stigma  
whitish, 2 lobed.

Ovary deep purple, tubercled, this  
one 3 lobed, 3-celled.

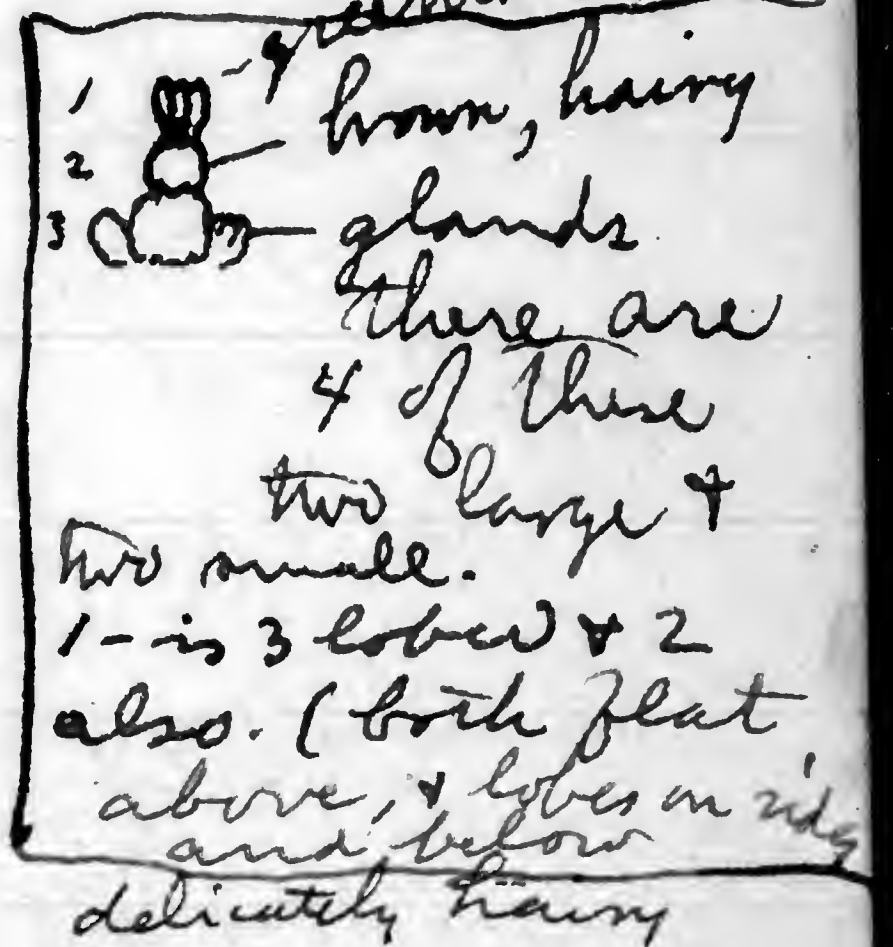
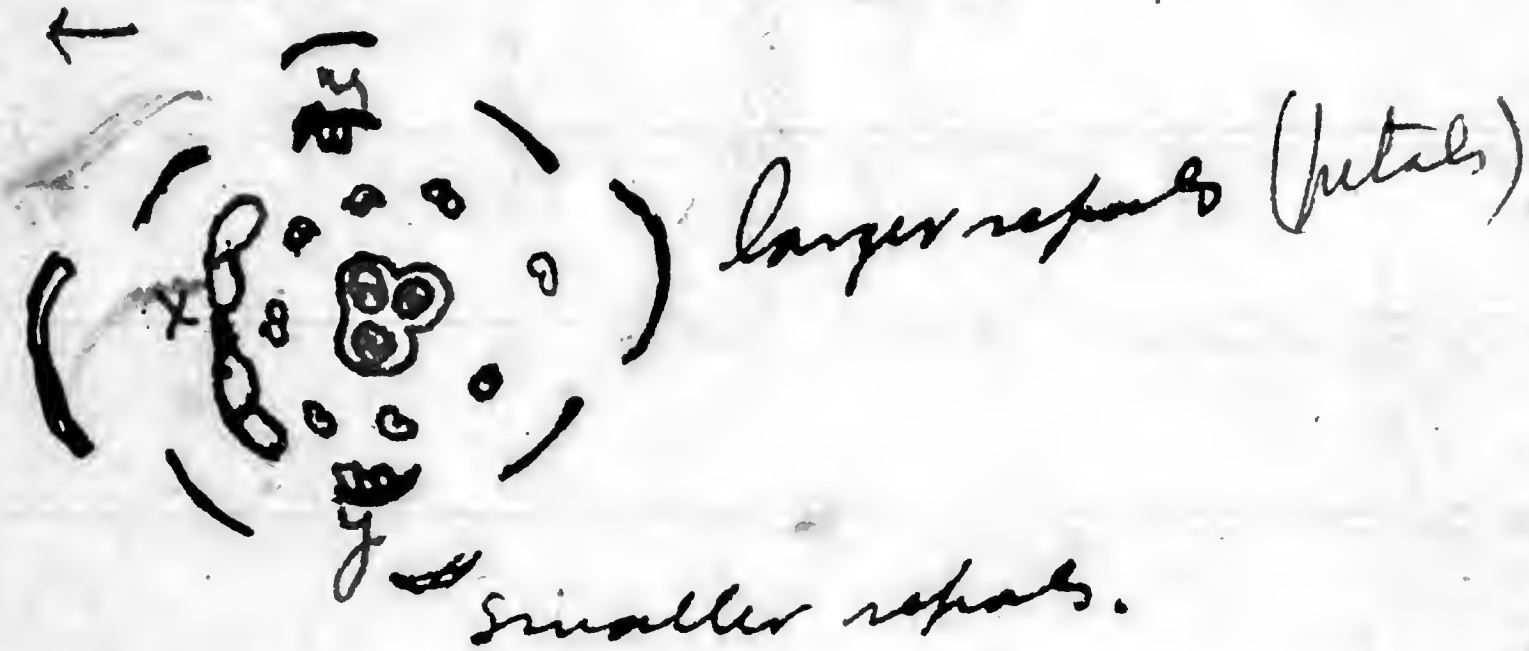
Wood

Species No. 6. (vine with small white fls.)

Woody vine  $\frac{1}{3}$  in in diam. + more, triangular, gray, bark thin, soft, nearly smooth.

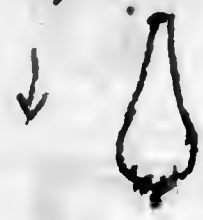
(Seems to send out some tendrils like a grape)

upper part of flower



Calyx - of 4 sepals, 2 oblong somewhat acute, greenish white, 2 erect (curved) longer, white, obtuse, somewhat hooded. The two longer are (probably) petals.

Corolla of 4 spreading, spatulate, white petals, clawed, + delicately cut at apex



Stamens 8, filament erect white, smooth, with few white rigid hairs. Anthers small, transversely 2-celled (?) yellow, filaments unequal in length.

Above the stamens is a double saccate body, tipped with obcordate yellow appendages, otherwise white, (see X)

hairy in its part. hollow. On either side (see y) is a smaller, similar single body, white



ovary 3-celled  
embryos numerous

simple yellow tip A A

Pods III

Branches III

Fruit

Species no. 7

Bignonia (large, yellow.)

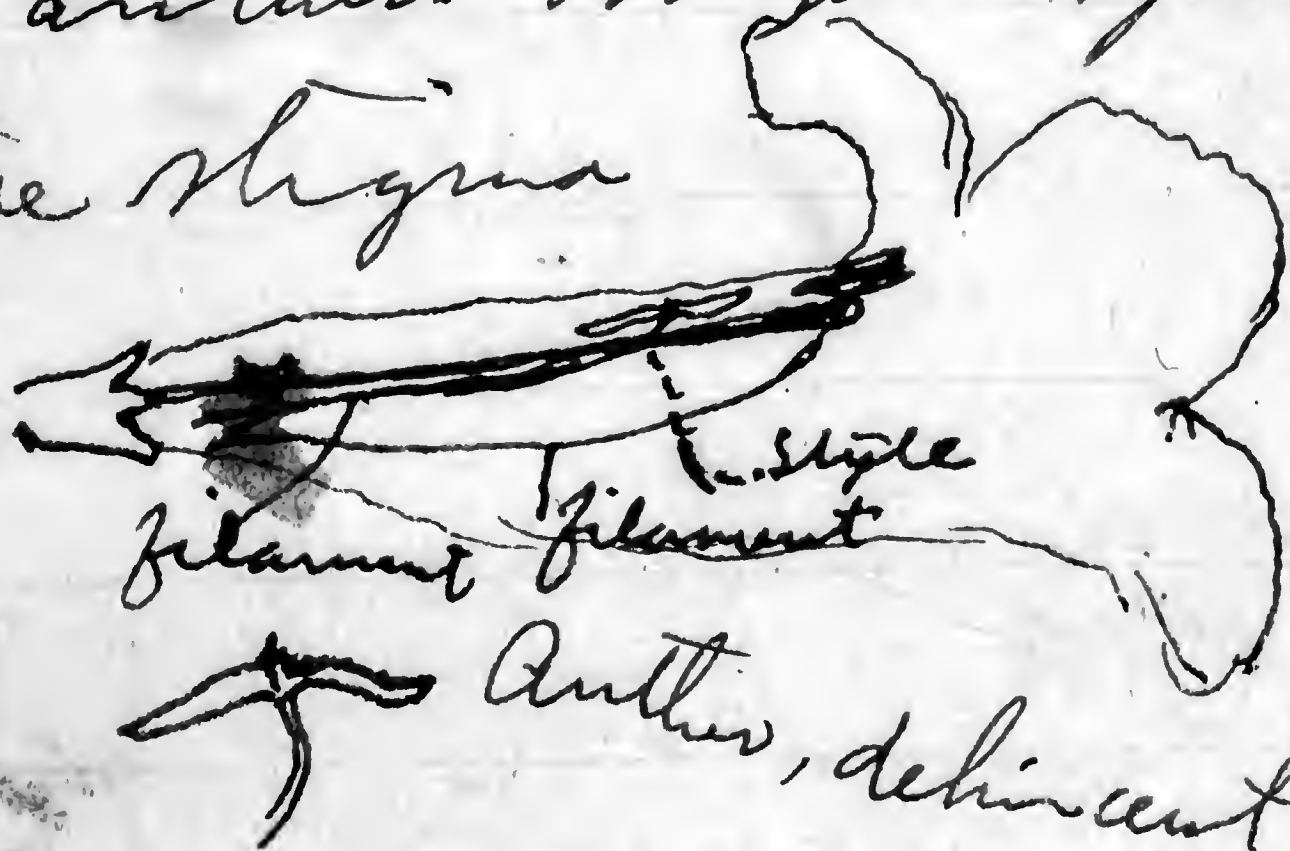
Plant - grows to be a small tree 15' high and 8 in. in diam.



Calyx - 5 lobes, smooth. yell.-green.

Corolla - Murch. - 5 lobes, somewhat 2-lobed. yellow, with reddish lines inside. somewhat hairy inside on lower side.

Stamens - 4, curving outward & upward in two pairs. The lower longer, & curving outward more, all 4 anthers brought together above, near the stigma



somewhat 2-lobed upper 2, lower 3 lobes

stigma flat yellow.

Ovary superior several seeded smooth, green axile placent.



Wood  
Fruit

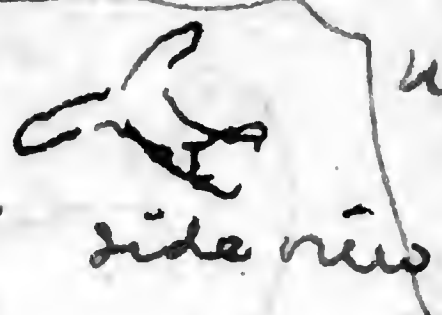
Spec. No. 8 (Alder-like)



8x1  
1 flower

flower turned  
a in the lower part.

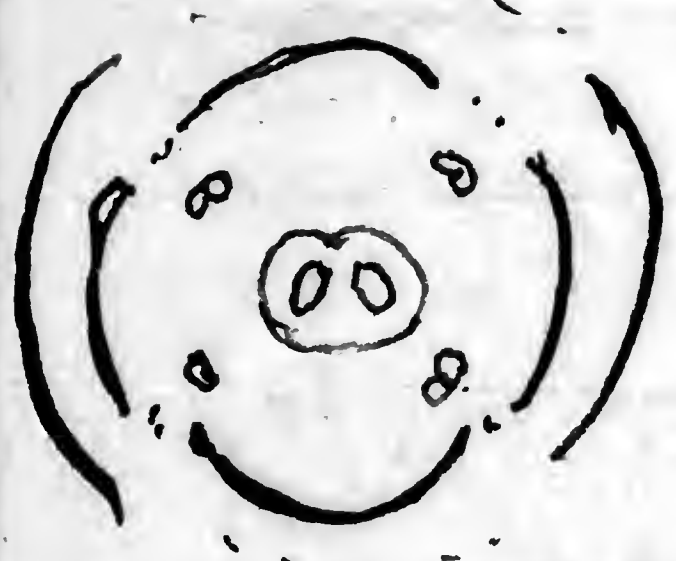
Corolla monopet, 4 lobed,  
lobes rounded, irregular  
white, yellow in  
throat.  
smooth outside  
hair in throat &  
ciliate lobes.



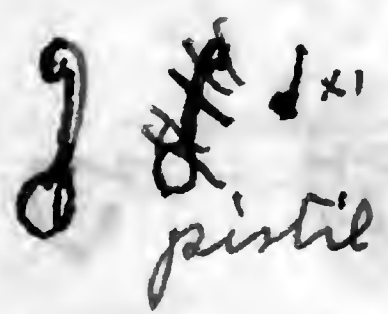
Calyx 2-lobed, white with hairs,  
somewhat inflated, lobes brown, acute.

Stamens four, 2 lobes farther forward  
(longer) the two upper shorter.

anthers minute, 2-celled, brown  
filaments very short. (anthers almost  
sessile)



The upper pair of anthers attached  
near throat.



Style about as long as longer  
stamens.

ovary green, smooth, superior  
style white, stigma green  
style attached a little to one side

of ovary.  
all parts are very much like  
no. 2.

2 celled, one ovule in each cell

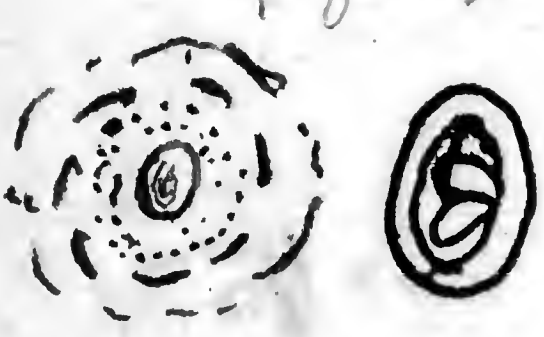
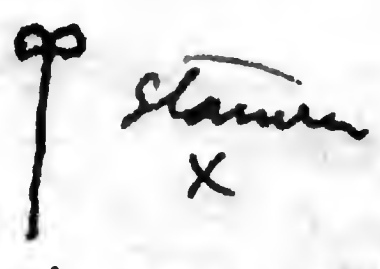
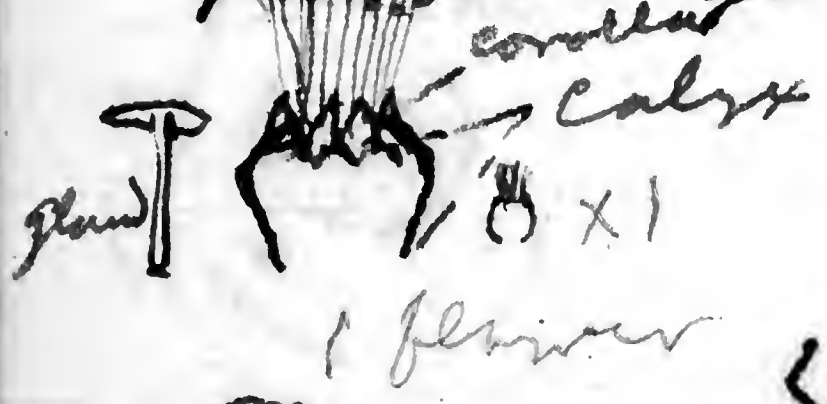
ovary of no. 9 - one celled with  
 2 rows of ovules (several ovules).  
 " is it 2 celled?

Shrub or tree  
 15-20 high,  
 4" in diam.

~~III~~  
Species no. 9 - Cornusuelo

Red ants in spines,  
 Flowers yellow, in catkins

♀ red topped  
 glands among  
 the flowers.



ovary smooth, green, superior  
 style whitish, zigzag,  
 slender, stigma minute

terminal  
 calyx in flated, membranous, obtusely (slightly  
 4 lobed, reddish & rough on margins.

Lobes of corolla about 7 erect, acute, brown  
 Stamens very many, or slender yellow filaments,  
 exserted anthers small, 2-celled, imbricate, yellow  
 Stamens attached to very base of corolla on receptacle.  
 style about 10 = to stamens.

Fruit, Species no. 10 - IIII

Small yellow Composite with  
 ovate, serrate leaves, opposite.  
 Disc & rays yellow. Rays pistillate  
 Chaf of narrow scarious scales =  
 to disc flowers.  
 Pappus seemingly none



Fruit <sup>||||</sup> No. 11 (Red samara)

Plant - A woody vine, perhaps  
20-30 ft long, with a brown bark  
which is longitudinally irregularly  
wrinkled (perhaps in drying)  
Becomes 3 in in diam, dark &  
rough.

Roots <sup>||||</sup>  
Stems <sup>||||</sup>  
Fruit <sup>||||</sup>

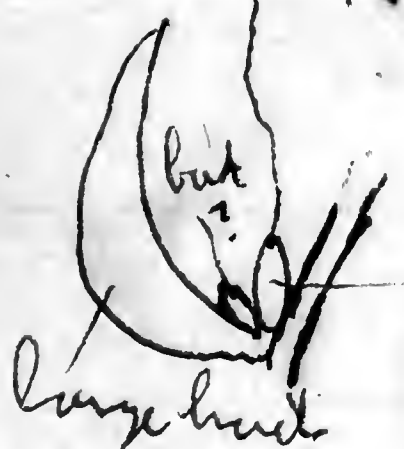
No. 12 (Brunella like fruit)

(Verbena?)



somewhat  
ciliate.  
large bract.

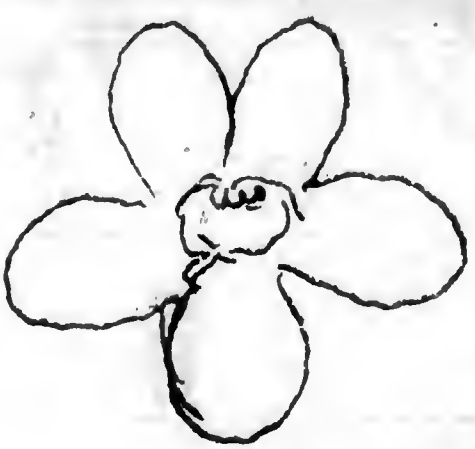
hairy bract. (pinnate, ciliate)  
little bractlets.



calyx enclosing ovary

ovary 1-celled 2  
parietal placentae.  
Seeds several, flat,  
winged & hairy  
Ovary white, somewhat  
hairy

stigma



Corolla slightly  
irregular  
light purple.  
stamens attached here  
hairs on tube  
retrograde.



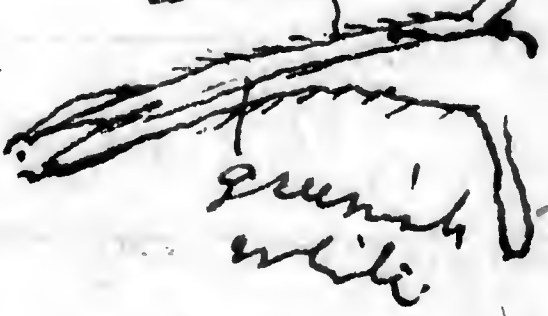
lobes of calyx 5, long ciliate, lance.

anther linear, green.

style white slender, stigma flattish, curved,  
light purple.

stamens 4, epipetalous, filaments short.

On 2 pairs, upper a little shorter. filaments  
smooth, white, anthers 2 celled, light violet, dehiscence  
longitudinal, pollen white.



greenish  
white

with white hair

111

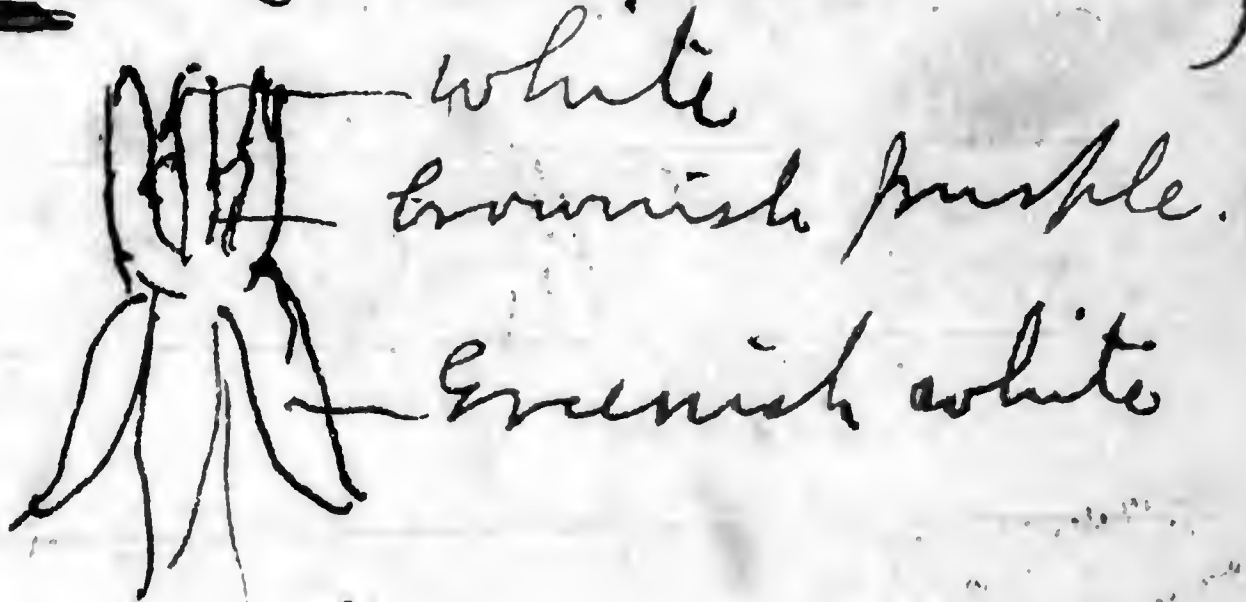
No. 13 (see 52)

X Yellow, coarse, herbaceous  
composite, with somewhat  
hairy stem, & opposite (somewhat  
connate) leaves.

2 roots.

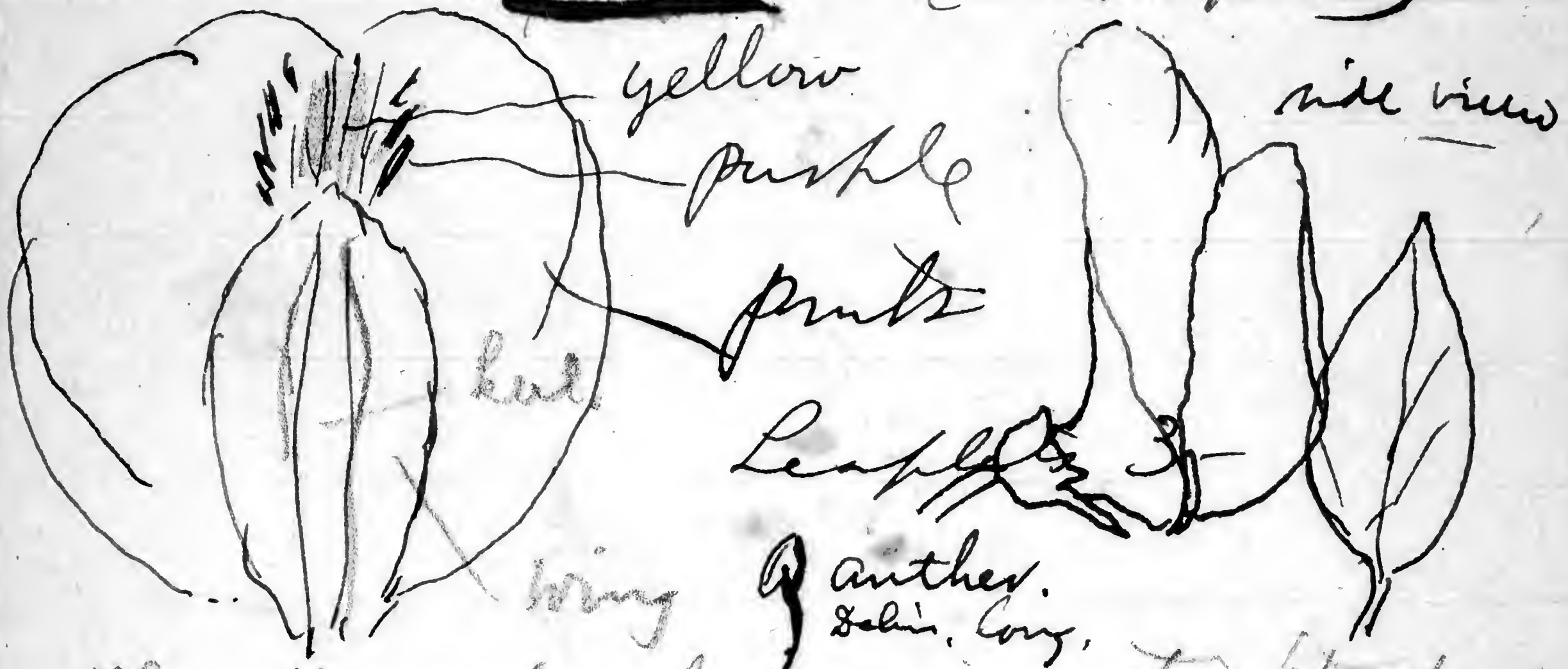
1. No. 14. (white milk-weed)

Procurant  
Leche de perro



Use milk on boils.

11 7 pinks No. 15 - (Large pea)



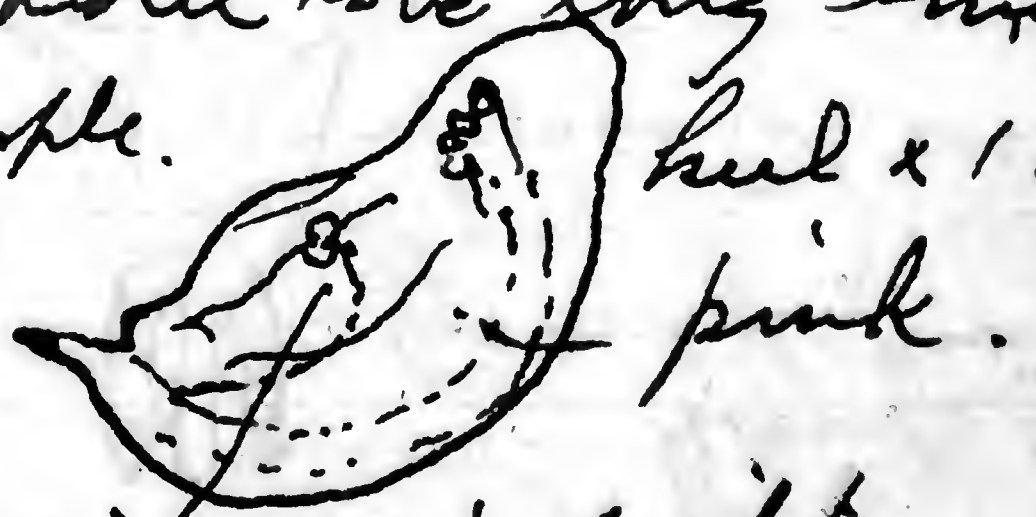
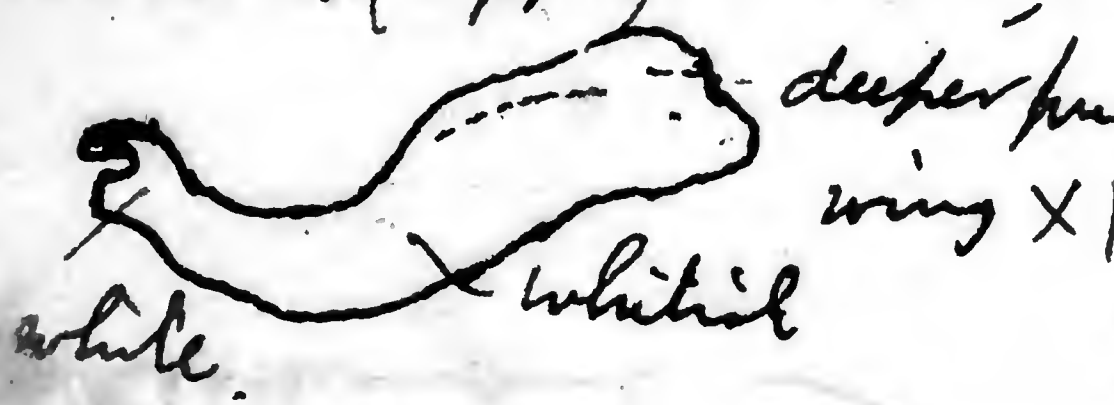
The flower is always inverted (standard down)

Flower sometimes almost pure white with the exception of the purple streaks on standard.

