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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.

Ex libris



Wilson 1867
Popence

Wilson Popence
Office of Foreign Seed and Plant Introduction,
Bureau of Plant Industry,
U. S. Dept. of Agriculture
Washington D. C.

Friday Habana Cuba Feb 18 1916

^{Prosp} Sent Simmonds cuttings of 2 types of *Vitis caribaea* from the Estacion Agronomica, viz.

Var. A. Long, loose fruit clusters

Var. B. Short, compact fruit clusters

These are the 2 recognized types of this grape, and are both cultivated at the Estacion. The plants are practically dormant and almost devoid of foliage at this time.

^{Very}
^{curious} In talking with R. S. Condit, a mango propagator he told me that he knew ~~undoubtedly~~ should budding sufficiently well to be sure of 75% success, or even more. The difficulty in the fact, he finds, lies in using budwood to which leaves were attached or from which the leaves had recently fallen and the leaf scars had not yet healed thoroughly. He has found when using buds from which the leaves had only recently been cut that decay will set in and though the bud may unite with the stock

at both ends it decays at the center
around the leaf scar. It therefore
cuts the leaves from wood to be
used for budding at least 3, prefer-
ably 4 weeks before the wood is
cut from the tree. The fiddle-shed
then have time to drop and the scar
to heal before the budwood is used.

Mr. Conliffe finds he can bud at any
season, but the trees are in active
growth. Summer is usually the best time
but so much because of greater warmth
but because there is more rain than
in winter and the trees consequently
grow more vigorously. When budding large
budding seedlings he prefers to bud rather
high so as to work in green wood.

Saturday

Feb 19 1916

France Mulgata

Manga

Bennett Alphonse N.W. of house
subject to blight

Emma Sister of above was worthless

Peter No. 1 next to walk on W.
very fine from blight

Late Mulgata E of walk 1st tree

Peter's Bombay from Jamaica
2nd tree to E

Cambodian under Home, at NE cor.

Amiri next S of Cambodian
must be 7104 heavy green budding
down with weight. One of the best.
Persistent blight on bark after a
short interval.

Panduraka SE of walk to E of house

9th row
 Anson
 Anson
 Cambridge

3rd row
 Cambridge
 Dardona

4th
 Lte Mulcahy
 Gen Alphonse (?) Fanning

5th
 Perrine
 Lathrop
 Gordon

6th
 Gordon

Tree treated in San Hermán's wood, at
 Sta. de las Vegas. All Malgolo. Sa. Pict. of 7.
 Tree 2-10

Panicles rather few, distributed pretty
 evenly throughout the tree. Bark did
 not come off very readily. 5 complete
 girdles $3/4$ to 1 in. broad just most of
 the main limbs 3-4 feet from ground.
 Trunk branched about 15 in. from ground.

Tree 3-1.

Very few panicles, on side of tree toward west.
 Trunk branched about 18 in. from ground.
 Bark came off fairly readily - somewhat better
 than 2-1. 5 complete girdles about $1/2$
 in. broad just on main limbs $2\frac{1}{2}$ to 4
 ft. from the ground.

Tree 5-1.

Quite a lot of panicles scattered over tree.
 No main limbs seen. Trunk branched 15 in. from
 ground. Bark comes off fairly readily, about like 3-1.
 5 complete girdles just on main limbs $2\frac{1}{2}$ -
 $3\frac{1}{2}$ ft. from ground.

Tree 7-1.

Only 3 or 4 panicles on tree. Trunk branched about 15 ins from ground. Bark separated about like previous ones. 3 complete quills left on main limbs 3 to 4 ft from the ground.

Tree 9-1.

No flowers. Tree in corner of grove, about 15 ft from a brook and 10 ft from a row of Chestnuts. Trunk branched about 15 in from ground. Bark separated fairly readily. 5 complete quills $\frac{1}{2}$ to $\frac{3}{4}$ in broad feet on main limbs 2 to 3 ft. above ground.

~~XXXX~~

Tree 8-3.

Scattered bloom on one side of tree. Trunk branched about 1 ft. from ground. Bark separates as in previous trees. 7 spirals $\frac{1}{2}$ to $\frac{3}{4}$ in broad feet on main limbs.

Tree 6-3.

Small tree, no bloom. Branched 1 ft from ground. Spirals $\frac{1}{2}$ in broad feet on 4 main limbs.

Tree 5-3.

Small tree, just pushing out bloom buds. Branched 1 ft from ground. Two plate quills on all four main limbs.

Tree 4-3.

Tree showing a few young fr buds on one side. Branched 15 ins from ground. Spirals just on all 5 main branches.

Tree 2-3.

Tree just coming into bloom, on N. side only. Trunk branched 10" from ground. Spirals just on 6 largest limbs, 2-3 ft from ground.

Tree 1-3.

Tree sending out a few bloom buds. Trunk branched 2 ft from ground. Spirals just on all four main limbs about 3 ft from ground.

~~XXXX~~

Tree 1-4

Tree not showing any bloom. Branched
10 ins from ground. 5 double jacks
put on main limbs, 3-4 ft from ground.

Tree 2-4

Tree rather small not showing any bloom.
Trunk branched about 15 ins from ground.
5 double jacks put on largest
limbs 3-4 ft from ground.

Tree 3-4

Tree rather small, not showing bloom.
Trunk branched 12 ins from ground.
5 incomplete jacks put on largest
limbs $2\frac{1}{2}$ - 4 ft from ground.

Tree 7-4

Small tree but showing a little bloom.
Trunk branched 10 ins from ground.
3 incomplete jacks put on largest
limb 6 ft from ground.

~~XXXXX~~

Tree 8-5

Small tree, not showing bloom. Trunk
branched 8 ins from ground. 4 incom-
plete jacks put on larger limbs 3 to
 $3\frac{1}{2}$ ft from ground.

Tree 6-5

Tree just commencing to show a few fr buds.
Trunk branched 6 ins from ground.
6 incomplete jacks put on main
limbs $2\frac{1}{2}$ to $3\frac{1}{2}$ ft from ground.

Tree 4-5

Showing a very few panicles of bloom.
Trunk branched 6 ins from ground. 6
incomplete jacks put on main limbs
2-3 ft from ground.

