Experiment Book.

49. DAR 157a

Oct. 26/56/ Annual - No 1. Bright pink single!

Aug 1. 1857. No 1. Hollyrod - 5 rows of red, tipping for Blackish red to pale pink - 1 pale pinkish with tinge of yellow - 1 May be called pale yellow with purple tinge. - 7. rows.

No. 2. Rose white & dark purple edged with White. 2 rows

No 3. Dk Purple, rich Dark - Flesh - Dark - Dark Purple Dark, edged with White - Dark red - Single Red. 5 rows.

N.B. several Hollyrods grew near these plants.

1858. Aug 13 Last year I said Son sent for Black Hollyrod. which grew in row near the Vines & this year has also come true. i.e. seed of it has sown, that shows does not cross, or else true, as when sown. Another red kind, did not come true before (Hewster, now Aug 6 56 calls it = not now true, with Dark Black edged

1856. Ja

Aug 13.

Sept 13

Sept 28

Nov. 13. Put Skeleton of Orbit to prepare. — In the Jar there is Skeleton of Spanish Cock, sent by Mr. Wilmot. —

Dec 13th Put some Helix aspersa Snail-shells in sea water 12. others from Fruit in shed.

Dec 28. all dead. Several Snails ~~the~~ attached to the shells, & apparently dead. so that we may infer salt-water will kill even hybernating shells.

1856. Jan 22. Hollyhock seed No (1) Dull purple, fertilized by yellow Kind, long been cultivated.

—— Hollyhock No (2) Dull purple, carefully flowers left to be fertilized by Bees, & adjoining plants

—— Hollyhock (3) Dull purple naturally & self impregnated seed from wild cabbage

— Lychnis (4) Red, seed from Hewshott, "very deep" red from a wood, Bentley Suffolk 26 July 1855. Spec. name"

— Myosotis (5) repens a caespitosa, seed gathered from Hewshott Plant in my K. Garden, gathered Oct. 1855

— Carrot (6) one seed from central Flower, all the flowers having been picked off, Sandwich, gathered Oct. 6. 1855 Dit ut seminat. April 2. 1856

— Silene inflata (7) seed from Mr Anslie Kelso field

— Agrostis vulgaris (8) seed from Hewshott (2nd generation in Hitchen Garden 1855!! —

1856

Jan. 22d { No 9. Sweet Pea. white var. carbuked, & left (2)
{ to be impregnated by adjoining varieties. — Did not germinate 4.2.1856

— No 10. " Lychnis Viscaria, white from field of Lucerne, Hitchan. 1855. Flowers Dried."

— No 11 Lilac seed. From dark purple var. with side of straight walk. Down Garden.

— 12 Lemon Viola, seed from Hitchan unripe (non germinated)

— 13 Lathyrus Nissolia. Sown ok setting Nov: 1855.

1856

Jan. 23d. put two half-ounces, separately, from Shaw, & sand-walk, from a shady place, where ground is most part covered with ivy, but is part bare. — Earth taken clear to surface but not to actual surface: then was many earth-worms casts. — Put this earth as with burnt earth, under glass in my study. Feb. 10" Threw away earth; before which, two dict. plants had sprung up near each other in the one glass.

Feb. 10th put two ½ oz of Down earth, as before containing chiefly of vegetable matter Taken from under edge of Hedge, on field side, beyond Drying Yard, near Orchard Fir. Earth taken from surface, but leaves, dead Lichen & sticks removed. — The earth lay beyond limit of mowing.

by 10th Nothing, I came up

1856

Feb. 15th planted ~~six~~ two ½c of, separately, of heavy reddish clayey earth, Chiefly worm castings?
in glasses as before; taken from middle of upper end of sand-walk
wood, from rather deep part, surface, almost bare, of little
turf & coarse grass — very unlikely for seeds. — ~~Bead 27 wide in diameter — stalk about 3 feet high~~ 3 Plants came up in one & 2 in other. May 10th

Feb. 26th Planted milk-Pan with earth from right under Beech-tree
(77 rings: 81): ground with bits of chalk, brick & gravel.
Then used worm-earth: but then at first taking of
thick roots. [March 28th Nothing come up.] —

Feb 27th Inspecting the number of plants first raised in
roots of above Beech tree. — at least a dozen.
I fancy. tree & stocks, must be first dug up as left on
Russian Rivers or Canada first dried! Bead 27 wide in diameter — stalk about 3 or 4 ft in diameter.
see Back of Page

March 1st Planted 5 Pots of Sweet Peas
— Rosa tomentosa from Hemsley. var. see note in Box
— Centaurea nigra. var. decipiens. (Hemsley)
— wild Cabbage
— Ranunculus repens (Hemsley)
— Lathyrus nissolia. wild seed
— 4 vars of Pinée

Feb. 25 + 27th Took 2 small parcels about ½ of an acre of earth fairly
enclosed within wood & thin Bank. & planted it, but nothing
came up.

earth fairly
but watery

56/
March 3d took 1 oz of earth, full of fibres, from open part of Handgate
wood — other bare spot — underwood cut down about 15 months. —
April 2d nothing came up. —

— 6th about 1 lb of sandy earth in cavity in Oak, but covered by
very recent, tortuous pipes to adjoin — oak 30–40 years old.
All 3 oaks had stone enbedd. [nothing came up April 6th.]

7th about oz of sandy earth fairly enclosed in a recent Oak shoot
about 30–40 years: [nothing came up. The 3d Oak had watery: two
April 6th. 2 oaks about 1 foot in diameter.]
March 18. Sowed 10 kinds of Peas

— ~~+ Dianthus barbatus~~

1. Dianthus sinensis fl. pulso-thicks
2 — sinensis (semiduplex)
3 — — simplicis
4 — — fl alto
5 — — stricta
6 — barbatus
7 — Dumetum superbus
8 — — atro-sanguineus
9 — carthusianorum
10 — gigantea
11 — Jacobæanus
12 — Hispanicus
13. — Hispanicus (Plenus)
14 — deltoides
15 — alpestris superbus
16. gentilis.

October 6th The middle division dung has far more clover plants than surrounding area. It does not seem yet that the gypsum has had any effect whatever.

April 1st sowed seeds of sea-Lark weed: 1 on right hand, (i.e. L. side) on Oxalis (2) white Clover (3) Cynosurus & 4th on to patch 1 side for about 1/4 foot below at Pt. Daylight observed. –

April 2d. 1/2 of earth from south middle end of med plot in middle of field: being torn up then coming of frost & sleet & snow left 1/2 of earth off: (then took up at about 1/2 inch deep, the earth. (1 Dict. came up.)

April 3d. Dibs within 2 or 3 weeks I planted off the flowers off by pressing & covered them with fine glass. [last year I planted off the flowers & covered with fingers] & how to remove flowers on 1/3 inch of common paper & other plan.

April 4th Put 2 bottles of Frog Spawn, under ground: the spawn had just = Bottle 23
ceased to be spherical, & had become 1/2 divided into little heads & tails: in
the bottle spawn set spherical: & Rhododendron Bush & Door.
Dead & Putrid

April 4th. Put Frog Spawn just past the spherical form, in water for about 16 hours, ranging from 55° to 95° Fahr in [All dead]

April 3d Frog Spawn. in spherical state, in salt water for 24 hours, [all dead.]

Sept. 6th This mark with fibrous matter was divided into 2 portions; in one weighing when damp about 2¼ oz 27 monocot & Dicot. cotyledons making 29 Plants.

In the other ½ weighing when damp 1½ oz 14 monocot. cotyledons & 10 Dicot. = making 24 plants. So that in under ¼ lb of damp mark 51 plant cotyledons. (mag 10 diam)

April 6th Red soil (stiff) mould from two spots, under decaying leaves & roots of wild plants. 4 or 5 inches from surface. & 3 or 4 inches under water; & ← little red clayey mould from surface dirty in centre spot: ~~By [illegible] about 2 oz~~. Little Pond & Earthern School.

April 7th. I split up 2 Oaks of Mr. Smith, with about 30 rings and about 2 ft in diameter; they enclosed Dozens of stones: one must have weighed 3 lb, with 2 lb, fairly embedded. a good deal of collected earth pretty certainly perfectly rammed & securely behind stones: but here I found that all earth seem frequently pressed fairly into - [17° planted Oak here earth from under stone; the top soil washed & all chance of extraneous particles removed: a bare possibility that all the earth in not have been carried. -] of the 7th Lot about 1 oz. little earth. On 15th on Dict. carried up. - [On 30th 2 Dict. carried up. in some earth specially set out of washed top. same up in my study: quite containing safe. -

There are of earth on May 17th

1858
April 26th. Put a dozen eels about 11 inches long in Old tank.

May 2d. 1 oz Earth from Hand grass wood, 1 inch beneath surface, near where surface earth mixed 3 in below (Nothing carried up)

May 2d. 1 oz Earth from under great Heap of stones, Hand grass in which must have been lying for 30-40 years, rising from stones of the going on surface: I took earth out from actual surface on solid surface under the stones. The stones had been picked off field. - (Nothing carried up)

Oct. 26th Set some earth perfectly enclosed, with may shoots in roots of yucca Oak, beneath Handgrass, — with mould — & nothing can eat. — Kept for 20 days. —

ie 8/h of 12 Jan

May 2d. Began salting with 1/2 t. Stony Bay Salt water: Myosotis: Lathyrus nigricans. – Silene inflata. & Lychnis &

May 17th – Elmes & Green Reed Green: 2 tins had grown together being both above & below; between them several pale shells embedded & much earth: one of the large shells was particularly rounded & strongly embedded in the wood: & under this earth there was about 1/2 Z of earth (May 21 nothing taken up.)

In the same class, in biggest of 2 tins about 50–60 grains &c, there was a little cavity in rough middle, with about 1 Z of earth embedded. (May 21 nothing taken up.)

May 17 Eggs of Lymnaea peregra (& pebbles of Planorbis put in salt water for 28½ hours; then with calyces being 2 eggs were all dead: some younger, with no calyces. I took out & put in fresh water to see whether with developt. "May 25". The latter all dead. –
I also dried some Myosotis for 8 days, but none revived.

May 21st The flowers of Myosotis repens or caespitosa in tins in K. Garden, seem five times as big as some pink flowers. – There is shady Plea behind rocks on which there & large & some pink & small. The tube of ~~corolla~~ calyx seems certainly longer in the blue than in pink flowers: in proportion to division of calyx. –
June 16th The specimens in shade have larger flowers with emarginate petals in 5th degree.

May 22ⁿᵈ. Sowed seed of Red Lychnis Nos 14. 15. 16 from Hewster (55)
marked Red. very dwf. Bentley Suffolk (spec. present)

—— Lychnis white (10) from S. of Sussex. Hatcham 55
spec. present. — From Hewster. Nos 17. 18. 19

—— Nos 20 Carlacrus nigra. van dempsis. Seedlings 2?
received from original plant with of Bath. From
Hewster Hatcham. 1855.

June 5th tried (k) for 48 hours. Nitella, Conferva, Hemp. Triglochin (& Cyperus sp.)
in carnelian & Dutch Aloe with 2 gold fish were cat. —
Edmund fish fish split & eat, first like I found at Fob. Sedan.

Duckweed float in salt-water; it sticks to anything put
in — was killed & was secured in green tent for
8 days in salt-water. —[June 17th it does stick to feathers
of Ducks]

June 8th. I gathered seed of Marseilles Cabbage Lettuce & Black-seed
Green Cos Lettuce, whilst growing close together; but came
up in 4 hundreds quite true. Did they flower at same
time? I think not for this Sept. 56 they did not
flower at same time. —

The dark purple grows nearest
wall: pale crimson further off.-

June 13th - Pk Lychnis (red) Viscaria sown here last 10 inch sandy soil & grown in to female stems on cuttings 6th inst & left having them to stem plant stock of accidently been cut down.