Each flower with 2 bracts (broad) at base of calyx.

Calyx 5 lobed <sup>tip</sup> upper (lower) 2 lobed, lobes small, greenish-white, minutely hairy, all acute.

lower (upper) 3 lobed, middle lobe long linear, deeper purple.



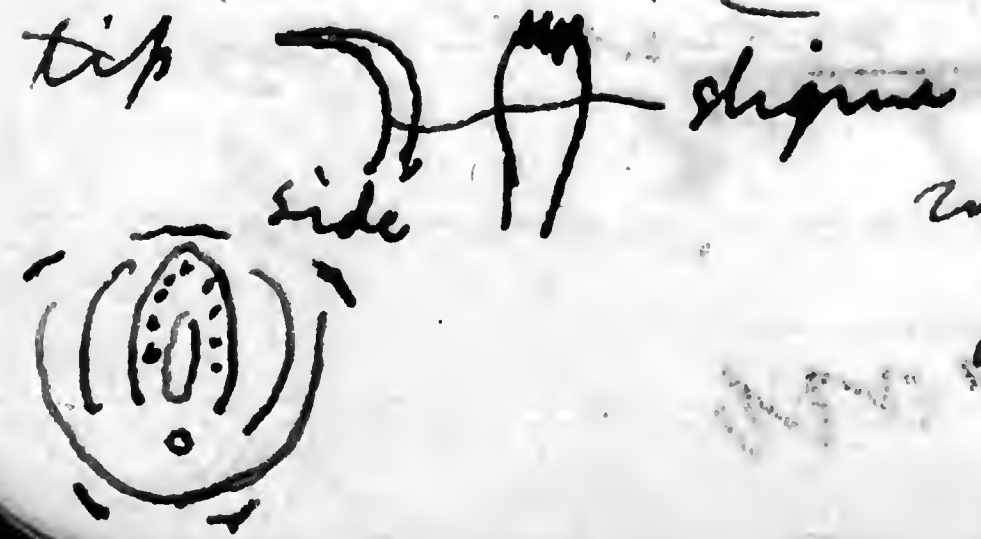
Keel coherent on both sides, wings slightly adherent.

Keel completely enclosing stamens & pistil.

Stamens 1+9, filament white, anthers yellow,

2 celled, rounded (short).

stigma transversely flattened, green + fringed at tip. Ovary somewhat hairy with yellowish glands at base, green.



111

Fruit.

No. 16  
very

Pea with hairy pod.  
No fls. found.

X

Branches 1111

Fruit.

No. 17

Climbing milkweed. Fruits but  
no fls. found. Fruit smooth

X

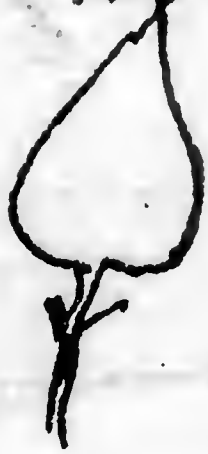
Fruit + seed.

~~TH~~ TH 11  
No. 18

Pea with

smooth brown pods.

Leaflet



Fls. small.



green

beak.



purple

white

x1.

spiral beak:



Bright green toward  
tip -

wings obtuse, purple, white  
at base. Standard short, 2 lobed,  
green. beak white, then green, &  
finally purple at tip.

The stamens + pistil run up into beak.  
Stamens 9 + 1, the upper filament with

to base at base above.

filaments 2 + 1, the upper filament with  
a tubercle at base above  
upper filament.




Plant = a herbaceous vine  
twining (by stem over trees &  
shrubs, probably 15' long.

May be more or less.

Keel of two petals.

calyx 2 lips  
upper 2 lobes, obtuse  
lower 3 lobes acute  
3

111 No. 19 - Pea with very large <sup>Pod</sup>

 - leaflet. (same as no 52.)

For description see no

no. 52,

fruit + seed

X III

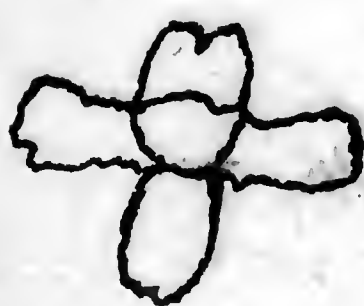
Fruit

light

No. 20. (Tubular, red, with whorled leaves.)

Calyx - monosep., lobes 5, acute, lance, each with green rib.

Corolla - monopet., 5 lobed, 2 lipped. Upper<sup>2</sup> lobes scarcely separated, lower (+ lateral) 3 nearly equal, obtuse.



lobes of corolla.

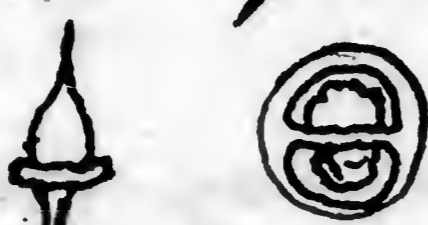


Corolla hairy inside (hairs yellow) on lower side.

Stamens 4, <sup>epipetalous,</sup> two upper shorter, 2 lower longer, curved upward, filaments white, anthers of versatile, 2-celled, pollen light yellow.

Style + stigma white, stigma slightly

enlarged, slightly 2-lobed.

Ovary superior, placed on yellow disc  2-celled, axile placentae, ovules 1 in each cell (?) very rough, (or a great number of very minute ovules.)

Fruit

No. 21. (Large yellow flowered, that I at first impression called *Oenothera*)  
Leaves alternate, ovate, coarsely dentate.

~~Calyx of 2 lanceolate sepals, reddish green  
a little beyond tube of corolla.~~

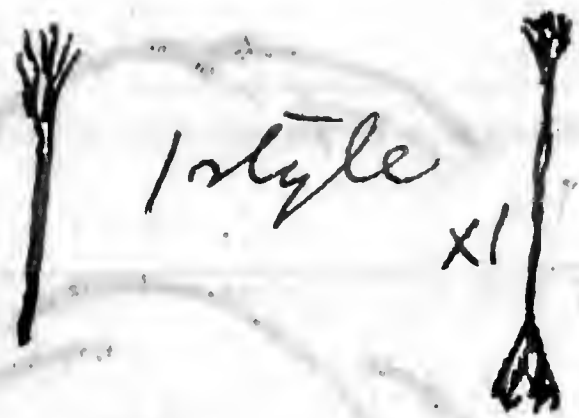
Corolla - funnel-form (broadly), tube short, whole thing yellow, 5-lobed petals  
lobes wedge shaped, somewhat acute, delicately cut or fringed towards apex, brighter yellow at apex.



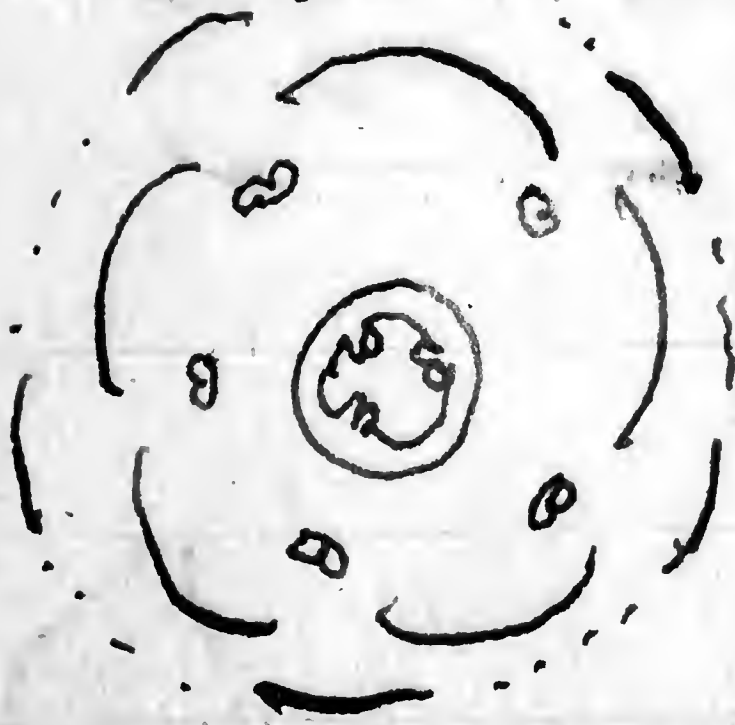
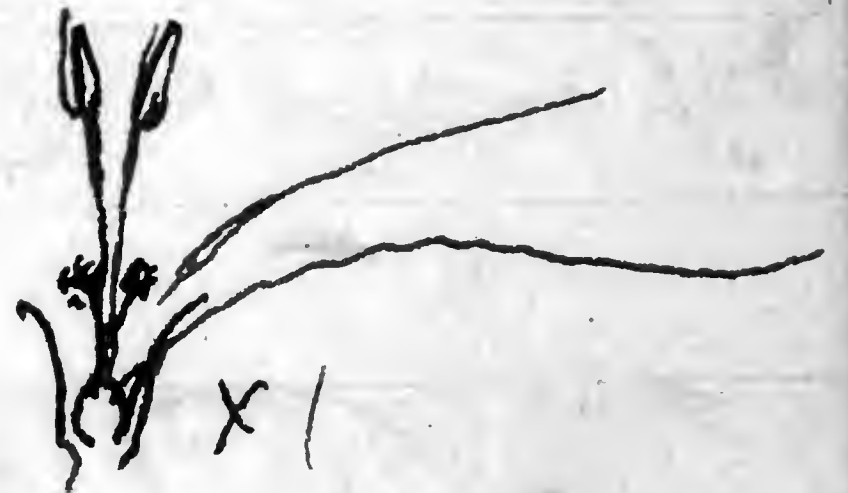
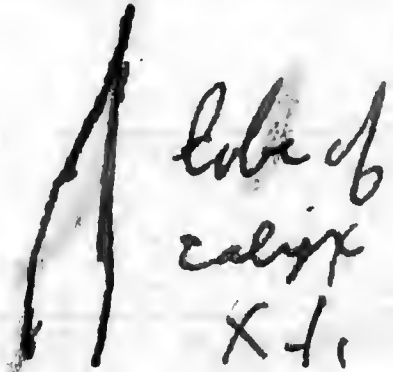
Calyx, <sup>yellow.</sup> monop. greenish, lobes a trifle longer than tube, all somewhat hairy, lobes 5, lanceolate, acute <sup>or acuminate</sup> brownish towards tip?

Bractlets 2 linear, green, at base of calyx.

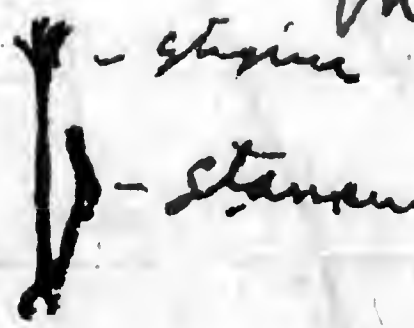
Pistil - ovary superior, covered with white appressed hairs; greenish styles 3, <sup>bright</sup> yellow, stigma brush-like



ovary 1 celled, 3 parietal placentae, ovules numerous



Petals white hairy on the short claw



Stamens erect, exserted  
anthers 2 celled, lobes long, bright yellow, filaments light yellow

Stamens ~~seem to mature first~~ + pistils of two lengths



Fruit

No. 22. Large red Abutilon



Bright red.



bractlets



petals

sepals

Two lobes of calyx larger, all hairy. One slit at tip.

♀ anther

bractlets

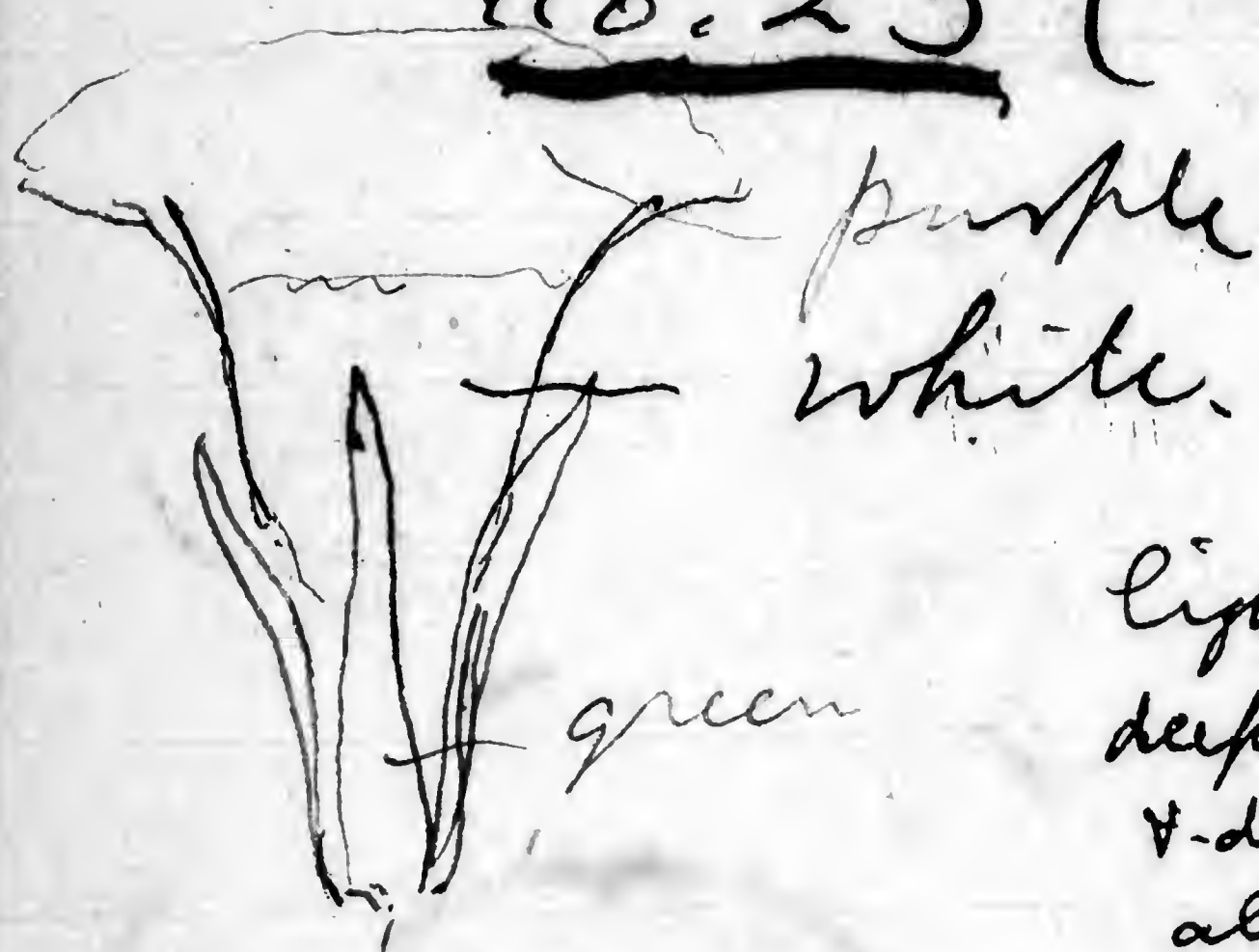
ovary white, smooth, superior, 5 celled, axile plac. (1 ovule in each?)

Column of stamens bright red, anthers 2-celled

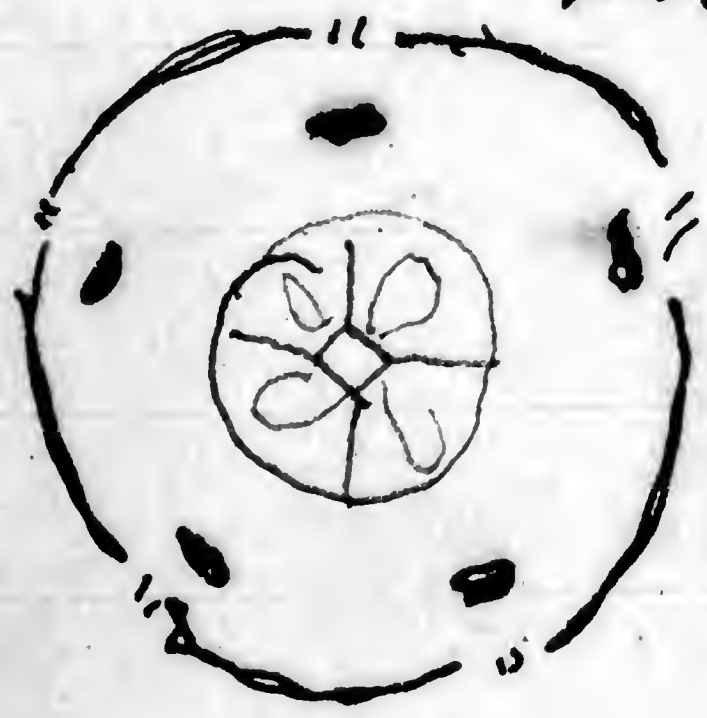
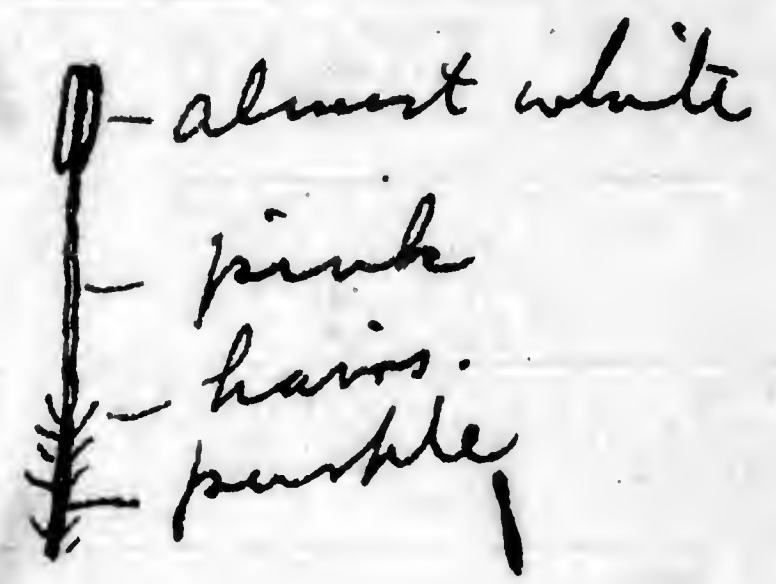
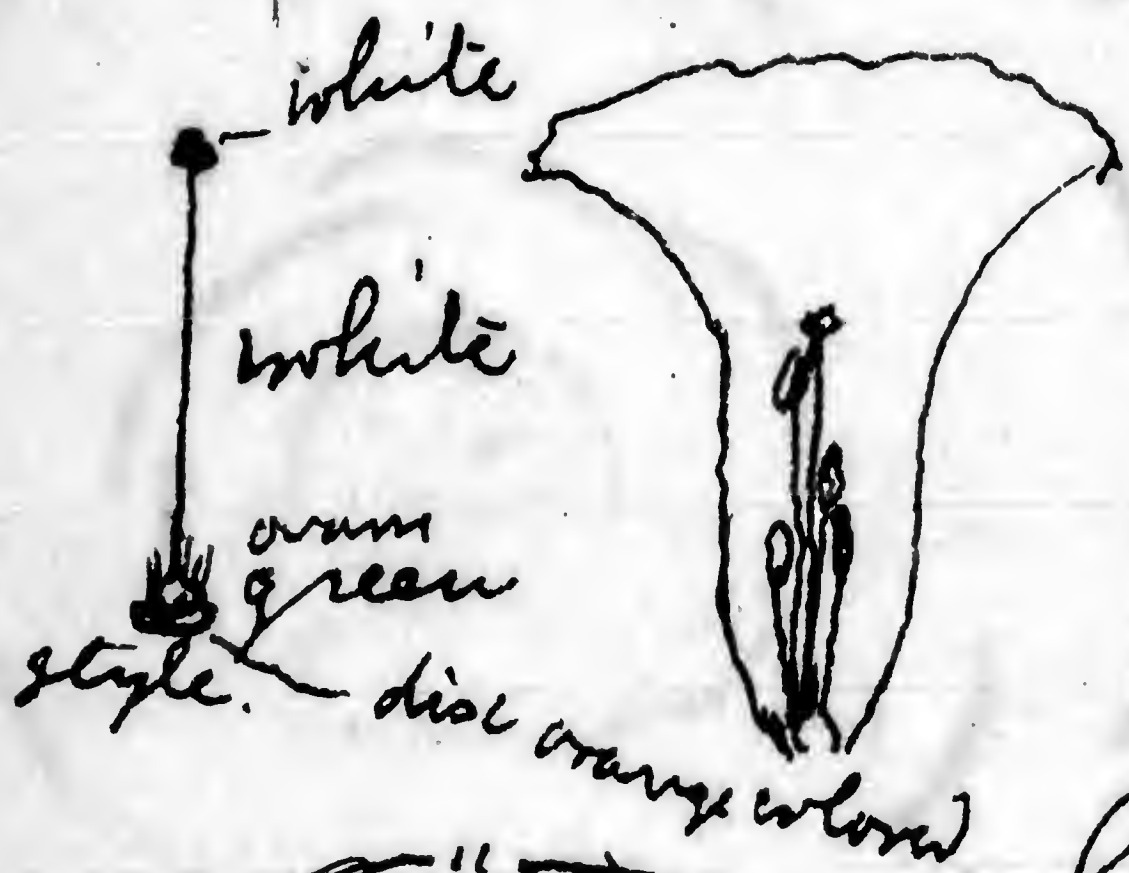
Shrub 15' high x 3-4" in thick. bark gray, smooth

Fruit

III  
No. 23 (small purple  
morning glory)



light purple.  
deeper inside  
& deeper lines  
along creases.



Anther innate, 2 celled.

Stamens attached to  
corolla at very base.

stigma capitate, style  
very slender.

Ovary with long white hairs.

4-celled

Fruit.  
wood:

No. 24 (Green, unopened, fringed)

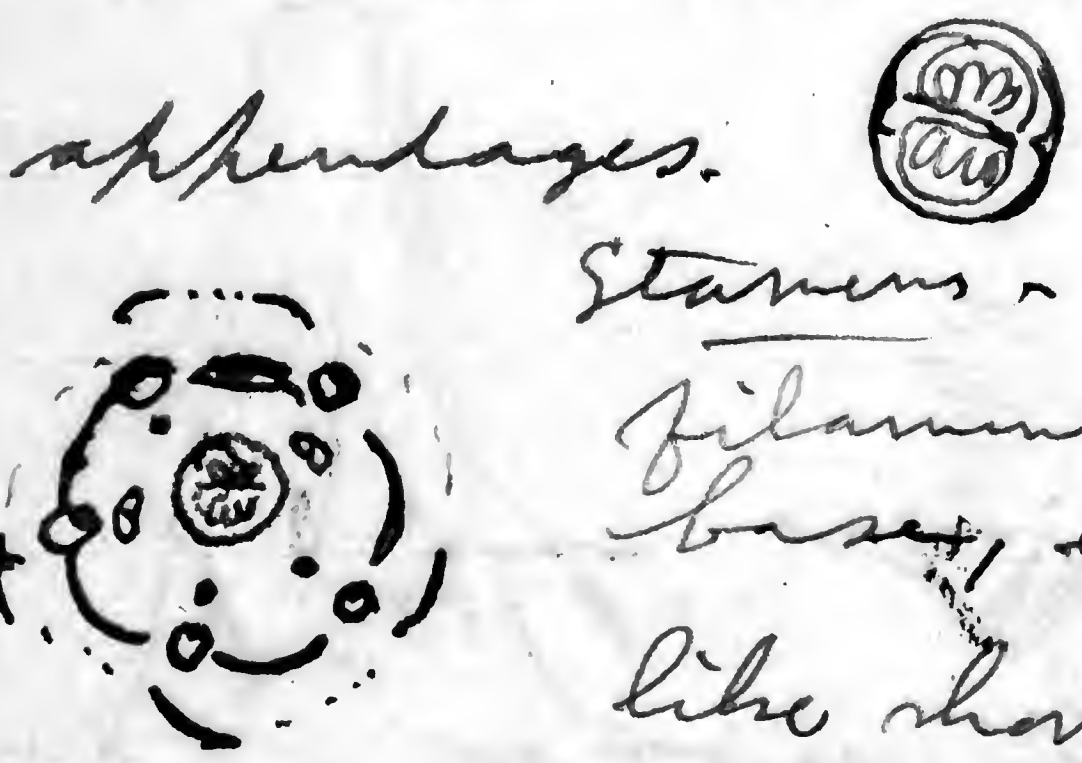
2<sup>o</sup>-4<sup>o</sup> high, somewhat shrubby stem  
toward base.



Lobes of calyx 5, acute, tube ribbed  
(1 rib for each mid. of lobe, + one between  
two lobes, = 10)

Lobes of corolla broadly  $\Delta$ , very  
short, + curved in so that they close  
throat, margins short-ciliate.

between lobes are long fleshy, green  
2-celled, many ovules.



Stamens - 2 well developed, 3 rudimentary  
filaments greenish, hairy at  
bases, epipilators, rudiments  
like short filaments.

Anthers; imbricate 2-celled, long.  
dehis. yellow.

Style slender, whitish, stigma small,  
capitate, ovary smooth, green  
disc orange.

wood

Fruit

~~III~~ III  
No. 25 - wh. flowered, shrubby

*Eupatorium*; lvs. not  
so coarsely serrate.

fully 1 in. in diam. + 8 ft high

No. 25

Fruit. no. 26 - Blue pea (the commonest  
fl. at Moyogalpa)



Herbaceous, probab 8°-15° long. Creeps  
over everything. A nuisance.

Stamens 1+9, about = to style, filaments  
white, anthers versatile, short, 2-celled, yellow.

Pistil - ovary 1-celled, etc (Leguminosae)  
hairy above.

Style smooth, curved upward, white

Stigma small, capitate, greenish.

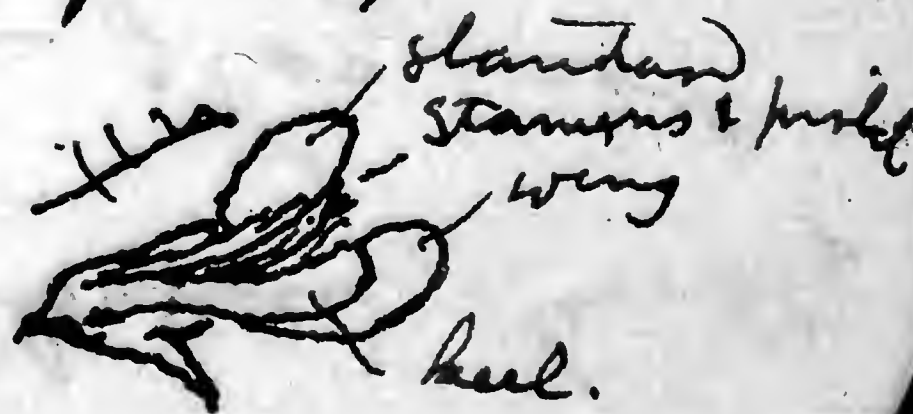
Calyx - Monous, purple, white-hairy, 2 lips,  
upper lip slightly 2 lobed, lower with 3  
lanceolate acute divisions.

