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THESIS

THE WEEDS IN THE ORDER CARYOPHYLLACÆ

G. E. Hancorne. 1896.

These drawings and notes concerning <u>the weeds in the order Caryophyllaceæ</u> are just as they were left by the late Geo. E. Hancorne about ten days before his death, which occured July 29. 1896.

This subject had been assigned for work in the preparation of a thesis for the degree of <u>M.S.</u>

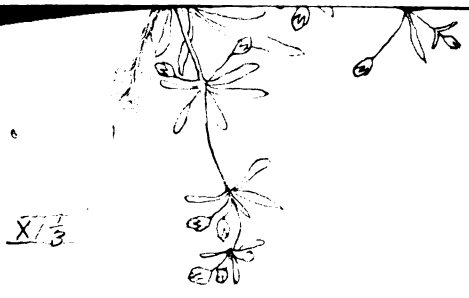
W. J. Beal.
Proffessor of Botany.

1896

THESIS

96500

Plate I.



X 1/3

THESIS

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Outline

Subject—[illegible]

I. [illegible]

II. [illegible]

III. [illegible]tions [illegible] Method

IV. [illegible]

V. Notes and observations—

VI. Experiments—Results.

Arenaria serpyllifolia, L.

Explanation of Plate II.

1. [illegible] slightly magnified as figured to show [illegible] of the inflorescence.

2. [illegible] showing number and relative position of parts.

3. [illegible] section of same to show stamens & pistil and ovules — [illegible] so much enlarged at base.

8 — [illegible] at this stage.

4. [illegible] stamens.

6. Ripened capsule showing position, shape and [illegible] sepals [illegible] veined.

7. Ripe capsule [illegible] when [illegible] splitting by six teeth.

9. Ripened ovule.

13. [illegible] section [illegible] showing position of [illegible]

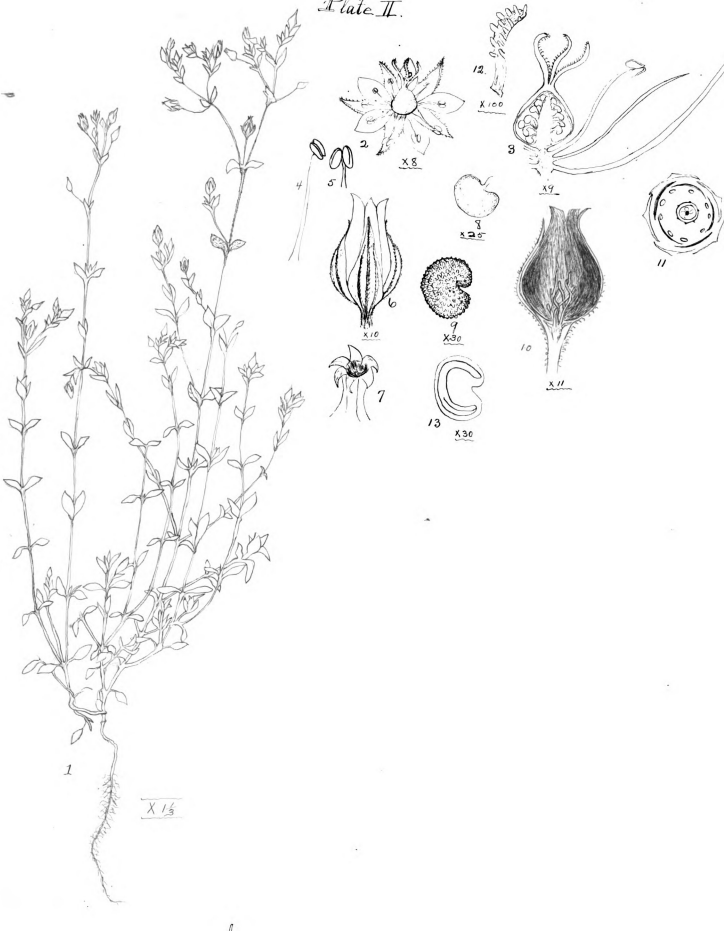
10. [illegible] section of ripened capsule, showing [illegible] which ovules are borne.

11. [illegible] section of [illegible] showing relative position of [illegible] parts.