June 16th Lathyrus hirsutus - seeds raised in Abbeds & Greenhouse & planted out doors - now in flower - stems about 18 inches high. Flowers deep 2 or sixth - "Lake Red". - Have been treated all spring with salt. & Guano water. - Shelves dried. - ~~Pod 100 Stipules long~~ I can see no bracteas Seem side of Keel white. Wings side of Calyx reddish. -

June 21st Took. wheat seed & Vetches & Beans out of crops of two Pigeons, left 2 & 3 days, & seeds germinated well, how long seeds left before seeds eaten, I know not. -

June 27th. Forced flowers Opened perfect flower of dark purple Sweet Pea, marked away pollen & put pollen of pale crimson Pea, (with mottled wings). marked with Blue ribbon: also one of triple pink with pollen of dark purple. -

— contacted dark purple Pea & with pink on pale crimson pollen marked with red tape: (one shanked off) Cuttle Pod with good Peas, July 24 but not one of them Peas grew. -

July 10th perfectly contacted 2 of darkest purple & 3 of palest pink flowers & left them to fertilised by Bees marked with Brown ribbon. - all 5 shanked off. July 24th

(Aug 31 Kept ~~it~~ take the date)
Then was much cattle in crowd 5 glasses & not one had
come up. — Grew in shade, & tree cut down
several years ago.

July. Eggs of Helix aspersa sink in salt-water: kept for 6
days — it. do did. Many eggs of same date not
sunk do [illegible]. —

1856

July 2°. Sowed seed of Red Lychnis, which I got from plants,
to 21 | grown in & collected from plants from Hunslet seed; to fruit have flowered &c.
The seed were also from grown salted plants.

do 22. Sowed this seed from plant, from plants from wild
~~of~~ Hunslet seed; to parent dwarfed by salt & grown in pots

July 21. Earth almost entirely excluded in pot Beech 3-4 ft in diam.
in Rockery, which to been cut down several years. — Earth driff
— in entered crevices & behind fixing wedges stones & below &
chalk.

July 30th Vicia sativa added Wild & salt water, Hypothesis much injured.

Aug 8 Sugar-loaf Cabbage. sub. by fine plants, pods
filled & ripe with about 3 ripened seeds.
Aug 19th Sowed with the 10 pods of finest wild cabbage
which she & set, but not found the seed, filled with some purpose
I suppose that reason. —

Dried Seeds & Fruit in Salt-Water

Dec. 3d × Raspberry 6" sunk 2-3 days
— × Cherry (4th sunk) 6" after sunk 2-3 days
— × Gooseberry 4th do. 2-3 days
— × Strawberry 4th do. 2-3 days
— × Carrot 10" almost sunk. 11" quite sunk 7-8 days
— × Barberry Jan 13th 40-41 days
— × Fumaria officinalis 10" ½ sunk. 11" all sunk 7-8 days
— × Ste Hugelia nutans dried (5" sunk) 7" float near bottom 9" (very long day) or 4-5 -5-6 days
5 × Anemone sunk at once. 7" float near bottom 1-2 days
— × Mulberry 11" floating near bottom 12" sunk. — 5-6 days
— × Blackberry 7" 19th float near bottom 11" quite sunk
— × Gooseberry do 8" 2 9th do. 10" do do. 5-6 days
11 × Rose — Jan 2d. 21-22 days
— × Oak — 16" sunk 4-5 days
— × Dactylis 15" almost sunk 17" sunk 5-6 days
— × Dock 17" sunk 5-6 days
— × Stachys sylvatica — 16" sunk 4-5 days.
— × Calamintha clinopodium Dec. 22d. — 10-11 days
— × Matricaria Dec 20th 8-9 days
17. × Wheat Dec. 22d — 4-5 days
— × Broom Dec. 20th 2-3 days
— × Potato — 26th 8-9 days
— × Phleum Dec 21 3-4 days
× Water Lily Jan 4th floating near bottom 6th do. Jan 6th — 19-20 days

Aug 11th Humulus Clematis. Sorbberries, Black & Red currants, Vitis & Fuchsia sink. –

Raspberries floated: sunk within 18 hours. –

Pot in Cuttings. Plantago (4-5 days) (S. 2 days) Groundsel, Tussilago vulgaris. 17° 5-6 days 17° 5-6 days

Sept 3. – 21-22 days.

12th (6 P.M.) Lychnis dioica (chalcedonica) Silene inflata 25° 12-13 days

13th. Sweet Pea 17° 3-4 days.

16th 6 P.M. Strawberry [illegible]: 17° sunk in 24 hours

18th Wheat 22°. 3-4 days Oats 21° 2-3 days

" Phleum 21° sunk. 2-3 days Dactylis 22° 3-4 days

" Calamintha clinopodium 25°. 6-7 days Stachys sylvatica 31° – (12-13 days)

" Dock 21° 2-3 days Matricaria chamomilla 21° 2-3 days.

" Centaurea nigra 23°. 4-5 days Ranunculus arvensis 21° 2-3 days.

" Lotus corniculatus 21°. 2-3 days. Separate Berry of Berberis 22° all but 1 sunk. 21° some sunk) 23° all sunk 3-4 days.

19th Honeysuckle 23°. 3-4 days Berberis aquifolium 21°. – 1-2 days

21st Lathyrus sylvestris 23°. 1-2 days Common Broom. 23°. 1-2 days.

23rd Helosciadium 25° not ripe 1-2 days Viburnum. (wayfaring) 24" 0-1 days.

– Juncus acutiflorus 30" (not ripe) 6-7 days Alsine pleniflora (not ripe) – 25" 1-2 days

– Spergularia rubra (not ripe) Sunk 21°. Keep 3. Months Carex vulpina. Oct. 19 sunk – (57 days)

– Mountain-ash. 25". of separate berries floated 31° one set floats. Magnetica acuminata Sept 5th. – 11-12 days

– Iris, Spanish Bulb: rotted. 31°. (7-8 days) Thin sunk. Sept. 11 – 18-19 days)

27. Yew berries (sunk at once.) Blackberries sunk at once

– Fir Cones Scotch. Sept 5th. 1 sunk (10th 2 sunk 13-14 days) Orleans Plum & stone sunk at once

– Erythronia 30" 2-3 days Pepper Pharos Sept 2°. 5-6 days

– Scabiosa succisa Nov. 11 sunk. Wahlenbergia (13th 1 sunk.)

75-76 days. 20°. Nil sunk – 23-24 days.

1866 Dyed seeds

Dec
24 × Matricaria chamomilla Dec. 29" 7-8 Days
× Hordeum nudum Jan. 9" nearly sunk. Jan 12" 21-22 Days
× Do Centaurea nigra 27" - 5-6 Days
× Do Ranunculus arvensis sunk 24" 2-3 Days
× Do Silene conica dubia - 24" Do.
23 × Silene gallica Jan 2" 9-10 Days
× Clematis 29" 5-6 Days
× Syringa vulgaris 29" 5-6 Days.
26 × Laurel 27" 0-1 Days.
× Chaerophyllum Jan 1" - 5-6 Days
29 × Agrimony 31" 1-2 Days
× Geum Do 2-3 Days
× Viburnum Jan 5". - 6-7. Days
Jan. 3" × Cotoneaster 9" - 5-6 Days
— × Malcolmia 8" nearly sunk 11" sunk 7-8 Days (I think large sort)
— × Chaerophyllum - 12" 1 sunk - 20" the sunk 16-17 Days
— × Asparagus March 30" - 85-86 Days. Apl. 9" Germinated abundantly. after this date
— × Lobularia Jan 15. - 11-12 Days -
— × Matricaria 12" 1 sunk 20" the sunk - 16-17 Days
Jan 9" × Vicaria - 12" 1 sunk Feb 9" 30-31 Days (Lots of seed in capsule)
— × Juniper & berries (Feb. 3" two sunk) (Feb 8" the 3 sunk / Feb. 17" 38-39 Days
— × Gillyflower 13" 3-4 Days
— × Helianthemum 24" ~~sunk~~ Jan 30" 1 sunk 31 the sunk 21-22 Days Feb. 26" germinated well after 16 Days

Apl 9 seeds still floating after 90 Days
they germinated well after 80 Days: many de germinated
Feb. 24" May seed floating planted also 46 Days March 3 germinated well

But seeds stale sown

Aug. 28 - Gilliflower . 9th — 11–12 days

– 29th Frorinella 1° – (2–3 days)

– Erichtzia 30° 0–1 days

– Clarkeria virgatella . 31° – (1–2 days)

– (Chiococca racemosa)
Snowberry Tree 6 F. th. (separate berries wd)

30 & Vicaria ovulata 2° 2–3 days

– & Kalmia latifolia 0–1 days

Sept 1 & Atrum berries. 3° 1–2 days

– & Charlotte 2° 0–1 day

– & Clematis 2° 0–1 days

4th & Syringa 13th. 8–9 days

– & Ilicto 7th 2–3 days

– & Mulberry 5th 1 sunk 6th & the sunk .1–2 days

– & Laburnum (61 pieces) 6th – 1–2 days. –

7th & Nuts nearly ripe sick

11 & Barberry comm. 29th 1 sunk . Oct. 2° second Bunch sunk. 20–21 days

– & Spanish Sunk. 13th sunk 1–2 days

12 & Impatiens Canicina 13° sunk 0–1

– & Convolvulus (large) do do

– & Horse-Chestnut (Oct 10th 1 sunk.) Inst. 1. & 2° sunk. & split ripe (48–49 days)

20th & Xanthium spinosum Bog Plant . 26th 1 sunk 27th 2° sunk 6–7 days

– & Drosera – 24th – 3–4 days

– & Acorns (sick & rice)

(Turkeys ate greedy acorns)

Geum intermedium 29th sunk. 0–1 day

Antirrhinum hyeis 3°. 4–5 days

Campanula (shells) do 4–5 days

~~separate berries 31 – 2 days.~~

Sept 4. 2/3 sunk in 5–6 days. & Sept. 9th last sunk. 10–11 days

1851 Dryd Seeds

Jan. 18 X Walnuts 4h. 18" entirely floating on 90 days

— X Sweet Pea 27" 8-9 days

— X Eryngium 2-3 days —

— X Fraxinus Ash 26" very much 27" floats after 8-9 days

Jan 22" Common Thorn 24". 1-2 days

— X Fir Cones (31. 1 sunk) Feb 1. 9-10 days

— X Pyrus Feb. 6" 14-15 days (only few seeds in capsule)

X Dielytra Fasciculata 26" very much 27" sunk 4-5 days (dried Pods beautifully)

— X Cowslip. Feb 1. 9-10 days

28 X Lettuce 31. 2-3 days

— X Prunus Feb. 3. — 5-6 days

— X Dryas Feb. 10" — 12-13 days

— X Plantago Feb 8" 10-11 days

Feb. 1 X Kalmia 7" — 5-6 days

— X Quercus Robur acorns March 21. 1 sunk / 49 days Apr. 15" 2 sunk (74 days)

— X Magnolia conspicua (Feb. 8" 1 sunk) 10" sunk 9-10 days

— X Convolvulus (Feb. 7". 1 sunk) 8" the sunk 7-8 days

— X Primula veris Feb 4" 1 sunk 5" all sunk — 4-5 days

— X Silene inflata 16" 14-15 days

— X Lathyrus sylvestris Feb. 9" — 7-8 days

Feb 7" X Ragwort 12" 4-5 days

— X Smyrnium 12" 4-5 days

— X Euphorbia Lucida March 22. — 44-45 days

— X Antirrhinum March 8" — 28-29 days

— X Epilobium 10" 2-3 days

— X Dianthus March 8" — 28-29 days

— X Campanula Feb. 14" nuts alone two sunk. Feb. 15" 7-8 days

X Feb. 9" Lupulus Feb. 12" — 4-5 days

— 15". 3 nuts (Apr. 15" 2 sunk / three May 9" 2 not sunk = 83 days)

(by 16 3 not sunk floating after 90 days

Feb 2" one of these two germinated

One of these nuts germinated Aug. 22" 57. Retis 9 nuts: 1 sunk. 31 Walnuts 2-9 not. —

Walnuts
Asclepias
Kalmia
Juniper.

Sept 20 Ragwort 27°. 6-7 days

— mild Cards 23°. — 1-2 days

— Hawthorn 1. bud sunk. 21. 23° M Bud sunk. 0-2 days

— Eglantine 21. sunk 0-1 day

21. Lettuce 26' 4-5 days

— Smilax 28'- 6-7 days

— Prunella vulgaris 26' 1 sunk - 29' 2° sunk 7-8 days

Epilobium (Sunk 24.) 26' — 4-5 days

29" Walnut (1 sunk) 30" # other sunk 0-1 days

Laurel berries (sink at once)

Lilac. 30": 1 sunk. (2° # other sunk) 2-3 days

Cherry 4": — 4-5 days

— Euonymus. Not. 28" - sunk. — 2 months when (days. —

Celastrus americana 30" all berries sunk but one 6" last one sunk. — 6-7 days.