Corolla - papil., blue (with whitish tinge)

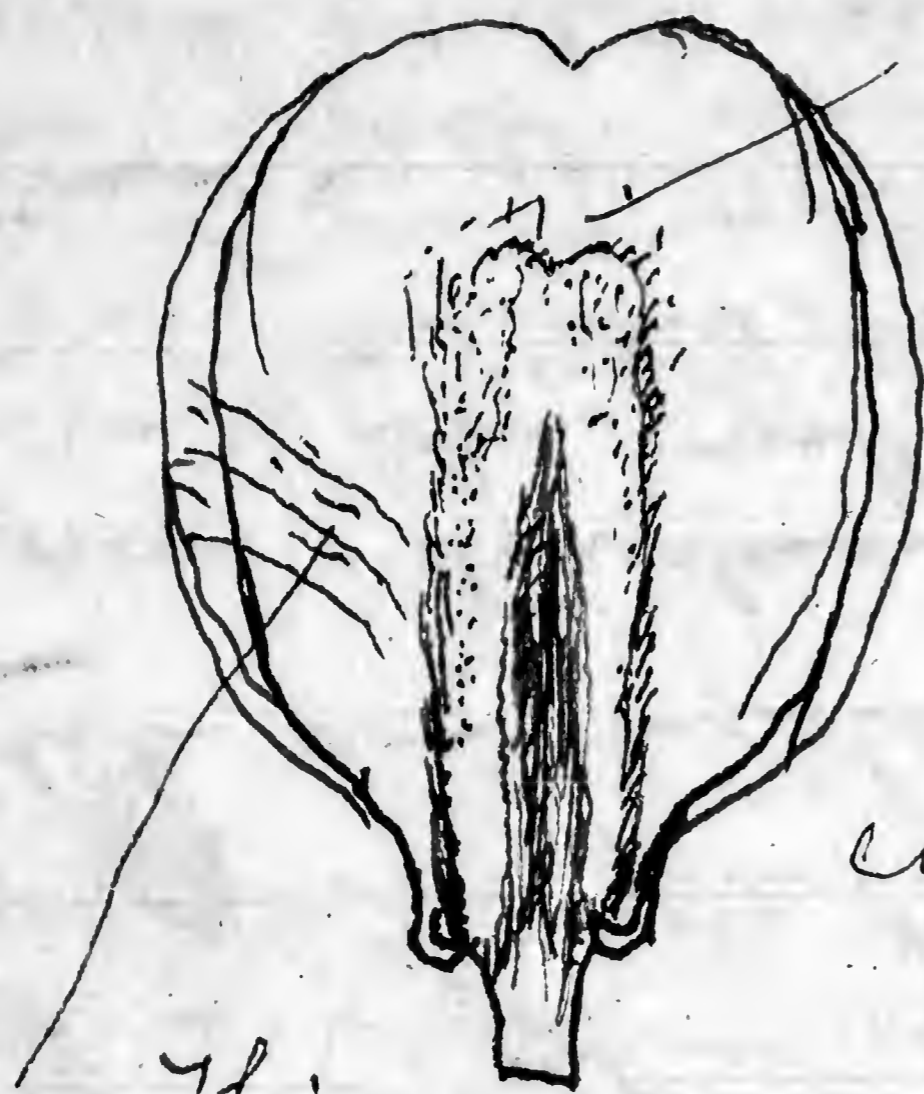
standard with yellow middle, <sup>this</sup> deep blue around  
edges, & with deep blue (purplish middle

Keel not enclosing stamens & pistil, & not  
united (2 petals separate.

wings + keel somewhat covering



(over)



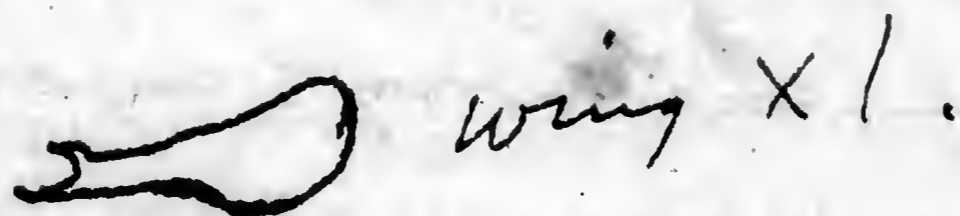
deeper blue around  
the lighter area

||| = purple

... = yellow.

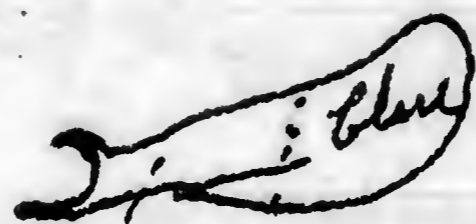
enlarged.

this is lined alternately with whitish  
& blue lines.



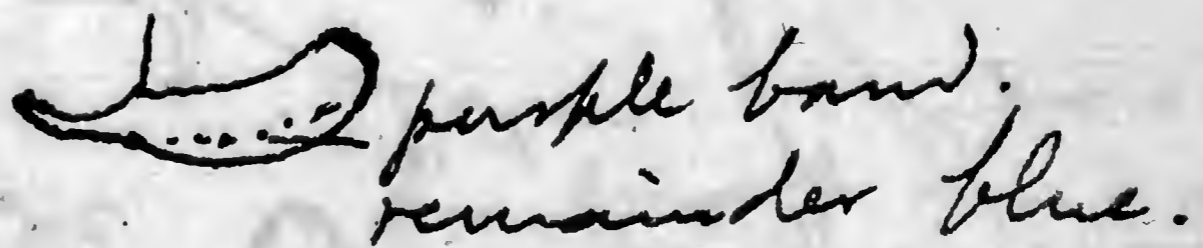
wing x 1.

(a hot poultice  
made of leaves is  
put on snake bites  
The vine & leaves  
(crumpled) are  
used for washing  
clothes)



light purple.

purple spot.

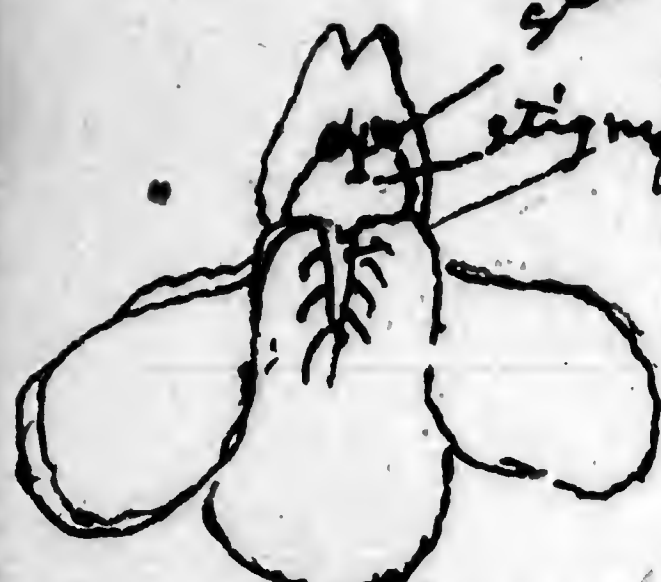


angle of heel.

A woody vine twining by stem

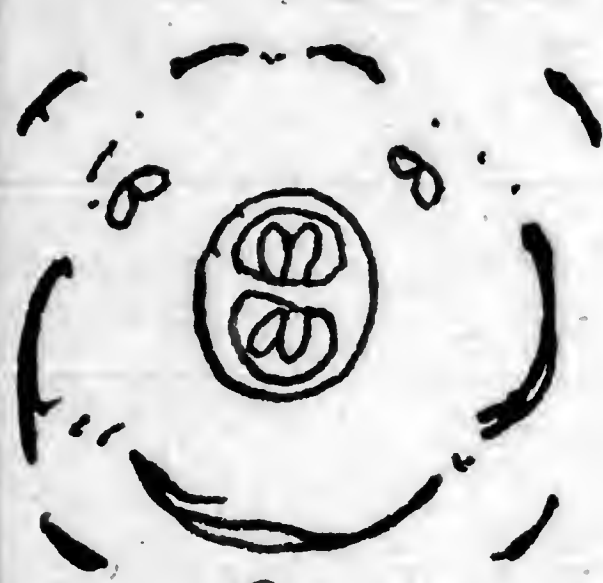
1111  
Fruit. No. 27 Purple, large flowers,  
 (like monkey-flower) but with yellow

stem <sup>stamens</sup> <sup>stigma</sup> fold, white with white lines running  
 out.



Otherwise light purple, whiter  
 outside. <sup>side view of anther</sup> cells of anther  
 oblique + unequal.

lower lip external



stigma. <sup>ovary</sup> white  
 disc (whitish) white  
 two bristles in this position.

Corolla with 2 lips, upper small, lower  
 large, lobes (lower ones) slightly dentate,  
 obtuse; corolla minutely hairy on  
 the outside. <sup>very few hairs inside at base.</sup>

Calyx - of 5 linear lanceolate acute,  
 minutely white hairy, sepals, with white, scarious  
 edges (otherwise green.)

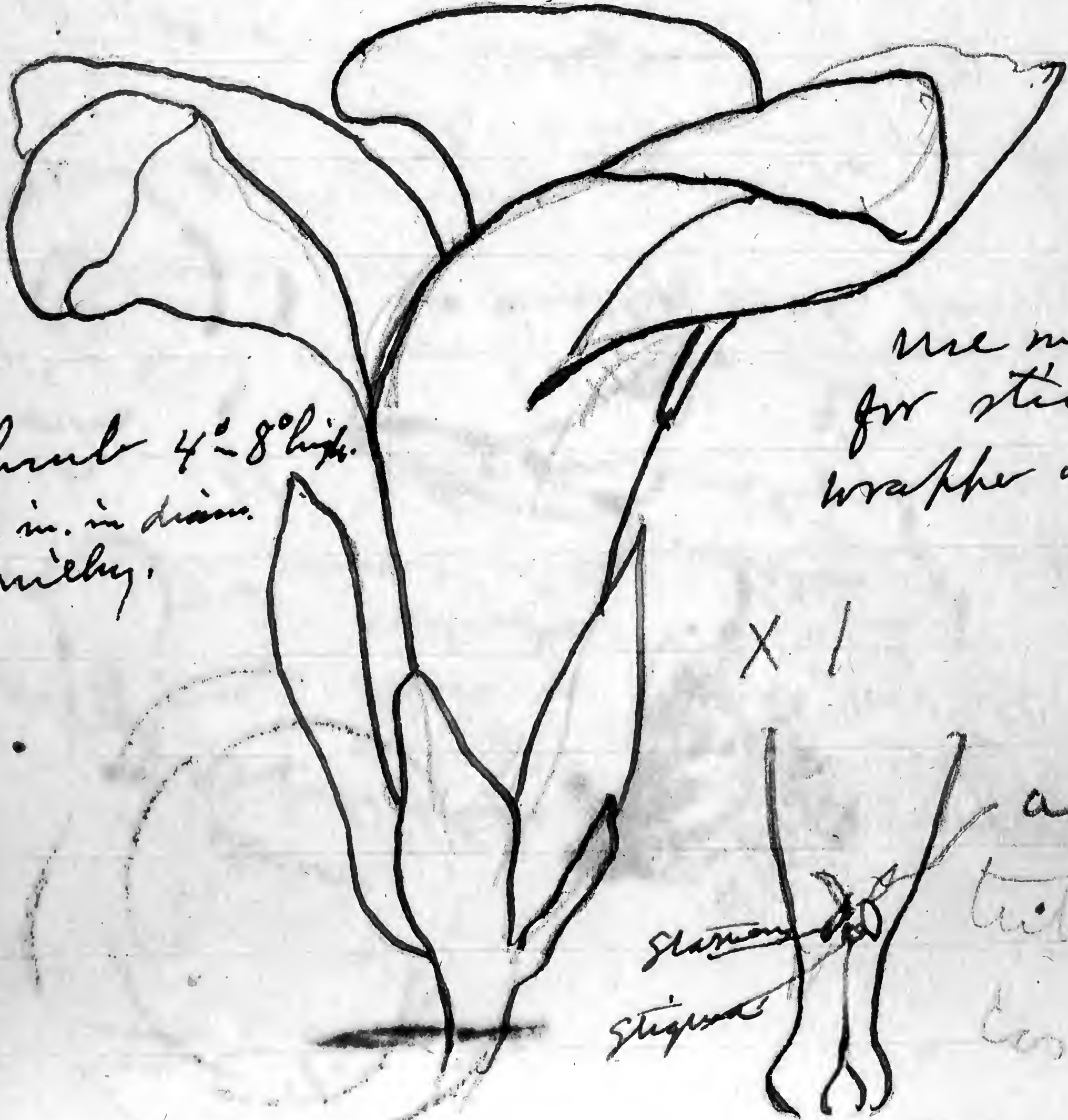
Protheca ovary superior, on whitish disc, smooth,  
 green, style slender, white, stigma slightly  
 2 (or 3) lobed, small. style hairy at base.  
 Ovary two-celled, each several-seeded.

Stamens 2, epipetalous, ~~xxx~~ thick white  
 smooth filaments, anthers 2-celled placed  
 as shown in figure, introvate, yellow pollen  
 The anthers are so placed that they are  
 turned down ward at top of flower -

Wood  
Fruit. III

No. 28 - Purplish Eupatorium  
with coarsely toothed leaves

Wood II  
Fruit No. 29 - Large, yellow  
(screw propeller) flower from <sup>small shrub</sup> tree.



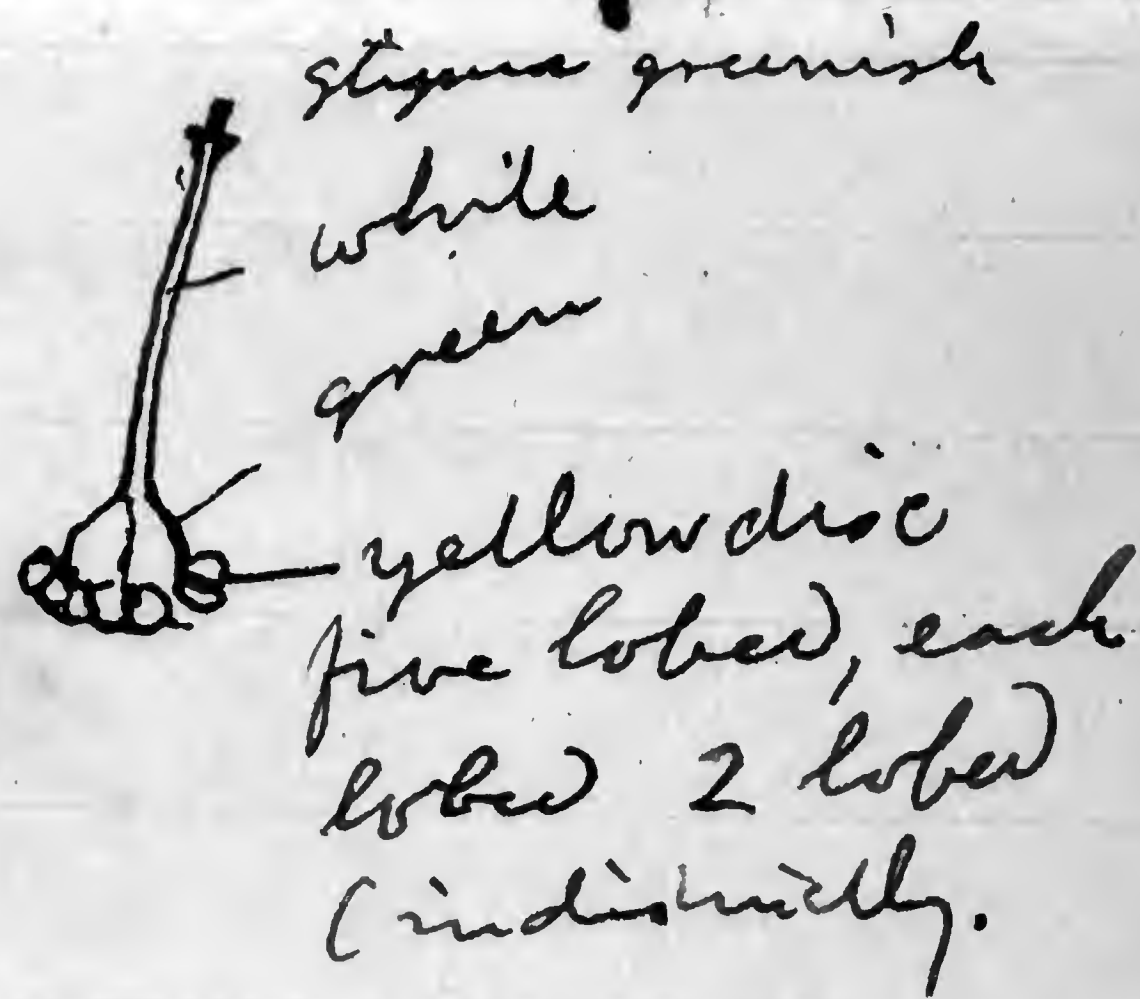
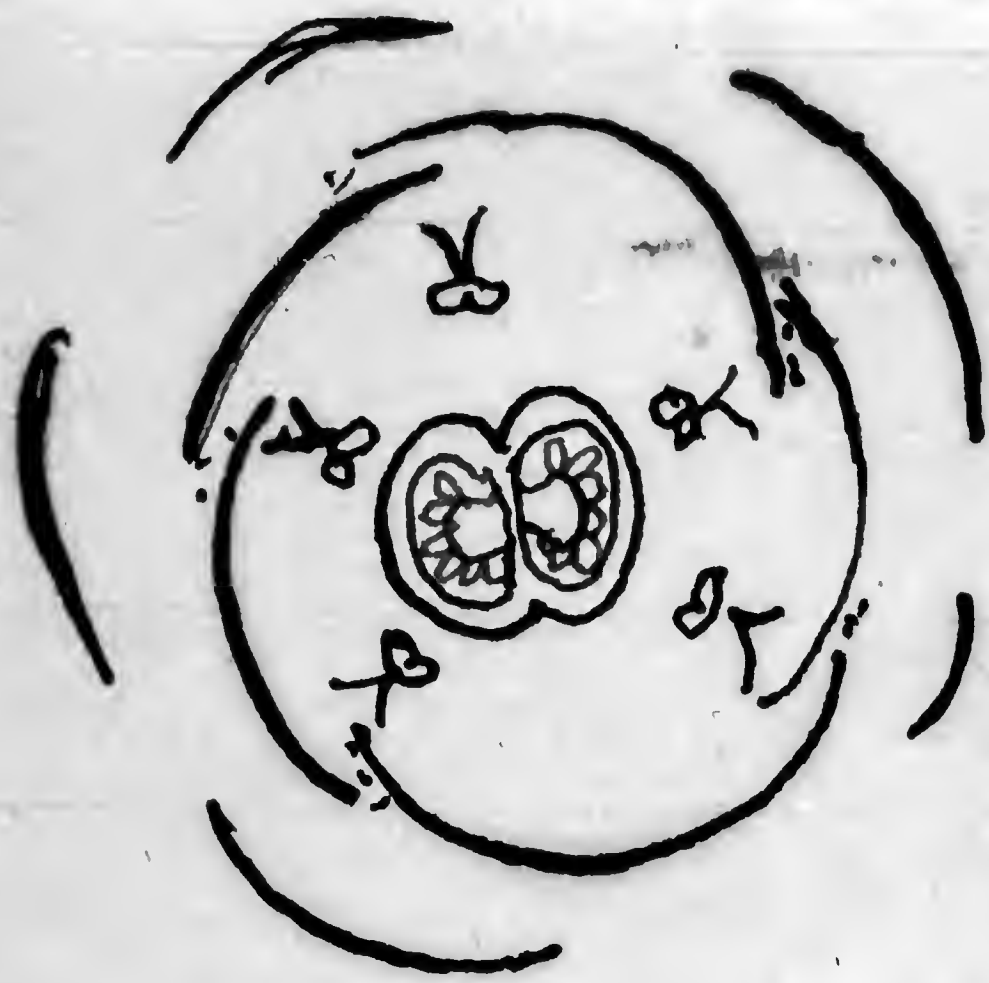
Shrub 4'-8' high.  
2 in. in diam.  
milky.

use milk  
for sticking  
wrapper on cigars.

XI

stamen  
stigma  
a  
tube of  
corolla

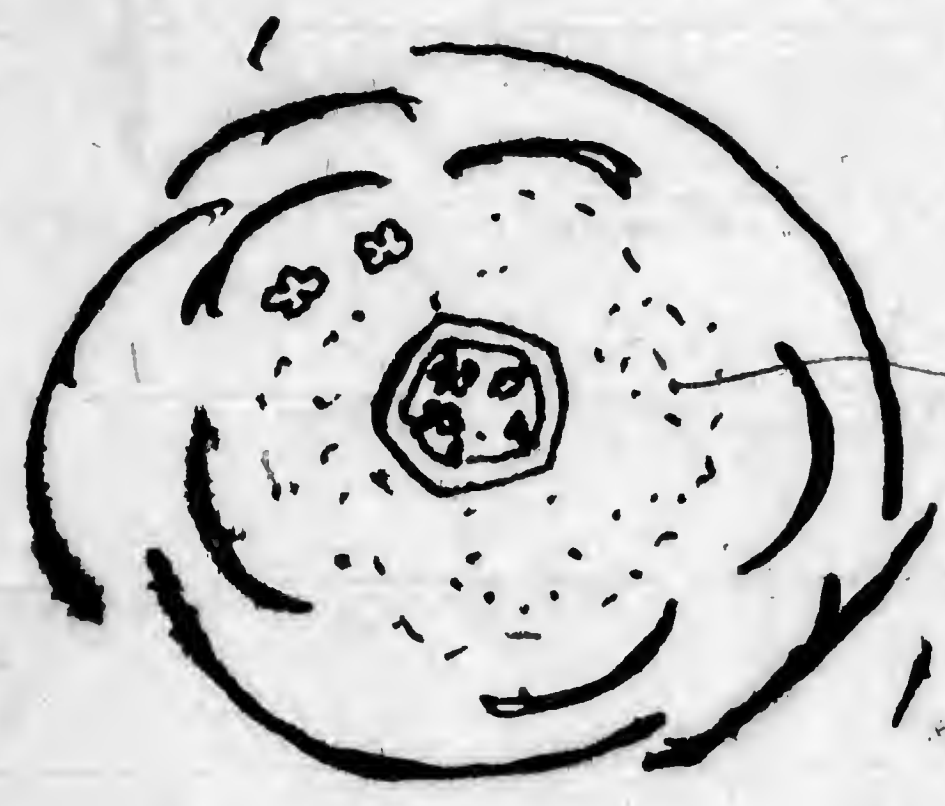




Corolla monopetalous, bright yellow,  
smooth, 5 lobed, tube = to lobes  
lobes spiral (like screw propeller)  
obtuse, spatulate  
A ridge <sup>alternate with</sup> ~~opposite~~ each lobe in the  
base of tube makes 5 pits  
At the point a these ridges close  
the tube almost entirely, <sup>points of stamens.</sup> ~~stigma can~~  
just be seen between them.  
Each ridge bears one 2 celled anther  
sessile, yellow, which terminates  
in a sharp, hard spine.  
Anthers, on the sides are the cells,  
anthers in tube.  
Flower + all with milky  
juice.

111 Flowers.

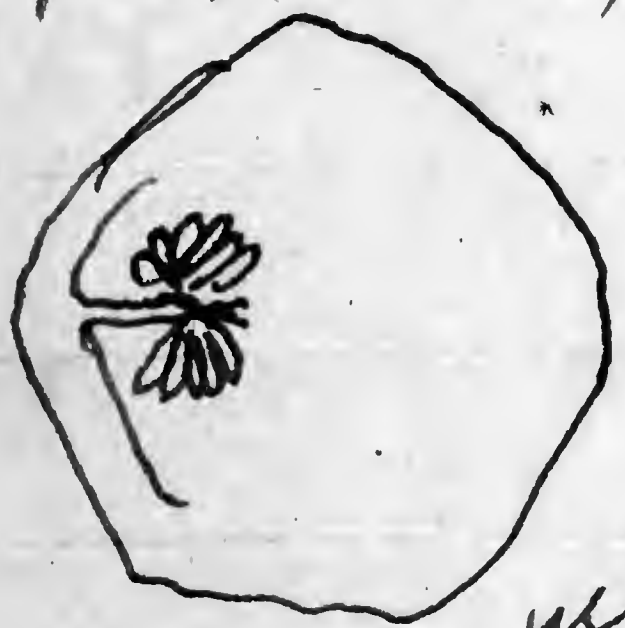
No. 30 Tree, with large yellow flowers, palmately lobed (cleft) leaves.



1-1 smaller sepals.

Stamens very numerous - yellow  
Pistil x1  
greenish white  
Stamen

Pistil 1, ovary superior, hairy, 1 celled, 5 parietal stalked placentae, with numerous small ovules.



yellow  
yellow  
orange red  
x1  
yellow

Stamens very numerous  
Anther 2-celled,  
each cell 2-lobed,  
dehis. long.

Stamen. Each filament orange red in middle, curved.

Calyx - 5-sepals, 2 small brown, 3 larger yellow; ovate obtuse less than  $\frac{1}{2}$  petals; smaller sepals less than  $\frac{1}{3}$  petals.

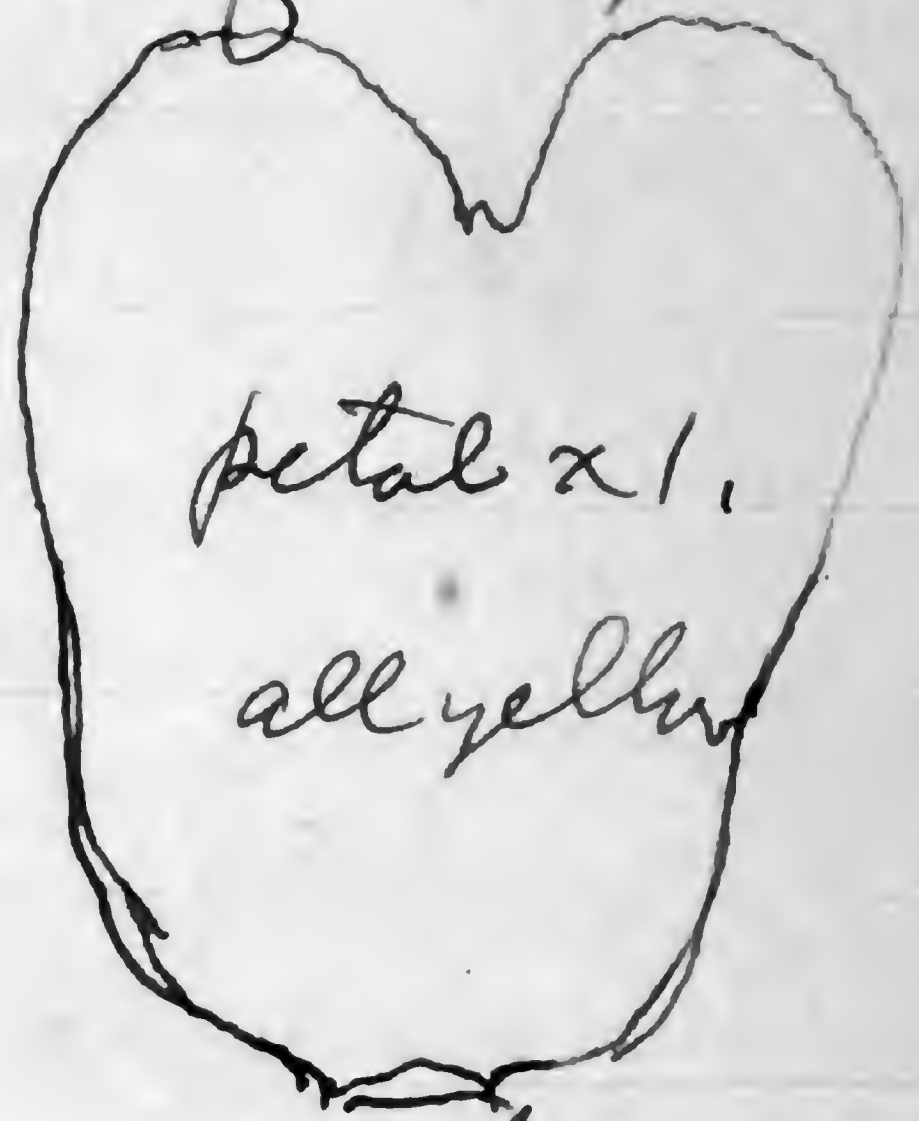
Pedical brown.