12. An enlarged [illegible] showing [illegible] stigmatic [illegible]

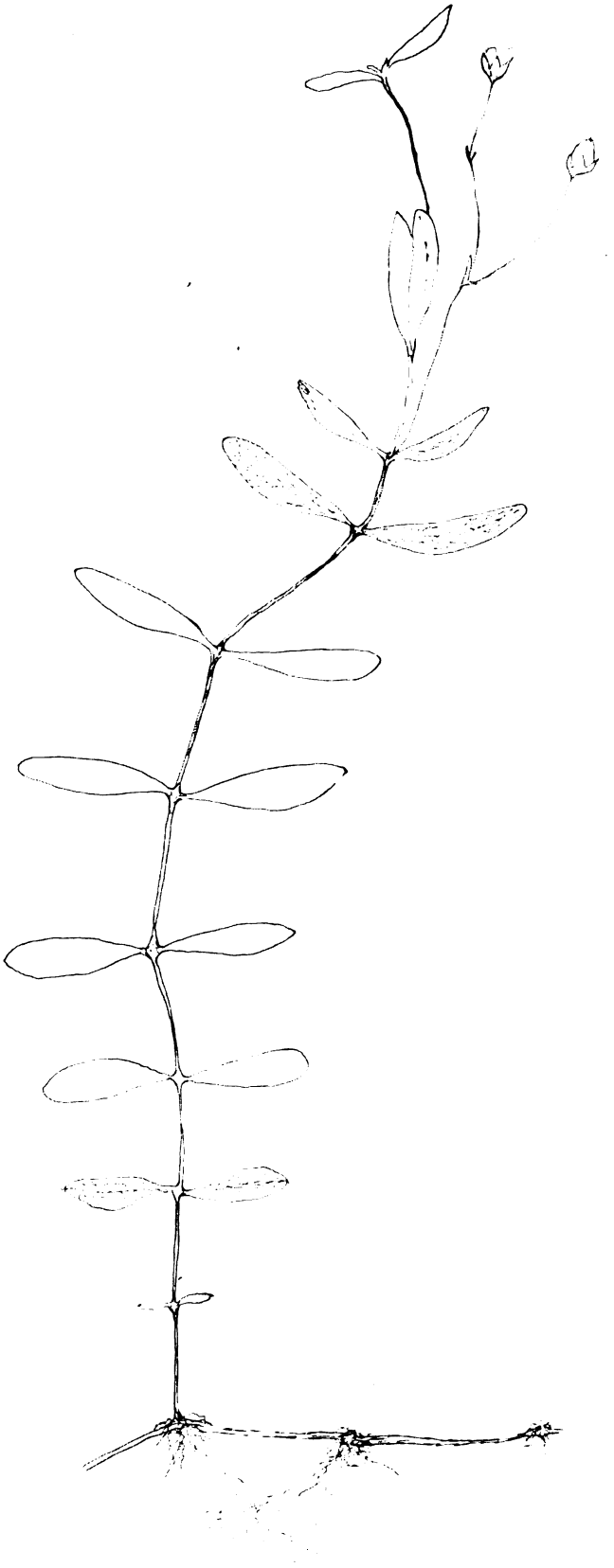
[illegible]

Plate II.



Arenaria Serpyllifolia L.

Plate IV.



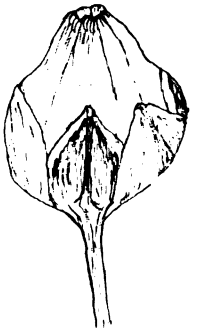


Plate VII. p. 1.

Silene noctiflora L. Nightflowering Catchfly.

– Explanation –

1. An upper end of a branch illustrating the cymose mode of branching at one of the thickened nodes a.
a. The swollen node and leaves connate at base.
b. Ripened ovary covered by persistent calyx.
c. showing tips of divisions of ovary as they roll back at maturity.
d. Flower of same just before flowering time.
e. Same flower after flowering.

2. A single flower as it appears at night, in early morning or on a dark cloudy day.
(a) Forked limb of petal.
b. Claw of petal and filament at base of limb of petal.
c. ... stamens slightly exserted, usually included in tube.