Sweet-Brian 2°. sunk 2-3 days

30" Asparagus — (4": 1 sunk.) 23°. Oct. other sunk. 22-23 days [. Some germinated]

Tall Kidney Beans. 16" 1 sunk 18' 2 sunk — 17-18 days

Oct. 12" Fig. — Dec. 3°. Stems only stalks floating

13 arbutus berries sink at once

Nov. 2° sunk
20" Spanish Chestnuts 21. two sunk. (23° other sunk) 26' all sunk but one ~~sunk~~

— Horse Chestnuts. Sunk. 21" two sunk (23° sunk) 29" last sunk — 7-8 days.

21. Juniper Berries (5) 26' 3 sunk (Nov. 2°. all but one sunk) 3° last sunk 12-13 days

— Ground-Nut Dry (5) 26' 3 sunk / 28" all sunk. 6-7 days

24 Ripe acorns (Turkish Oak!) (28'2 sunk / - 3°. last sunk 9-10 days

1856

Oct. 30. Typha latifolia Jan 30th Floated after 3 months. after salt W. Jan. 20th

X Nuphar lutea. capsule Ripe. 7" 1 sunk 7-8 days // 23d. 23-24 days. Germinated sunk

X — ——— Loose seed &c. (sunk at once) try if germinate after salt.

A piece of the wheat, a Peas & Cabbage germinated. 2 Oats germinated, the same
retained after 13 Days. Part of the pellet I left this exist by
till Oct. 24th & then planted. ; & then 1 Canary seed & 2 Beet-
corn up. — One Beet seed retained viz after ~~6~~ 18 Days.
The Eagle was fed at 3 o'clock on 15th & then up to pellets on 16th. On 17th a clean
bed was given it, & 18th &, after 21 hours a pellet was thrown up; within
was 3 Vetches. 1 Oat. & 1 Canary seed, & these had been in stomach exactly 70 hours.
These seed planted on Nov. 13th after they been so long damp: Dec 1 Then after 70 hours all dead.—
(B/ 2 or 3 Clover seeds alone germinated.)

Nov. 18. 1 Partridge fed 55 grams of diet. — Planted diet for 4 feed
seed me of the Species of Birds killed yesterday. Pellet of Chalk
as large as largest clover-seed. — (Dec. 7th Nothing come up)

One seed shed germinated. Hooker Hayfield seed of Vicia. Feb. 20 a seed of Bryony has germinated

1856

Sept. 23. 1 Partridge shot & in Turnip, had 10 grains of dry earth chiefly under claws; leg fairly attached (Oct. 19th nothing grew)

Sept 25. Partridge shot 2 Partridges, also hedge sparrow: leg with little dirt, but yet some remnant of the dogged with fibrous matter, & plumage feather? - planted.

Oct. 19th. Killed on Sparrow. on 14th One with wheat inside, put in Oak. Canary seed

A Jan. Cabbage & Clover — gave 3 Birds to Shot S. African Eagle. (Balaton)

: bolted them; threw up pellet in 18 hours, in morning of 16th charged with seed:

plated them seed on 19th.-

Oct 19th Planted pellet from Sparrow shot, charged with seeds. planted

(B) pellet whole — 16¼ in Stomach.

Such seeds in the wild manner — Bird not found if died in sea.—

Oct. 19. Partridge with 22 gr. of Dry Dirt on one foot. — 5 gr on another: four angular stones on 3 other feet — 3 feet quite clean. — In a 22 gr. Hen. There was 9 stones weighing 3 gr. a Pea: The mind in pelted together & partridge feathers — & my carp seed in Clay-soil. — (Oct. 13th. Nothing taken up.)

Found Starling shot dead with dirt on Feet

(Birds I am about now)

Oct. 29th I have now seen plants of Thorn, Jen. Laurel, & 3 other Raspberry Kinds planted in Birds Dung. — some of the seeds were in circulation Birds Dung. — (Thrush Hollies were on certain) Oct. 7th I have not seen my 4th Kind, I think of with Rose. all Dung Oct. & Nov.

Oct. 16th an 8th Kind. / Oct. 20th 9th Kind / Dec 12th / 10th & 11th Kinds / 16th 12 Kind / 4 & Hawthorn Oct

Dec. 7th after 30 Days planted three seeds, of Tapes & Pecten in Cap.
Dec 10th all germinating splendidly: Even to Tapes! Mem. a Head
While in sea at times might allow a Bird to escape
whilst floating. In Zoological Journal VII 7. p. 229. on escape of
Birds at Sea. N.B. I tried 40-50 Tapes in Salt-water for a month
& of those single one germinated!

Jan 22. 57. Put Helix aspersa & Pomatia ~~in~~ in artificial
sea water for seven days.
29th. The snails were floated for some days, & then all sunk.
A snail one about all times to other large ones & when second floated & sank
Large one about to H. Pomatia. but did not float. Both these seemed soon
& completely. Of the others 5 big & 3 little, all seemed upset & eg small.
~~some had a bitten~~
the two remained shewing, eg & stick to trunk of tree in aquaria: (no Beetle)
The weather was very cold all time Feb 1st H Pomatia quite lively after 10 days
in salt water: this individual had been a week before in Salt Water 6 weeks & smooth passing. Feb. 5. the one
for which I had removed calc. after when & which had eg this horny one, moved distinctly after 14 days in salt. water
but died after 3 or 4 days, perhaps kept too warm. Feb. 11. Quite alive after 20 days (+7 passing) Record perfectly & carried about.
Perhaps were kept too warm, when receiving. —

A lot some dozen of H shells collected about Down, in March & allowed to hybernate
were put in at same time for 1 week, in sea water. Helix Pomatia
sunk to bottom, but when specimen was raised was quite alive
& crawled away. — A ? Clausilia nigricans also marked about — & Helix
Helix was alive? Then shells at end of week did not
float, & I neglected to observe whether had floated & sunk. Six
few floated at end, but I think all most of them were dead one.
Dec. 14th all not dead Tapes & little band-shaped genus. & small Helices.

Nov 7th Put a Pigeon with Canary seed - Beet & 2 Kinds of Okra to float in Salt-water made of Bay salt. - - Seeds in Bay in Corp. / Jan 22 57. Still floating. / Feb. 24th floating / Ap. 2d floating very P. sunk.

Nov. 8th Eggs of Shag sent me by Mr Jenkins, sunk in Salt-water, & I think all were killed in 5 days, but the other did not keep very young.

Nov 13
Oct. 24. Rat with seeds put in minute piece of Shag skin & pellet cast up in 21½ hours. Rats in Nov. 13th - Oats. seed wheat - Hemp & millet seed (Dec 1st 2 Oats & 2 Millet seminated well)
2. Canary seed from Vulture. 23 hours did not grow. -
Oct Nov. 13th Pellet from Shag skin, from Bird with seeds 18 hours in stomach (Dec" Seminate 5. Oats. 1 Wheat. 1. Hemp. 2. Millet)

Shells P. Santa Rosa were collected middle of May 55, 10 that has 18 months old.

Nov. 30th Put shell ½ of Mr Wollaston P. Santa Cruz shells to soak & about 5. Cam Helix pulsinata came to life & would about - 17 other part of pretended their bodies, but hardly or not at all moved & soon died. - There were several hundred. -

Dec. 3d 9½ A.M. Put the other larger ½ of Mr Wollaston; & by one Dec Helix pulsinata Mussa to float, in red Sea-Water. Of one Cam to life & moved; but soon died. The weather during the exact week they were in the sea water was unfortunately very warm. -

(8)

1857. Jan 30th a small lot of seeds sowed through Macaboy Stock
none of them germinated: & soon supposed to be thrown up unvegetated.

Feb. 15th 4 P.M. Fish with seed given to two Pelicans; soon
up — as supposed for Stomach. Feb. 21. Wheat 2 Oat, Millet & Beet. / 2 Oat 1 Millet /
23rd. 2 Wheat. 1 Canary Seed. 1 Millet 2 Oats. — 25th 3 Oats 2 Millet 1 Canary Seed 1 Beet. / 26th 1 Canary. Oat, & 1
27th 1 Beet 1 Wheat 2 Millets 2 Oat. Hard 2. 1 Millet / 8th 2 Oat. 1 Beet. 1 Canary Seed /
Some found in Dung on 16th at 10 A.M. Planted. Feb. 18th — / Feb 21. 2 Oats
& 1 Wheat germinated. / 4 more Oats / 1 Beet — 2 Oats // ~~25th 3 Oat. 2~~ & 25th 1 Wheat /
26th 1 China Aster 1 Oat. / 27th 1 Wheat / Hard 2 1 Oat /

N.B Here fact arose of a use with respect to any seed accidentally
swallowed by a Bird. which I th. think to happen sometimes

Fish ate Yellow Water Lily & Potamogeton seeds —
3 Water Lily seeds sowed through a Sieve, but did
not germinate.

Dec. 8th Finnie pig with my seeds, at 4. P.M. given to Bobolaus Eagle: with food without seeds.
this Bird was fed on 9th at 7 A.M. & 4 P.M: on 10th do P.M — On 11th at
6. A.M. pellet cast up. So it had been 2 Days & 14 hours in
stomach; & 3 hour days + 18 hours in my damp pellet. Plants
on 12th at 9 1/2 A.M. — [The Pellet cast up on 12th — no seeds]
Hemp. Celery
Wheat. Oats. Millets Canary Seed. — Vegetable marrow — Cabbage, Beet, Carrot,
first one grew. No 11 the Beet grew with on Jan 1st (three planted) Jan 8th another
Beet grew. — Nothing more than above up to Jan 17th —

Jan Pink with seeds to Fishing Rose Eagle — watched on Sunday 29th at 3 P.M.
found on 30th at 8 o'clock a pellet: — Jan 7th 1 millet & 1 Wheat grew. Jan
9th/10th two millets. / Jan 3rd 11th 2 oat / Jan 12-1 Canary Seed /

Jan Pink with seed to Marston Starks on 23rd 2/2 on 24th at 9 o'clock
there was some P. in Dung; there was counted in Pellet, but the
Millets grew with

Jan Pink with seeds to do Starks on 24th at 2/2 o'clock, & placed there
between 9 & 11 o'clock, say 10 o'clock. (19 1/2 hours) — Plants
Jan 1st — 5th 2 millets grew

20

This mud when stiff was 3/4 deep in a 5/4 diameter cup. It filled a large breakfast-cup. - It weighed when thoroughly dryed at ordinary temperature only 6 3/4 oz : no doubt it had lost a decomposition & organic matter. -

Waterham Pond

	Dicks	Insects		Dicks	Insects	
				Brought forward →	83	10
Feb. 24th	5	1	Apr. 21	21	4	
March 3rd	2					
— 11th —	2		May 7th	191	22	
18	8	1	— 12	91	7	430
20	3					
26	2	2	— 20	48	5	
28	5	1	— 31	11	3	
30	6	1	June 14th	16	1	
April 1	6	1	July 1st	22		536
3rd	8		Aug 1	0	1	537
7th	15					
10th	8	1				
15th	13	2				
	83	10				

Jan 11. Mem. for lower end of Rembrouw.; Cotton for Plant part. with shoulder running thro

Then were two slots were placed on each side of Iron vessel; & lead screw for all Parts_ Vessel 5/4 inches – Lid & mud less than 1/2 inch thick.

Jan 11. Mem. for 2 or 3 glass jars with part of mud to Crystal Palace

mud Cotton for under water, where plants were growing.

Jan. 18. 9 monoct. germinated / Ja 21. 3 monod. 2. Dict. / Ja 30 1. Dict.

Feb. 2. 3 Dicts. / Feb. 4. 1 Dict. 6 monoct / Feb 6 2. Monoct.

Feb. 7. 4. Dict. 6. monoct / Feb 10 4 monoct / Feb 13 2 Dict. 1. monoct /

15. 2. Dicts / 20 3. Dict / 26 1. monoct. 1 Dict / March 15 1. Dict / ~~20 2 Dicts~~ / March 30. 1. Dict.

4. 1. 6. Dict. 1. monoct /

Feb 10. Mem. for 3 or 4 different spots in Batcham Farm as road to.

– 24 5 Dicts. 1. monoct. / March 3. 2. Dicts / 11 2. Dicts / 18 8 Dicts. 1. mono.