Corolla - rosaceous, of 5 petals

shape =



Smooth.



Tree — 18' - 24' in diam, branching,  
bark <sup>light</sup> gray, not very rough

call this no. III

11 (No 3, L) Small brown  
(+ yellow) herbaceous composite  
which always reminded me of  
a "straw-flower".  
Rays cream colored, inner bracts  
purplish, disc yellow.

Leaves III

111 pink // cultivated  
11 yellowish (one blossom)

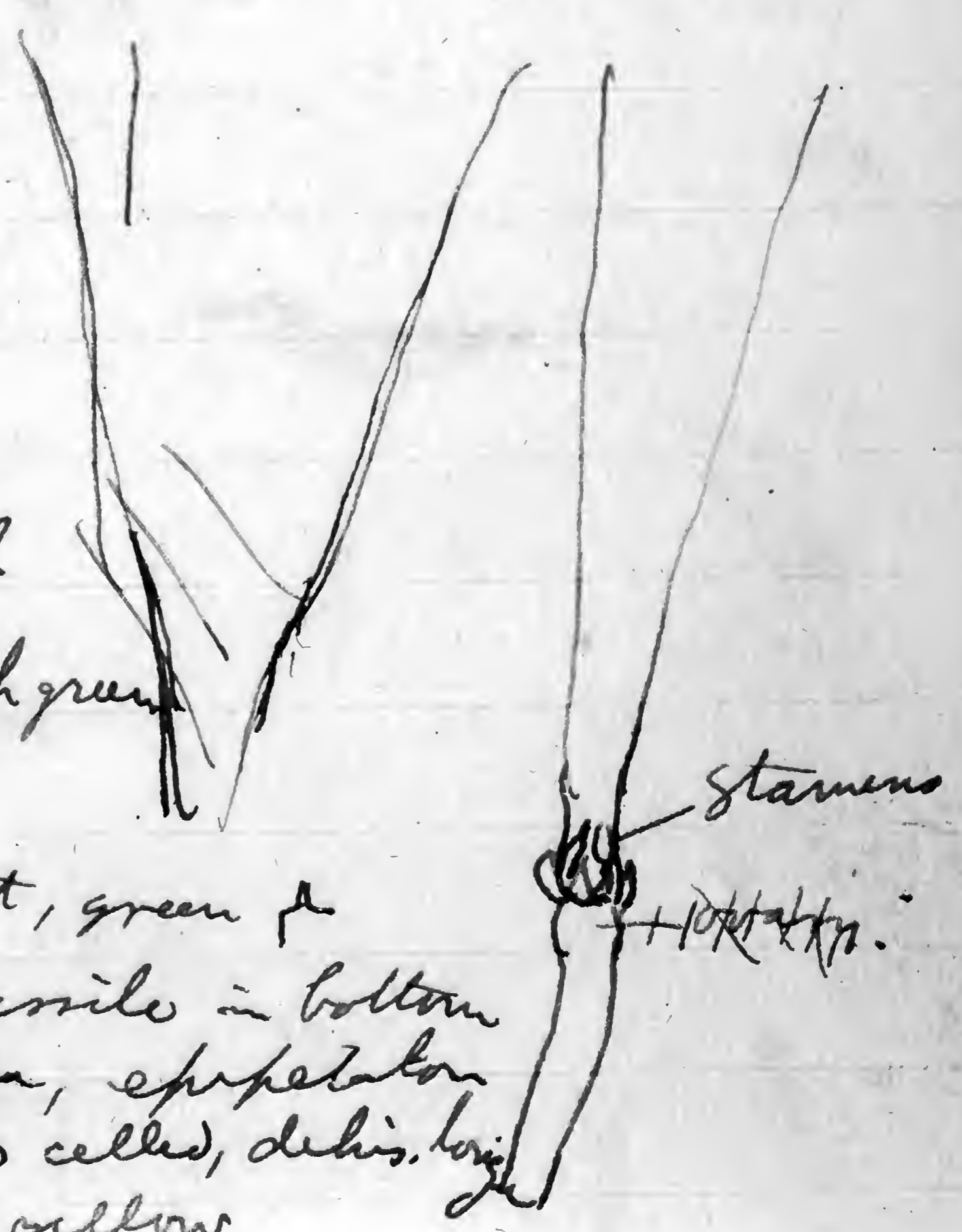
Species No. 31 Leafless tree.

Yellowish white one. (Have another which is pink, & which I also number 31)

Corolla ~~deep~~ x monopetal yellow (light) deeply 5 lobed, lobes obovate, somewhat obtuse, smooth.

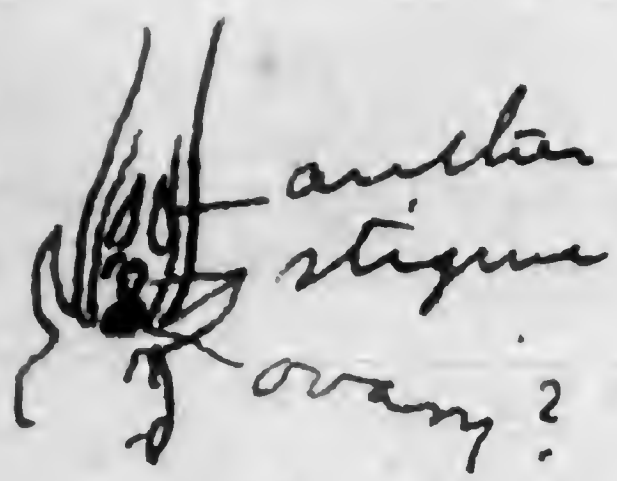
Tube  $\frac{1}{2}$  length of flower, narrow, hairy inside. Lobes convolute in bud.

Small tree 10' high  
much branched.  
The trunk is woody, with gray rather rough bark, 4 in. diam.



sepals 5, small fleshy, brownish green

style very short, green & stamens 5, sessile in bottom of tube of corolla, epipetalous pointed & two celled, dehis. long pollen light yellow.



2 stigmas,  
all this is green.

Ovary may be in lower bulging part.  
The whole thing is very waxy, &  
the entire tree, 10-12 high is  
fleshy.

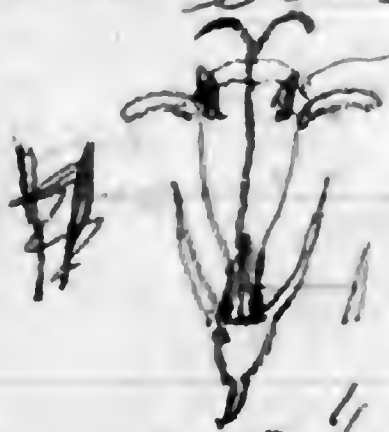
Ovary is  $\frac{1}{2}$  superior. (see below)



hence calyx monop.

Fruct.  
No. 32 -

(small white flowers in ~~great~~ clusters  
in axils of opposite leaves, stem 4 winged,  
leaves entire, oblanceolate,)



these 2 are shaded

x 2 1/2

style, <sup>white</sup> stigmas, glandular, white.

Lobes of corolla 4, ovate, acute.

Corolla white.

anthers almost sessile, slightly exserted.

2-celled, dark colour.

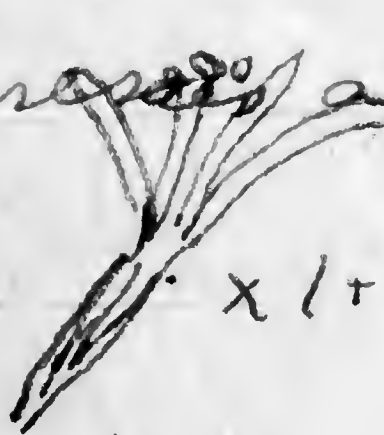
Calyx of 4 acute, rigid lines

lobes, acuminate, erect, green.

W calyx x 2 Ovary inferior.  
2 celled, hairy, inferior,  
1 seed in each cell (3)

wood ~~III~~ No. 33.

(The loose, ciliate leaves, opposite leaves,  
light-yellow flowered plant that  
preserved though not pressed enough)

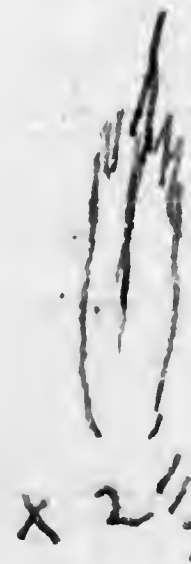


Corolla - somewhat irregular  
5 cleft, each lobe spatulate,  
ciliate, somewhat acute.



hairs (cilia) white  
yellow (light) orange.

W Calyx



Each flower has  
2 scarious bracts  
like this, which  
have only a green  
midrib.

Calyx { regular.  
monosp., each lobe like the  
bract above represented, only not

fringed above, calyx = to tube of  
corolla, lobes very ~~acute~~, acuminate.

Stamens 5, attached at top of tube  
of corolla, filaments white, unequal,  
hairy at base. ↓ anthers white, versatile

♀ anther x. Dehis. long.

stigma (hairy somewhat)



calyx.

ovary

style slender, white

smooth, stigmas 3, white,  
rough.

ovary light green,  
superior, smooth.

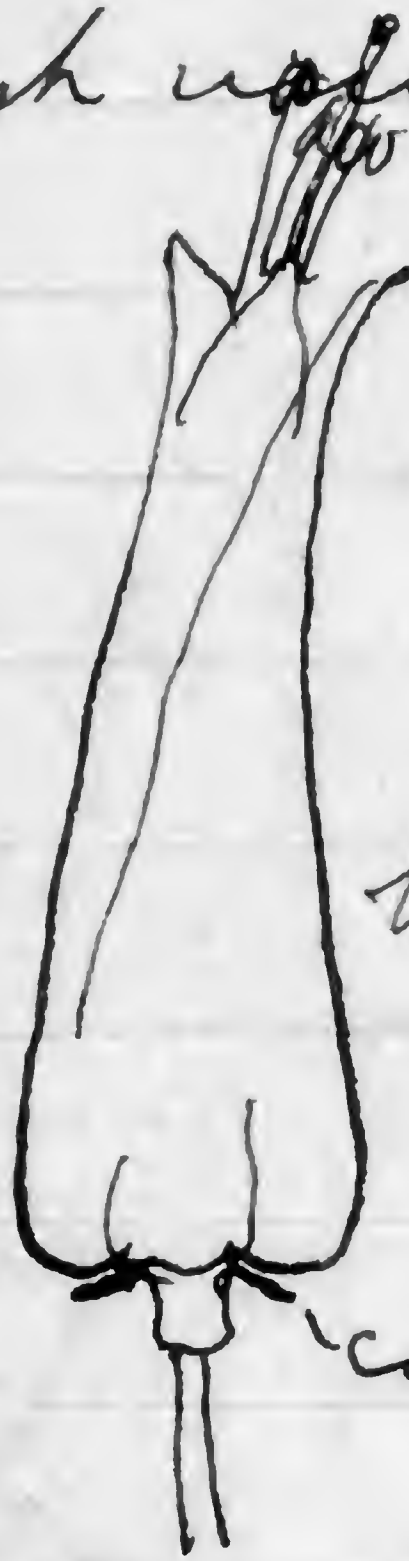
Ovary 3-celled, in section only 1  
ovule in a cell, but really  
several. (not many.)

Plant 1<sup>o</sup> 6" high - woody at  
base.

Flowers - 1111  
clusters

No. 34 Red-flowered

tree, called *Hombre grande*  
Bark used instead of quinine



lighter red.

bright red.

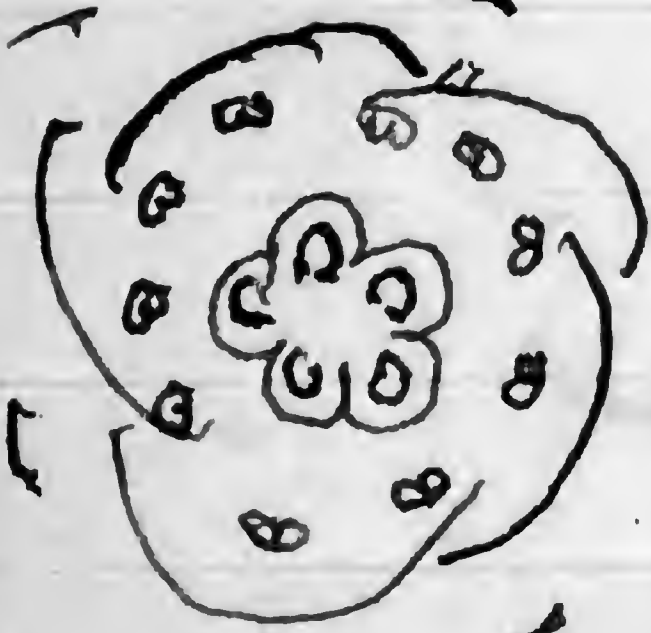
x 1,

calyx



1 petal.

x 1



Petals 5, broad.

Sepals 5, small, ovate

acute

Filaments thickish, reddish,

long, with flattened base,

hairy.

Anthers yellow

2-celled,



Filaments  
at base.

sort of disc.





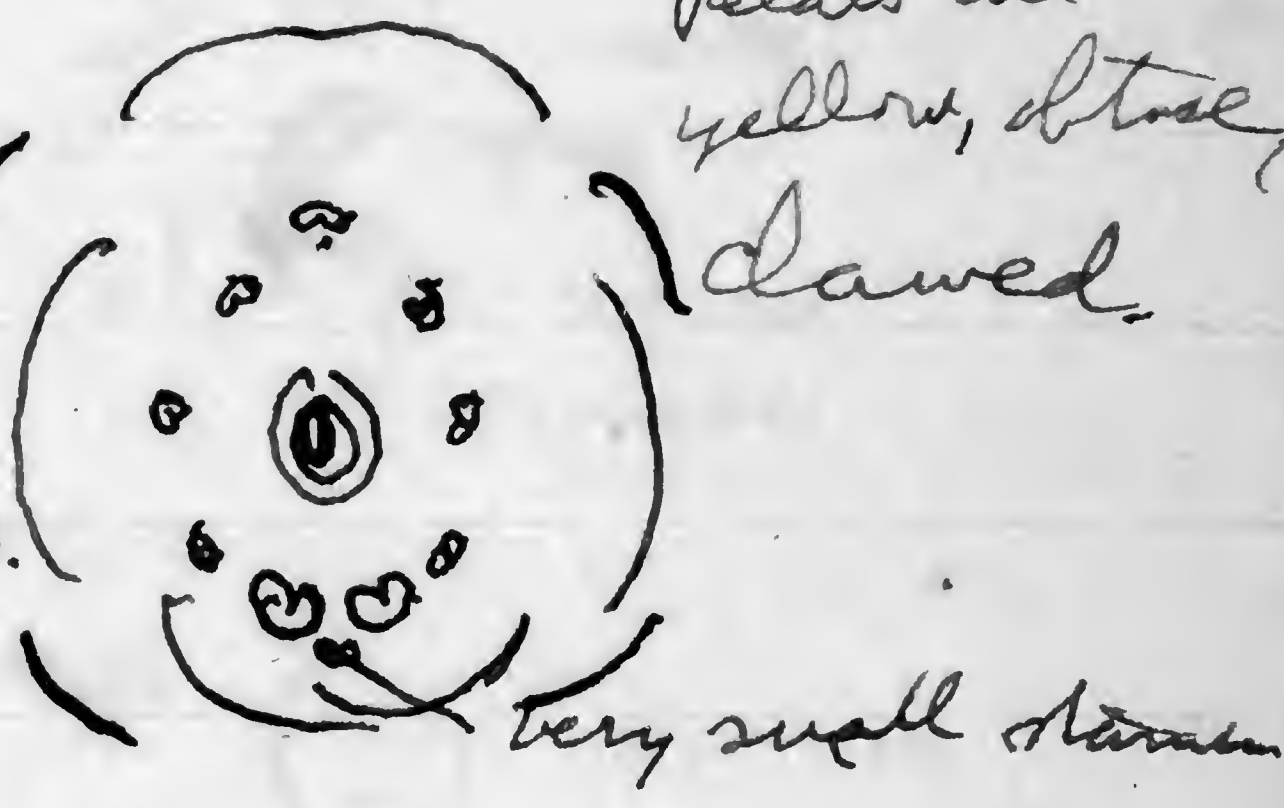
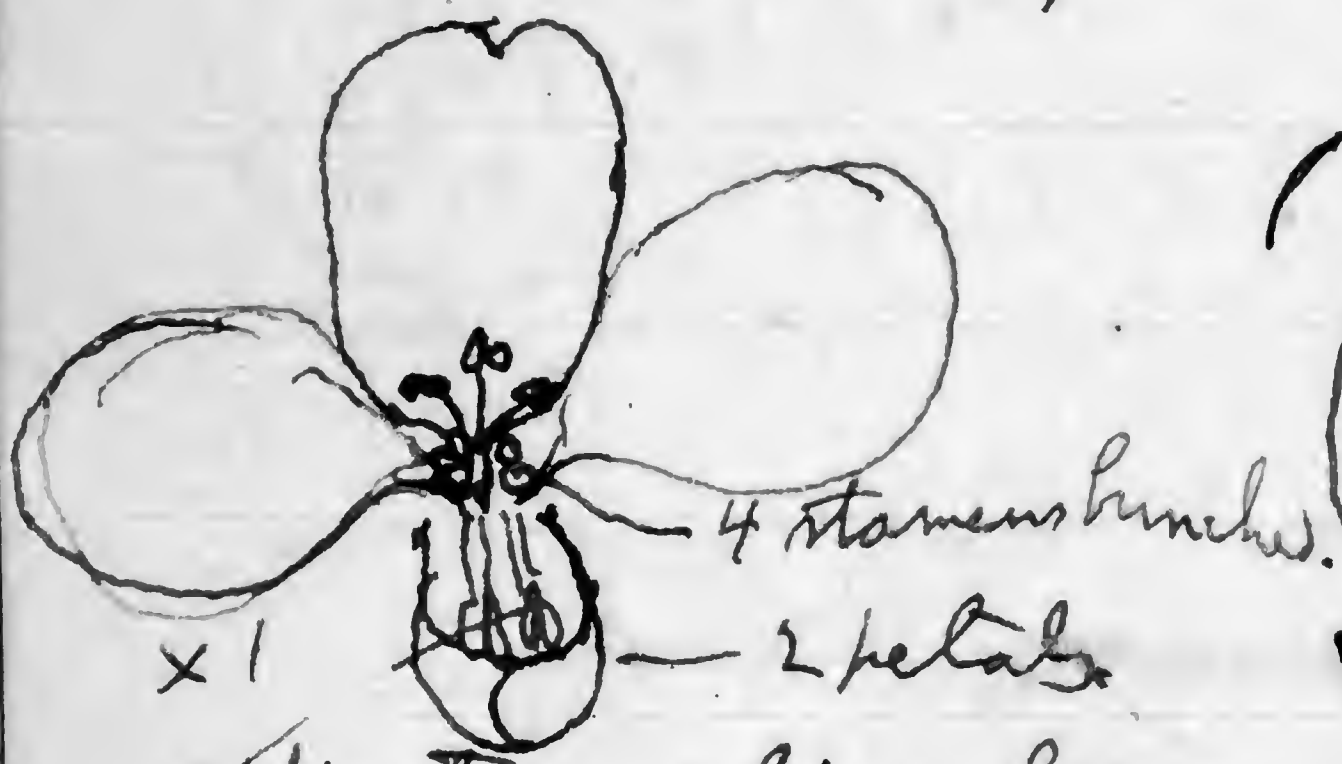
5 lobed ovary (almost separate)  
 disc ovary 3-celled, 5 ovuled.

Disc large, 5 lobed, pink.  
 style is longer a little than filaments

seed + fruit No. 35. = no. 74.

Cassia with larger leaflets (acuminate  
 delicately bristly on margin).

Petals all  
 yellow, obtuse,  
 clawed.

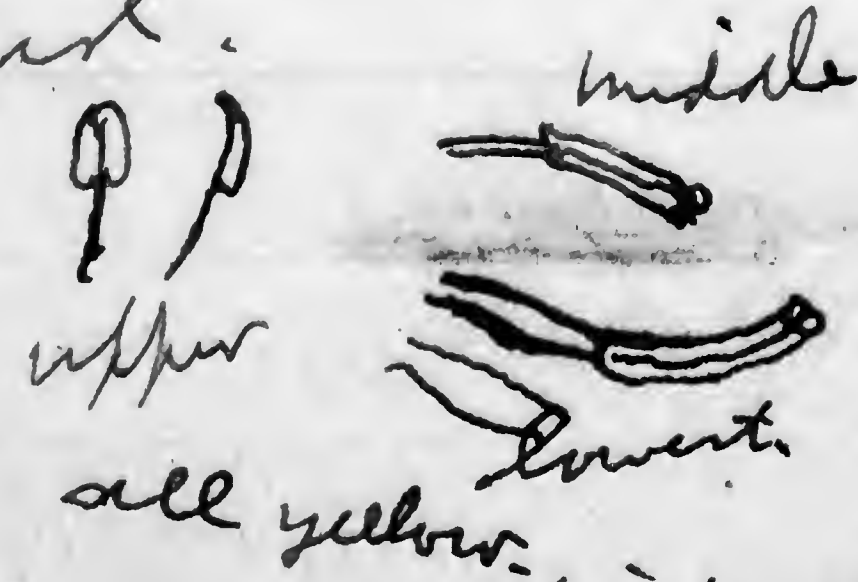


2 big stamens lie in line  
 with pistil between  
 them



anthers open by  
 chinks at the top

The three short upper stamens have short 2-celled  
 anthers, the middle 4 longer, the lower  
 longest.



Sepals greenish.  
 mostly obtuse, sub  
 equal (with brownish  
 streaks + dots)

Ovary white hairy

Fruit ~~III~~ III  
 wood No. 36.

In general appearance of flower like  
 no 32; but a weak (reclining)  
 shrub 10'-15' high (long)  $\frac{2}{3}$  in. in diam.  
 All parts of the flower are pure white,  
 except anthers which is dark brown  
 above & anthers which are also dark.

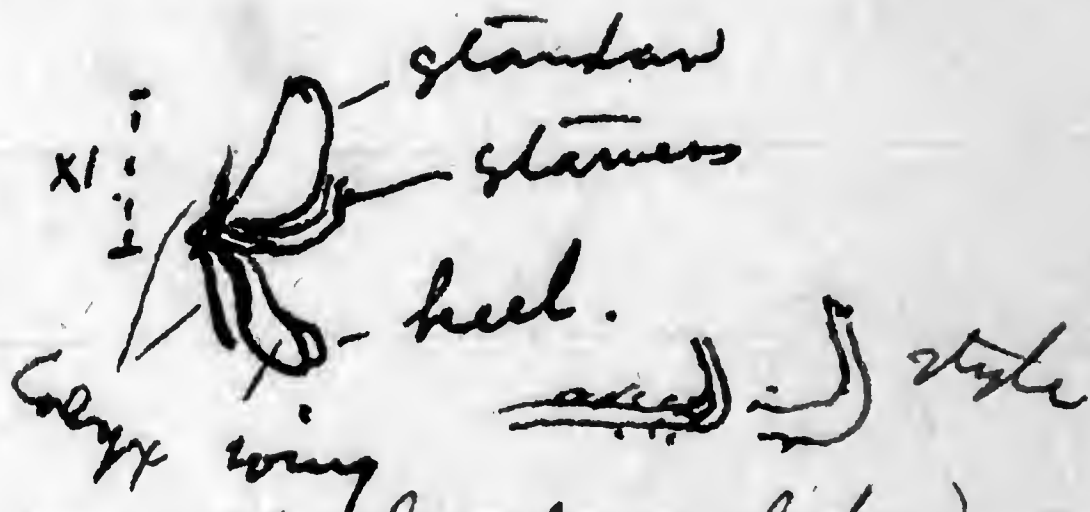
A composite



stigma ~~III~~ III

Fruit (set more) No. 37. (The minute spec)

Common along roadside.



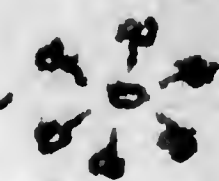
calyx 2 lipped, upper lip barely 2 lobed  
 lower with 3 acute (linear) lobes, middle  
 longest. Hairy, greenish, purplish above.

Keel & wings purple  
 on margin at  
 apex both obtuse  
 & of average width.



red (purplish)

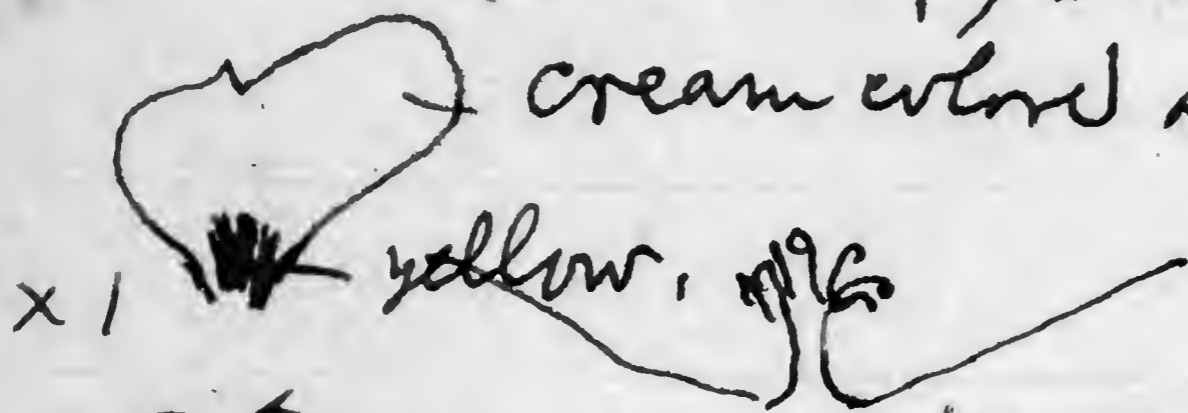
deep purple, 2 lines below white

Pod green, hairy, stigma small, terminal.  
 Anthers minute, rounded, 2 celled,  
 the filaments curve away from stigma  
 wings & keel bluish, keel not  
 enclosing stamens, parts coherent,  viewed from  
 above.

also with wings.  
Fruit III V No. 38, White shrubby

6' to 20' high, shrub. ~~Mallows.~~

Corolla shallow, monopet. at base,  
cream colored or white.

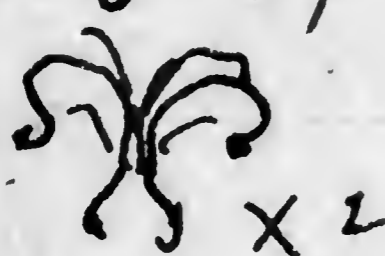


Stamens united in column, many,  
anthers small, 2 celled, yellow.

Free part of filament slender, yellow.


Column united to corolla at base

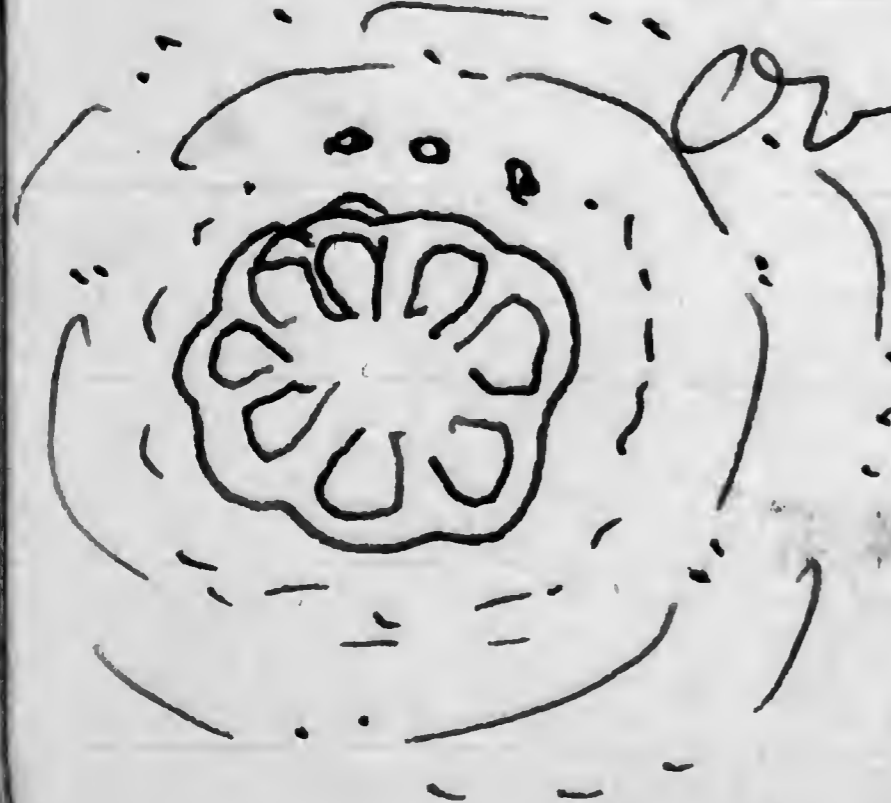
styles 8, slender, twisted smooth

 greenish or very smooth

greenish, superior

Stigmas are small yellow terminal brushes

Calyx narrow, green  1 lobe  
somewhat hairy somewhat mag.