Tree 2-5

Showing a few panicles of bloom. Trunk
branched 18" from ground. 5 incomplete
jacks put on $2\frac{1}{2}$ to 3 ft from ground.

Peter's Bombay

Mr. Jan Bertram says he got this variety from Guiana, and that it seems to him slightly different from our Peter's No. 1, the only a subspecies. He considers it better than Peter's No. 1.

Tree erect with a broad dense crown, very stout branchlets and heavy foliage distinctly of the Bombay group. Trunk rather strongly branching close to the ground, the bark of a decided grayish cast of length rough. Branchlets very stout and stiff, sometimes curved in at the tips, the pithes long. Foliage kept open, abundant, the long blades 6-12 in long, $1\frac{1}{2}$ -3 in broad, acute at base, long acute at apex, the surface decidedly undulate at the margin and the margins curving upwards, primary lateral veins about 20 from the petiole long, $1\frac{1}{2}$ -3 in.

Panicles ^{erect} stout and broad, 8 to 14 in long, the lower laterals 3 to 8 in long, axis pale green tinged with pinkish, very minutely pubescent. Laterals abundant.

Flowers moderately abundant but not crowded on lateral, rather small in size & occasional on lateral of upper half of panicle. Abundant on end of main axis. Stamens minute scarcely visible, not capitate. Ovary & style normal.

Quercus Purpurea negra

Tree erect, the branches ascending, and the crown oval. Bark rather rough. Branchlets rather slender, the pith is short. Foliage dark green. Leaf blades 6-10 in long $1\frac{1}{2}$ - $2\frac{1}{2}$ in broad, acute at base, subacuminate at apex, very thick with the fine striation impressed above, surface somewhat undulating, primary transverse veins about 20 pairs, fairly conspicuous.

Panicles short, stiff, quite erect, 6-10 in long, abundantly branched, the lowermost lateral $2\frac{1}{2}$ -3 in long. Main axis rather slender, bright cinnamonaceous in color, finely & sparsely pubescent.

Flowers ~~not~~ crowded on the lateral, average size; & very abundant throughout panicle from the lowest lateral. Stamens. Stamens moderate, undeveloped, more capitate. Style & style normal.

Blooming frequently. Said to be a regular and prolific fruiter. Looks greatly like Q. Purpa No. 11 but axis of panicle is longer & opposite of those that of No. 11. Its flowering has later than native range of the range seen.

Sunday Herradura Cuba Feb 20 1916

Navel Prof. Earle says the Washington Navel orange orange does well in Cuba under certain conditions. One thing is certain, it does not do well on rough lanna soils.

Baker Seed sent him by C. F. Baker in the winter of 1907, saying that it was a fine avocado & very late.

Fruit obovate, scarcely necked, medium large, wt perhaps $1\frac{1}{2}$ lbs. Color purple. Shed thick, excellent quality. Seed medium size or rather small for size of fruit. Tree bore about 100 fruits this winter, a few last year (1st crop) Hang on the tree until the 1st week in December.

Avocado succeeds best in Cuba on red lands, deep and well drained. Prof. Earle has never noted that the lands here need be particularly moist. Physical condition of red soils of Cuba is very fine.

Mango more adaptable than avocado. Will grow on a variety of soils. Red lands are very good.

Annonas all seem to be calycophellam especially the common Guineas. A needs well up and fruiting here. Guineas may bear 2^d fruits in at the same time but so many or none. Many crop about April, another fruit time in mid-August. Always a few every day in the year in Havana market.

Tuesday Halama Cuba Feb 23 1946

Fertilizing Mr Kraus and I called on Chas
mejer a Beatly, Empress and discussed
with him the fertilizing of mangoes.

Mr Beatly says that the soil in San
Annam's grove which is being experimented
upon will be planned to be treated as follows:

Fertilize with 5-5-8 formula
9.6 lbs Sulfate of Ammonia
11.2 " Double Acid Phosphate
6.4 " Sulfate of Potash
To each tree per year, the above amount
to be given in 3 applications, viz:
One in April or May,
One in July or August - preferably August
One in December.

San Annam's trees only had the first two
applications of fertilizer being put on in Dec.

Next year Mr Beatly intends to make
an experiment with Mangrove, using an
0-8-10 formula 15 lbs per tree during the

Tuesday Miami Florida Feb 29 1946

Just 4 *Socrada* samples collected by Dr. J. A. Harris
C 1691 200 34831 Mejer type
C 1693 Potted one.
C 1694 200 19080 Kurt.

Following were collected in the garden today

C 16175 200 32400 Mexican type from
C. P. Taft Camp, Col. (Kilmer's house)
Towel had some seeds to show

C 16176 200 36603 Guatemalan type from
Honduras. Flower buds just
commencing to show

C 16177 Garden No 295. Mexican type. Fruits
developed to about 1/2 mature size. Some
new leaves on tree but only the
older ones chosen for samples A
A = old leaves
B = young but fully grown leaves

C 16178 Seedling of Mexican type. No number
In bud and bloom with full fruits at one
one side of tree

C16179 SPI 26690. Butler var. from
St. Petersburg, Fla. West Indian
type. Tree now in full bloom

C16180. SPI 26691. West Indian type. From
Judge White's place, Duval Co., Fla.
Tree not showing any bloom buds or
fruit.

C16181 SPI 19058 Guatemalan type.
From Collins, Guatemala. Not yet
in flower. Still carrying a few fruits
from last year's flowering.

C16182 SPI 10975 Guatemalan type.
Seed from Collins, Guatemala.
Carrying fruits from last year's bloom.
Leaves slightly yellowish.

C16183 SPI 18120 West Indian type.
from Bayamon, P.R. Just coming
into bloom

C16184 SPI 26694. West Indian type.
from St. Petersburg, Fla. One bud
of this tree has been budded to SPI
38549. Looks guatemalan variety, of
which sample was taken under C16185.
Tree showing a very few flower buds
in flower.

C16185. SPI 38549 Guatemalan type.
bud from Collins, Guatemala. Seed
led to sample of seedling West
Indian type SPI C16184. Bud
inserted Jan 24 1914. Tree not
showing any signs of bloom.