March 20. 3 Dicts / 26 2 Dicts. 2 monoct / 28 5 Dicts 1. mono / 30 6 Dicts 1. mono / Ap 3. 8 Dicts / Ap. 7 15. Dicts /

Ap 16 8 Dicts 1. monoct /

March 12 put 4 small slugs ♂ in earth, which seemed nearly torpid in act.

sea water; they seemed dead in 18 hours – took one out after 24 hours

& was dead – took 3 others out in 48 hours, all dead. –

20. Put dried Ducks feet in Vivarium, ♂ once Lemon acid, but felt 1/2

an hour minutes then out of water. A small Planaria stuck on,

I suspect only by being flat & dead, & kept out of water for 20

hours as the foot was quite alive. –

Sept 25th by way of Lyonnais (as I believe) hatched in Incubator with plants, in which they were to feed. — Hatched on a Day or 2 or 3 Days — Were young at 7½ feet in Depth Ducks feet & at 9° F. two Days. Then 2 put into damp Incubator on to Ducks feet &c. There was quite alive at 10 hours out of Water

At 1. P.M. fed 3 more on Ducks feet; put into Damp Incubator

N.B. Jno cannot explain fire off these little Lyonnais off to Ducks feet. (contrary to Plantis to my other chicks which I have). Jno can't be found off to

Plants —

2½ P.M. 1 more on.

4. P.M. 7 F. 15 or 16 sticking pretty on (a 2nd on Lyonnais) Legs last on surface of water

5. P.M. 30-40 sticking on. — I think they seemed as if they wished to crawl as high as they could to Ducks feet to crawl

[a Lyonnais Plantis expired they survived & was quite fresh on to Ducks feet under glass for 17 hours. — 3 Lyonnais alive after 20 hours, but they first part of time they crawled from Ducks feet & got into bottle of glass, which was damp, but not actual water.

Of those left on Ducks feet for 24 hours, only 1 survived & that was a Plantis; but 6 or 7 stuck on though quite dead; most of them crawled from feet to bottom of glass which was rather damp. Those of chicks was not in water; of these about ⅓ survived the 24 hours. —

Those hatched 2 days required for my Ducks

1857
March 18th. Seeds given to Iceland Falcon at 10 A.M. cast up on
19th at 6. A. M. — Seeds given with chopped grains Pig, for
it, was up under Hawks in at bottle it whole.
March. 26th — 5 Canary Seed./ 28th 4. do/ 29th 1. do/ 30th 1 do/ 4th 1. 2 do/
. So the 14 Canary seed has germinated.
There was plenty of Millet & Cabbage & Turnip & Oats in the 1st
April 10th it is very singular that no other seed should
has germinated though there was plenty of Millet, &
plenty of Cabbage & Turnip seed; (of which I
was sure has all germinated). & Oats & Wheat &c. —

Sept. 30 1858. — Put a good deal of Duck-weed in pan of
water, but it was very thick, as it often grows naturally, &
put in upside down two Duck-bills stuck in back of
bottle — If had to put in with spill to free it — In using
Duck weed for Aquarium to cattle, I has accidentally transfered
to Water in Kettleman — Many shells contain animals might be thus carried.
It would cling when dry I think. — for fishes Food. —

May 8. The young Linnaei for 14-16 days D: I put in Duck-weed &
drawing it out I fix 3 sticking on. — I f. then very shells in
damp. for kept alive 10 hours very often; but here & there there was
drop of water — Mem. Duck-weed for Aquarium, so that
shells will be kept between damp membrane. —

Plen weeds were free from all chicks & potatoes from larger animals. I suspect 20 Ks of Mexican fat cause of Lactation. —

	dead
March 31.	25
April 10th	59
20	28
May 8th	95
June 1.	70
	277
June 1 living	80
	357
July 1.	67 / 357 alive
Aug. 1.	62 / 357 alive

357
62
295

80 of the 1/4 dia
357 am

of the marked plants.
a few + by few were
seen here on the

(25)

Weed Garden

Mem. Radicle Seeds. — Old Shrubbery & the Strawberry reputed Bed.

Piece of ground in Orchard, which had been Strawberry Bed — viz 16 (not 14 by 36 feet pitch pt out) 36 inches & 24 inches. (potato fork for large weeds) — Dug in January & clear of all perennials — Easy in March seeds began to spring up: marked each daily.

March 31st about 55 marked, of which about 25 killed slugs.

April 10th Pulled up 59 wires making when seedlings began development of true leaves had been damped, I suppose by slugs, & may drawn at & worms, & apparently perhaps were beaten at by heavy rain. All, & nearly all earliest seedlings then destroyed. I think, catching strong seedlings escape better than others. [no doubt by reason more & being open & exposed to weather & only few, so better chance of being detected]

April 20th Pulled up 28 wires, dead. — [I think by water in beginning to take against roots]

May 8th Pulled up 95 wires. — (I suspect 12 plus 3 plus 3 plus 3

1897. April 8th — 16 K. Garden seeds sown on Sept bed — all

Kinds sown in Slit. & mid Sept & on surface; with Leaflets to

protect away Birds. —

From end to left-hand Left-hand — looking S.	Row end to left-hand Middle Row	seeds sown on both Sides Right Hand Row
Beans	Spinage Spring	Lettuce
up 15. few growing in crack —	Germinating	I think none germinating
may eaten		
June 14 ½ Inch. 20 shut dead		
Peas	Corn Salad	Scotch Kale
up 15 few growing in crack	Germinating well	Germinating
gnawed		
Radish	Onion	Mustard
Germinating	Germinating	
gnawed & drilled a little		
Carrot	Celery	Cress
Germinating	not Germinated	
	Sown Aug	
Kidney Beans (Red)	**Parsley**	**Turnip.**
I think none	Germinating	Germinating
Shy are germinating by 28th		

Short Row to left of Red Beet. few germinating — June 15 many dead &c

[illegible] with right climate & soil (several cases) but destroyed by Birds &c. when they first got planted at right depth (Earth-worms & 2 inches ground cracking) (& depth experiments on that does be important) I find they must germinated & then can bottle for life with sleep & insect & other plants

Aug 28. A few Peas shot up a few inches high a fortnight ago, but are dry appear much pruned & hardly higher: I doubt whether any will reach level of prop. each Bean. — Most of the seedlings look pale & sickly & bottom of long prop.

July 1 I can see none alive of any kind

Aug 1. — But the plants have grown up — the Beans done pruned. —

Easy in June I moved twice flowers 4. of Lathyrus grandiflorus
a if Bee had visited — 1 shaked off — 3 stems seem set; of
them two grew a little & then shaked off — one has made (perf) a
rather pod — but one ote pod on ote 2 plants with immature
flowers — Bees do not as yet visit flowers
(2 on a forte talk)
Just 1st Did the same with 4 ote flowers on 2 plants. 1 of them set — but then
subsequently lost pods set of themselves — I may say some good effect
Also contented 4 common Peas — fertilised two, & left two
with no pollen — the 2 fertilised grew much larger, but were
gathered — one that was not fertilised formed small pod but no
peas within

Just 2d. In Land Dont removed Pollen from 4 flowers, one late, one
latter & middle on 4 plants of Bee Orchis, & put on pollen
masses from other plants — (marked pods with white worsted
& both branches near them) then were other pods swelling
on 1 or 2 plants. — all withered by Nov.

[1858 I suspect some other years the 1st precaution was good
effect, & unopened flowers produced a large
pods.]

30
1858. Then produced (I have somewhere a more detailed note) for I believe same pod ~~the~~ dark purple like mother, & some almost exactly like pale father, but slightly faintly streaked & blotched with purple on the wings.— I saved lots of seed from these latter, having decided the dark purple is the other the result of accidental crossing.

In July 1859 I have looked to get some of these grandchildren from pure parents; but am ~~no~~ ~~not~~ ~~sure~~ ~~if~~ ~~the~~ ~~dark~~ ~~purple~~ ~~on~~ ~~the~~ ~~upper~~ ~~petal~~ ~~like~~ ~~grandfather~~ ~~but~~ ~~pure~~ ~~purple~~ Plants grand-mother, several are pink like pale grandfather, but most are streaked & stained with more & less dark purple on wing-petals & one has fine pale purple wings which I think marks a new variety, with streaked dark crimson there to the carmine, but not as the purple like that of grandmother. The pod not on here purple blended. Some have blended petal streaked on both on wings, showing clearly what a tendency there is to streaked colour in these hybrids — All tends to show no reliance crossing with wild-peas. —

see 169 for pure grandchildren

Sept 1 Crossed 2 Sic Peas, standard dwarf purple, wrap blue (blue in the darker case) + put a pollen of to pedal pink case.— I put flowers in Bottle — the marked red had unfortunately / another left — the marked White was quite crossed. Seeds saved. -X

Sept 1 put 7 eggs of Helix Pomatia in sea water for 10 days + 3 for 20 days Killed.— All sick.— 4 Third without water perished soon sick, 10 eggs good —

Dried the flowers of Linum for 6 week. + then put in sand damped it, + the old water, the eggs came to nothing.

Oct. 14. In to hypothesis had 3 LD Kept damped with water, then were 6 seeds in some more triangular in shape + shallow.— Then were the twigs with to cuttle pieces + to seed vessel unchanged: then were counters for then were pedal twigs + seed stalks. Dried. — The calyx was persistently deeper cleft in them. + Four more characters of this tribe. (3° generation-plants) Some of the flowers had of 3 seeds nicely packed, + another of one. One flower had seven segment to calyx + two petals; 2 flowers joined + 7 imperfect seeds. —

32

Aug 15. buried Sheep-Head fm Shanghai, China sent me by Mr Lockhart, in Jarden-tea chest Earthenwares..

Also Mr Segetmeier chest mixed Fruit-

1857. Dec. 1 Some seed of yellow Water-yellow, sowed, put into Pots, given to Sarah, some wrapped up & some pressed through Bird, none germinated: Kept till May 5th.

1858. May 6th I think of the kind, Spanish Perch-head cord carried became entangled & transported by Birds feet:—

May 9th cord up under Bell-glass Heathers. 18 fertilized with their own hair brush. out of opened dead flowers: the I saw fertilized I mean I saw pollen on hair brush. in process of ripening. Bell-glass had evidently hastened flowers. not withered 19th. withered on 21st — 22nd saw the flowers withered. 22nd. Did same to 2 the flowers & marked them with blue worsted. None of the flowers subjected set a single pod — So experiment wholly failed & teaches nothing. —

May 26th. Lychnis in K. Garden. one plant has broken & yellow petals with both a red tube ♂, nothing guadrifid; & to correct a purple with a red, white & white.

June 2nd. Saw on Lotus corniculatus, Bee with yellow & hind legs. entering not Hive Bee. Saw Hive Bee on T. incarnatum. (in L. Garden). Saw same Bee, with narrow yellow rings on abdomen, on Lotus. Bath & Pope

34

I saw another Snake. my friend Bee sucking down & it seemed to split
between of Corolla – at least in the flower. that I saw it
suck it was split – I saw some another Bee sucking red-clover
I may satisfy in my generalization. Saw a Yellow petaled Viola sylvestris long-horned Bee.
I have since seen my green & Bee a Lepidoptera.

1852 3 Plants in bloom this in Pot

June 4th. marked with red on flower of L. Gardiner & named very-late

— . Blue — - - . & Pot not seen since.