3. Vertical section of a ripened capsule, natural size.
a. The central axillary branching placentae.
b. ...

4. A single pollen magnified 16 times.
(a) Hilum.
(b) ... rugose tube – in papillae like elevations ... .

5. ... section of same.
b. Embryo ... outside of albumen.
c. cotyledons.
(c) albumen.

6. Cross section of ovary ripened ... natural size.
a. ...
b. an ovule.

7. The ... magnified 25 times.

8. ... Ovary and styles before flowering.
a. Styles ...
(b) ...

[illegible]

[illegible] cells of [illegible]

11. Longitudinal section of [illegible] ovary [illegible] flower.
   a. [illegible] of ovary.
   b. Stigma [illegible]
   c. [illegible] pollen tubes [illegible] growing
   d. Ovary with one [illegible] filament

12. Vern [illegible]

13. [illegible]
   a. [illegible]
   b. [illegible]
   c. Ovary showing 3-celled [illegible] and [illegible]
   d. Darker colored portion of placenta.
   e. Hundreds [illegible] with whole plants in [illegible]
   f. Nectariferous veins of [illegible] tube
   (g) [illegible] stamens directly opposite petals.

(14) Single petal with stamens [illegible]
   (a) stamen
   (b scale
   (c) Motchel blade.

15. [illegible] a [illegible] and [illegible] more [illegible]

16. [illegible] and [illegible]

17. [illegible] [illegible] [illegible] [illegible]

Silene noctiflora L.

Description of plant.

An erect robust annual, [illegible] 4', covered with a glandular sticky ~~[illegible]~~ and a hairlike pubescence.

Root — has a main vertical axis, somewhat zigzag, tapering rather abruptly, [illegible] 4 in. long, with two branches, numerous leaf scars at surface of ground.

Stems — [illegible] around [illegible] multiplying [illegible] times [illegible] glandular and arising [illegible] nodes, [illegible] swollen at nodes, [illegible] [illegible] below and [illegible] from axils [illegible] branches [illegible]

Leaves — opposite, sessile, entire, arranged in two ranks, [illegible] ($\frac{1}{2}$ x 4 in), [illegible], nearly [illegible], [illegible] above and below, almost hispid, veins quite prominent, especially below. [illegible] to [illegible] times [illegible]

[illegible], [illegible], dense with [illegible] [illegible] shady places [illegible].

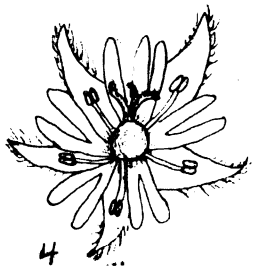
[illegible] — almost cylindrical when young, becoming elliptical to campanulate by [illegible] capsule, [illegible] 15 mm. long. Calyx [illegible] 10-nerved [illegible] [illegible] teeth [illegible] calyx tube [illegible] lengthen after [illegible] around each [illegible] by the [illegible] capsule. The veins of the calyx teeth are [illegible] deep [illegible] glandular sticky pubescence. Petals 5, white [illegible] linear claws, inserted on [illegible] at base of [illegible] [illegible] teeth on [illegible] adherent [illegible]

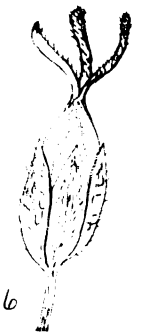
— Description —

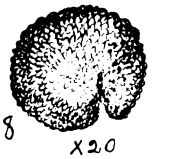
[illegible] as [illegible] ennumire, [illegible] each [illegible]
scale the blades are [illegible], [illegible], [illegible]
[illegible]
[illegible] 10 [illegible] stronger [illegible]
[illegible]
[illegible] young enlarged at base, [illegible]
[illegible] flowering. [illegible] a bit [illegible]
[illegible] cylindrical, [illegible]
[illegible] surface. [illegible]
[illegible]
[illegible]
capsule encl[illegible] & the recurved teeth push back the teeth at [illegible], [illegible]
[illegible] central columnar placenta. [illegible] reddish brown (1 x 1.3 mm.) slightly compressed [illegible] reniform, rugose [illegible] concentric rows of papillae, embryo [illegible] entirely around [illegible]