C16186 SPI 26718 West Indian type from
Hobbs, Duval Co., Fla. Seedling in C16187
has been budded to one branch, bloom
buds just making their appearance.

C16187 SPI 3937f Mexican type Guava (?)
Looks like Harmer's one 1 yr old but in
one bud of C16186. Carrying into
bloom. Budded Nov 16 1914
Must be Harmer.

Saturday Miami, Fla. March 4 1916

C16211. SP# 32400 Mexican type from
C. T. Gray. Retained under C16195
but juice insufficient. Flower buds about 1 1/2
in long.

C16212 Mexican type, no number. Retained
under C16195 but juice insufficient.

C16213 SP# 39374. Mexican type, but
det. on one bud of 36713. Retained under
C16187.

C16214. SPI 19297. West Indian type, from
Beacoch. Coconut grove just coming into
blossom.

C16215 SPI 26693. West Indian type.
From Thompson. Coconut grove. Not yet showing
blossom.

C16216. SPI 26692. West Indian type. From
Paul. Nye. de las Cajas. Cuba. Very
new on April blossom.

C16217. Guatemalan type. Collected
Bud just in on bud of West Indian tree
SPI 26692 / C16216. Feb 19 1915. Now com-
ing into blossom, carrying only a few buds.

C16218 SPI 15730. West Indian type, var.
Large tree large with large foliage, now
coming into full bloom.

C16219. Guatemalan type. Another var.
Bud just in on one branch of 18950 (C16215)
Feb 19 1915. Bud now about 5 ft high
just making new growth but no flower buds.

C16220. Guatemalan type. Another var.
Two yr old but on West Indian stock 12
ft high. Blossom buds just making their
appearance.

C16221. West Indian type, unincubated seedling on one side of a Fuerte is tucked (C16222) not showing any flower buds.

C16222. Mexican type, var Fuerte.

Bad fruit on Feb 17 1915, on wet side - sucking allance side (C16221). Tree going out of bloom. few young fruits set, not visible.

C16223. Mex type. Seedling, East of row in J garden. Just finishing bloom.

NOTE Samples 16175 to 16187 inclusive were collected late in the day, approximately between 3 and 4:30 pm.

Samples 16211 to 16223 inclusive were collected early in the day, between 7:30 and 9 a.m.

Sunday Miami Fla March 5 1916

Awards specimens collected in the garden this morning, beginning at 8:15 am.

C16225 Mexican type. Unincubated seedling in Dr. Garden just behind 16222. Only one branch of single at the top from it. specimen was taken. Proportion of the top would be Mexican var. on left. No flower buds visible.

C16226. Mexican type, var San Sebastian. Budded Feb 17 1915 on one branch of C16225. Bud about 7-8 ft high, not showing life buds.

C16227. Mexican type, var Quercetorum. Bud put in Feb 17 1915 on one branch of C16225, now about 6 ft high, with one recess of open fls.

C16228 Mexican type, var Hermann. Bud put in Nov 14 1914 on Mexican seedling tree, back of C16225 in Dr. Garden. Bud about 8 ft high, carrying young fruits 1 cm long.

C16229 Guatemalan type, var. Telf.
 Bredler's March 1914. Same type
 resembling as 16228 as based on. Not in
 bud or bloom! But about 2 1/2 ft
 high.

C16230. Mexican type. SPI 19206 from
 Coahuila Mexico. Residing here at Wendell
 Brown's garden. Fruit of young plants
 about 1 cm in diam.

C16231. West Indian type. SPI 19377
 residing from Hawaii. Tree about 15 ft
 high showing a few bloom buds.

C16232. West Indian type. SPI
 36270. Residing sent from Washington.
 resembles Parlat. Now in bloom and carrying
 very young fruits.

C16233 West Indian type. SPI 26703.
 From Reefs. Buena Vista. Tree just coming
 into full bloom.

C16234 West Indian type. SPI 26704
 From Mrs. Am King, Miami. Tree now in full
 bloom.

C16235. West Indian type. SPI 26707
 from W. H. Fulford, Fulford, Fla. Tree now in
 full bloom.

C16236. West Indian type. SPI 26693 from
 Ft. Myers, Fla. Tree 20 ft high. Not in full
 bloom.

Saturday Miami Fla April 1 1916

~~Tentative~~ range groups

~~Mulgoba group~~

~~Mulgoba~~

~~Naden~~

~~Naska Relp. has not this var.~~

~~Amini~~

Bombay group

Madras

Bennett

Bombay Yellow

↓ Yoda Alfonso

↓ Cahiri

Peters

Rajpuri

↓ White Alfonso

Jangkar

Kopal Blog

Ennuria

Kola

↓ Fernandez

Arbutus

↓ Amini

Cambodiana group

11645

8701

Cecil

Julie group

Julie

Divine

Dor

Pere Louis?

Pirine?

Mullgon group

Mullgon

Mulgoba

Jashedi

Naden

Sandersha group

Sandersha

Krotapel

Salam ar

Totap ar

Gordon

~~Hamaraci~~

Lagra

Bruidabasi

Amini

Thursday Miami Fla April 6 1911

Willow trees in garden
 100 trees in garden 1000 yield 5000
 600 lbs of fruit for the year

100 lbs of dried paper for one year is a
 large yield 600 or 700 lbs is a fair yield
 8000 lbs very sweet

Do not begin bleeding before fruit are
 $\frac{1}{2}$ grown

Plant 8 ft apart, making one then 600
 to the acre

Using 4-83 fertilizer now. Has found better
 and more cheap as it burns

Plant seed in January, transplant to open
 ground in April.

Get 50% bleedings for a fruit before the
 fruit get up.

Fertilize when young every 2 weeks, later
 time a month to mature trees apply
 about 1 lb as an application

Saturday Miami Fla April 8 1916

Mango Today is cloudy with a strong wind blowing from the S or SE. Yesterday was clear with only a light breeze.

In examining mango flies (11645 and 11646) to find pollen for use in making cross pollinations, I found very little present yesterday, as well as on previous sunny days. On such days insects were active around the flies. Today, with a strong wind but few insects around, pollen was abundant. This certainly argues against anemophily and in favor of entomophily.