Ovary 8-celled. axile

shrub 6'-1/2' high  
along roadside

Fruit.

1111

No. 39 vine with silky  
cordate leaves, + green little  
cordate bracts.)

x 20. x 1

Calyx of 4 rounded, hairy, greenish  
lobes, spreading.



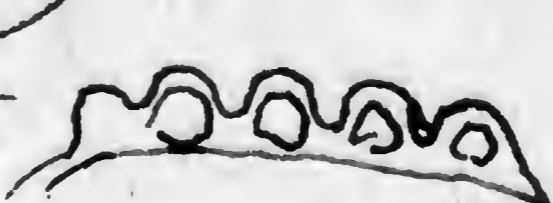
4 lobes of much small greenish  
corolla (or is this a disc?).

alternating. 4 sessile minute  
whitish anthers alternating  
Found no style in this flower.

111

No. 40. Delicate small,  
white flowered, pods opening dehiscently,  
leaves opposite, coarsely toothed)

~~III III~~ ~~III III~~ ~~III III~~ ~~III III~~
  
 No. 41 <sup>Lygodium</sup> ~~Fidomases~~ (?)
   
 (Fern) climbing 20' high. Common.

III <sup>Fruit</sup> <sup>(see 62)</sup> No. 42 The little carria-
   
 leaved (compound) plant with pods
   
 pretty loment . ~~No. 42.~~

Fruit no good - Puchers mouth.  
MARANON.

111

Fruit

No. 43

~~Stem~~ Tree with figs.

like leaves (obovate) & compound clusters of inconspicuous flowers. (An Steiner's south farm) also in Canter's garden. Cult.



Corolla fl. xl. ~~Calyx~~ of 5 lance linear acuminate, reflexed pink or white lobes. Tube petals. smooth.

Calyx of 5 erect green lance-ovate acute smooth sepals



Stamens about 10 on short white smooth filaments, anthers minute, 2 celled, yellow.

Style smooth, exserted, stigma terminal. Ovary smooth, superior somewhat 2 lobed. Ovary 1-celled 1-seeded. One stamen comes up to level of throat of corolla. Fls. white then pink (?)

111

The stalk or disc of ~~stamen~~ is yellow, fleshy, & with salt

No. 44 Cassia (almost

like chamaecrista.) ~~Fruit~~ also

on volcano.



fl. xl. ~~berry~~ yellow, yellow.

(some small)

with flowers 1/11 1/11 fruit.

stem + roots  
1/11

No. 45

Pea with very short,

finely hairy, brown pods (2 seeded)



haplet.

~~about 8" long~~

about 8" long  
herb. vine



fl. XI.

Standard yellowish with red veins,

incloses rest of flower

Calyx green, hairy, monoph, 5 lobed, lobes acute  
lowest much the longest, linear.

See below (made a break!). The standard

is more open than represents

Shen's m.

1/11 1/11 fruit.

(see next page)

No. 46

Shrub 12' high

with whorled leaves, clusters of brilliant

flowers (tubular). In Steiner's So. Java

wings yellow, obtuse, narrow.

keel greenish, 3 wings

stamens 1 + 9 filaments delicate, white

anthers minute, yellow, 2-celled.

Keel incloses stamens & pistil.



Standard x 2

No. 45

bright red. Calyx monoper, with 5 minute lobes, reddish (purplish) short hairy. Corolla monoper, tubular, with 5 small, acute lobes. each division is tubercule-like at base of corolla. smooth inside & out. Anthers 2-celled, yellow, introrse, adnate, filament slender whitish, with 2 little acute linear appendages at base anthers red tipped, dehis. long. Just = to corolla. Epipetalous at x Ovary 2 superior, red, smooth, style pinkish, erect 1, stigma small, terminal. Small tree 1.5' high & 3 in. in diam.

Anthers 5-celled numerous




III Fruit No. 47  
(set now)

Yellow fl. composite with very spiny pappus.

III Fruit No. 48 a shrub 3'-8' high weak, reclining

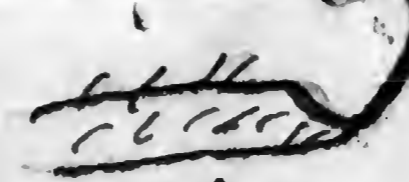
Hoary leaf, with narrow straight pods, divided into squares.

XI:  pink with red veins. yell (greenish) - Hairy outside

Wings obtuse, purplish (greenish). Keel green, coherent, smooth, inclosing stam. & pistil. Stamens 9-11, filaments smooth white, anther small, yellow.


2-celled ... ovary as seen hairy



2-celled  ovary green, hairy  
 Calyx with 5 linear <sup>stigma</sup> hairy lobes, lower two  
 somewhat united, style smooth, whitish

1/11 Fruit. no. 49


Plant with palmately divided leaves,  
 (1<sup>st</sup> day in Steiner's place)  
 With spreading involucre around fruit, very  
 hairy & looks like flower.  
 A twining herbaceous plant. (Involucre  
 looks like ground plum.)


 x1 stam. receptacle with 1 flower.

2 very sticky glands. stam. fls. about 9 in a receptacle.


Each involucre has 1 cluster of stam. fls.  
 above, & 1 of pistillate below.

Stam. fl. with 4 broad acute sepals, gland. hairy

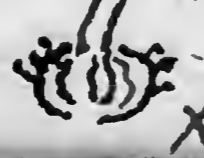
 stamen. no. corolla.

 stamen numerous, united in a column,  
 anthers clustered, yellow

ovary superior, 3-lobed, gland. hairy,  
 1 ovule in each cell.

 pistil. recept. with 1 fl. x1.

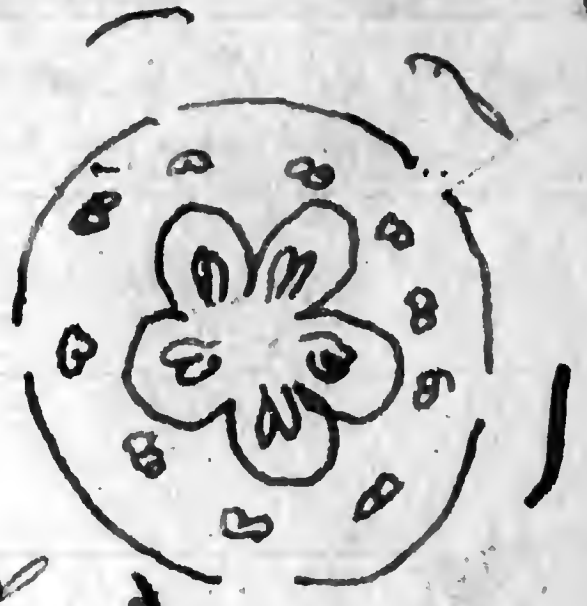
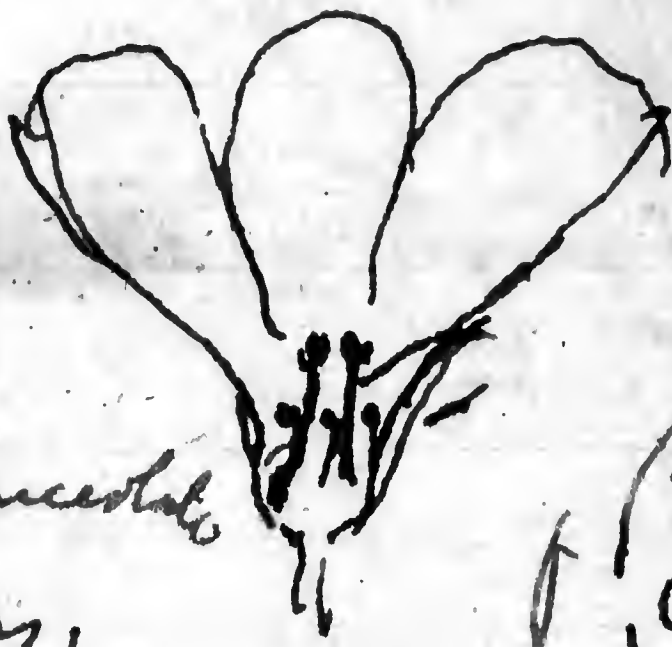


Pistillate involucre more membranous, with  
 2 pieces, the upper 3 lobed, both white &  
 hairy, whitish, sessile. Pistillate fls. 3-4  
 Calyx of about 12 thick, small, narrow, green  
 sepals, very densely covered with glandular  
 hairs.  x1+

111

Fruit. No 50.

Little hairy, yellow, Oxalis-like peris



Calyx of 5 equal, lanceolate, acute, green, hairy, sepals with scarious margins

Corolla deeply 5-lobed, tube short,

lobes yellow  
orange streak  
shape:

Corolla smooth

little projecting

stamens 10 of 2 lengths, 5 short, 5 long.

stigma Filaments white, united at base into short tube, ~~rather~~ hairy  
Anthers yellow, small, rounded, 2 celled

styles, 5 curved outward so that the ~~ovary~~  
5 green, capitate & kidney shaped stigmas project just above tube of stamens.

ovary ovary green, ovules several in each cell, styles greenish <sup>hairy</sup> smooth

ovary 5-celled, Plant 2-5 in high, shrubby at base.

1 leaf

curved at base.

1 leaf  
Fruit No. 51

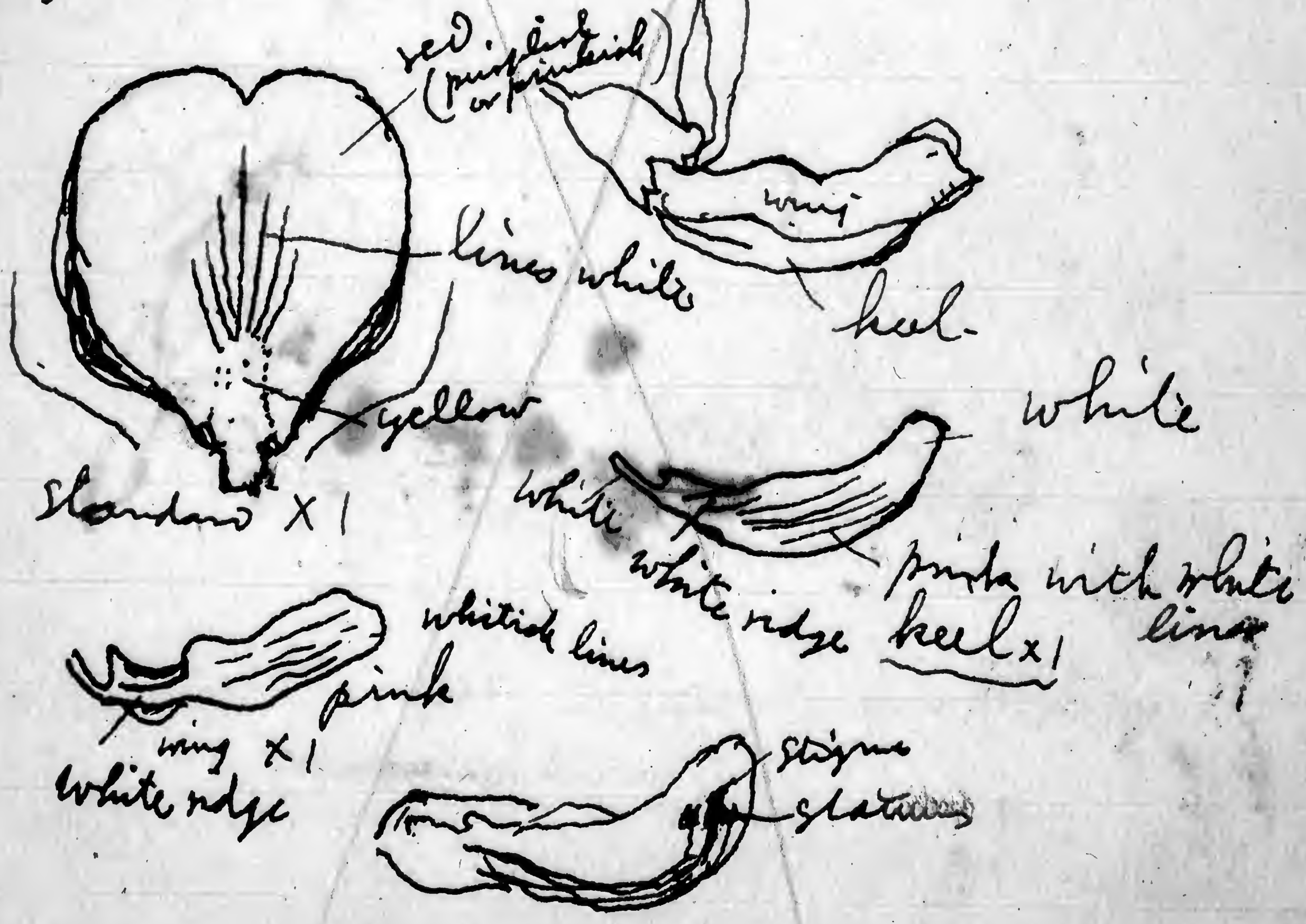
Agave - used for fencing.

See fruit + seeds.

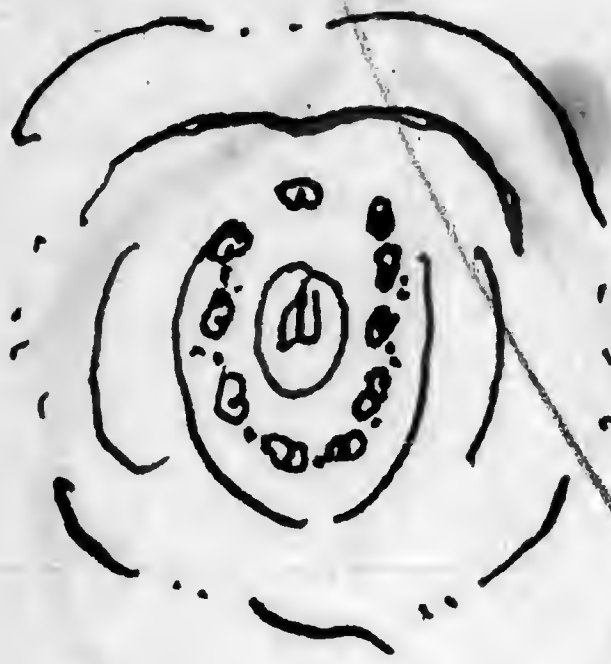
Fruit No. 52 (see 13)

Yellow composite (head 1 in in diam)  
with coarsely doubly serrate  
leaves etc. lvs. opposite  
Steiner's So. Brito.

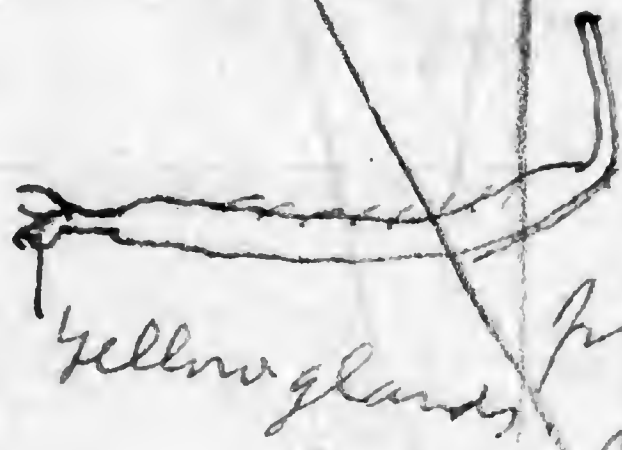
word IIII no. 19 call it 20.  
No. 52. Pen with pink ~~flowers~~  
flowers, standard with white streaks.



Stamens + pistil included in beel.  
 Parts of beel coherent, & also slightly  
 with wings.



Stamens 1+9 - filament white,  
 anthers (4 pollen) yellow, 2 celled  
 short, versatile  $\frac{1}{2}$   $\frac{1}{2}$   
 (introrse)



ovary superior

yellow glands pistil x 1

Pistil somewhat hairy with appressed  
 white hairs, glands yellow, 4, stigma  
 green, small, terminal.

Calyx 2 lipped, 2 upper lobes large,  
 rounded; 3 smaller acute.  
 Green, purplish toward top  
 minutely roughened.

Nine probably 5°-10° long, woody  
 at base.

~~III~~ // No. 53. Fruit

The pink ("chupa-like") composite.  
Each head 5 flowered + violet pink  
or white

III No. 54 (= 119?)

Small opposite leaved, hairy, white.  
flowered weed (along road)

III  
Fruit. No. 55  
(cream-colored)

White-flowered 5-leaf. Morning glory.

Calyx of 5 green sepals  $\times 1$  obtuse  
with scarious margins.  $\sigma$  stigma 2  
lobed rough, white, style slender  
white, ovary superior, smooth  
length  $\frac{1}{2}$  4-celled.

corolla  $\frac{1}{2}$  cream color, 5 lobed.

$\wedge$  lobe of corolla.

Stamens 5, epipetalous, filaments  
green, running into ridges on tube  
of corolla, hairy at base.

Anthers  $\times 1$  2 celled, white innate

Stamens alternate.

A slender vine probably 5°-10°  
long, creeps over shrubs, etc.

III  
Fruit. No. 56 // without flowers

Pea, small-flowered, with 3  
narrow leaflets. Large vine

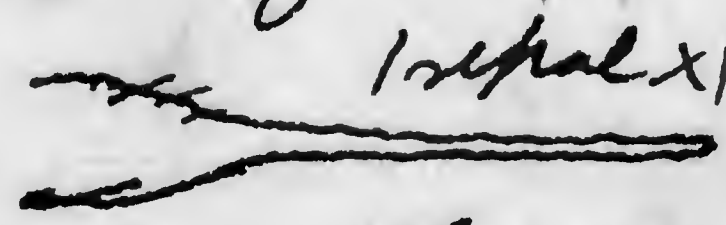
15° long or more. Hooked hairy, straight

... hairy, straight  
buds.

11

No. 57 Large Purple Morning Glory

Corolla  $1\frac{1}{2}$  long, <sup>or  $1\frac{3}{4}$</sup>  limb purple, tube white; of ordinary form, smooth.

Calyx  of 5 sepals, green hairy. ovary smooth green, style smooth white, stigma 2 lobed, of the usual rough, fringed spherical kind. Ovary 4 celled, 4 lobed somewhat.

Stamens 5, epipetalous near base of corolla ( $\frac{1}{4}$  inch) white hairy at base filaments white, smooth above, anthers white, 2 celled, dehis.

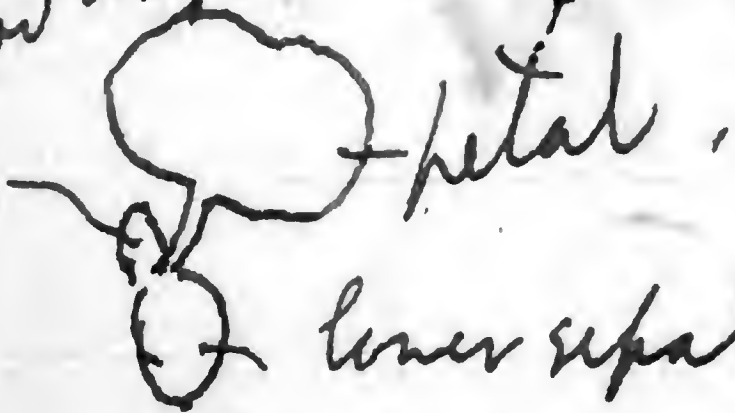
longitud. Extrorse, somewhat versatile



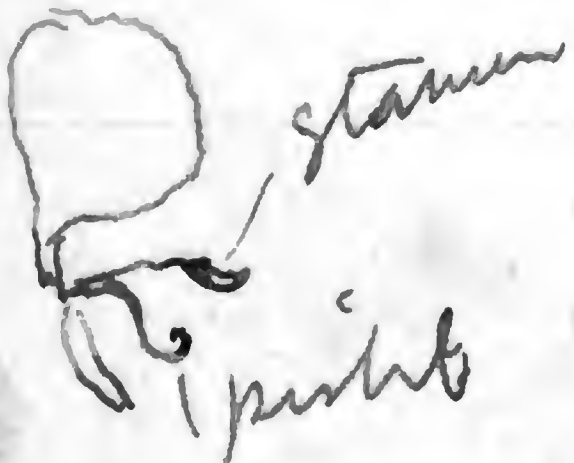
III / Fruit

No. 58 white flowers Couelma

upper sepal



Petal. Petals, 2 white w  
bluish, smooth, erect,  
lower sepal. The 3 sepals watery  
looking delicate, obtuse, upper one  
smaller. Style white smooth, stigma



small, terminal

Stamens 3 (no. 1-1-1) & a

4 abortive(?) are at 2

anthers (pollen) yellow, filaments  
smooth, twisted at end, white  
at base, purplish above.

hy/hoy.



greenish, smooth,

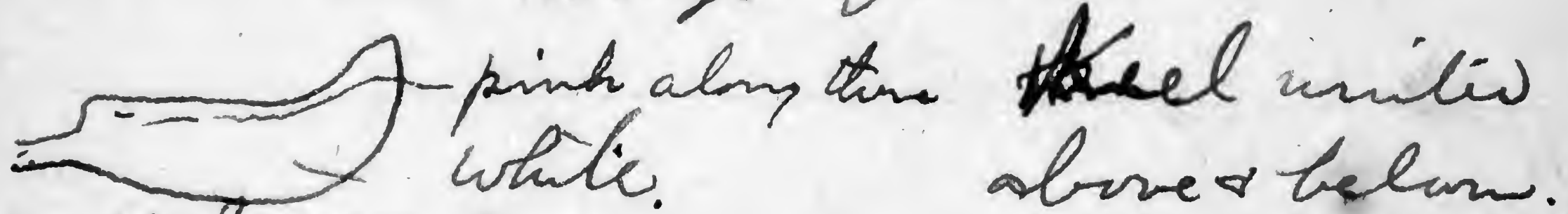
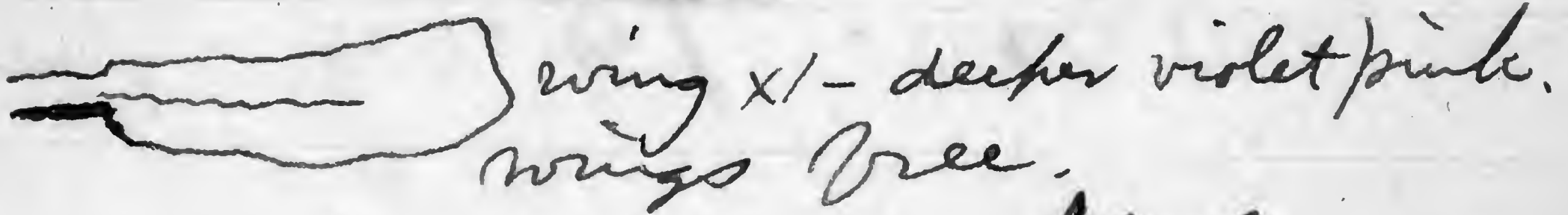
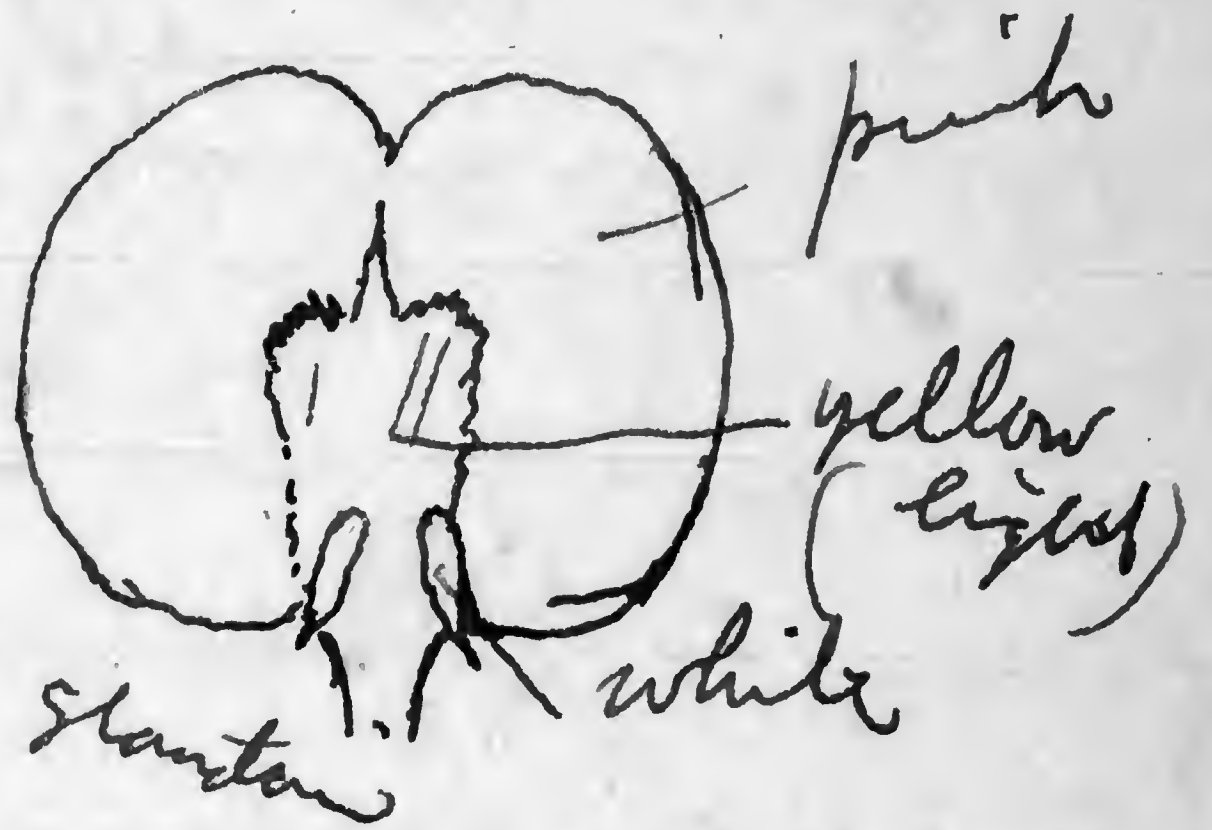
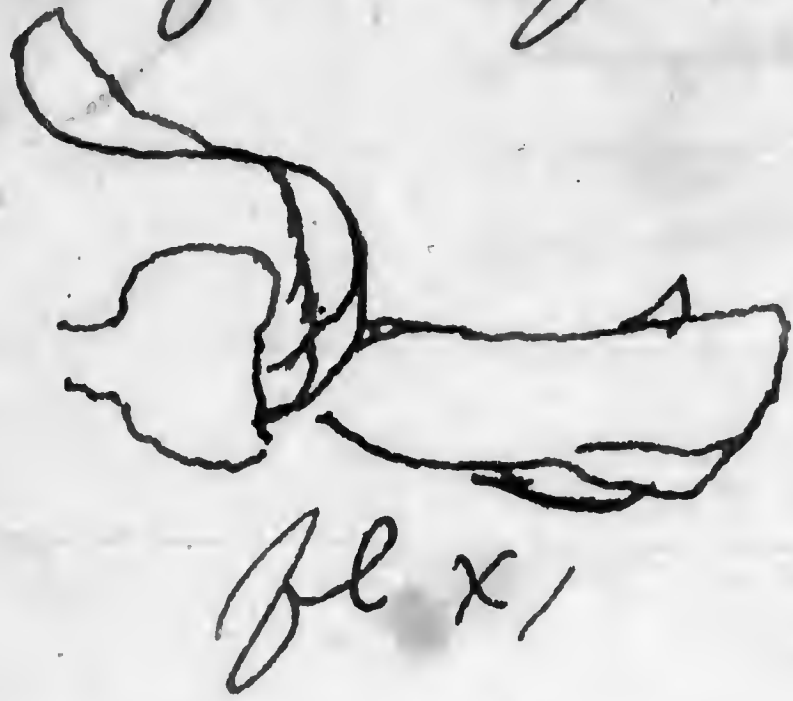
Madera



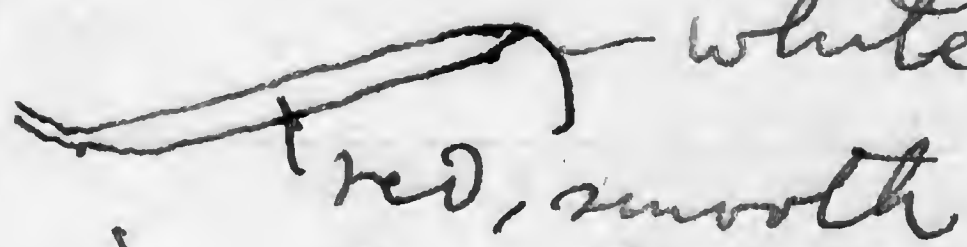
Madera

No. 59, Locust tree with

per. like flowers. (Found a diatomycete on it.) Tree 40', 10 in. in diam. Used for fire wood, building, etc.



