

Down

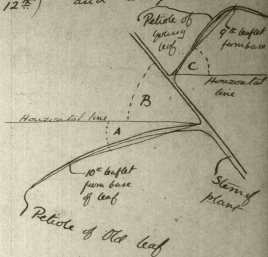
Camia Caliantha

Hruce

Aug 10th 1877.

11.20 A.M.

Tried the experiment of shaking for 2 minutes
 on an old leaf. (the same leaf that we
 tried on Aug 12th) and a much
 younger one



Before shaking $A = 10^\circ$ $B = 44\frac{1}{2}^\circ$ $C = 61^\circ$

After shaking $A = 16\frac{1}{2}^\circ$ $B = 44\frac{1}{2}^\circ$ $C = 58^\circ$

Hence old leaf went downwards $6\frac{1}{2}^\circ$ reducing
 the angle between stem and chord of petiole from
 $125\frac{1}{2}^\circ$ to 119° ; and younger leaf went down-
 wards 3° reducing the angle between chord of petiole and
 the stem from $105\frac{1}{2}^\circ$ to $102\frac{1}{2}^\circ$.

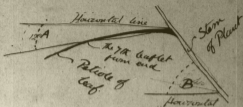
Down Aug 12th 1877.

2nd Experiment

Camia Caliantha

We measured

the ~~to~~ angles
of petiole &c
at 11.30 AM,
and then shook



the plant for 2 m rather violently & measured

~~the~~ the \angle angles again; then syringed the
leaf with water at about 85° F ~~and~~
~~measured angles again~~ for 2 $\frac{1}{2}$ minutes
about. & shook it for $\frac{1}{2}$ a minute, which
shook very nearly all the water off, but ~~we~~
I saw a little sticking.

The angles marked A & B ~~was~~ were

A	before shaking	=	12°	B	=	44 $\frac{1}{2}$
A	after shaking	=	16°		=	43°
A	after syringing	=	21°		=	41°
A	asleep at 9.30 PM	=	27°		=	44°

(2)

beneath a leaf or side

The angle between petiole & stem of plant (below the leaf)
 before leaf.

$$= \cancel{180} - A \quad 180 - (A + B)$$

before shaking = $\cancel{180} 180 - 56\frac{1}{2} = 123\frac{1}{2}^\circ$

after — = $\cancel{180} 180 - 59 = 121^\circ$

after syringing = $\cancel{180} 180 - 62 = 118$

asleep = $\cancel{180} 180 - 71 = 109$

Hence petiole moves down $2\frac{1}{2}^\circ$ by shaking
 and after syringing it moved 3° more
 downwards. (made it move
downwards. & sleep 9° more

This result is only approximate as the
 vertical plane in which the petiole
~~appears~~ moves, does not also con-
 tain the stem of the plant, though it
 nearly does.

$$\begin{array}{r} 109 \\ 146 \\ \hline 123\frac{1}{2} \end{array}$$

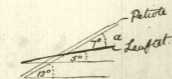
$$\begin{array}{r} 109 \\ 15\frac{1}{2} \\ \hline 125\frac{1}{2} \end{array}$$

The angle which the surface of leaflets
made with the horizontal plane

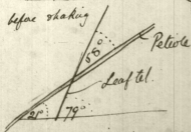
was
before shaking = 5°
after shaking = 62°
after spraying = 79°
asleep = 90°

The ~~the~~ angle which the surface of the
leaflets made with petiole are

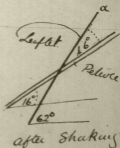
before shaking = $+70^{\circ}$ on one side ~~###~~
after shaking = -46° } on the other ~~###~~
after spraying = -58° } ~~###~~
asleep = \bullet in the same plane ~~###~~



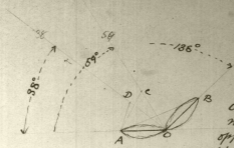
before shaking



after spraying



after shaking



Plan of
leaflet in which
OA & OB represent
mid ribs of two
opposite leaflets
when not shaken

- OA = OB = length of ~~leaflet~~ leaflet from end
- AB = distance between tips of pair of leaflets before shaking
- AC = distance after shaking i.e. B moves to C.
- AD = distance after syringing i.e. B has moved to D

Angle between centre ribs of leaflets

- before shaking = 138°
- after shaking = 59°
- after syringing = 38°
- Asleep = 0°

Hence Shaking made centre ribs of leaflets approach 79° , syringing 21° more than shaking & sleep made them move through 38° more, i.e. till they touched

In all cases the leaflets always come
 face to face on the under side of
 the petiole - supporting the petiole to be
 nearly horizontal - except in ~~the~~
 some cases when the leaflets near
 the base fold together so that the
 mid ribs of the leaflets touch the
 petiole one on each side, ~~or~~
 or ~~are~~ make a small angle with
 it. The angle which the mid rib
 of the leaflets makes with the petiole
 is less at the base than at the point,
 and large near the point.

When the leaves are shaken, the leaflets
 rotate on their mid-ribs; & the tips
 of the leaflets approach each other;
 and ~~the~~ ~~lines~~ also approach the
 tip of the petiole; and the
~~line~~ ~~to~~ joining the ends of the
 mid ribs of the leaflets ~~sinks~~ below
 the ~~petiole~~ petiole.