Yesterday I took a small parcel of *Saundersia* flies on which there was pollen exposed, and placed it for 1 hr 2 ft in front of an electric fan, going at its highest speed. At the end of the hr there was still an abundance of pollen clinging to the anthers.

Baker held 2 anthers under wet exposed pollen for 4 inches in front of the fan for 4 minutes. At the end of that time there appeared to be about as much pollen on them as previously.

Monday Miami Fla April 10 1916

Avocados in garden examined for differences in floral characters:

34831. Mex. type. From Rome, then Eisen. Perianth segms. 6 mm long, ^{3-mm broad} Perianth, filaments and style quite hairy. Segms ovate-lanceolate, acute.

32400. Mex. From C. P. Traft, Orange, Calif. Perianth segms. 5 mm long, oblong-lanceolate to lanceolate. 2 mm broad, narrowing toward acute apex. Segms filamentous, style quite hairy.

36604. Guat. Nutmeg, from Hardish, T. H. Perianth segms. 5-6 mm long, 2.5 mm broad, oblong-lanceolate or lanceolate, acute. Segms filamentous + style covered with short hairs.

38549. Guat. From Antigua, Guatemala, thru Cash. Perianth segms. 5-6 mm long, 2.5-3 mm broad, ovate-acute to ~~ovate~~ lanceolate acute. Perianth segms. + filaments finely hairy, style very sparsely so.

12935. W. I. Family, from Hoff, Buena Vista. Perianth segms. 5-7 mm long, 2-2.5 mm broad, lanceolate acute or long-acute. Segms glabrous, filaments and style glabrous or very nearly so.

26690. W. G. Butler, from St Petersburg Fla
Perianth segms. 6-8 mm long, 2-3 mm broad,
lanceolate-acute. Segms, filaments & style
abundantly but finely hairy.

— Mex. Unnumbered seedling in garden
Perianth segms. 5 mm long, 2 mm broad,
oblong-lanceolate to lanceolate acute. Segms,
filaments and style abundantly & rather coarsely
hairy.

26933. W. G. Baldwin, from Miami.
Perianth segms. 6-7 mm long, 2-3 mm broad,
lanceolate, acute or long acute. Segms, filaments
and style abundantly but rather finely hairy.

— W. G. Pellak. From Miami.
Perianth segms. 5-6 mm long, 2-2.5 mm broad,
oblong-lanceolate to lanceolate, acute. Segms,
filaments & style abundantly but rather finely
pubescent.

16170. W. G. From Wate Grand Paray.
Perianth segms. 5 mm long, 2.5-3 mm broad, elliptic
lanceolate, acute. Segms, filaments & style finely pubescent.

10978. Grat. From Guatemala, thru Collins.
Perianth segments 5 mm long, 3 mm broad, ovate-
acute to ovate-lanceolate. Segms, filaments &
style shortly but rather thickly pubescent.

19080. Grat. From Guatemala, thru Collins.
Perianth segms. 5-6 mm long, 3 mm broad, elliptic
to oblong-elliptic, acute. Segms, filaments &
style shortly but rather thickly pubescent.

18120 W. G. From Boyaca, P.R.
Perianth segms. 5-6 mm long, 2.5 to nearly 3 mm broad,
oblong to lanceolate, acute. Segms, filaments &
style finely pubescent.

26713. W. G. From Hobb, Coconut grove.
Perianth segments 6 mm long, 2.5 to 3 mm broad,
elliptic-lanceolate to lanceolate, acute. Segms, fila-
ments & style finely & not very thickly pubescent.

26715. W. G. From S. M. Pettit, Mexico Fla.
Perianth segms. 6 mm long, 2 mm broad, lanceolate,
long acute. Segms, filaments & style very
sparsely pubescent.

19297. W. S. Western, from Coconut Grove.
Perianth segments 6 mm long, 2.5-3 mm broad, elliptic-lanceolate, acute. Sepsis, filaments + style abundantly but finely pubescent.

26693. W. S. From Capt Thompson, Coconut Grove.
Perianth segments 6-7 mm long, 2.5-3 mm broad, lanceolate long acute. Sepsis, filaments + style abundantly covered with very short pubescence.

Colorado. Gunt. From Los Angeles Cal.
Perianth segments 6 mm long, 2.5 mm broad narrowly elliptic lanceolate, acute. Sepsis, filaments + style very finely pubescent.

26692. W. S. From Stop de las Vegas Cuba.
Perianth segments 6 mm long, 2.5 mm broad, lanceolate acute. Sepsis, filaments + style abundantly but finely pubescent.

18739. W. S. From Nassau N.P. Johnston.
Perianth segments 5-6 mm long, 2-2.5 mm broad, lanceolate acute. Sepsis, filaments + style abundantly but finely pubescent.

18730 W. S. From Nassau N.P. Largo.
Perianth segments 6-6.5 mm long, 3 mm broad, elliptic lanceolate, acute. Sepsis, filaments + style finely pubescent.

26710. Gunt. Taylor from Los Angeles Cal.
Perianth segments 5-6 mm long, 2-3 mm broad, outer 3 elliptic-lanceolate, inner 3 lanceolate. Sepsis, filaments + style abundantly, rather finely, pubescent.

38888. Gunt. Maricopa from Los Angeles.
Perianth segments 6-7 mm long, 2.5 mm broad, broadly lanceolate, acute. Sepsis, filaments + style abundantly + finely pubescent.

26707 W. S. From Fulford Fla.
Perianth segments 5-6 mm long, 2.5 mm broad, lanceolate long acute. Sepsis, filaments + styles abundantly pubescent, the hairs longer than usual for this type.

26705. W. S. From Coconut Grove.
Perianth segments 5 mm long, 3 mm broad, elliptic acute. Sepsis, filaments + style minutely pubescent.

— Mex. Tuerte

Panicle segms. as follows: outer series 6 mm long, 2.5 mm broad, inner series 8 mm long, 2.5 mm broad, all lanceolate, long acute. Segms. filaments & styles covered with long pubescence.

19098. Mex.

Panicle segms. 7-8 mm long, 2-2.5 mm broad, lanceolate, long acute. Segms. filaments & style abundantly covered with long pubescence.

— Mex. SW tree in S. garden

Panicle segms. 6-8 mm long, 2.5-3 mm broad, lanceolate, long acute. Segms. filaments & style abundantly covered with long pubescence.