I am certain with the fate for some of marked that is named

flowers

14th Found 6 red & 2 mixed flowers dropped off — & 4 named dropped off.-

15. — . 1 red 2 do

16 2 red do 4 do

17th 2 red 2

1 Red not

2 K. Garden. 1 red dropped off.

One pod alone was found & the shell & dropped off.- Hundreds of flowers

were found on the 3 plants, & not one pod set except that I am

sure. Many flowers destroyed by wind, during the time effect

was produced.-

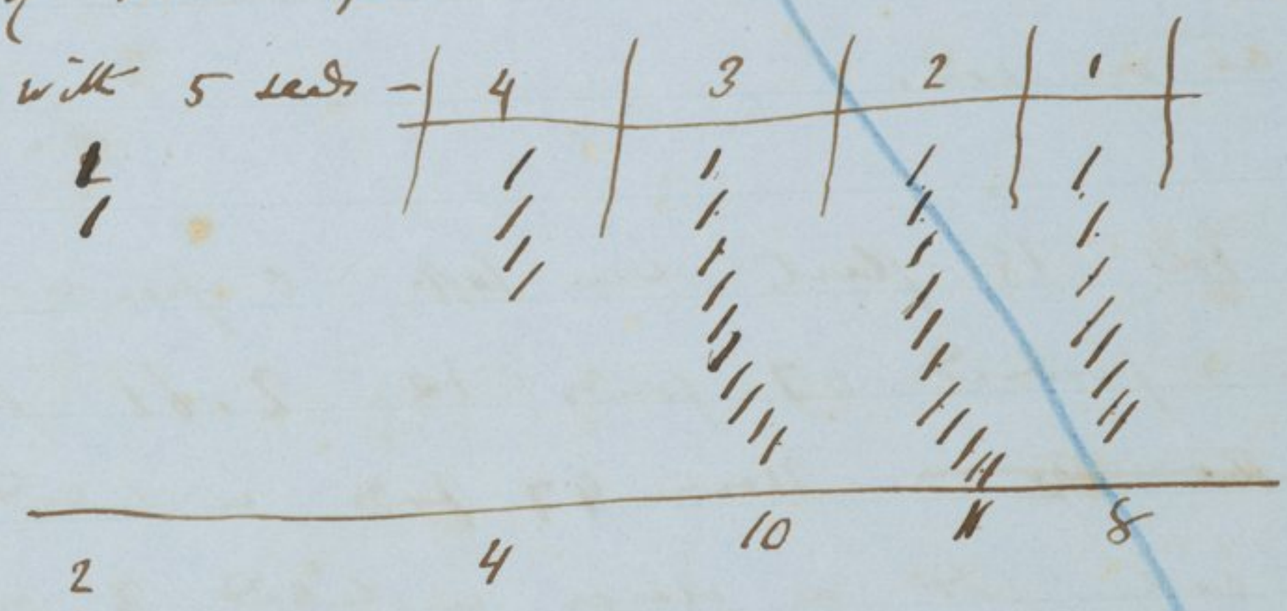
Aug 17th. I counted up exactly 44 lengths of late crop of Kidney Beans, in continuation of row no being left untouched & then was late by [illegible] & then counted up, which had grown in upper part of said number of Beans indiscriminately.]

The counted up lot had 74 stalks bearing 97 pods. i.e. an average 1.31 pods to each stalk. I do not include pods under 1/2 inch in length. These pods included 261 Beans. i.e. an average 2.69 beans to pod. But it is difficult to count Beans as a count of so many should that this had better be omitted.

In other rows are included 4 pods of flower head & the; & then was remarkably fine & included 14 beans i.e. 3.50 on average. However I do not doubt that impurity on flower act in whole stalk.

Of the uncounted rows 155 stalks had pods (i.e. 46 rather more than twice as many as in counted); & the number of pods was 292; i.e. Twice as many as the counted up. But these pods included only 739, i.e. only twice as many as counted; but then I do not think certainty of Beans can be trusted.

1857. In latter part of June I used up nearly 4½ full 3 ft length of Tall Kidney Bean, just before any flower out. I then sowed 19 flowers. All sprung in seventy. On July 18 I counted to flower & found 5 pods, & one aborted pod. — Only 18 beans. 2 long cod fine Beans. — Some of the small pods were in centre of row & may have aborted for shading plants. — Of the counted flowers there were 35 pods: but this number was actually a setting to that the most upfield Bean podded; & then was not on each of those pods there on an stalk. Of the label of the pods | with 5 seeds — | 4 | 3 | 2 | 1 |



2 4 10 11 8

16
16
30
22
5
35 | 86 (2.4
70
160
140
20

Hence then 35 pods had an average 2.4 beans. 5 | 18 (3.6
18
30
The 5 small pods had 3.6 beans. —

I also sowed up a plot of white Runner with gauge. (just before flowers expanded) so that I think it is not be subject seeding: I saw Bees extremely visiting flowers outside. I then took seeds for both & counted seed in each, & I found by many 10 times as many in the outside; & if also the seeds with them or by for one reflected, then was for ten times as many seed.

Nov.

I cried with this sauce, just before flowering 1st plant, 17 plants of Beans. I noted 11 plants like Beans do: they produced 5 pair pods (& one imperfect) these five pods had 15 beans i.e. average 3 each. (Which is full average, shewing the sauce was not injurious)
in the uncrowded plants
Then 17 plants produced 36 pods + 5 which were noted a check would have produced
by 40 pods. So that each plant produced at most an average 2.35 pods. — The 36 pods produced, without which being being noted, included of 1.11 beans [& no less than 8 of the 36 pods had not a single bean within!]
These plants had not one pod. 1 of 36 pods fell of 40 Beans.

In an adjoining row, 18 plants were left to give a crop of Beans, these produced 47 pods; i.e. 2.61 pods on average: ~~so that the~~ These 47 pods included 141 beans. So that each pod on average included 3 beans
36 of these pods must have produced 108 Beans

Here we see the Beans tend to produce rather more pods, & a rather large mean Bean, in proportion of 3 to 1.11. — Same general results as for dark & Kidney Beans.

Feb. 22/58/ I find eggs of slugs sunk in sea-water.—

March 29. 1859. Fumaria = Corydalis tuberosa. —
Spun on both sides of thread, the thread on one
side drawn on the — long spun with plenty of nectar
thread with nose — thread with end. slips off finder side
of longer nectary; cannot be slipped off on other side.—
Pistil slightly curved towards side of longer nectary.

Seeds of Viola sweet pea on
fine to pale pink, shade on
deep very lightly shaded
with darker pink. The
dark purple when all the eggs
10 then can have been
no copying on them generation
Sept. 18/58/

Viola Glauca

In winter killed all of them - Got 1 pencilled Spanish cock from
Mr Tegetmeier & following pure-breds - 2 white Game, white
Cochin - white Silk - Silver Spangled & pencilled Hamburg - Silver
spangled Golden Pole Hamburgh - In none of these breeds any Red.
June 10th - Fair large proportion of chickens black - But on
White hen died & third black hen died. Some of the white
hens & eggs few scattered black feathers.

[One lot of mixed eggs for white Game & white Cochin & Black Spanish
consisted of 11 & of these 4 Black & the 7 nearly white; 10
chicken of Cock not always to appear as stated.]
This tends to show these 2 white Breeds are true.

[Next year of grandchildren, as 2 grand-parents of all which have been black
& as second cross to breed are Black & white, & as in the 1st generation
we may. Black-birds, there ought to be great preponderance of Black-bird]
June 12th 2 more Blacks have died. / 17th Five more blacks dead / 21st 3 more blacks /
Out of the whites of 1st Brood in pure white; & the whites are
seem to be getting Black feathers. June 25th White & Black. dead /
May 19th A grey cock ~~in moulting~~ which was sent Black all over
in its second feathers also to those in course of moulting which
Spangled red Hamburgh were in the moult. - This offspring of
white silk-foot & Spanish Cock - 10 Spangled cocks
for both parents are
most distinct of the breeds. -
Game hen thought a silk - Black-skinned & Silver
Spanish - This bird has one of grey feathers
on neck & back.

Sept 15 1859. (42) Another grey Cock from Silk-like. Shows some long white feathers above tail. — [A fine cock from white game or Cochin, but very tall & pale hackles & neck like old fashioned Dorkings — Another cock from Game, but is also quite white but has few yellowish-red feathers over tail.] Another cock that has rose-comb & mottled plumage in dark & has pencilled Hamburgh. has the white-yellow feathers over tail. [A fine Hen for Cochin (with feathered legs) & getting rusty & legs jet Black. —]

[Dec. 24' 59. Killed cock for Spanish & White Silk Hens. Comb Rudimentary single deeply serrated with large neck with yellowish white hackles (centre of each Hackle Black). Hackles over back do with more yellowish tint. Wings, with dark green bayes over secondary feathers & shoulder coverts more often yellowish white. In back of these yellowish-white feathers to be seen & if to great secondary wing feathers to be seen, to Bird is not considered white. F. Barbu.

Another Cock with rose comb (above alluded to) with large white cap-tipped green with tail, except black hackles which & more of the same to middle coverts over secondary wing-feathers are spangled with Black; & breast Body is broadly pencilled with white from Hamburgh parents.

[N.B. Both pencilled & Spangled Hamburgh have rose comb.] Body for Spangled.]

The Hens are Rather of the set Killed chickens for Spanish & white Silk. — Cocks hackles & feathers not so a white colour. —

(Carried on to p. 49)

1859

June 23. A few days ago I cleared up in Bell-glass Corydalis lutea
& marked 2 flower stems with worsted, & snipped off to leave
flowers which were ready & tracked pistils with brush; & I this
day see that to have flowers on willing on these two flower-
stalks, whereas not one is willing on any of the
evenly forward flower stalks.

23. I also snipped off Fumitoria single flower on one stalk,
& this (26th) has now a pod, shows to have a seed flower has not.

June 25. Snipped off a flower 2 pm bottom, & this (27th) has just set pod; 2 more flowers
June 25. The 2 flower stems of which I have snipped to flowers, pm both of
on they became ready, have now both many pods a stem, shows on side
to other flower-stems. I can find of one single pod. - 26th I have fixed 2 pods -
29. The plant now pretty well covered with pods on side to stems; & I have
see clearly pod sets (Nature Sept 11) without the petals naturally
shrivelling up. - No movement can of take place / into contact
of pistil: & it is now certain that the movement, by bees & setting
of pod. [In B. I have not been guided, as Bees &c. &, nectar & flower being ready for fertilization,

June 22 Noted 4 flowers of to Lathyrus & marked with
worsted. (28th two snipped off & to other 2 have made fine grey pods & set on
other flower not of the hundred have as yet July 6th set on pod - Cam Cambridge.
14th

July 14th I counted pods of Corydalis, 9 pods which had been noted, contained
32 seeds, shows 9 pods taken mostly for early flowers & pm short
same height as stalk contained 53! So many unfavourable & fertility
yet can not like Bees which used cut & other visit flowers

Coryda[illegible] lutea

44

Sept. 4. 1861. I cut up a Early [illegible] plant
(this Corydalis & left the uncut. The cut
plant used perfectly healthy. — I gathered ripe
portion & cupped the tubers (bulbs & the
uncut, (which had flowers, young & Bud) produced
exactly twice as many seeds. — Hence to good
order this plant was stocked with seeds. which
in & by means to can 10 times under
to stem. — Hence insect aid in fertilization. —

Corded up patch of Trifolium incarnatum, leaving equal petal clear & uncovered & shut on mid visited of Bees. — The heads seemed equally fine on both; & I took 60 for each, a pair in I cut pick of equal size. The uncovered produced 349 gr weight of seed; the corded up 63 (& 19 very aborted seeds); so that the latter produced exactly half-way between 1/5 & 1/6 of weight of the exposed. It was remarkable how much longer the uncovered remained in bloom & was a little drawn up, but very strong & healthy; this latter up of flowering might be due to the cover, but I believe only to the second-flower theory, I cannot doubt to root out second-flower theory, We know, also, that Bean & Kidney-bean set under cover, sort of cover, when the when the covered heads by Insects, so as to be only 3 or 4 days behind the exposed. aid.

So that for crop no seed produced without aid of Bees, 5/6 produced under them

Medicago lupulina

Trifolium procumbens, a cultivated yellow clover; 150 heads about equal in size under cover produced pods, (without staths) weighing 77 grains

Open to Bees " " " 101 grains.

As I have found to getting them out quite ripe to prevent losing to roots, I could not shake to seeds; & probably to inequality would have been somewhat greater had I been weighed to seeds.

Such wild Bees, as well as Hive-bees visited the clover. —

Aug 1. White Dutch Clover. (J. reports): 4 pairs not fertile, as the I got only 20 Heads for under net over to Yellow clover; (the net being burst) these 20 Heads produced no seed & I saw literally of an abortive sort. — 20 Heads got to Bees produced 25 gr. weight of seed, & the Wasps 2 gr. I calculate this weight of 25 gr. contained 2290 seeds! This strange experiment is confirmed by last years experiment.