Keel x1 Stamens 9 + 1, included in keel. Filaments (free part) white, smooth. Column ~~pinkish~~ white. Anthers, yellow 2-celled. white.



stigma minute, terminal

Trees large, 2 ft in diam. Heart wood heavy, sap wood white. Hard.

A valuable tree -

Bark smoothish, gray,

ovules 10 or 12

11  
18.

No. 60 Little Astragalus?

Flower uniformly bright pink,  
Standard with white spot at base,  
emarginate, hairy outside  
Wings obtuse, bright pink.  
Keel coherent, including stamens  
& pistil, lighter pink.

Fruit No. 61 (Little (very small)  
yellow, morning-glory like, hairy)

W fl XI Calyx hairy, greenish, with 5  
lance. acute, sharp pointed lobes. lobes shaped  
Corolla yellow, funnel form; 5 lobes  
stamens 5, filaments hairy, white  
erect & to styles.  
anthers white, 2 celled, imbricate  
on receptacle.



Ovary superior, smooth, greenish  
style erect white smooth,  
stigma a tuft of white hairs  
like bodies, large.

Ovary 4-celled, each 1 (or two?) ovule.  
A delicate vine, with woody perennial  
base, 6' to 2° long. Spreading along roadside.

base, 6 to 2 long. spreading along roadside

fruit no. 62 (~~no. 47~~)

~~Little yellow flower~~. The 3 leaflet almost exactly like no. 6.

(strongly serrate) very tough slender vine, with white flowers in slender racemes.

Found near Steiner's, So. gate.

Stamens 8, slightly exserted, filaments white, smooth, somewhat unequal. Anthers small yellow transversely 2-celled, versatile.

short, dehiscent long; hypog. <sup>ex</sup>

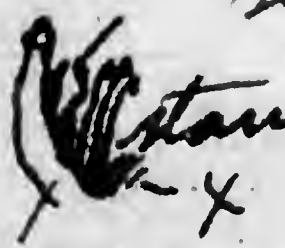
The 2 little sepals are venicose, obtuse, white, ovate. The 2 lower erect ones = petals, are spatulate (or rather obtusely oblanceolate, smooth, white, somewhat hooded).



small. very apex of petals

Petals spatulate, apex cut, the 2 upper larger, the lower 2 smaller.

The upper have hairy appendages attached to them (the same as the queer bodies in no. 6 no doubt, very sacculate, hairy slightly yellow, & uniting the 2 upper petals.



Stamens have a hairy tuft at base at X.

Called chilmeate used for tanning skins, also put in liquor.

(Reverse the fl. above, what I call lower is upper.)

no. 63

A woody vine  
spreading over  
other plants.

(Large, inflated, closed, pink & white)



fl. x 1.

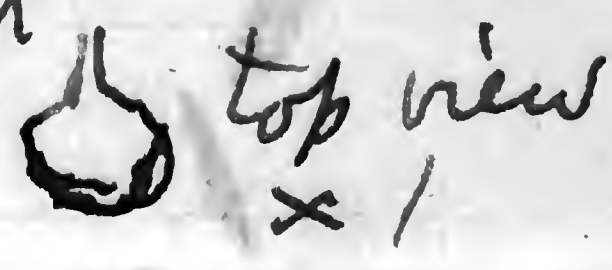
ovary superior short hairy yellowish  
1 celled, 2 parietal plac. ovules numerous small.

Calyx monosep. with 3 erect short  
obtusely hairy lobes, & below these  
(outside) 5 crenulate spreading  
broad lobes or appendages. Greenish  
Corolla irreg. smooth, white or  
pink (purple) 5 lobed, upper lip  
broad & scarcely 2 lobes at apex  
Lower of 3 obtuse (rather emarginate)  
lobes. I have not seen this opened  
out (spreading). Lobes of corolla thickened  
at apex.



Stamen in 2 sets lower  
pair longer, anther 2 celled  
filament long  
Anther brown, smooth, white

stigma broad flat  
style smooth, white

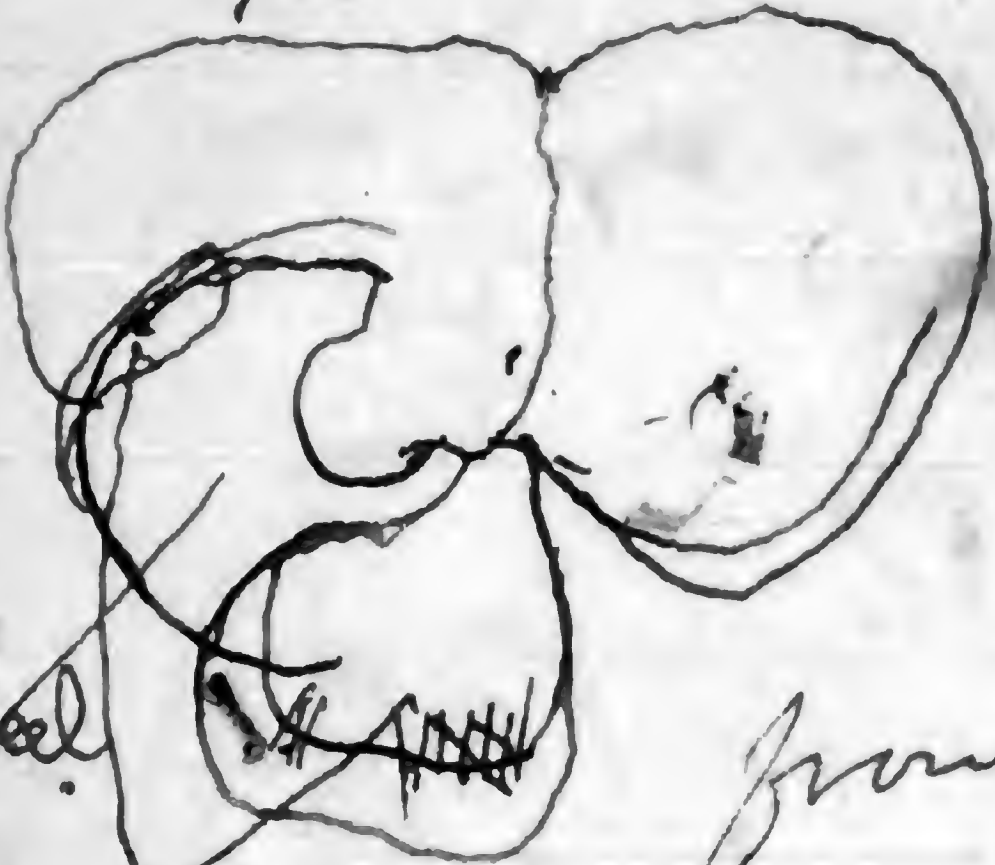


top view  
x 1

... smooth, white ... x 1

No. 64

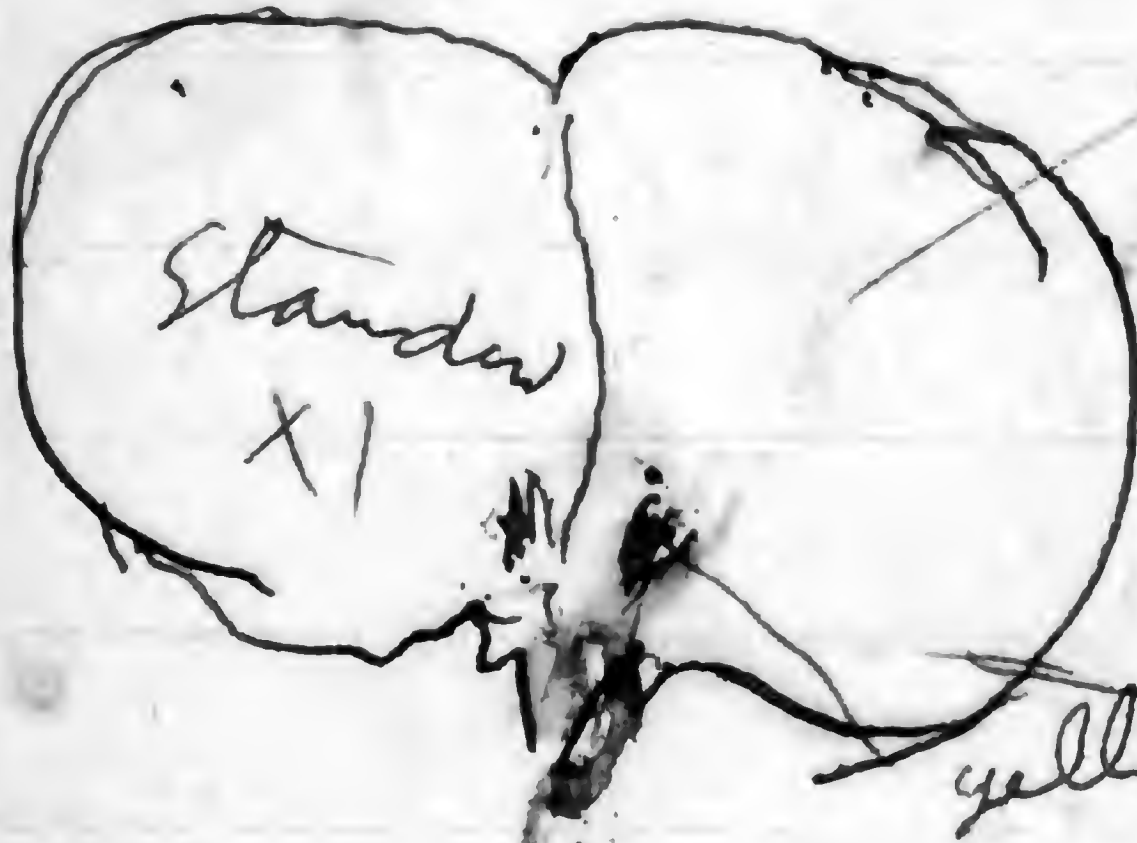
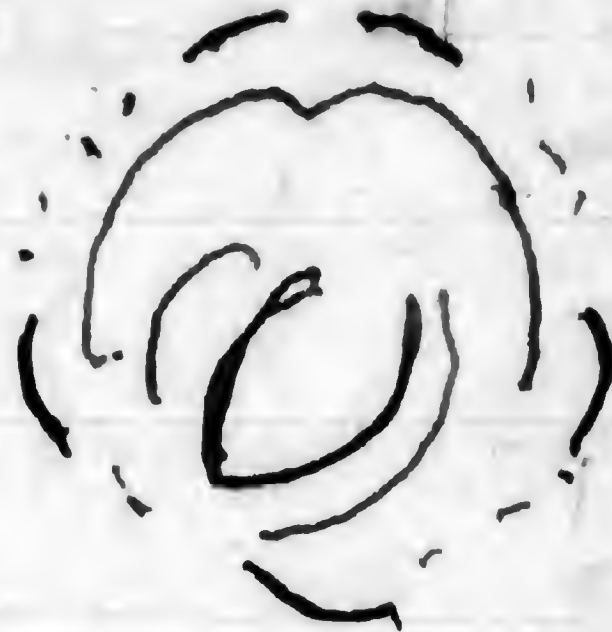
Large pink pea, oblique keel,  
Leafllet. Alligator Pt.



keel

wings

front view  
x 1



standard  
x 1

yellow

purplish pink

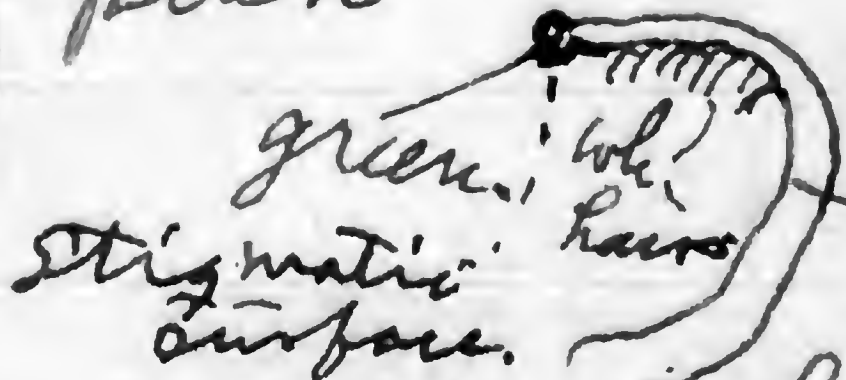
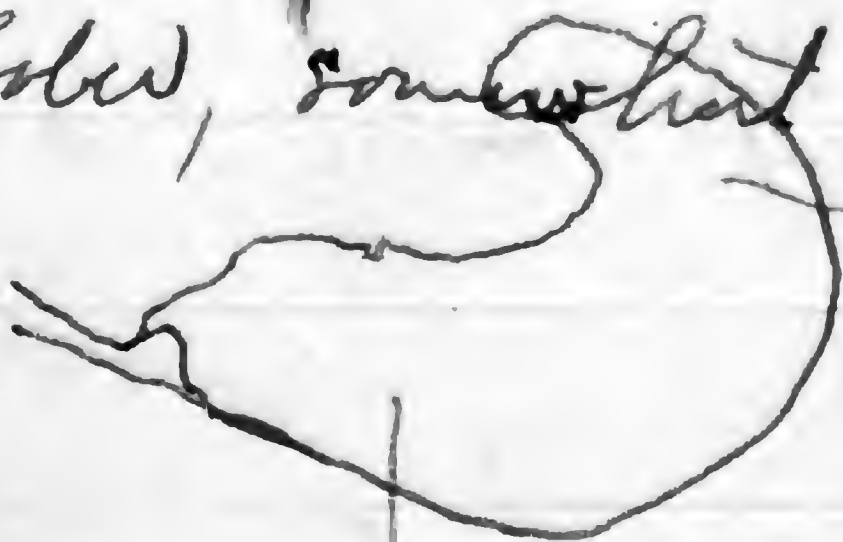
deeper purplish

wing  
x 1

white

white

Calyx green, hairy, nearly equally  
5 lobed, somewhat 2-lipped, lobes acuminate  
pink



green, white hairs

stigmatic surface

style white

Keel <sup>white</sup> oblique, completely coherent  
including stamens + pistil  
stamens 1+9, filaments white

Fruit & seed.

No. 65.

The big yellow *Cassia* growing  
in water at San Carlos &  
Ometepe.

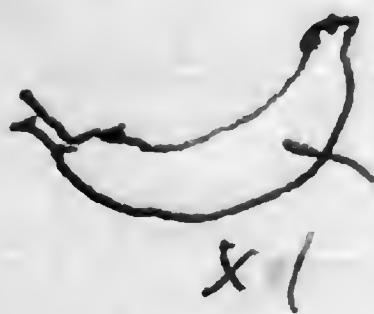
Calyx - somewhat monophylous, divisions  
5, yellow obtuse, spreading  
nearly equal, regular, smooth  
Corolla of 5 almost equal  
short clawed, yellow. oblong,  
smooth petals, nearly regular.



petal x1

The two lower petals

somewhat larger.



x1

two big stamens

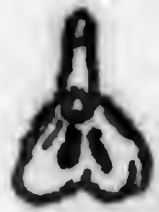
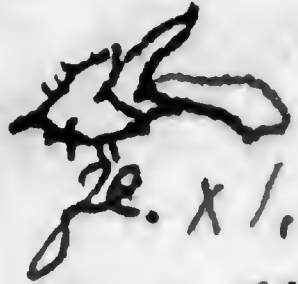


yellow  
pistil x1  
hairy

grows to be a tree 15' high &  
7-8' in ~~diameter~~. The upper 7 stamens  
smaller & in a cluster.

Frut No. 66

Little blue-flowered mint, common along roadsides



front view corolla.

Calyx 2-lipped, upper only <sup>very</sup> slightly 3 lobed, lobes short pointed, lower distinctly 2 lobed, & shape of lower lobes. Glandular hairs, green. Corolla 2-lipped, upper narrow, arched, including stamens + pistil. <sup>very</sup> upper lip only slightly 3 lobed bearded at top, blue, white toward base. Lower lip broad, 2 lobes, lobes rounded, clear blue



all marked part white remainder clear blue, lower lip.

slightly bearded above

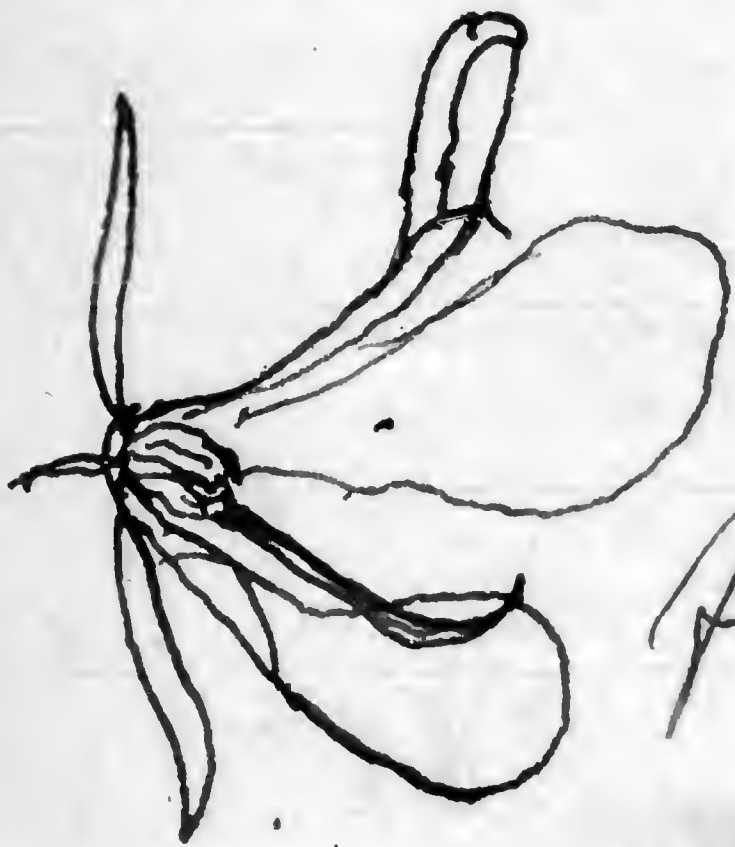
stigma 2 lobed, lobes flat bluish. style smooth white



Stamens 2, anthers 2 ~~bearded~~, dehis. long, pollen white, filaments white smooth, united by the peculiar spurs a. This structure no doubt acts as a lever. Nuts 4, smooth, very superior. Glands brown on <sup>hairs of</sup> calyx etc. The body a closes throat of corolla. Herb 6' to 18' high. Along roadsides

No. 67.

Little prostrate 4 leaflet Cassia.



fl. x1

. Calyx of 5 spreading,  
lanceolate (or lanceolate)  
acute, sepals, with  
scarious margin  
back purplish, covered  
with dark-glandular  
hairs.



sepal  
x1

Corolla somewhat 2 lipped, lower of  
2 bluish yellow petals, scarcely clawed,  
which inclose stamens & style

Upper spreading, obtuse, yellow  
clawed, purplish at base or reddish.



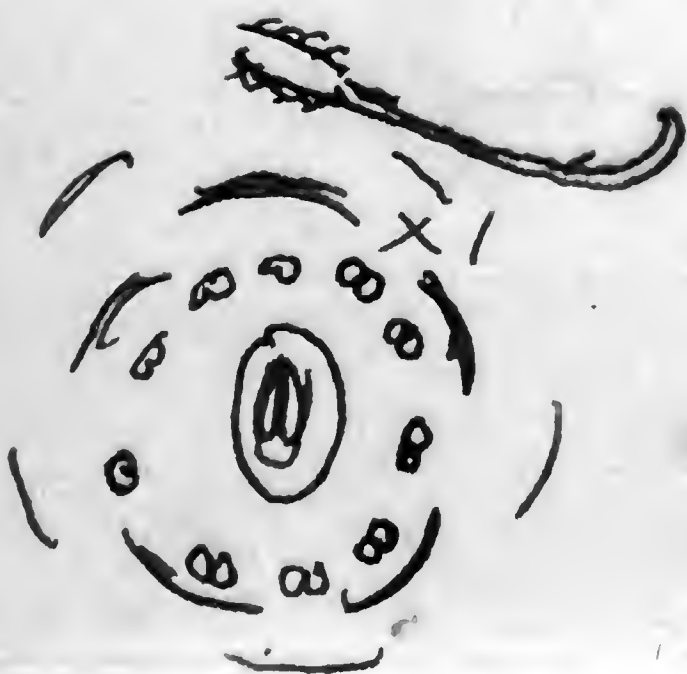
yellow  
uppermost  
petal  
x1

purplish.

Stamens 10 equal,  
almost sessile, yellowish.

2-celled, each terminated by a sharp  
curved, short point.

ovary hairy (cell),  
style greenish, stigma  
verrucate.



Plant only 6-12' high.



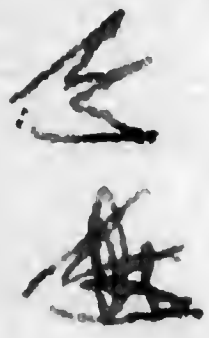
Fruit

no. 68

7 ovals pyramidal  
on leaves

The large coarse mint with purplish  
flowers. 1° - 4° high.

Flowers in little involucre branches.



Calyx monop, lobes linear  
acute, nearly equal, all  
green, hairy somewhat.

Corolla somewhat 2 lipped,  
5 lobed, lobes nearly equal  
rounded purplish blue (light)



The lowest lobe saccate,  
curved back.

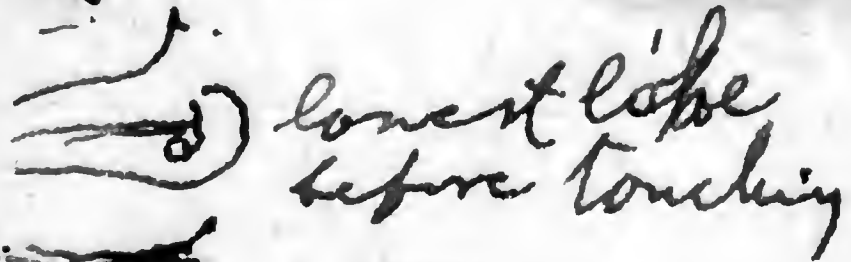


lowest lobe front view

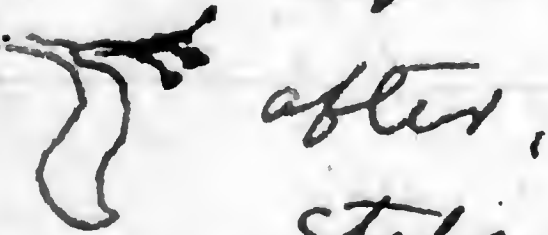
lowest lobe side view

The lowest lobe at first forms  
a hood over stamens & protrudes  
but flies down at touch.

Tube of corolla inflated, hairy,  
whitish, border blue.



The upper lobes with



white spot at base of each.

style & stamens equal

Pistil all white, smooth

ovary of 4 deep lobes, partly covered above  
by expanded base of style, stigma 2-lobed

(slightly)

Ovary superior

Stamen, (anthers mature before stigma, stamens  
curve downward)

(over)


Stamens 4, filament white, hairy, anthers  
small, yellow, 2-celled. ♀ anther:

Stamens epipetalous.

wood

~~No 69~~

Indigo Plant.

 Standalone reddish, erect, greenish

at top,

fl. x 1 wings (horizontal) red obtuse  
(flat base up)

Keel greenish, coherent, inclosing stamens  
& pistil.

Plant a shrub 6' high, but  
flowering when much smaller.

---

no. 70 Cor.

The petals of pistil. fl. are divided.

The stam. fl. seem to have a calyx  
of 2 or 3 little green scales, but really I  
suppose these are bracts. In that case  
the white part is corolla.



bare lines,  
etc.

Both kinds of  
fls. in same cluster

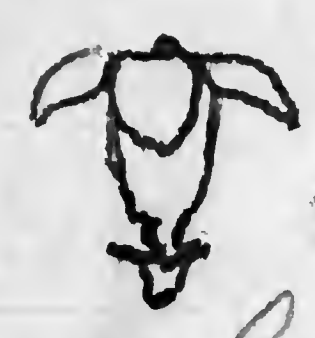
etc.

see above

No. 70

juice milky

Very prickly, white-flowered herb  
(Spiny on leaves)

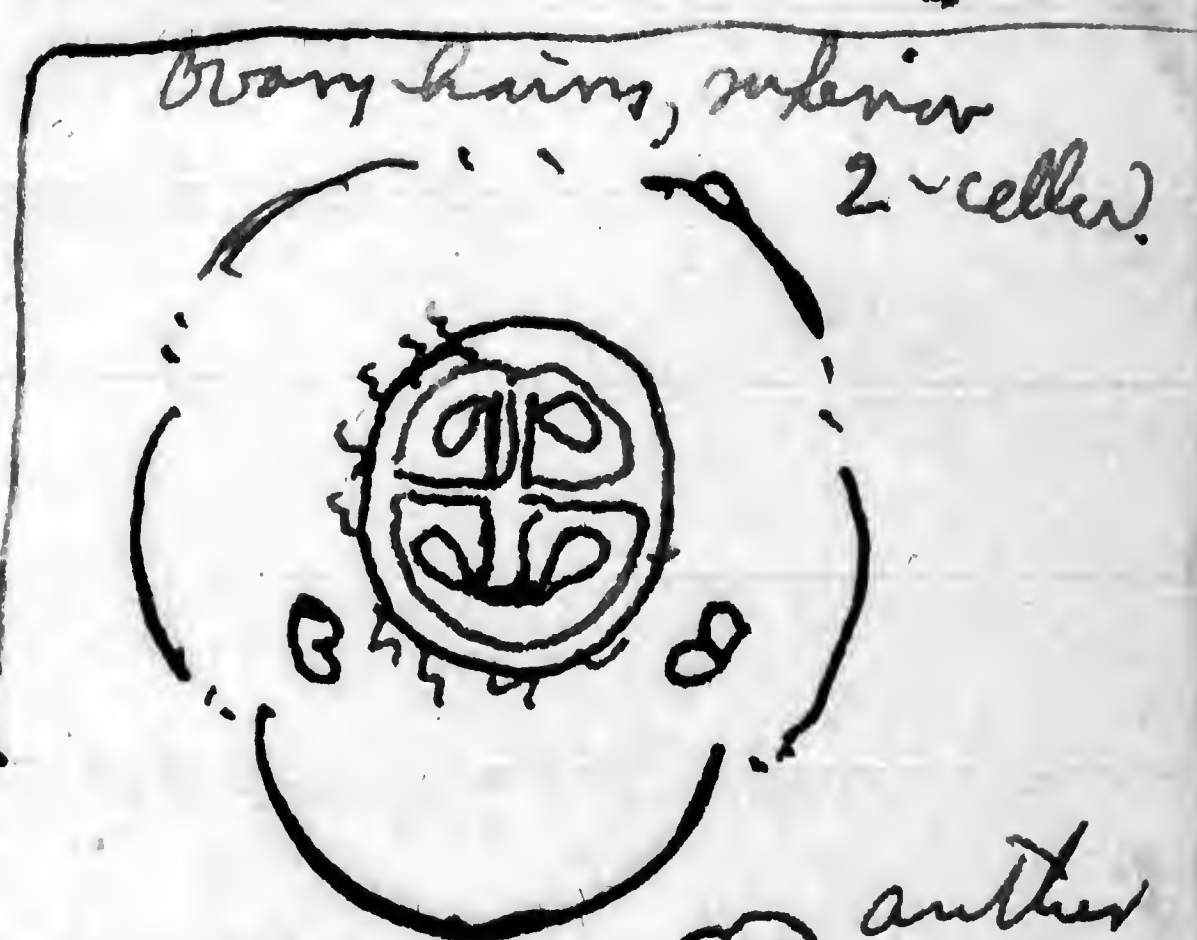


stam. Corolla non-split, white (greenish)  
fl. x1 at base, tube hairy outside.



lobes ovate, obtuse, 5.  
stamens 10, outer 5 short, filaments white  
orange colored (greenish) smooth, slender, anthers  
honey gland. Somewhat versatile, short 2-celled,  
dehis. long, pollen yellow. general

Stam. + pistil. fls. just alike in appearance  
but corolla of pistil. fls. is divided to base  
(base of pistil. fl. x1). Ovary inferior, 3-angled  
3-celled, spiny, stigmas white, 2 lobed, 3,  
almost sessile, a  
little longer than tube  
of corolla.