Dickinson - Guat. From Los Angeles Cal.
Panicle segms. 4-5 mm long, 2-2.5 mm broad, lanceolate, acute. Segms. filaments & style rather finely pubescent.

— Mex. E end of Snow's garden,

Panicle segms. 6-7 mm long, 2-2.5 mm broad, lanceolate, long acute. Segms. filaments & style covered with long, whitish pubescence.

Avocados to be described in Bulletin

1. West Indian type

Butler	Trapp
Family	Wooten
Palmer	

2. Guatemalan types

Blakeman	Munozita	nutmeg
Challeng	Presidenta	
Colnado	Royal	
Dickson	Shakespeare	
Dickson	Solano	
Lynn	Spinks	
Morse	Taft	
Miller	Taylor	
	Walker	

3. Mexican types

Carlton	Tulsa Topo
Chappelow	White
Gardner	
Harrison	
Northrop	

Thursday Miami Fla April 13 1916

1. Mulgeba group

Leaves narrow, usually rather small, the surface slightly undulating toward the margins; panicles more pubescent than the others, pale rose pink sometimes greenish; flowers with a very long disk and large anther, the ♀ fls stand out only on the apex of the main axis.

2. Sandersta group

Leaves slightly broader, usually small, the surface free from undulations; panicles finely and sparsely pubescent, deep magenta-crimson; flowers with smaller disk and somewhat smaller anther, the ♀ fls scattered throughout the panicle but usually rare in the lower part.

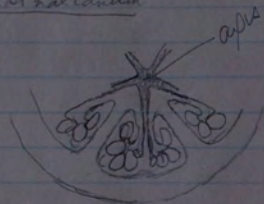
3. Bombay group

Leaves medium broad to broad, the surface heavily undulating, the edges turning upward; panicles glabrate to very sparsely pubescent, varying from dull rose-pink to pale

green in color; flowers with disk and anther about the same as in the Sandersta group. ♀ usually scattered throughout the panicle but most abundant on upper portion.

4. Julie group

Leaves medium broad, small; the margins curving upward, surface very slightly undulating; panicles sparsely and finely pubescent, rose-red to deep crimson in color; flowers with medium sized disk and anther, 1 or 2 of the stamens often fertile; ♀ fls usually abundant throughout panicle.

Placentation in *Psidium**P. fruehlichii*

In *P. guajava* the carpels seem to be more perfectly fused with the axis, and I can not see such structure as that shown above in *P. fruehlichii*.

In *P. cattleianum* the placentation is more like that shown for *P. fruehlichii*.

In *P. guajava* (another specimen) carpels are well defined as in above drawing, and not fused with the axis thereby.

P. araca of Rosemer shows the differentiation of the carpels very plainly.

Tuesday West Palm Beach Fla

April 15 1916

Visit to John B. Beach:

Reached camp Mrs & Gert. avocados on Deep dock at Orseo start out in spring 1 year earlier than when grown on 129 dock, thereby increasing the risk from cold.

Beach was budding mangoes at Melbourne in '97, using shield budding as well as other systems but got best results from shield budding taking stakes of $\frac{1}{2}$ caliper in open ground and growing trees in open ground.

Beach did not do anything with avocado budding earlier than Culon. Had tried at budding on small scale but got no definite results.

Used Castor pumice, 5 lbs water in quart in each hole, & allowed to set before planting avocado trees.

Grew about 5 or 6 thousand avocados last yr and has about 10,000 this yr, as well as cut 1000 or less on Trapp.

Subgenus *Estrella* mainly from *Harmonia*
 a 2 *Harmonia*. Pollock, Telf Taylor, Trapp
 Family

By seed grafting got seed 75% success
 How was? Pfl. in field with selected seed

Takes 5 to 10 months after grafting to produce
 N. 24° in myoglyph flowering. By seed (grain)
 from seed like *Harmonia* in 5x5 x 2 by grain
 Grafts *Guatemala* type or *So. American*

Family is poor shippers. Used thanks to quality
 in good seed, early life, season not a market fruit.
 Has had 4 of the 4 had in average 1/4 lb.
 Season 3 months, increasingly productive. 20%
 of fruit under July 10th - to middle of Sept.
 Usually July 10th to Sept 5.

Some record has been seen in *Congo*, *Lib.* at
 least. of a fruit in 1835 with *Harmonia*
anacard but *Arg. Argentina*.

Serviceable characters in grouping mangoes.

Tree Habit of growth, texture of bark, compar-
 ative size of branchlets.

Foliage General ^{color effect and} form of lvs. comparative size
 Condition of surface, venation.

Inflorescence General size and form of panicle,
 position on tree, color and pubes-
 cence of axis. Character of fleec,
 comparative abundance of fleec,
 development of stamens.

Flowering and Fruiting habits

Fruit General shape, color, character
 of flesh, flavor. Shape and
 character of seed. Embryony.

Honolulu Fla May 5/16
 Talked with W. J. Krone re avocados

Guatemalan should be budded later than
 W. J. - probably now.

Fertile fruit about $\frac{1}{2}$ long.

54 and 63 guatemalans to both shipped in March
 and got damage slightly under \$10 per box.

Best results in getting in Nov. & Dec. can
 be done as both are dried with fair
 results. 9 good seedlings but age to graft

Thanks avocados should have water up
 to point of blooming then withhold water
 during flowering, and then apply water
 again when the fruit begins to set to
 hold it.

Thursday Miami Fla May 11 1916

Examination of mango pollination experiments
 in the Plant Introduction garden:

Madras SPI#10657

Pollinated X SPI 11645		
April 5	1 pm	10 pollinations
6	"	10
7	11 am	9
8	10.45 am	8
9	10 am	9
10	12 m	4
11	12.30 pm	5

At this date, May 11, there are 8 fruits on the
 gamelle $\frac{5}{8}$ - $\frac{7}{8}$ inch long.