Aug 13th Common RD. clover (J. pictures) 100 Heads got to Bees produced 68 gr. of seeds. Two grains yielded 80 seeds ∴ 4 = 2720 seeds

A (fertile) (IE 102) 100 of same equally sized Heads under to net produced not one single seed!!! Of this I am positive. —

A fine tube branching plant of Melilotus officinalis cam went a flowering for weeks & up under net with close; it bore many scores of racemes which did not set a pod: several set one a two pods: 5 set 3 pods: 6 set 4 pod; & one set six pods. — When uncaged (August 11) Aug 12th was completely & many thick - Bees. Was broken & wind, & my few Aphides preserved. I cut off all the stalks with & without pods, that had finished flowering under net. - I did not cut off those stalks that had even more than half-flowered & had half-shaked off their flowers & so that result with not be so shrivelled, as it might otherwise

here bees. Even today Aug 16. (11 days after visit of Bees) a multitude have flowers have withered & apparently dead set. I tried the racemes with buds & flowers also in water without. —

Sept 10 Go to Nebilotus hedge a single stalk with two pods; only 3 or few with one or two pods close, & then my have been stalks of which also to have flowers shaded which caused it. —

Stalks with				No. of Stalks
1 – 6 pods	average 3	=	51	17
7 – 8 & 9	average 7½	=	90	12
9		=	27	3
10		=	60	6
11		=	66	6
12		=	60	5
13		=	13	1
14		=	56	4
15		=	15	1
16		=		
17		=	17	1
			455	56

So that of 56 stalks bore an average 8.1 pods. —
As the exact number of stalks had two pods I my lay reduced at least 20 or 30 times was dead
the visits of Bees — Of 56 stalks, all but 17 pod
from the 6 pods each. —

Sept. 26. gathered to Kelebekler - Shot two birds; several with 15 pods a cask, shot — / 5 with 16 pods / 3 with 17. / 3 with 18 / 1 with 19 / 1 with 21 / 1 with 22 / & one with 30 pods. —

Paulley

Jan 19. - 1860. Shot birds as mostly Black & white with some Brown & a good many Sooty & Pied - One like Spanish & Hamburgh. shot, but were took to be male

Jan. 13th - Most of them dead - Those which have survived are Black & white; on a few coming have some Tawny feathers

over head. - The crested Hen shot not shows any signs of crest. -

[Crested Male Penguin with Black Cabeza. - The crests are dark brown or Black. with few white mixed feathers. - not like wild Ducks. -]

(see p 41)

Feb 1. 1860. Veiled Hamburg Cock (hopes dubbed 6) for feathers. Hackles over
rump white slightly orange tinged, & 10 or neck but in deeper degree
& — white deeper in back ring-coverts. —]

[A Hen moped for Cochin - Hen showed a tuft of bone in her black plumage.

April 1. 1860 Some of the fowl. Black Hens, raised last year, now for 1st time show
a few white feathers. —]

Ap. 24 [The eldest of the cocks with Blackish Comb died. — Decided for white
Japan & silk Hen. Compared with J. Bantams. Second aspect of similar,
but white darkish; Hackles on neck & rump, with narrow radial black line
& tipped with black. — Lower necks — hackles, later, orange, & in wild to lower neck
Hackles on body very orange. Beneath neck Hackles & above Rump
Hackles — broad band of green, in wild this is very narrow piece
of green almost concealed by neck-Hackles. — All beneath body, Black,
but belly & body in in wild. —
Wing upper coverts shoulder-wing-coverts green; then bright red band; then
green: the tips green; the main feathers in the wing
wild to primaries are narrowly edged with pale purple, & the
secondaries are broadly bordered with white bars, these
the primaries & the secondary feathers are black
in this, crossed stripes. — Rump strongly dark glossy green replaced in Silk
= brown in the secondaries. — Tail white cock]

April 30 The 3 cocks which have been kept for this strain, have been
the above red cock from Silk-Hen - 2 white cocks with much red from
Sumatra & 3. Black with white Hackles from Silver Pencil. The grey
chicken cock of Silver Pencil; one with white red Head; another with-

50 Rest brownish tipped with pale brown above and below. In the last year in the cup, and with brown feathers. —

Leschenaultia. Aug 14th Flowers of the last of this.

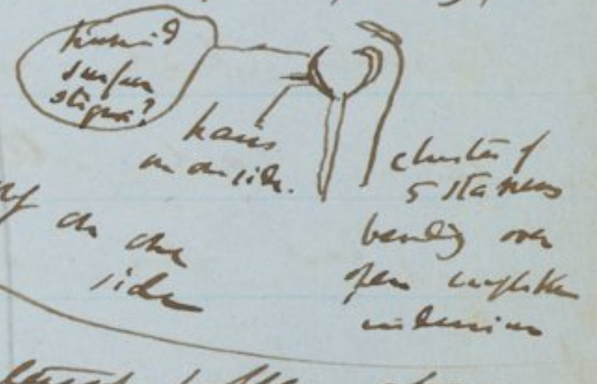
The petals a inferior lies close
to two united Petals near tip. —
If a Bud is pulled inferior parallel to axis of
flower, in manner in which Bee would certainly rub in getting
nectar, the projection of lower lip must readily open the inferior
& the hairs but the pollen from upper lip also over inferior
of inferior; & the hairs lying on the pollen. Insects to
pollen adhering to upper lip of inferior. & likewise to the stamens
hairs on upper lip. would certainly get on bees abdomen & hind-
=legs & thus get carried from flower & flower, & be left within
inferior. — The inferior not by easy to open this done doubt
= pointed, with papery tips of hood hyperbolically parallel to axis of flower
over it mouth. — [I find pollen does stick to hairs of Bracts]
12th
If 8th I can find presence of pollen in inferior; & 2 flowers last
inspected but certainly in pollen: differently from any others on this
plant, & that has perhaps 100 of flowers. — One in pollen
of in one spot — the other very sparingly in pollen — In all the
rings pollen a circle diameter but remained pollen; one in one, other upper
part in at least half diameter; & to other but one in pollen spot, in if
one last then. —

Feb. Partridge (1860) caught in Deep with both Legs broken; eg mark
March 1 Dist 4 feet & a bit of ovfs grow. —
March 1. 1860. Mr Norman shot a Rook dead: 506 grains of
Dirt (& gravel) in Stom of feet & under claws. — Mem. Rooks blow at
to Madeira.

Partridge

Ap. 18/60/ Leschenaultia formosa from Kew. (Goodeniaceae.) In both bud. anthers just opening,

anthers flower just open. stamens with
tufts of pollen ~~on~~ red, ovate below summit of
pistil & indusium — Indusium closed, lobes
two gum tipped. I believe pollen within — anthers pollen above
bursts. in to humid matter, which I believe to be stigma —
what use can Indusium be? Then is some nectar
At 25th bud eg pollen within indusium; plenty in bfs
28 anthers spreading with much pollen within indusium
Pistil lies close to inside upper petal —
I see often little pollen on hairy lobes of indusium. —
Under Rem open indusium in search of pollen, & to carry it
for flower. I see no sign of coping — I have seen Humble-Bees
open grey Honey-suckle flowers, & not least respire. —
May 11th I have opened & flowers. In 7 abundance of loose pollen within
indusium. in simple bag. on each side of upper lobe; but is no use
any more to stigma surface of Hooks. — In heavy eg Heath pollen on
tuft of hairs on upper lip outside & scarcely in cup of indusium. — Then pistil





52

Leschenault.

In cap 1 sown I pld pencil-mk in my flowers to effect.
On Jy 25 I d-d 1 sown for 5 flowers, & all five set pods
which have remained on the vine to-day (Sep 3 have
dropped off; the other were small: Two others on small bags
& I can see seeds within. - Those which closed
round with unopen flowers - of two other
have set pods which have ripened in size &
have remained long. There are many a like as 2
fine pods, which were tested with bunch. Both two on
grow were cut later - Perhaps visits of c 14, then I
saw the as Scarabs feeding on pollen. -
Aug 8. I have now opened to 5 pods: 2 had no seeds; 1 had half a
dozen; 1 had 26 seeds & to 5th abt same number. - The
two pods which had become self-fertilized, were not so
large as to two largest of those fertilized & bunch; one of
these had 18 seeds & to other 14 seeds. - I planted all
these seeds. None germinated

Mr J. Drummond (vide ante)

May 2nd 1866

I shook out 1/2 a capsule of pollen from long pistil & long stamen flowers & put it into 1/2 a watch glass & then 1/2 a watch glass of water (all taken up with long pistil) & put the pollen & water mixture of the latter with much pollen - Case of Compositae this - the pollen germinated (in watch glass) in 1 hour - the long pistil, which I have seen in effect in some glasses & pollen chamber - the pollen from male flowers (i.e. with long stamen & short pistil) is all apparently effective & germinates freely & soon matures & apparently ripens.

Whereas the pollen from female plants with short stamen & long pistil is rather slow in germinating - I only take very few grains of pollen & put them into water. - By 24 hours I have counted only 6 to contain not very large & granular & apparently not to contain. - [Found 2 with 0 grains on stigma in watch glass in stigma] In May 11. the wild - same effect in female flowers (i.e. with short stamen) with very quantity of pollen. which is rather more abundant & in diameter 6-7. whereas the male flowers with long stamen have more pollen each grain apparently fuller & granular with 8-10 in diameter. - [Stigma of male flowers perhaps a little larger, perhaps shade lighter coloured - perhaps rather more papillose & pale, but certainly far smoother: their cotton & flower cuticle; stigma of female flower much more papillose. -

[Pollen of Primrose & Cowslip by chemical test equal in value.]

Pencil sticks to Primrose & Cowslip means female - Stigma not pencil mean male - In Experiment bel. Blue Water in flower mean not touched.

{ Male Plants Stamens Long, pollen large, Style short, stigma smooth,
Female Plants " short " small, " long, " rough, }

over

54

planted [Carlisle]

My Mr examined 2 other primroses from new Garden bed - Pollen dry - certainly pollen of female plant is more transparent - & has elongated spike - Male pollen about $\frac{9}{1000}$ of mil scale divs about $\frac{8}{1000}$. Pollen of female plant, generally rather above $\frac{6}{1000}$, sometimes as $\frac{7}{1000}$ — in all $\frac{6\frac{1}{2}}{1000}$ & $\frac{8\frac{1}{2}}{1000}$ — mean 2/3 of size. -

Does the flowers from new plant, put in water become rigid & the tube is $\frac{6}{1000}$ another div & $\frac{9}{1000}$ — I examined pistils of two primrose flowers - stigma of female much more, darker green, more globular in mass & decidedly larger than measured longitudinally along axis of style. — The stigma of male is as in the two male flowers. Fig 12. I compared corolla flower bud open & there can be no doubt of difference of length of adherent stamens (& of anthers) pollen abundantly shed; I think anthers looked less full in female flowers. -

I examined some common Auriculas for m-Carlisle. Here was one female plant with long pistil & globular stigma; there had pollen-grains rather above $\frac{4}{1000}$ of mil. The pollen of male was about $\frac{5}{1000}$ — looking with 2/3 Beck deep & weak eye-piece conspicuous difference in transparency of pollen: the female pollen being far more transparent. — There is much greater inequality of length of stamens than in cowslips. — also quite generally in pistil. The stigma of female rather more globular, yellower, darker & more purple & larger. The stigma of male by examination. In one plant & which was male & position of stamens, the pistil reached up to them & the style seemed thicker. — the stigma was rather bi-angular

Cowslips

& cups keyed, united & globular. In one form the petals & especially stigma quite atrophied & minute!

I examined the Polyanthus flowers for Cattell's yellow centre: petals shortened & more yellow - anthers & pericarp with same difference in yellow & stigma & in cowslips.-

Of two kinds of Oxlip, per Collet one was noted to the female.

Of 13 by children gathered just kinds of cowslips 79 were stalked were male flowers, & 52 were female flowers (in last-walk perpendicular record) - I often suspect that female stalks are apt to be shortest & therefore are likely to be overlooked by children. I can perceive no difference in size of flowers in the 2 kinds.

In 2 cowslip-flowers of apparently same materials, just going to wither the seed-capsule in female large & the ovules about twice as large as in male flowers & dark green. - Yet abundance of male ovules in the male.-

In two buds of cowslip with just tips of petals visible, anthers in male & female showed no perceptible difference.

In two flowers of cowslip when ½" opened, I could perceive no sensible difference in size of pericarp.