The orange colored gland  
around base of stamens  
covered with white hairs

///

No. 71

Ochra-like plant.

Corolla 1 1/4" long, irreg. inflated  
somewhat 5 angled, hairy,  
not large enough

anther  
x1  
anther, versatile  
white, 2-celled.  
tube white



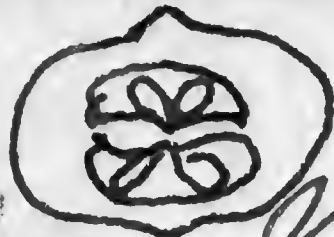
stigma + stamens  
in upper part of  
flower.



orange-colored spot.

big purplish red spot  
stigma lobed, white,  
lobes flat.

Chaptalia



ovules small, numerous.

Garlick odor

wood

No. 72

woody, 20° long (shrubby)

Light violet twining, Bignonia


Corolla 2 1/4 in. long. tube inflated, pink,

limb irreg, 5 lobed ( ) shape of lobe

limb hairy outside & inside, ~~pink~~ violet

or pink, stamens 4, epipetalous in

2 pairs, lower larger, extending 1/2 way up

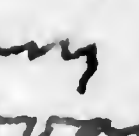
tube  anthers 2-celled, versatile

filaments smooth, yellowish. anthers open

lengthwise above. Ovary superior, smooth

yellow-greenish, style smooth, extending stigma

just beyond stamens (both included). stigma

white, with 2 flat lobes  Ovary with

a sort of bulbous enlargement below. Ovary 2-celled

fruit No. 73

Fl. x, Fls. minute.

3-6 high.



Berry at first milky also leaves somewhat


flowered shrub.


Calyx of 5 erect equal, green, rather obtuse lobes, scarious margined, <sup>short</sup> hairy

Corolla white, swollen just below throat & again in calyx. Monopetal, lobes

obovate <sup>smooth</sup> style white, stigma enlarged, rough, just in

throat  Throat closed by hairs ~~which are~~ white & run  at R.L's. Anthers minute,

white & run  at R.L's. Anthers minute,


light yellow, just under these hairs,  
 arrow-shaped, introrse, alternate, sessile.  
 Ovary superior, smooth, greenish 2 lobed  
 (slightly) 2 celled, 1 seed in each cell.  fleshy berry.  
 Guataco - the black berries are used with alum to make ink. Native or near wild

~~1. Fruit of seed~~  
~~No. 74~~ ~~leaves acute~~  
~~smooth leaves~~

~~Odd-pinnate small shrubby Cassia  
 Flower about same size as no. 75.  
 Uniform yellow, petals short clawed,  
 Calyx purple veined, spreading.  
 Stamens as in no. 75. No. 75  
 Ovary smooth, green, style <sup>at 35</sup>  
 little longer than in no. 75.  
 Shrub of same size as no. 75.~~

~~Fruit wood  
 Little yellow Malva. Fl. almost exactly  
 like no 38, but yellow corolla. Sepals more obtuse  
 fls. a little smaller Essential organs just  
 the same as 38.~~

III ~~fruit~~ no. 75 ~~do~~ 6' to 2° high

Hairy leaved, small shrub Cassia.  
 Petals 5, short clawed, yellow, obtuse  
 The 2 side, lower stamens larger,  
 diam. of fl.  thick filament thick, yellow, anthers brown  
 ovary hairy  
 style short

Small shrub 1° - 2° high (those that  
 I saw, but they had been cut, some  
 of them. Others bloom at 10.

55  
55  
55  
55  
55  
55  
55  
55  
55  
55

Front No. 76.

"African-like" Composite from Alligator Pt.  
Rays reddish (sort of light brick red,  
disc <sup>deep</sup> yellow. Rays pinnate  
Pappus of very numerous, white fine hairs.  
Rays 2 or 3 lobed at apex. This is a long  
vine, 15° or more long, & climbing.

No. 77 ✓

Delicate Adiantum, (concinnum)

Found along lake shore.

No. 78. ✓

Large Adiantum trapeziforme, L.

Found in <sup>deep</sup> woods S. E. from Monrovia

No. 79. ✓ = 184<sup>2</sup>

White Gymnogramme Possibly  
Found along lake shore G. tartarea

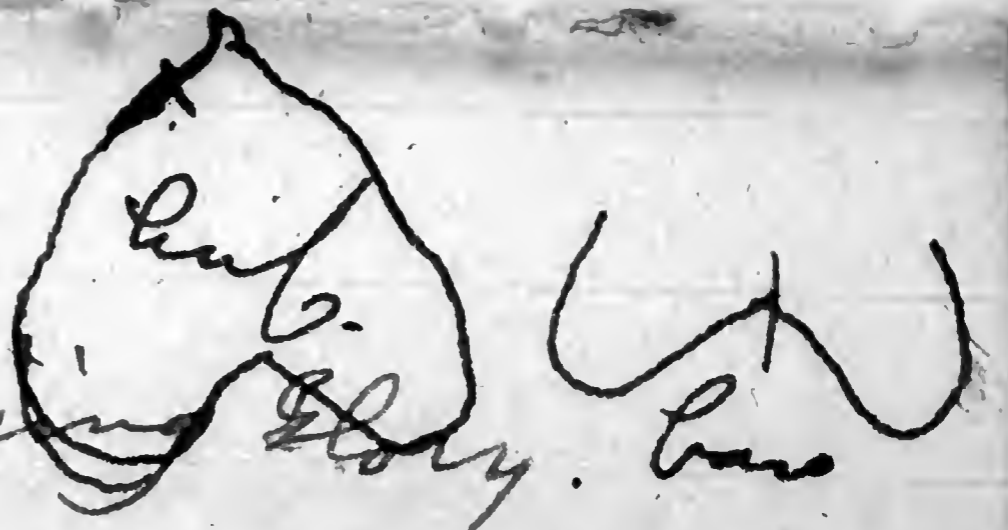
No. 80.

Green, hairy Gymnogramme (?) Cheilanthes!

Found along lake shore.

Fruit,

No. 81

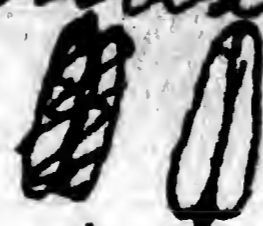


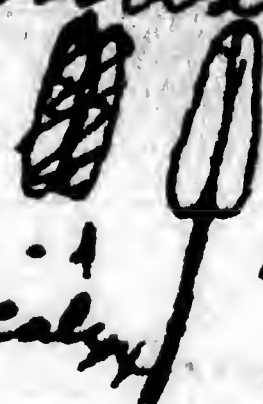
Larger yellow ~~Morning~~ glory. base  
 Corolla about 1 in long, yellow, 5-lobed  
 smooth, ~~calyx~~ ~~monosep~~, greenish (M) 5 lobed  
 two large bractlets in dose of.  
 ovary & style smooth, greenish, style  
 slender =  $\frac{3}{4}$  of corolla, stigma small  
 slightly 2-lobed (?) terminal. Ovary 4-celled.  
 stamens 3, alternate, epipetalous  
 reaching as high as stigma filaments  
 flattened toward base (+ extending as  
 white ridges down tube of corolla)  
 upper (over) part greenish, anthers white  
 2 celled, unilate

Fruit.

No. 82,

# A

Very long white flowered morning-glory  
 Corolla 5' long, Herb. twining, probably  
15' high.  
 stamens 5, epipetalous, included, inserted in  
 upper part of tube, anthers 2-celled, yellow  
 (light) unilate, filaments smooth, white,  
 slender.   
 Ovary 4 celled.

 x 1. lobes of corolla 5, yell.-white  
greenish on back,  
 greenish, smooth white, smooth, rough,  
 light yellow disc. x 1 Shape of lobe  
green 2 lobes.  
 Calyx of 3' fleshy spreading narrow lobes, + 2 or 3  
 appressed, broader lobes, more sep. green  
 Recep. & base of calyx thick & fleshy.  
 Corolla tube greenish, narrow, smooth

Fruit, *Sarsa leptandra?*  
 No. 83. 4 in. in diam, bark brown, smooth. 4°-10°.

Very spiny, shrubby, pink flowered

(Same as that *Delaloma Delaloma crepea*)  
 (calyx and corolla both present corolla 4 lobed, calyx more)

The stamens are free



Calyx monopetalous, with 4 green obtuse lobes. Stamens 8, 4 shorter, & 4 long, filaments pink, anthers minute, versatile (!) 2 celled, yellow



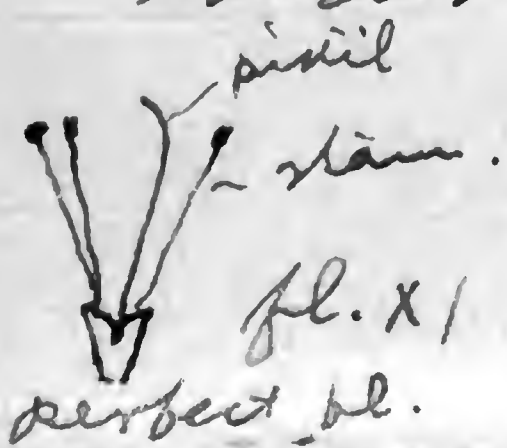
End of filament (anther brown above) Fls. reg. sessile these fls. are only staminate.

Some fls. only have pistils (as in no 85) Ovary superior, hairy, whitish, style just like one of filaments & just equal to short stamens, stigma minute terminal style attached a little to one side of top of ovary (forming beak) Filaments thicken above, especially the longer ones.

Fruit. No. 84. grows at water's edge in the sand

Spiny large tree with red (bursting) pods

Grows in & near water - Alligator Pt.



There are always many fls. in a head which are only stam., or all may be. Only few have pistils The calyx is just like

(Corolla has 6 and calyx has 7 lobes.)



perfect. one calyx is just like

(corolla has 5 and calyx has 7 lobes.)

that of preceding species, but granular roughness. Stamens at least 30, <sup>with</sup> long slender smooth, white filaments, anthers minute, greenish yellow, transversely 2-celled (like no 83 but smaller). 7 filaments all united into a short tube at base. Ovary stalked, hairy. (greenish)

Pistil red, stigma whitish, minute & terminal; style smooth. Ovary several ovules one seeded.

Fl. regular.

Bark ultimately rough, brown (light) feeling just a little like Box Elder. (in the old part.)

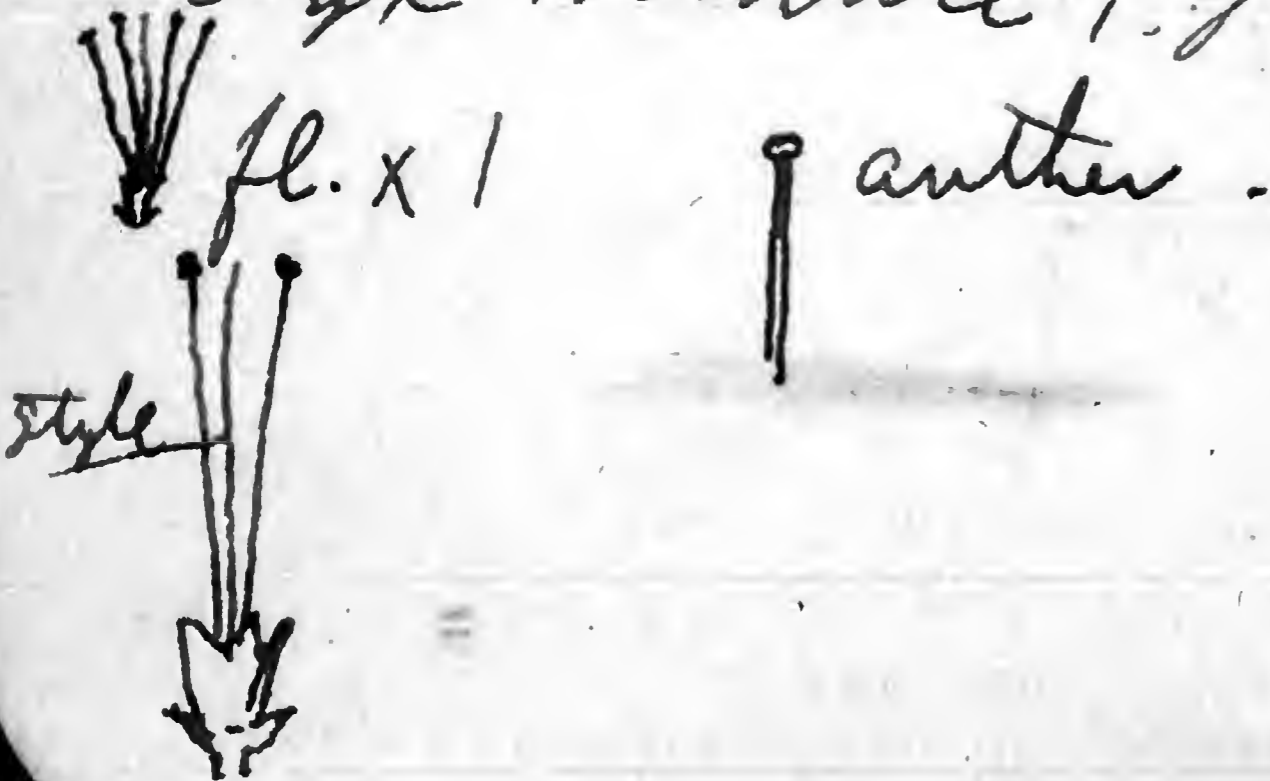
1. Fruit (not used)

No. 85

Small prostrate fine leaved, pink (like Oklahoma Caesalpinia)

Flowers regular corolla monopet. 4 lobed, pink, stamens 4 long exserted, filaments pink, anthers minute yellow, hypog. Style 2 to 4 just like a filament, stigma minute terminal.

Calyx minute, greenish

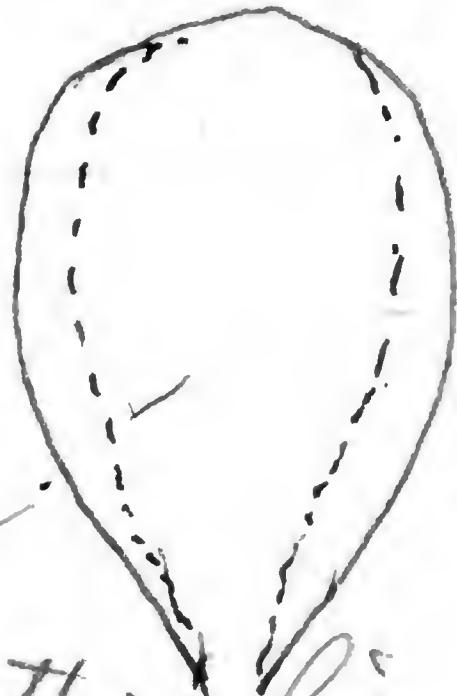
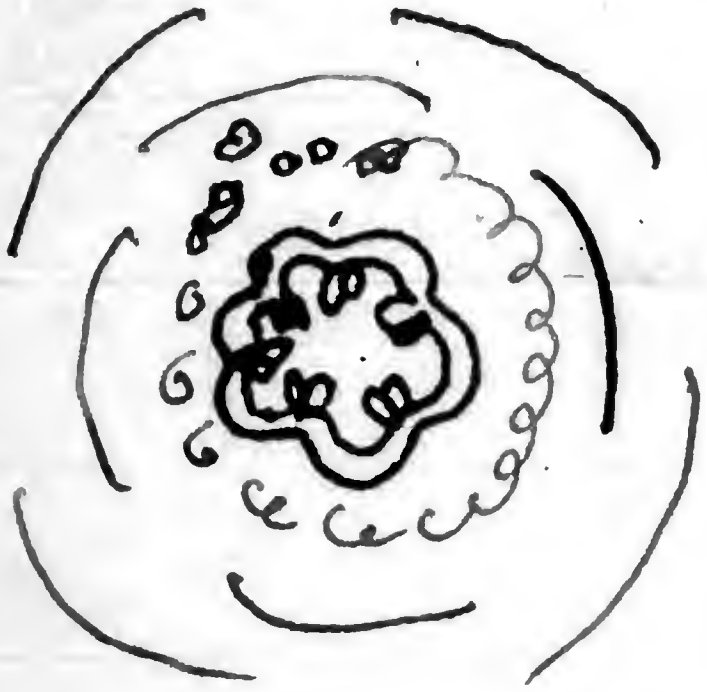


Fruit + seed

used for poultice  
for sores.

No. 86,

Yellow "~~Mentzelia~~" Argemone



yellow  
sepal.

The dotted line = petal.

Sepals + petals alike, yellow.

Stamens numerous, filaments  
vell-green, smooth = pistil, hypog.  
anthers small yellow 2-celled  
extrorse.

Ovary 1-celled,



6 parietal placentae, ovules numerous,  
ovary spiny (soft at first)

stigma sessile, purple, 6-lobed.

Milky plant 1' - 3' high, milky  
yellow. along roads, etc,  
waste places.

Fruit

No. 87

Milkweed, twining, with tuberculate pods.

Fruit, Leaves III  
No. 88.

Milkweed, vine, twining, with fluted pods. No ~~leaves~~ flowers found.

Fruit + seed  
Hura No. 89

~~Bur. like~~, large fruit, no flowers.

Large tree. Brownish gray bark (light thin & branches covered with short prickles. Branching. 5°-6° in diam.

Fruit, No. 90

Bur. like shrub, or small tree, with brownish fruit in a thyrsus, (look like Castor pods.)

Trunk 4 in, 20° high

General appearance & color of a Tilia.

No. 91

Vine with 2 very long curved narrow pods.

Fruit.

No. 92

Composite

Coarse, very hairy, spiny fruited  
weed, common along roadsides.

A composite, with 5-8 minute  
yellowish rays, with very large spiny  
2-horned achenes, pitted.

The ray flowers are reg. yellow, &  
sterile (staminate) and 3-5 per  
more

Coarse erect herb, 1° - 2½° high.

In waste places & along roadsides.

No. 93

called wild ginger.

~~Small yellow, shrubby malvaceae.~~

The red-fruited, palm leaves,  
(ovary 3-celled) plant brought by  
a man from the Mt. Mountain.  
Have fruit, piece of leaf  
& root.

Plant was about 5° high.

Fruit No. 94

Flowers in "rat-tail" spikes. Shrub  
narrower leaves.

Flowers like "Santa Maria"

seed.

11

No. 95


Jacoco - tree cultivated for fruit.  
 Tree 8 in in diam, 18° high, bark gray, <sup>not very</sup>  
 Petals white, obtuse, deciduous, on calyx, <sup>5,</sup>  
 Calyx narrow, green, lobes 5, calyx  
 slightly hairy outside.

Stamens numerous (quite) attached to  
 calyx below, filaments flat, white,  
 inserted  $\frac{1}{2}$  way, hairy, anthers yellow,  
 minute 2-celled, exserted.  
 Ovary with style on one side, hairy, green,  
 style hairy, white, stigma small, curved,  
 terminal, = stamens.



fruit. No. 96

"Leche le diablo" - Small tree, cherry  
<sup>4 in. in diam, 15° high.</sup>  
 barked, with milky poisonous sap.

Fls. greenish  x1

Calyx with 5 spreading lobes,  shape.

Stamen x. Anthers 2-celled, yellow,  
 filaments white. Alternate

or styles 3, each with 2 narrow lobes.

The protuberance sticking from calyx in figure  
 is made up of the 5 minute petals  
 which are hairy & close throat entirely.  
 They are ~~exserted~~ on calyx, as  
 are the stamens (? doubt in part)

Ovary fleshy with 3 cells  
 each with one small seed



wood

No. 97

Green, inflated-podded, compound leaves,  
Cassia-like woody vine or small  
tree; spreads out over surrounding  
vegetation

Found along sandy beach at  
alligator point.  
stem 3 in. in diam.

No. 98

Myosotis (Forget me not curved). Very hairy.

Coarse weed 8'-15' along roadsides.

Calyx of 5 green, narrow, lance, hairy.  
ciliate lobes.

Corolla somewhat.  $\nabla$  fl. x1, tube white, border

blue, 5 obtuse, somewhat unequal lobes;  
(all hairy outside), white in throat  
with yell. lines.

Ovary green, superior  
deeply 2 lobed, <sup>(divided)</sup> ovules more than 1 in each  
cell.



stigma. Stigma thick, somewhat  
5 lobed. style short, greenish

Stamens 5, opposite, sessile near base  
of tube, pointed 2 celled, introrse.

Stamens are alternate.

(Ovary not lobed at first?)

Fruit.

No. 99

Small <sup>flower</sup> mint or Scrophularia (Verbena like), coarse weed, 6'-10' high

Fls. blue <sup>or violet</sup>. Stamens 2 - wh. on short filaments

Anders 2-celled, Epipeltis. Corolla irregular

6x5 Ovary superior smooth slightly flattened. Probably 2-celled (?) (or possibly 2 parietal plac.?) style short, stigma minute

Calyx of scarious small sepals.

: 19 bract x 2. : total length of flower. Tube very slender.

Along roadsides, Common rather.

~~and~~ Corolla 2 lobes, upper of 2 small fl. 4. Abundant lobes, directed downward, lower of 3 broader lobes each shaped M. Throat white within

seed Prunella No. 100

Anona. Tree 1' diam, 20' high, trunk dark gray, rather smooth,

Fruit soft, "mushy", Custard like - too rich. Cult.



seed & fruit. No. 101

A variety (2) of no. 29 - with narrower leaves & larger pods.

~~at least above.~~  
Fruit  
the involucre No. 102  
does over fruit.

It seems that the ray flower is about the only fertile one.

Little yellow Lobelia-like Composite  
yellow

One broad, ray flower, which is petillate & placed below, making it look like lower lip of flower.

4 perfect regular yellow disc flowers above, with dark anthers, & 5 lobed corolla  
Pappus none.  
Chaff of one or (2 or 3) lanes.  
somewhat scarios scales.  
very large

fruit.

No. 103

Small flowered, delicate leaved Cassia.  
with brown somewhat hairy pods, & hairy stem.  
! diam. of flower.

calyx of lance., acuminate, spreading,  
yellowish up to, with few hairs outside -

Corolla nearly regular, of 5 obtuse  
short-clawed yellow petals. the  
upper a little smaller.



Stamens nearly equal,  
2-celled, with short  
filaments. yellow, clustered  
above the hairy, green  
ovary.

stigma somewhat oblique }  
terminal.

Plant shrubby at base,  
10' high, somewhat spreading.

seed. No. 104

Small ground (soft) in Mrs. Cantor's  
yard. Tuberculate fruit, red.

Ovary looks 3-celled (or are there  
3 parietal placentae?)

7 P ...

Flowers yellow.  
Plant climbs over cactus-<sup>tree</sup>

seed. Branches 11

No. 105

"Jicara"

"Ground-tree" - fruit used for cups, etc.  
Tree 1°+ in diam., 25° high.

Bark grayish or brownish, somewhat  
roughened by long cracks.

seed.

No. 106

Anona.

Large hard-fruit tree, (Looks something  
like Annona)

seed. Branches 11

No. 107

Sweet lime. Smooth bark, gray, but  
long ridged stem (irregularly)  
Trunk 1° diam, tree 20° high.

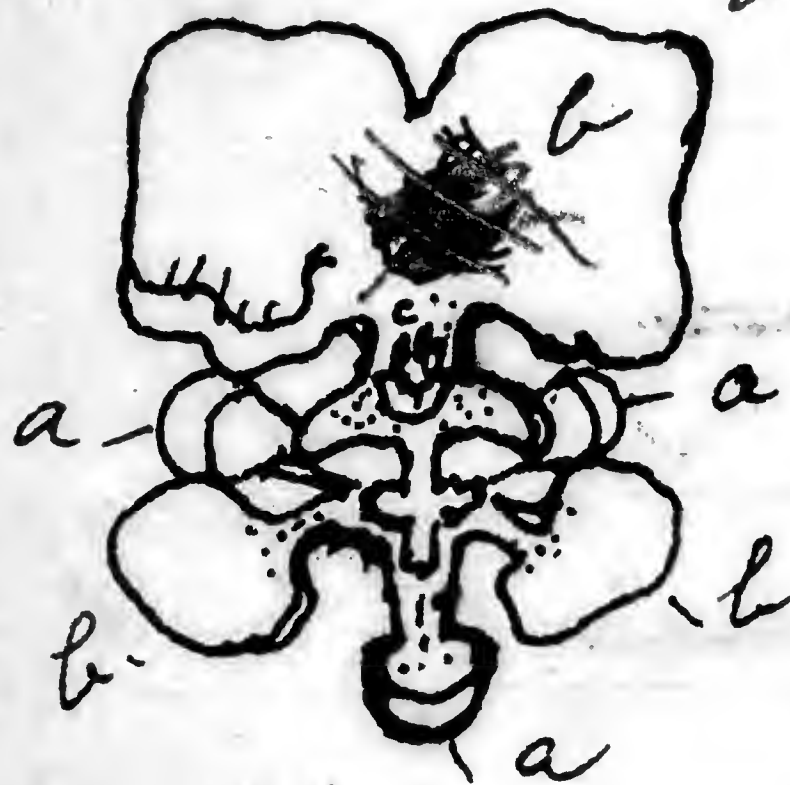
Cult.




No. 108 - yellow orchid.

In Mrs. Cantin's yard, on tree, but it came from the volcano.

a a a = nearly equal spoon shaped yellowish petals with brown spots.

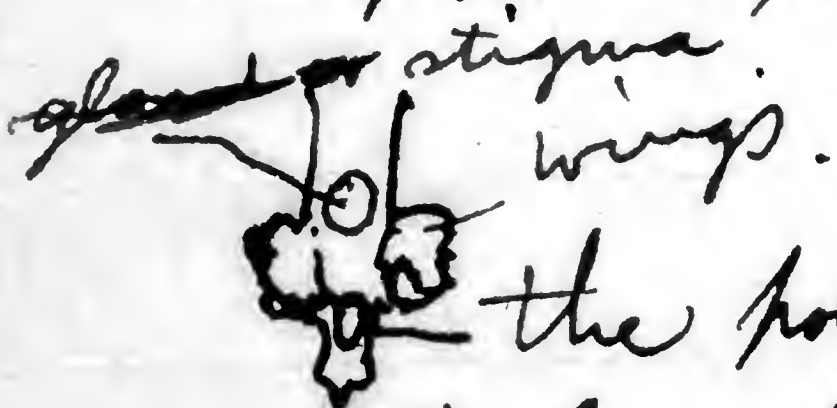


Petals bright yellow, upper large, 2 lobes, the lateral ones clawed, all spotted with brown at base.

x 1. c. is a projection  whitish with

brown spots.