Alphonse SPI 8733

Pollinated X SPI 11645		
April 5	1 pm	2
6	"	9
7	11 am	6
8	10.20 am	9
9	10 am	12
10	12.15 pm	6
11	12.30	3

At this date there are 6 fruits $7/8$ to slightly oval not long on the panicle

Sanderaha SPI 7108

Pollinated by SPI 11645

April 5	1 pm	7
" 6	"	9
" 7	11 am	7
" 8	10:30 am	14
" 9	10:15	7
" 10	12 m	7

At this date there are 10 fruits $3/16$ to $1/4$ in. long on the panicle.

Paheri SPI 8730.

Panicle #1. Pollinated X SPI #11645

April 7	11 am	8
" 8	10:45	10
9	10:20	6
10	12:30 pm	20
11	1 pm	12
12	11 am	3

At this date there are 2 fruits $1/2$ " long + 1 small one $5/16$ " long which will soon drop.

Panicle #2 Pollinated X Sanderaha 7108

April 5	1 pm	5
6	12:45	10
7	11 am	13
8	10 am	12
9	10:20	18
10	12:30 pm	18
11	1 pm	16

At the present date there 17 fruits on the panicle as follows:

11	$7/8$ - $1/4$ " long
6	$1/2$ - $3/4$ " " which will probably drop soon.

Bag removed from all the above panicles today.

Friday Miami Fla May 12 1916

Examination of mango experiments at Prof. Rees' place.

Mulgota

Panel # 1 x Sakurabi

Apr 8 2 pm 2 stigmas pollinated

All dropped

Panel # 2

Apr 10 2:30 pm 1

" 11 9:15 1

13 1:45 pm 1

14 1:45 1

16 11 am 10

17 1:20 pm 5

Carrying 4 fruits at this date, being
ing from $\frac{1}{8}$ to $\frac{1}{4}$ inch long. This is more than
on any other panel on the tree, 2 or 3 being
the maximum number.

No. 11

Panel #1 bagged & left for self pollination
All fruits dropped. (Bagged Apr 4)

Panel #2 bagged and left for self pollination
All fruits dropped. (Bagged Apr 4)

Emasculation

Panel #1. Bagged Apr 4. Emasculation
commenced Apr 5 and continued until
all the pre seed opened.
All fruits dropped.

Panel #2. Same date.
All fruits dropped.

Hand pollination x self.

Panel #1.

Bagged Apr. 4

Apr 8 1:45 pm 4 stigmas pollinated

9 11:10 am 5 "

10 2 pm 3

11 2 pm 3

12 1 pm 1

13 1:30 pm 2

15 2:30 pm 2

16 11 am 4

17 1 pm 6

19 10 am 6

Now carrying 7 fruits $\frac{1}{2}$ -1 inch long.
A very heavy set in view of the fact that
only the apex of the panicle was worked on.

Panicle #2.

Bagged Apr 4

Apr 6	2.15 pm	2 stigmas pollinated
7	1.45	5
8	1.40	5
9	11.30 am	4
10	2.15 pm	5
11	9 pm	6
13	1.30	1
14	1 pm	2

Carrying 2 fruits $\frac{1}{2}$ - $\frac{3}{4}$ " long. Apparently
in 2 poor locations as opposed panicles on
the same branch have set very poorly.

Cross pollination x Sandwich.

Panicle #1

Bagged Apr 4

Apr 5	8 am	2 stigmas pollinated
6	2.15 pm	5
7	2.40	10
8	2	8
9	11 am	6
10	2.5 pm	15
11	2	10
12	1.15	8
14	1	2
15	2.30	4
16	1	10
19	10 am	3

Carrying 7 small fruits nearly eaten up
by anthracnose & insects. Probably were all empty.

Panicle #2

Bagged Apr 4

Apr 5	3 pm	2 stigmas pollinated
6	2.15	4
7	1.40	8
8	2	10
9	11 am	12
10	2 pm	8

11	2 pm	6
16	11 a.m.	3
19	10 a.m.	2

Carrying 6 foto nearly black with aphids.
 Largest about $\frac{3}{4}$ long.

Wednesday Cambridge Mass. June 8 1916

Gray Herbarium, examination of specimens.

Eugenia Klotzschiana Berg.

ex Herb. Basil. Regnellian. Musci bot.

Stockholm, No. 528. Proo. Menes Gerard 1845.

There can be little doubt that this is our
para de campo.

Phyllocladus luschnathianus Berg.

Brasilia: Ilheus jun 1821

seems to be our *portobaca*.

Persea Donnele Smithii Mez.

Coban, Guat. 1907.

Les lanate, brownish when young. When
 mature oblong-elliptic, ~~that~~ coriaceous,
 hairy below, glabrous above.

Sp. #2. Les almost orbicular, slightly
 pubescent above especially along the veins,
 racemes 4 ins long, reddish ~~pubes~~ villos

Pearsea drimifolia Cham. et Schlect.

Zacapan, Vera Cruz, Mex. Mar 1914.

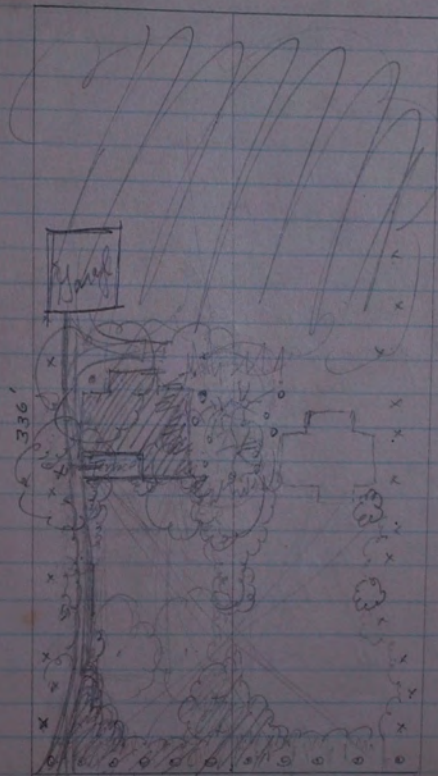
Coll. C.A. Purpus 7074.

Leaves broad, 6" long, hairy below. Fls.

pubescent, ~~racemes~~ racemes only 2" long. Buds
very peculiar, swollen, with very large
pubescent bud scales.

P. effusa Hemsl.?

Zacapan, Vera Cruz, Mex. Feb. 1909 C.A. Purpus



Pedium guajaval.
" *Cathlicium* det. } Am. Bor.