In two the flowers of cowslip sent yesterday & I thought of taken materials, the stamens were actually longer in male than in female & ovules of taken like.-

In the male flowers the length of petals is scarcely less or a little less, the stamens conspicuously in different plants, & in them about ½ length of tube of corolla

(Cross'd)

May 14. Flatts with 5 flowers & under 5

Females - 77 Males 103

Flatts a Number with 6 flowers & upwards 16—

Females 112 Males 99

As the size of number does not affect my; all those & those collected before may be added together; those were collected in two fields of my different notes

Females ~~52~~ ~~77~~ Males 79

77 103 241

99 281

112 522

Males 281 Flatts altogether

Females 241

May 16 2 earliest flowers just. came withered, from Sandwalk Ovaria same size — seeds of males perhaps three smaller — a third fallowed — certainly — few pods under of minute aborted ovules. — Two flowers in Dr. Hales from greenhouse. — not difference in size of seeds & other colour — Hers too much had few even aborted ovules. —

I mixed pollen of males females together & then counted out 2/3 first slips I certainly think male pollen darker than can be accounted for by greater diameter. Ratio is often as 5:8. — Males of bright flowers than difference in humps & spaces not very decided. —

Compared seeds of males & females flowers just withered; it is difficult to get of same age, but I think also that can be safely said, in that males seeds are

very slightly fallower

Corsbie

I saw Barbara Newcome getting tables at greenham Corsbie - saw Colonel Newcome
sucking & biting tube of feeder in K. Garden & to children I saw two
sucking feeders in Mr Phillips field - when they may Corsbie - I
never saw one of Primula - I do not believe Hive-Bees ever visit
either - I suspect Muller must have visit flag. -

Thursday 21 cupped pollen Dry of two nice flowers, just opening; - pollen
in both flowers in perfection - looked through different powers - Beside different
in life, the pollen of female is certainly different shape, more elongated &
less transparent in middle - The pollen of male more opposite - different
form - In water both get affected & then like of different
& apparently more granular matter of latter appears when in male
pollen than in female. -

N. B. In Primula plant I do noticed under flowers, little buds, that pollen must
have got down to stigma - I do think.

June 1. Examined pod for male & female plants in Landwalk & find seeds exactly like
1860. June 13th. Form Corsbie in K. Garden have flowered
& one of latter dyer as in Spring. -

Plant 2 Roots = one Primula

Orchis

Augt 18th 1860. Covered up plant of Orchis mascula; left the uncovered. which got crippled; but already pollen-mass of 5 flowers removed; 4 left uncovered; buds alone. - The plant grew stiff in hand-walk. -

June 1st I have now left orchis uncovered for 2 or 3 days, but only pollen-mass removed. It seems as if there was going to be seed.

Aug 24. About 10 days ago covered up a tricolor (from wild plant in neglected garden) in Beds-shop. I fertilized with camel-hair 3 flowers, finding no pollen for most of them picked up with tongue; & these 3 flowers have just withered before any others. - [N.B saw Hill-Bees going to sweet pea & did not in numbers] On June 14 these 3 fertilized flowers [illegible] fertilized these 3 flowers there were many others; but now June 24th I find of 4 large pods - of these 1 lost - 1 with as many seeds as an adjoining plant; & 2 others with much fewer seed. - There are other pods setting; but the number of pods very much less than on an adjoining uncovered plant. - On this adjoining plant at least 55 pods were shed & only as large as the 4 selected - to be safe say 30 in forgotten bushes & 4 & 50. - July 8th. A plant covered up. I find 14 more pods

60 but ch of them y plants, & much
seed with- out 1, 2, or 3 good
seeds; the w fact is y good evidence of vitality of the
vitality: for thirty or w to might only c for grass &
potter. — Oh to other expensive plant, I am told.
50 additional Lima Pods.

Aug 4th I today uncovered one of last lay of Early
Emperor Pea, & to that was added 1 pint of
pods.

May 24 - In last 10 days I have seen many Male Bees of many
Kinds going to Broom; they come at unequal times for pollen: 10 or 12
Hive Bees & 1 or 2 Humble - the Hive-bees on getting to the tips of
entering the partly thrown petals, which take a pinkish tinge when
there dusted with pollen. - This is rather different to what
I remember formerly, when stripes rubbed on tops of the backs -
Jun 27th Set on pod a cracked up, bonds; seen the bonds cracked
with pods; but a few shelly, & not any has made use of shades.
& 10 cracked pods to shank - It is surprising that Bees do so
readily any that pods yes & dusty -

~~May 23 I cannot see Vicia tetrasperma & the wood is Sadly~~
Jun 8th marked 2 hermaphrodite Thyme plant in V. S. with stalk with
bunch. & 2 with all flowers without stamen with naked stalk.
The 2nd female plant far further end of V. S. he may cry many
of the petals turned & remain, sometimes 4 days & even 5 days.
I do. Is see about ending. - Aug. 4th I see to Females each
cry well: I think better than under?.

62 1860

Aug 24 covered my Lupinus luteus - Petals split & top lies under behind 4 others, but very near them; so the wind might carry in pollen to stigma; but to fertilize others & does not seem easy to do. Bees easy - the anthers ripe on face towards to tube; a bee would push them a little back & then would rub against stigma. - [I saw B. Smithii visiting very flowers of the Lupinus & driving head into mouth of corolla]

Sept 9th I have uncovered two pods - No 2 which I fertilized has not been set. & the other pods which I did not touch are quite set; but I think most have pods than an uncovered plant, but there latter seem often to abort so hard to say positively. Certainly no stem under net was to good as uncovered — Some better - my plant under net set plenty of seed. —

Aug 25th Covered up. a sandwalk. Vicia hirsuta (see Sept 1st) with the smallest Lupinus then the least fl. of the B. Lupin & Vicia sativa. Vicia a a. - Aug 30 Noted flowers -

June 8 The flowers of the 2 Vicias seem to have set quicker than those from another Fertilization practices a Vicia ie bee long: is it wanted?

June 21. I have visited repeatedly (& 2 nights for moths) & never saw any insect visit these flowers. - June 27th saw fly with long Proboscis visiting the Sept 9th The pods a V. hirsuta (& to Fertilium) are now large & appear as numerous with a perfect seed as in those uncovered. — I have carefully compared them. —

Aug. 4th If there is any difference the V. sativa & hirsuta bear more & finer pods than to pea plants! Plants of all in little doubt. —

Such flowers as Galium & great Profusion for me

May 30. found very single flowers of Corydalis, which was
often. & she even open except top buds, when inspected this
was I believe the 1st time they had ever visited
& Been & then shown his electricity Been had
visited the flowers — [May 31. examined whole lot of flowers for visits
Phillips not one single one inspected. +] [Jun 6 saw B. mellifera inspecting flowers]
Jun 16. Examined 1/2 dozen Ms Phillips flowers. not one inspected. Got
upper flowers open at end of stalk. — [July 9. looked at beds of covered up flowers & saw
plant. with buds setting not one inspected. Got all capsules & ripening. Of the closed
flowers I saw find — See Lepidoptera —

May 30. record of Fumaria officinalis — The Petals form at
spring to side of nectary, but is closed at this side. —
July 9. Exactly same appearance number of buds as covered &
uncovered plants — a few extreme single ones, no
deception — As spring buds appear early pod-
as nectary gets long, it is not likely any insect is
has reached in though not. — Most satisfactory
certainly not necessary — See Mr Darwin's description
Fumaria

64

June 1st Scarce miscarriage. Corolla yellow & petals wide up & hairy anthers opening & flowers. Ovary bud withering, beautifully fringed & open & 10 arranged as to be sure to keep pollen into within edge of withering. Ovary bottom of withering, in bud shallow bowl-shaped stigma; white humid apparently stigmatic surface at bottom. In fully open flower the stigma has grown & swept past & above, (but not stigmatic surface) projects beyond edge of withering. In one flower lately opened, withering not closed & as at the point it lies close over entire of tube of corolla, but in very likely force in pollen. or to actual deposition of stigmatic surface. I was alarmed & hurry in fully open flowers, that I did not close withering. —

June 3d. opened another withering much pollen within — type not close under life, the best & largest quantity of stigma and pistil smallest chance of self-fertilization, perhaps ever in it. —

June 6th 1. P.M. another flower of Scarce. just opened, with withering wide open — Put plant in hot fire at 4 P.M. withering perfectly closed. — This flower at 1. P.M. appeared very just & not quite open: it was not open previous evening. —

June 7th Another flower just opened with withering closed: I saw little doubt that this was open for old: for the whole day was when I put plant from green house into hotter frame. I saw insect, bees on stigma & the thy which style towards

In withering a hooks (stigma?) bend at right angle to, & sideways to nectary. In flower split open & 10 hooks very active laterally no evil — as Corolla & then nectary.

Inf 9th Cong 1st 1860 63a

Flowers	Fem flowers fully developed	Fem flowers not fully developed	Male flowers not fully developed	buds [illegible]
1	6	0	3	3
2	6	1	3	0
3	7	0	4	2
4	8	0	3	1
5	6	0	3	0
6	8	1	2	0
6	41	2	18	6

Other

90 th 4 43 [illegible] flowers

on 6 plants, of 2 not

fully dev. — 18 male flowers

not fully dev. —

in tube inside hairs; petals attach curving hooked hairs.

Do these hairs & in this delay direct in cavity in —

I. 4 added an indusium on tuft of pollen on hairs, & of

pistil by hours. I put it (flower had been open about 2 days,

but weather cold) near stuff fine & in 1½ a 2 hours ab

the hairs of indusium, i.e. & evidently were clogged with pollen.

& the hours had pistil began to protrude. The pointed

part is really beautiful for Bee to get inside & back

with pollen & then to rub it on hooks on inside of the other flowers. —

Mem. R. Brown saying was an fertilized by insect-agency. —

The Hooks in the tube, pointed up & little beyond a beneath row

of hairs on lip of indusium. — I touched hairs of the indusium with wet pistil had & pollen attached in plenty to it. —

How comes the pollen th? first to be in juncture collected with indusium,

to be afterwards pushed out. — But not even union that this is

compensated, to have an stigma th? least pollen out of stamen &

return it then take stigma ready. — Watched a 2? flower; pollen

Hairs began to come out before hooks of stigma protruded — pollen

then fully in contact. — It is only petty to see but a

grain of pollen?? on bright hairs of indusium & pist. & then

shut to see them clogged with pollen.

June 11 Some flowers first opened on Sunday morning at 4 P.M. Monday. Hooks just

began to protrude. — Saturday 2? I saw Snake Hovering 7½ (Syph. Ida.?) push

under to pistil & get it back on over pollen; it was then feeding

on pollen shed & retained along back petals & Hooked Hairs. — Use

of Hairs in this case (if not in this) This my open indusium of Sarracenia.

66

May 30/62/ Certainly no stigmatic surface in the Scarabs, extending to a midrib; but within

about the base a portion of second surface,

in the appearance of stigmata, there not unlike

July 1. 62 - above wrong; the horns seem certainly

stigmata: I looked at too young a flower - But no

pollen-tube had penetrated to Horns.

April 1863. I have just fallen on other horns upon stalks

but none perforate them; yet close to it I

have specimens of stigmata tips.

June 10 Found my common Yellow Iris — All faded
Found up. 7 varieties of Lobrusa — Left blind 3 flowers all thanks
to it — must be certain: but leaves & stem looked very healthy &
not by transpiration in any way aspect — Of stem 7. leaves
by 3 bud on pod each — One of stem pod of 1 seed — a
second 4. L — 3? 6. — Eight stem the latter number 12 stem much below average.
Lobrusa must visited by Hive, Humble & the Bees —

June 11. Saw Hive Bees visiting Polygala, they went to abundant nectar in
side to stand, stigma bends redemptory; to anthers seem to open
from stigma & upside inclosure sheath. — Kun say no nectar!

Found up Broad Cabbage; fully in many pod 4 to 5 in pod
seem to have set on on a plant left free. This
my important as I have two by naturally exp.
Indeed whole experience as have shewn to of Cabbage
did not set when cross; & often crossed to prevent
cross impregnation

I received my Letters with a Copies Letter. Aug 4th.
I now see that to Letters in abundance of fine seeds & pods.—
I ~~could see none of Letters communicated~~ (Letter by mail visited by Bees)
~~Aug 30 Of the many seeds of Letters I could see perfect pod & pods of 2 kinds Aug~~
~~made out two pods written~~ — In L. with pink & I. pinkish pod abundance of seed, c'
hardly has been effect of cross. N.B. I. pinkish setting to late & scarcely ripe.—

Columbia Plantain had not ripe pods of seed. (see Back

Aug 29 1865. Sweet Peas with pinkish grandchildren & great-gr. children of 3
1st crop. now very good deal.— Standard varies from pale to dark
red of color — Keel is dr cream white; but wings vary from dr cream
pure white to a pale pinkish purple; abs intermediate tints in wings: red
the plant has appeared like a dr dark pure ancestor. It
standards of a few cliffy blotched with white

Under this title but Prunella

Baptisia tinctoria

Sept 5.6 . Visited & sketched a var. th. of Heuchera & Gin Seed. Cattleya
has still flowers like Euphorbia — Pinks project rounded
in young flowers, before petals shed; but has not bulbed at
this period any later. - The coarse ag plants produced a
good many seeds, but many shrivelled & not so many as the fine
plants. -

Nov. 11th

1860 Nov. 20. I sowed up this summer 3 items of ~~Garden~~ Leek
seeds: but I noticed that not one of the 3 sowed produced any good seeds;
but I noticed that not one of the 3 sowed produced any bulbs at base of flower stalks, whereas many of
those imported of Hill-Bell, produced vast numbers of
bulbils. — How is this. Can fertilisation be necessary for
their production? Extension of volume of pollen beyond
ovary — for Pangenesis

I observed pollen
all pollinated

Dec. 11th One pod of Pastinaca with 61 gr of dry earth
adhering to it. — Put in burnt earth: Nothing came up.