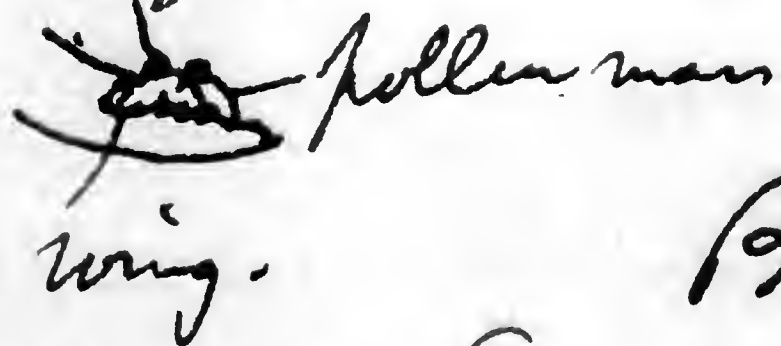
Upper petal white on back.



the pollen mass lodges in here & is sticky above.

Pollen masses 2, yellow, enclosed in sack which comes off easily

They bend forward & come in contact with stigma.



Bulb fluted, leaf single. (see spec.)

Flowers in panicles.

1 pod.

No. 109

1 pod.

1 no. 109.

Pea - vine delicate, leaflets obtuse, narrow, or broader (var. ~~var.~~)

Flower pink. Standard down.

Corolla nearly uniformly pink.

Standard emarginate.

Calyx - green 5 lobed, upper (lower)

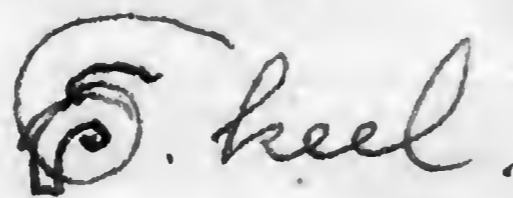
3 acute lobes, lower (upper) 2 obtuse lobes.

Keel coherent, spiral, oblique.

Wings loose, oblong



fl. x 1



Keel.

stamens & pistil included


Herb. vine along roadside

Fruit.

NO. 110

"Flowering elm"

Fls. sessile in little clusters

x...  Calyx ~~wound~~, green 5-lobed, lobes acute, sharp pointed & hairy.

Corolla pink, ob-lance, acute, 5 petals really white with pink veins.

Stamens & style included, extending to x in fig 1

Stamens 5, united by their filaments, anthers 2 celled, white, exserted, sessile on the column. Column whitish (green)

Stamens ~~high~~ (over) Stamens epipetalous opposite

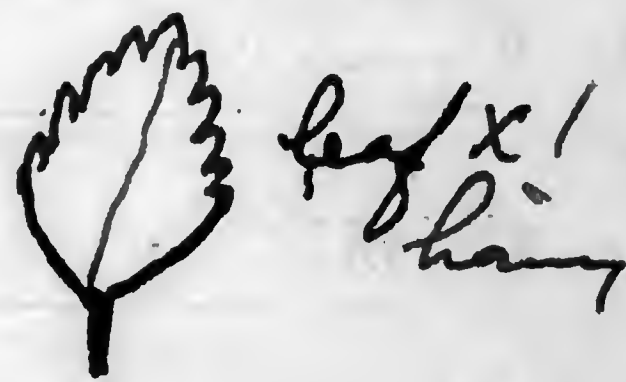


ovary superior, very hairy, hairs white, erect (running upward)  $\times 2$   
 styles 5 white, distinct, stigmas white <sup>not so enlarged</sup>  
 ovary brownish.  
 Small shrub 6'-15' high along road sides. Some are over 6' high.

No. 111. (see 1st no. 31)

Little Composite (straw flower)

No. 112



Little weed along streets of Moyogalpa.



Ovary superior, smooth, 2-celled, ovules numerous.



fl  $\times 1\frac{2}{3}$

longer stamens

Calyx of 5 linear, hairy green sepals, the upper longest.

Corolla monopetal, tube about 5 angled, purplish above, limb white, 5 lobed irregular, lobes small, obtuse.

Corolla hairy outside, especially above, stigma reaches to s. style slender

smooth, stigma terminal flat  $\square$ , white  
 stamens 4, exserted, 2 pairs, filaments smooth, white, anther small, 2-celled, white

~~Upper~~ pair of stamens longer (inserted below & extending beyond that pair), seemingly one-celled. ~~Lower~~ <sup>Upper</sup> pair very short, anthers distinctly 2-celled

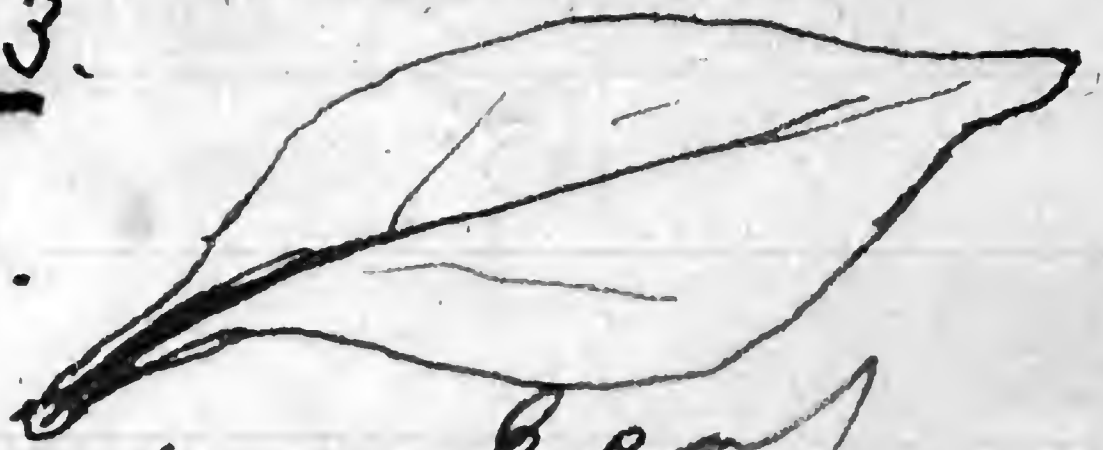
Fruit.

No. 113.

Solanum



fl. x1.



Herb. weed, 1<sup>o</sup>-3<sup>o</sup> high - <sup>leaf</sup> waste places.  
Calyx of 5 minute green, rather obtuse  
~~sepal~~, slightly hairy.

Corolla rotate, reflexed finally,  
lobes 5, narrow lance, obtuse, white,  
green at base; monopetalous

Stamens 5, sessile, synergous (very  
tightly), anthers opening by chinks  
at the top.

Style slender, hairy on lower half,  
smooth above, stigma minute; terminal

Ovary smooth, superior, 2 celled,  
axile placentae, ovules very numerous.  
125+

Fruit

No. 114 (see

Yellow Mallow with symmetrical petals.

Somewhat shrubby, spreading, 6'-1<sup>1</sup>/<sub>2</sub>'.



fl.

may. just  
a little

Corolla monopet. at base, 5 lobed  
each lobe emarginate, yellow.

Stamens many united in a

column, this with corolla; anthers quite  
numerous, yellow, ~~apparently~~ covered with little grapes  
filaments (see part) slender, yellow.

Calyx monopet. green, 5 lobed, lobes acuminate  
hairy (glandular), a little shorter than  
corolla. each lobe with ribs, + between  
= 10 ribs.

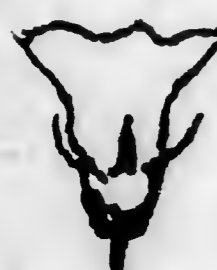
ovary superior hairy,  
 styles 5 united toward base, spreading, white,  
 slender, smooth. Stigmas red, terminal  
 (small capitate). Ovary 5-lobed.



Each one seed, & finally  
 separating.

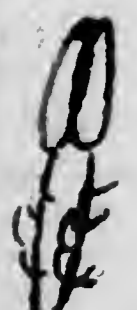
No. 115.

Little ground cherry -

 fl. x 1 <sup>reg.</sup> Calyx monopetal, slightly  
 hairy, green, 5 lobed, lobes linear,  
 spreading, each with midrib which runs  
 down tube.

<sup>reg.</sup> Corolla monopetal, 5 lobed, lobes  
 shallow, acute. a dark brown spot  
 at base of each in throat.  
 Otherwise yellow. Hairy inside  
 & outside, & ciliate.  
 stigma just on level with corolla,  
 stamens a little lower.

Stamens 5, attached to very base of corolla,  
 alternate, filaments rather fleshy,  
 purplish, hairy, (bluish green)  
 Anthers greenish, 2 celled, imbricate

 ~~Stamen~~ Fruit in inflated recept.  
 x 2 1/2 In Mrs Cantons waste  
 patch. style white,  
 stigma capitate, rough.  
 Ovary 2-celled, axile, ovules numerous.

... .. bit Phacelia



fruit No. 116 (somewhat Pharyngia  
alligator Pt. like)

The weed with spreading naked spikes of flowers  
common on Alligator point.

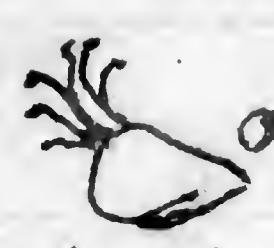
Fls. sessile.  top view of flower

Stamens alternately large short & attached  
to the corolla.



$\times 1\frac{1}{4}$   
Sepals 3, the 2 lateral little  
green fleshy scales, the  
lowest linear, longer, acute, green.

Petals 4, narrow, oblong, cream  
colored, equal, but somewhat irreg. placed  
slightly coherent at base.



ovary hairy styles several very slender  
in tuft on upper side, stigmas  
about  $\times 5$  minute, terminal.

Stamens 8, filaments reddish, or pink,  
smooth, anthers 2-celled, white, imbricate  
oblong. long.

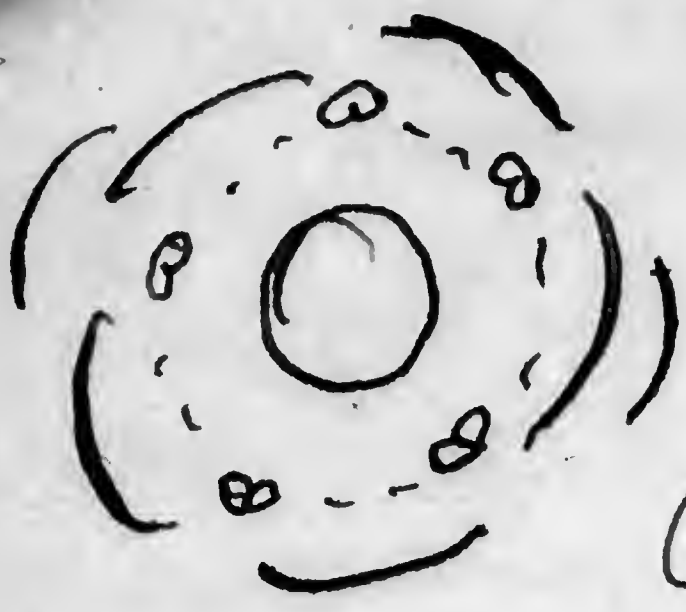
Ovary 4 lobed. one celled, one  
seeded. Herb. (perennial?) 6'-18' high

wood No. 117 alligator Pt.

White "straw-flower" - "Buttons". Heads of  
white fls. Shrubby, <sup>5-15"</sup> opp. leaved.

Stamens <sup>5</sup>, united by filaments into a cylinder  
anthers sessile on this, 2-celled, yellow, introse,  
each with a tuft of hairs on apex.

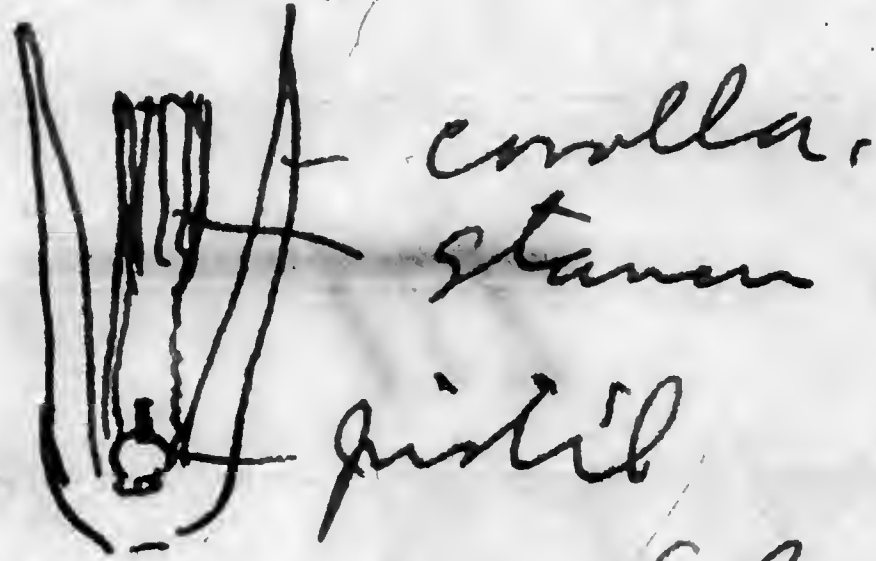
Anthers really versatile, but introse -  
 $\times 5$  Pistil 1, ovary superior, on disc, style  
~~almost none~~ <sup>very short</sup>, stigma capitate  
all green.



The two sepals are hairy outside  
 Calyx of 2 awn pointed  
 scarious sepals, erect  
 less than  $\frac{1}{2}$  corolla.

Corolla of 5 erect white  
 scarious, sharp pointed petals, green  
 below, by hyp. nearly reg.

fl. XI



There is a scale, (broader) below  
 flower which looks like, & may be  
 a thin sepal.

### No. 118.

The odd plant with broad disc in  
 which flowers are imbedded.


The ovaries are concealed in little  
 pockets, & only a part of the slender  
 white smooth styles (there are two to  
 each flower) project from a little  
 tubercle. Stigma minute, terminal.  
 The stamens seem to be only  
 one, on short filament, anther short

2-celled yellow, also coming from tubercles.


Weeds in Mrs. Cantor's yard, but native.

No. 119 (= 54?) prostrate

The 6-lobed, white star like flowered, weed curved a little.

 fl. x1. Corolla, white, monophet, 6 lobed, funnel shaped, lobes acute lanceolate, smooth. Attached to calyx.

Calyx green, with 6 narrow lobes in 2 rows (most of 2 tipped), ciliate + hairy.

 Calyx x2.

Style nearly - to corolla, + stamens just at edge.

Style slender, white, smooth, somewhat

3-lobed, stigmas capitati (! rather large) Ovary inferior, 3 lobed, hairy (calyx), 3-celled, with ~~many~~ <sup>one</sup> ovules in each cell.



Stamens white, exserted attached in angle of lobes, filaments <sup>smooth</sup> short, anthers small 2-celled, pollen white.

The lobes of corolla have just a slight pinkish tinge.

A weed along roadsides.

♀ anther.

Each cell of ovary one seeded.

alligator Pt.

Wood.

Flower.

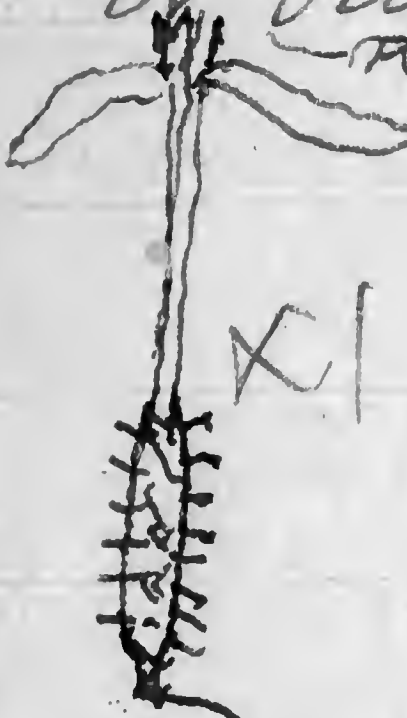
NO. 120

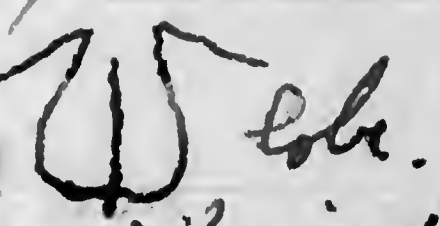
The very sticky pod - white fls.

(Stuck in my beard & on my woolen shirt)

Herb or somewhat woody spreading shrub

or vine, spreading over other plants.

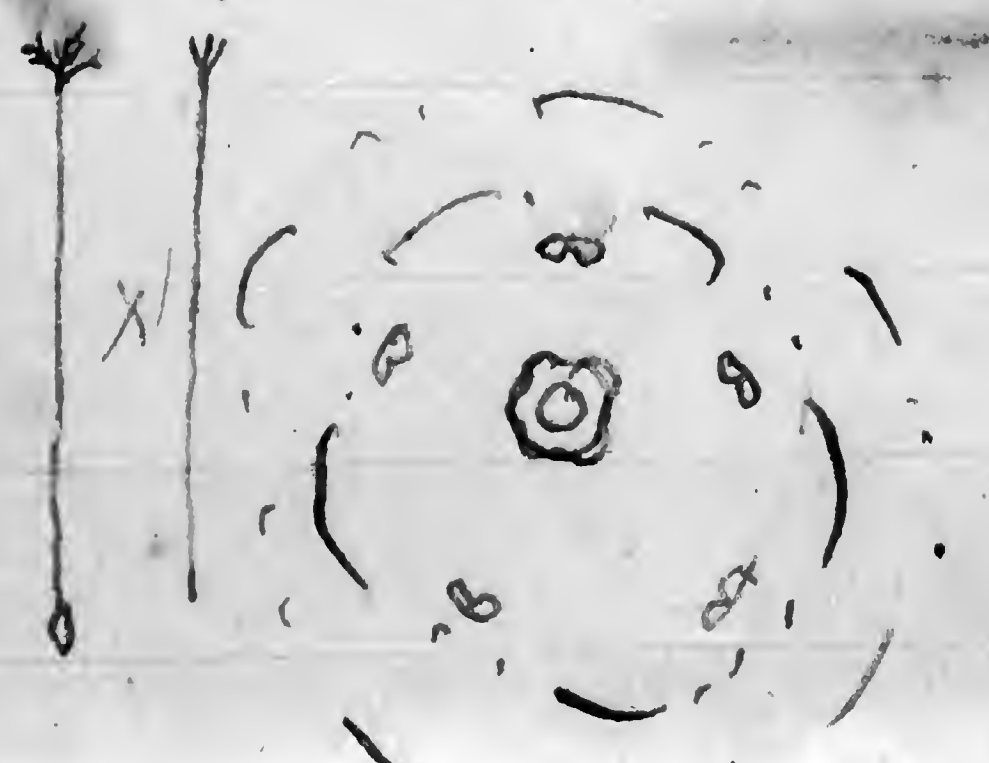


Corolla <sup>stigma + stamens</sup> salver shaped, tube slender, limb with 5 lobes  lobes. Pure white, smooth. <sup>points.</sup>

Calyx tubular, somewhat enlarged below, green, covered with very sticky glandular hairs, 5 lobed, ribbed.

Stamens 5, hypog., on slender white smooth filaments. Anthers deep blue, just exerted, 2 celled, verrucate but introorse

dehis long. pollen white. Ovary superior, greenish smooth, style slender, white smooth = to filaments. stigmas 5, somewhat brush like.



Fl. regular. ovary slightly 5 lobed one celled, one seeded.

Plant also spreading. 1' - 8' high.

Wood

wood


No. 121 (see 300)

Flat stemmed woody vine, climbing  
15°-18° high. Fl. remind me of

grape. Leaves cordate, sharp serrate

Ovary smooth, superior, green, one-

celled, 2-veined. ~~4~~ petals

x  fl. x 1 Calyx just a bare rim, ~~interlobed~~  
4 lobed, green.

Corolla of 4 green  $\Delta$  petals

which are united above & incline down  
each l., they fall like grape.

style short erect, stigma small

terminal x in the figure is a

fleshy 4 lobed  yellow ~~disc~~ gland



Stamens 4, filaments very short,

anthers 2-celled, light yellow

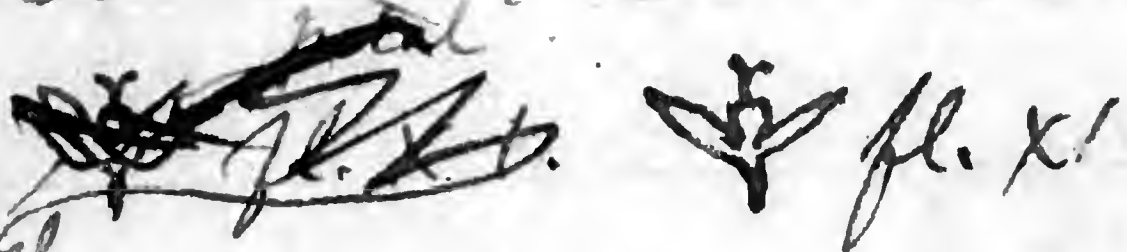
ornate.



Wood

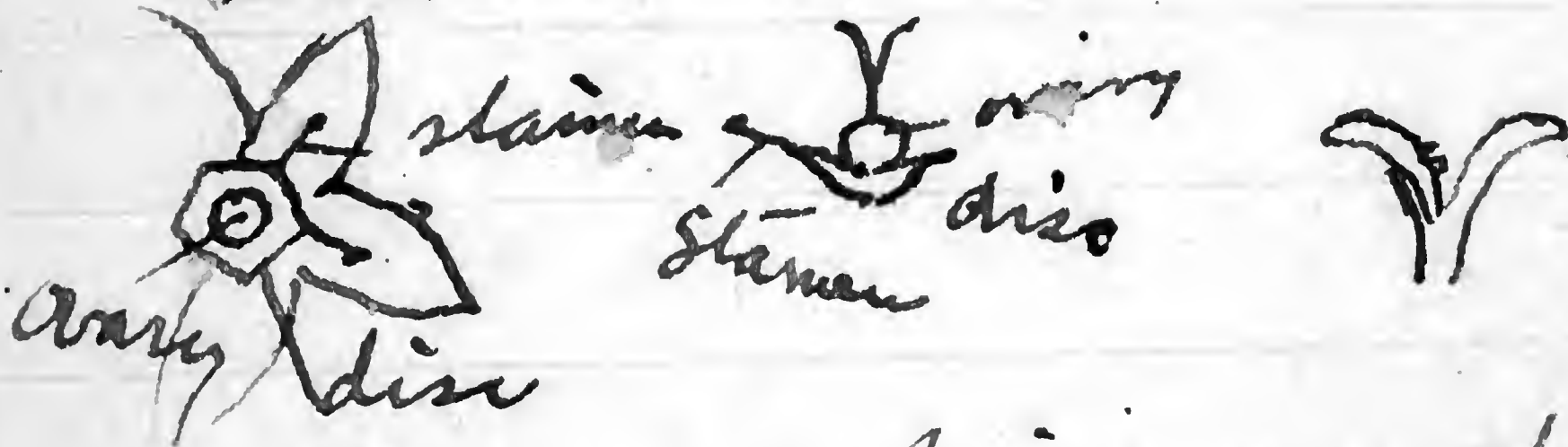
No. 122

The vine (possibly 15' long) spreading over shrubs, etc. with spikes of whitish flowers (woody stem at base) which reminded me of a big Rumex



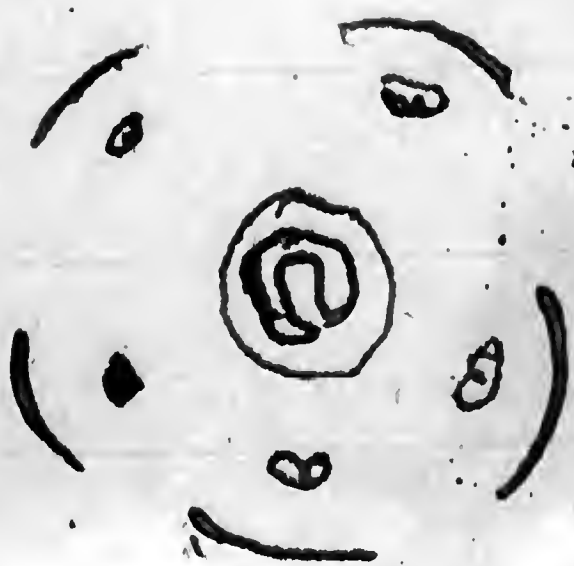
sepal

Sepals 5, greenish, lanceolate, very sharp at apex, scarious, Stamens (attached to a thin raised disc 5 spreading, <sup>with</sup> very short filament, with and minute anthers



Ovary superior, smooth, style short 2-lobed, white, stigmas 2 white, spreading. Stigmas rough. Stamens minute, 2 cells, dehiscent long. Introrse.

Ovary one celled  
one-ovuled.



San Carlos Mt, Arizona  
Jan 2-1893

2 - grass

Small Sedge III

Unknown weed I ~~II~~

" " 2 1 Round-leaf

" " 3 1 (Lobelia?)

Verbena I

Blue (Mint) II

Polygonum (aquatic) II

Polypodium (roof of house) III III I

Water Cabbage II

Small yellow Composite I

Climbing plant with few <sup>no</sup> fls. I

Moss? (Liverwort) I

Minute Composite I

" Oxalis like I

Agave II Leaves & fls. of each.

35 species.

97 specimens

Mar 1900

Ward



San Carlos lot, collected

Jan 2 - 1893

- Indigo plant. seeds 5 spec
- Large Per. - long vine III
- Large Cassia in swamp - tree 8' - 1 <sup>leaf</sup>
- Yellow plant (see seeds) 1 spec
- Cassia - (obtus leaflets) <sup>shrub</sup> 6' high III
- Eupatorium (vine) III
- Grass (red head) III
- White topped grass III
- Small shrub - yellow Mallow III
- Cassia (obtus leaflets) <sup>smaller shrub</sup> II
- Purple flowered tree - small tree - III
- Eupatorium (same as above?) I
- White flowered shrub I
- Cornelium III
- Opposite leaved weed III III
- Milkwed (red & yellow) III
- Spiny shrubby vine III
- Large Solanum I
- Solanum - shrubby vine III
- 2<sup>nd</sup> grass II

Bixa

the largest with *Crossalpinac*

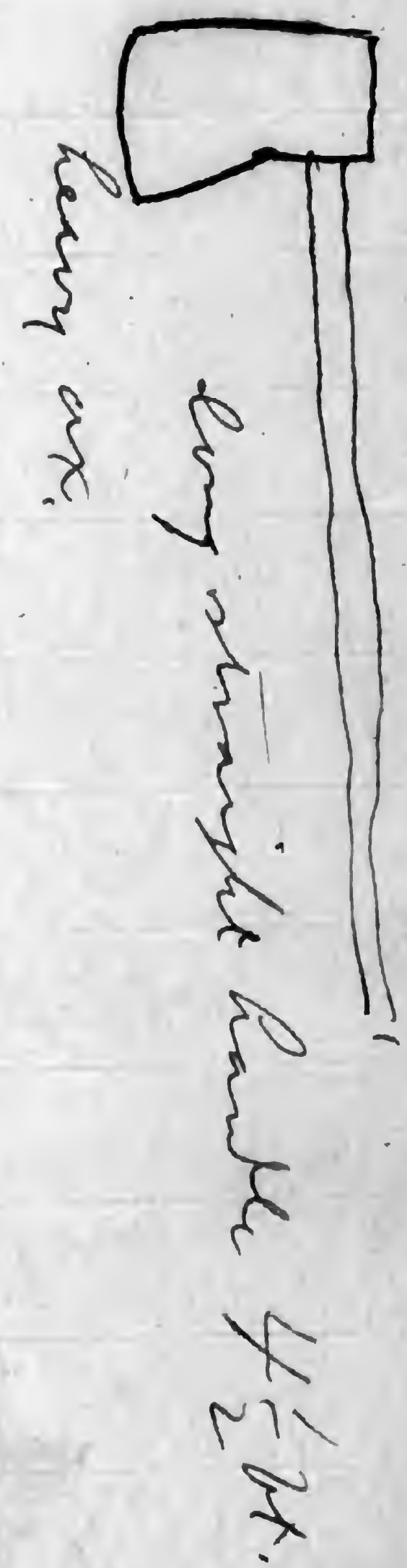
~~the largest with *Crossalpinac*~~

large *Cassia*

white flowers  
small tree

Red black berries  
shrub

Madera



Moyagala

*Arctium flavum*  
*Arctium flavum*