P. aragii Rabdi

Donnell Smith series, #5735. Cartago, Costa Rica
1400 m alt. 1889.

Lvs. elliptic-lanceolate, obtuse to acute, covered
with a thick rufous tomentum below, almost gla-
brous above, primary transverse veins 8-10 pairs.

Peduncles 1-fl'd.

P. guiruanensis

Rio Janeiro, Brazil.

Primary transverse veins 6-8 pairs.

P. Friedrichthalianum Benth. & Hook.

Donnell Smith series, #2984. Santa Rosa, Dept
Sta. Rosa, Guatemala. Alt 2000 ft.

Appears to agree with ours.

P. molle Bortol.

Donnell Smith series #2904. San Siguan,
Guat. Alt 5500 ft.

Appears to agree with ours.

Wednesday New York City. June 14 1916.

New York Botanic Garden Herbarium.

Casimirea tetrameria Miélopau

Costa Rica, Tondoy 1898. n.v. Matasano?
" " " (C. Dupont Öst.)

Yucatan 1896 Gaumer's #1006.

This appears to me to be the sp.
growing at Miller's, Hollywood, Los.
Angeles. More tomentose below than *C. edulis*.

C. edulis

many sheets.

Lansium domesticum

1 sheet Lampong, Sumatra fol.

1 " Sta Cruz, P.I. 1905 "

1 " " " " " fl. fr.

Mangifera indica

many sheets

M. foetida 2 good sheets, Java

laurina 1 " sheet "

altissima several, fol. fr. fr. P.I. fine

odorata 1 sheet P.I. fol. fr.

Spondias lutea many shots - fine material
 " *dulcis* few " "
 " *purpurea* many " "
 " *pinnata* few " rather poor

Litchi chinensis
 Martingae - P. Duss 1885
 Bermuda fol fr

Nephelium lappaceum Java fol fr
 Singapore fol
 Java fol fr
 " *mutabile* Java fol fr

Psidium guineense Sw. Hope Gls. Jamaica, Col.
 Harris 1897. Det. Lebon.

Guadeloupe, P. Duss 1892
 "Gyacin fraise"

Pernambuco

Seems to agree with my Cuban material

Summary of Chap. I. "The Grammar of Science"; by
 Karl Pearson:

1. The scope of science is to ascertain truth in every possible branch of knowledge. There is no sphere of inquiry which lies outside the legitimate field of science. To draw a distinction between the scientific and philosophical fields is obscurantism.

2. The scientific method is marked by the following features:— (a) Careful and accurate classification of facts and observation of their correlation and sequence; (b) the discovery of scientific laws by aid of the creative imagination; (c) self-criticism and the final touchstone of equal validity for all normally constituted minds.

3. The claims of science for our support depend on: (a) The efficient mental training it provides for the citizen; (b) the light it brings to bear on many important social problems; (c) increased comfort it adds to practical life; (d) the permanent gratification it yields to the aesthetic judgment.

Friday New York City. June 16 1946

Examination of specimens in N.Y. Bot. Gdn. herbarium:

Eugenia javanica

Curaçao 1912 fol flr
 Guadeloupe P. Duss 1892 (vulgo
 framboisier. cult. and naturalized)
 fol flr
 ditto 1880. (vulgo pomme de mollece,
 pomme d'amour. fol flr)

Eugenia uniflora L.

Bermuda 1905 naturalized. fol flr
 Martinique P. Duss 1883. (Ceria
 à coton, Ceria de Capenne) fol flr
 Jamaica, W. Harris 1909. Cult.
 Hope Gdn. fol flr
 Bahamas, Brace 1879. Cult. fol flr
 St. Kitts, 1901. Cult.
 Guadeloupe. P. Duss 1892. fol flr

Possiflora luvifolia

St. John, W.I. 1913 fol
 Cuba 1910 fol
 Martinique P. Duss 1883. fol
 fol. (pomme-thane)

Martinique, P. Duss 1901
 (vul. Marie Tambona) fol flr
 Haiti 1903. fol flr
 Bermuda 1912. fol
 Grenada 1904. "Water lemon"
 fol flr
 Guadeloupe, P. Duss. 1894. fol flr
 St. Croix 1896 fol fr.

P. macrocarpa Masters


Jamaica, Harris 1900. Hope
 Gdn.

Lo broadly ovate. 4-6 1/2" long subacum-
 inate, stem 4-angled. Certainly not
 the sp. we have at Miami under
 this name.

P. maliformis L.

Jamaica Harris 1900 fol fr
 St. Domingo 1909 fol
 Colombia
 Martinique P. Duss 1881.
 Cult. fol etc fr. rare. fol
 Guadeloupe do. 1893. fol fr
 St. Domingo 1910 fol flr
 Porto Rico 1889 fol flr

P. maracuja L. several sheets. W.D.

Loa  fls scarlet, fls $\frac{3}{4}$ " long

P. quadrangularis L.

Isle de la Vega Cuba 1905 fol fls fr
Martinique P. Duss 1882.

(Barbadiane) fol fls

Haiti 1903 Cult

Nassau, N.P. 1905 Cult. fol fls

others. good material

Calocarpum mammosum Poiré

Martinique, P. Duss 1881-83

"Sapote" fol fls

Cuba, and others. good

fol & fls.

Chrysophyllum cainito L.

Jamaica fol fls

Java 1903. fol fls fls

Martinique Duss 1883

"Kaimition"

Boutneria cainito (King et Pavon) Radlk.

Para, Brazil. Baker 1908. "This is the ally of the Brazilians, and the Cainito of the Peruvians. It is perhaps, at its best, the most delicious fruit to be had in Para, but is very variable, and would be a splendid subject for breeding." At Para the fruit is commonly infested with the larva of a trypetid fly". fol fls

Persea americana Mill

H. H. Smith, Sta. Marta Colombia 1898-99. "A ~~fruit tree~~ forest tree to 60 ft. It is common locally in damp forests from 1500 - 2500 ft or thereabouts. The species has every appearance of being indigenous and is at all events self-planting. The wild fruits are better than the cultivated ones and some varieties are the finest I have seen in Trop. Am. At least 3 var. of the fruit are recognized and named; these varieties appear to be constant

over large areas, but I do not yet know
if the varieties in the leaves correspond:

Ravotonga, Cook Is. Cheesman 1899.
"Naturalized in abandoned cultivation"

Garcinia livingstonei T. And.