Nov. 24. 1861. A Theorem pod for Scotland seed for Mr
Lamont with 10 seeds, planted it.

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1861. Jan 5

I had 18 plants of common Thyme, seedlings planted out: of them
7 had well developed anthers 11 — had none. Exam'd
to day pistil was extended in Hermaphrodite, & in Females,
at the time when pollen was shedding & pollen-tubes
were penetrating stigma. — The pistil is, however, not
perfectly developed in most of the flowers when the pollen
is shedding — Under high power the tissue of reflexed
segments of stigma were lax & transparent in female flowers
in wide flowers — There were plenty of pollen on
stigma of female flowers. — Change of condition. (& then is
considerable variability in stigma) In rendered plants stamens
& abst half of plants affected a wide & half a female.

7. Hermaphrodites. N. seed weighed 36.5 gr. 100: ~~79.0~~ 52.1

11 Female N. seed weighed 98.7 gr 100: 89.7

May 15 1863 — Seedlings from Female & Herm. Garden Thyme both produced
plants of both forms. —

Wild Thyme from Torquay

Female plant with 160 flow Heads, seed weighed 8.7 i.e. 200: 10.8

Herm. N. with 200 flow Heads seed weighed 4.9 200: 4.9

The female plant not quite so vigorous a Hermaphrodite, perhaps
with larger heads of flowers.

Seedlings from female wild Thyme, Torquay produced
female & hermaphrodite plants. — Jan 1863

1861. Fifty Pods of large Sup.-Dragon Antirrhi. perf exposed to insect. produced. Them were secured but pods (but I did not count the pods — the seed weighed 23.1 gr

50 Pods of Red Sup.dragon under net - (many bad pods) weighed 9. 8 gr.

50 Pods of White Sup.d. under net, with pink mixed, had by far bad pods, but the seed weighed 20 gr. So that the var. in either was independent of coping (which is impossible) as the & the experiment cannot be trusted. Possibly great weight of seed in this experiment may be owing to far greater # good pods & each contained big seed. - It was clear that flowers opened most keepers & did not set them pods nearly as quickly under the net. -

=1861 Two Plots of French(?) Poppy with mykish leaves - Garden flower - covered & uncovered.

30 Pods of the covered plant produced 15.6 gr seed

30 Pods of Covered Plant produced 16.5 gr seed

So that actually covered plant most fertile:

I tried Poppy because does not secrete nectar.

April 21. 1862. Some cowslips, originally wild plants, had been planted in my shrubbery; in 1860 had been transplanted into K. garden & were removed; when in flower were perfectly particular & not a common flowers artificially perfected (there not perfected varieties). The seedlings from these seeds, have not also flowered: ~~[illegible]~~ of one raised in bed-bed & then transplanted into corner K. garden; when in flower in April 61 & then in Peat-Bed, & then in autumn of 1861 a gigantic [illegible] of multiplication, in the 765 plants then raised & tried. The cowslips in Peat of gigantic size & those in clay-bed small, yet not a hair's difference in structure. —

I, also, raised a few others in Green house & kept under ornamental treatment, but the remained same —

Ap. 27. 62. I have just compared the oxlips in corner of big-wood, where I got the seeds last year now coming up in the K. Garden. with the Battle-Bridge oxlips. a Mr Slater — have very different appearance. (The oxlips have yellow marks at mouth of corolla, large flowers & plants [illegible] & slightly different in stem & leaf &c.) There was a group of 506 plants, very dwarf-like; have seedlings from the neighbouring plant — Both cowslips & Primrose grow mingled in their open bit of wood. Why do they differ of raised in different situations?

I have dried ½ oxlips — Mem. London 1 oxlip oxlips on 1 table.

These oxlips of mine are dried 4th. 19th 1863 Four of them wild seedling oxlips have flowered & all alike; & all like Primrose. except the stem is orange instead of yellow. — April 10 all 8 plants have flowered

VVS

76

April 27. 1862. Cross lips, wild, potted.

5 flowers, blue silk Braid: long-1½ bd. caps heteromorphically with pollen of long-1½ bd cross lips & abt 24° & caps heteromorphically with pollen of short-1½ bd ^ lips; yellow centre & dark red circumference.

6 flowers with white bobbin, viz 3 on short-1½ bd & 3 on long-1½ bd: caps heteromorphically with pollen of Primrose ~~on two respective varieties~~.

6 flowers with thick red thread, viz 3 on short-1½ bd & 3 on long-1½ bd, caps Homomorphically with pollen of Primrose ~~on two respective varieties~~. N.B. Then 12 flowers caps in all like to cross lips, & to see whether difference in fertility of Heteromorphic & Homomorphic exists in two distinct species. —

	Cross lips	
& are all alike & very like ~~Cross lips~~ Primrose, except		Pin like
yellow & pedicels rather longer. — Short pedicels & flowers; like to short	raked 2 caps, 7 on summit like cross lips. —	with light, & brassy
of two sort of flowers on each Plant. — ~~In both~~ Both caps with primrose & we then see how cross lips disappear. —		But on digging up
the plant, I find in centre of each group of long pedicels of the		

Exp 1: Some bits of Lower Lip.

10 ~~long-stem~~ short-15cD (stick) between upright with pollen of long-15cD. white-three

10 Do. Do between — of short-15cD Black three

10 ~~short~~ long-15cD between upright with pollen of short-15cD. white three

10 Do Do between — of long-15cD. Black three

The result is given I ~~below~~ below, in my Port-folio

Feb. 19' 63 fertilised 5 flowers on bit of Sedumanthe femoral & put in

Hot-House — do /cD



pistil; a short calyx; & the petals of pistil spiny

& various height the small ones; but can only form

insects. I've also find that the plant has a minute scape

in centre; but is hidden in leaves; so that the plant

beautifully intermediate between Upright & Pistil-rose. & do not

really have true form — But I've seen that in the same

plant. the scape has been long & largely developed.

The difference in time of close between these & Pistil-rose

hardly perceptible. The rudimentary scape shows parentage. Pistil-rose diff in time. In

such Pistil-rose we vestige of the central scape.

78

Cudham Pond.—

Aug. 10 – 1864. – Pond almost dry with much mud
after wonderfully dry summer. – Just near Road – no
inflow or outfall – visited by Water-hens –
Cattle & sheep may have been driven into Pond
from adjacent pasture – Dog Chalk Platform
on other part near – Long-made. –

Sparganium simplex
Potamogeton natans ?
Veronica scutellata
Ranunculus flammula
Alisma plantago
Lemna
Rubus
Glyceria fluitans
Carex spec

Newt
Cyclas Lymnea
Water Coleoptera & Hemiptera (various)

1866

1866 June 7th I got my Carnation Plant raised from plant-
let. & one withered petal & the capsule & pollen from
dissected plant, stamens having dehisced in vigour. Obtained
no seed — always has been so from first. Then an
dissection & seeds matured
dissection & germination. — Inches of calf-part.
petals during winter. — So it was with
pollen Carnation to stamens — Aug. 16th Still plant & flowers in to
Carnation & some on new going to flower. —

Sept 1866. C.C. seed from Lay-1st crossed — Pg. pet & pollen of
one a tan flower. The parent marked C. was pet in
greenhouse & was the Lay-1st & children of Lay-1st
Hom. fertilized — So that plants was to be marked
C. C. & which with pollen plants in 1867 will be great-
grandchildren of first Hom. Plants, the intermediate
ones having been illegitimate or Homomorphic.

80/ Nov. 66. I saw Rana Europaea, but not got one; for already
pink; the legs turned into their orange colour & then reds
an especially bright for a Birds —
Hooker says Magnolia seeds are bright & pendulous & thread.
Fritz Muller. wrote Oct 1. 1866

Beauty

Their seeds are splashed crimson & are hard as ivory — I soaked for 10 hours
in warmish water, & water became only slightly mucilaginous. Wd. gastric
juice extract more? I do not suppose they can be ever eaten perhaps —
All birds entrusted to kill seeds for some of Birds. — [I saw 2 of their
seeds in dung to a cock, but they were apparently ground up for after 60 & not be
found in excrement.] [Some of the seeds, sent by F. Muller took long to germinate
a Legume. Fruit
can tell with black eye & Hooker says are like those of Abrus precatorius, or
Crab's eyes (which I think I have seen)] Hooker says in India Adenanthera pavonina, Mimosa
Could these crimson seeds be distributed as rain pencils as acorns?

Pomegranate — notes in P. Emp. & London Encyc

Beauty of seeds of viola of pods in dispersion: F. Muller. Aug. 1866

Papilio Polydorus (?) Cramer, Collection Edwards, Guyana V. Pl. 1

Papilio ajax beautiful in colour, but flies with head elevated, which causes a film of the wings, I think yellow, that I suppose might be edible. The grey with inside of hind wings crimson & under dark purple to latter much like this Lepidopt. but less glossy edible. But has not Portugal Laurel eye stem Coast & Pirate.

Some birds beautiful in colour — Mr Gould & Scarlet Tanagers. — Lucy V. says at Santa Cruz nothing touches a nest & Parry says.

Abou good can & add to pods with winged seeds always dehiscing. —

F. Muller sends me seeds of Elaterium (Cucumis) "seeds carried with the pulp adhering to the valves & very conspicuous."

82

Sept 26/67. Rosa/lina green pods, at the extreme branches with plume-like spikes & simple bunch spikes, & very bright crimson seeds, enclosed in 1st acid & sweet pulp.—

Dec 11 67 I have seen, I think in Gillis America, that the Bird-eat Barberry seed — the mistletoe has arisen from its seeds not being eaten with the fleshy & first fruit; a tree that I have watched in NS almost denuded; & benefit it & the Birds during almost made up of the seeds.—

Dec. 2d. 1866 Mr Herbert Norman of Oakley near Bury sent me 4 of
Woodcock with faeces coated with mud, which when dry weighed
8.9 grains. Planted on burnt sand. Dec. 3d. Dec. 8th a minute
plant, appearly a grass, has germinated !!! The plant turns
out Juncus bufonius or toad rush -- grows "common in marshy
ground, especially on watery sandy Heaths". Sir J. E. Smith. -
Aug. 1867. Mrs J. P Mansell Weale sent me from
Natal a small packet weighing under ½ an oz
of the dung of locusts. It is believed that they disseminate
seeds. On Aug. 27 the dung was put on burnt sand
& Sep. 6. two grass seeds have germinated. These
were imbedded within the pellets, which seem to
consist chiefly of the husks of grasses. In one little
pellet were 3 seeds, 2 partly crushed & 2 perfect.
These latter 2 quite different kinds. Sept. 7th a third grass germinated.
In 3 the pellets of dung no perfect seeds. — Sept 9th a fourth monocot.
for a reticulated seed, like I extracted from pellet & placed on sand. —
Sept. 24 Two more grasses. /- Oct 17th one more grass = 7/
May 20 1868. One kind of grass, of which one plant came up in second by
Hooker, Eragrostis capillifolia, Nees & Sporobolus elongatus, a
very common Tropical & sub-tropical grass. —
(Mr Weeks sapp (Oct 28th) th grass. which it was thought was then supposed to
be Lappago alsena Spr.)

Nov. 1867. I put a goose's foot on grass & left it day & night for
days. Such Helices if at least 3 specimens & 2 sp. of slugs crawled on
it. The goose's foot impelled in fresh water & emitted air for 1 day,
& Helices & slugs also dropped off in about 5 hours.
When goose's duck's foot dries. If in drying
night. & whether Helix & slugs can eggs survive

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