Bermuda 1914. Planted, Montrose
Xanthochymus Hook. f.?

Bermuda 1914. Planted, Bellevue

Rheedia brasiliensis (Pl. et Tr.) Mart.

Brazil. Looks like of one
got in Jardin Botanique, Rio.

Macadama not in Herb.

Anacardium lots of specimens.

Carissa carandas

1 spec. Undoubtedly the
sp. we have in Fla. Feb. fls

C. spinarum

India. lvs & fls larger than
ours in Fla.

Carissa edulis Sal.

Atrop. Abyssinia. Name Lagon

Carissa grandiflora A. DC.

Bermuda 1913

C. carandas

Spines simple, up to 1" long. lvs see
specimen in Wash; fls in small
cymes of 3 to 9; tube of corolla about
 $3\frac{1}{4}$ " long, lobes $\frac{1}{3}$ " long.

Martinique, P. Duss 1899. "Shrub,
fls. white. Inside + cult. in several
gardens."

Averrhoa bilimbi L.

Martinique, P. Duss 1893 "Corniche
or Corcholoier. Cult. in yards, and
around unions houses."

A. Caribola L.

Loiza Porto Rico 1915

Brindaban mango

Rec'd from Plant Introdu. Jbr. Meini
June 17th 1916.

General form obliquely spherical, flat-tended at the base; size small to below-medium, weight 4³/₈ to 6 ozs, greatest length 2³/₄" , breadth 3" ; base oblique, l.s. slightly higher than rht, both equal in breadth; cavity broad, flaring, shallow; apex blunt, the fruit somewhat flattened on the ventral side around the slightly depressed stalk; surface smooth, ^{greenish orange, yellow or} blushed dull rose on one side, with numerous large green lenticles; skin thick, tough, separating readily; flesh deep orange, very juicy, aromatic, the fiber limited to the immediate vicinity of the seed; flavor rich spicy, delicious; quality very good. seed, obliquely oblong-oval, 1 1/2 in long, 1 in broad, thin, cotyledon 1.
Season early.

June 20 1916.

July 1 1916 Washington D.C. Saturday

Mango
in
Philippines

Dr. T. B. Anderson, of Bounto Springs, Fla. who was in the Philippines with the army, says there is a famous mango tree in the village of Imus, Cavite Province, P.I. which bears the finest mangoes he has ever seen in that island.

Monday Washington DC Jan 28 1918

Tuente
avocado Recd today one specimen of the Tuente
avocado, sht me by F.O. Popenoe, Alhambra,
California. It reached here in an overripe
condition

Form oblong pyriform; size medium,
weight 13 ounces, length $5\frac{1}{2}$ inches, greatest
breadth $2\frac{3}{4}$ inches; base broad, blunt. The
stem inserted obliquely; apex slightly flattened
obliquely, depressed around stematic point.
Surface lightly pitted, light green, with
very numerous, small yellow dots,
skin up to 1 mm thick, considerably
thinner in some parts, very pleable not
very tough, peeling readily. flesh buttery,
cream yellow near seed, light green toward
the skin with very slight fibers, flavor
exceedingly rich and satiny; quality
excellent; seed ovoid-conical, weighing
2 ozs, practically tight in the cavity,
but the two seed coats not adhesion
closely to each other throughout, the inner
seed coat reticulated, very thin, the outer
thicker but papery, smooth on the surface.

The flavor of this fruit impresses
me as exceeding rich and agreeable.
It is distinctly Mexican in character.

The points in which this fruit departs
from the typical Guatemalan are:
(1) Its thin, leathery skin. This in itself,
however, would not be sufficient to prove
that the variety does not belong to
the Guatemalan race, as some varieties
of the latter are thus skinned. (2)
The flesh has a peculiar, subtle flavor
distinctive of the Mexican. (3) The
seed coats are not of the same char-
acter as those of the true Guatemalan.

O solitude, thy charms are few,
 And yet, and yet I often feel
 That any unpossessed view
 Will find thy charms, tho' few, are real.

Poor Cruise on his lonely isle
 Did find the tediousness I know,
 But he'd not felt the sunnier
 Which life in 4 am does oft bestow.

Now had he ever yearned for time
 Or made a wild survey, or do
 Research in sporogenesis

Temperature of liquid inside the Coconut

Apr. 15 4 pm Air of room inside Lab. 73°F
Liquid of Coconut 78°

Apr. 16. 4:45 Nut from same cluster, East side
of tree. Temp. of air on Lab. porch 74.5°F
Temp. of liquid in Coconut 77°
Dull day, strong wind.

Apr. 17. 7 a.m. Two nuts from same bunch.
Temp. of air on Lab. porch 74°F
" liquid in coconut 74°F
" 4:50 pm. One nut from same bunch.
Temp. of air on Lab. porch 74°F
" liquid in coconut 76.3°F
Dull day.

Apr. 20. Bright sunny day.
1 Coconut laid on ground at 10 a.m.
opened at 3 pm. Temp. of surface soil 104°F
Temp. of liquid in coconut 97°
1 Coconut placed in ice box at 10 a.m.
opened at 3 pm. Temp. of liquid 57.5°F

Prof. E. J. Kraus
1364 East 57th St 5632 Kimbark
Chicago Ill. Ave.

Wants young *Mulgeba* fruits, various stages, in
50% grain alcohol 94 cc
Formalin (40%) 6 cc

Dr J A Harris
c/o J J Harris
R # 5, Lawrence Kas
after July 10
Desert Lab., Tucson Ariz.

Mrs F. E. Lowe
24 Brattle St
Worcester Mass.

V. W. Oakes
Route 5, Rosedale N. C.

Go John Belling
Mar 28. Hotel fee \$1.25
" " Tramp bagging .50
" " Food .25
" " Suffer .50
29 Food .75
Apr 7 laundry 1.75
Apr 14 " .86
21 " .73

R R Stewart
512 W 171st St. New York
How to Ship Plant Material