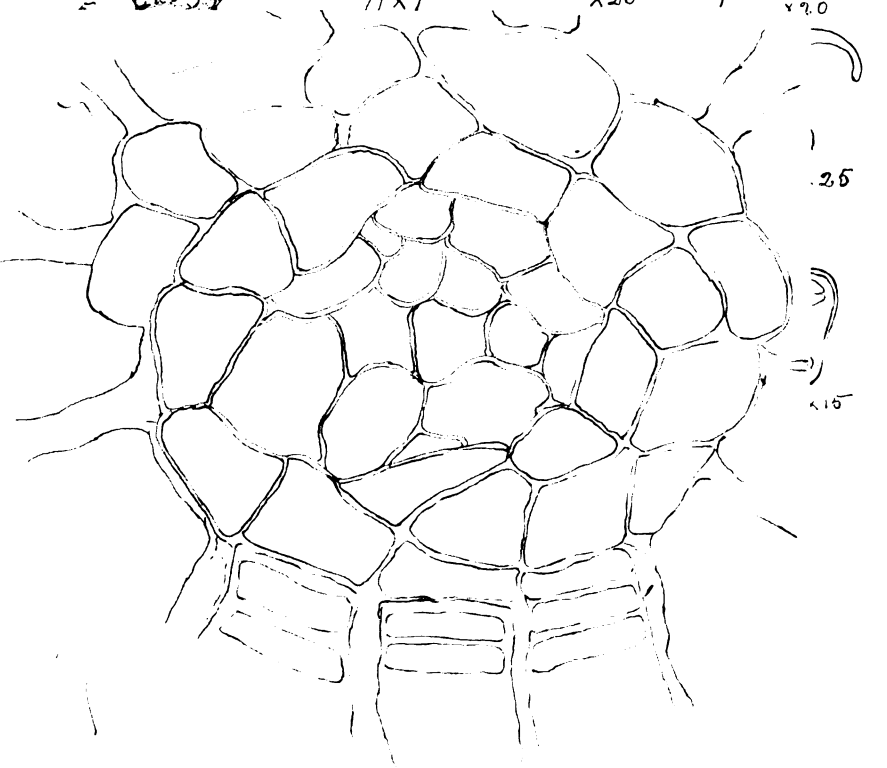
...wise ... and ... in shade.
tion ... common in ...
... parts.
... magnified portion of same to show
... showing ... enlarged leaf of ...
... petal with enlarged leaf.
... exerted ovary ... stigmatic on
...
... capsule splitting into 5 teeth.
...
... same showing position of embryo.
... stamen in ... to show plan.
... section of ovule across ... and ~~can~~
... ripened capsule.

Plate VIII

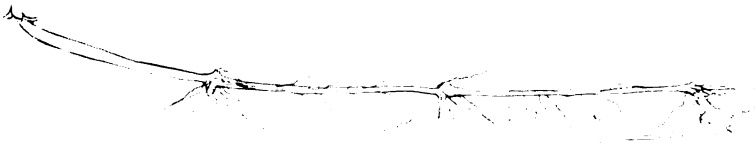








1 nat. size. x nat. size.



Stellaria media, Smith.

– Explanation of Plate – IX.

1. The [illegible] node and [illegible] [illegible] hair [illegible] leaves. [illegible] [illegible] [illegible] [illegible] specimens which I have seen [illegible] [illegible] [illegible] of ground and close, [illegible] [illegible] [illegible] [illegible]

[illegible] [illegible] [illegible] [illegible] [illegible] flowers showing [illegible] [illegible] [illegible]

2. [illegible] [illegible] [illegible] single flower – from dried [illegible] [illegible]
   (a) [illegible] [illegible] [illegible]
   t. [illegible] [illegible] pedicel [illegible] ovary –
   (b) [illegible] [illegible] [illegible]
   [illegible] [illegible] [illegible] –
   c. stamens showing different [illegible] [illegible] [illegible]
   [illegible] [illegible] from dried [illegible].

4. [illegible] [illegible] calyx after flowering, removed.
5. Vertical section of same [illegible] [illegible] [illegible] and [illegible] [illegible]?
6. A [illegible] section of same at time [illegible] flowering. [illegible] 3 [illegible] ovary, 10-nerved calyx & [illegible].
10. The ovary [illegible] [illegible] into 5 points.
8. [illegible] [illegible] [illegible] –
7. [illegible] [illegible] of same –
9. [illegible] [illegible].
11. [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] petal.

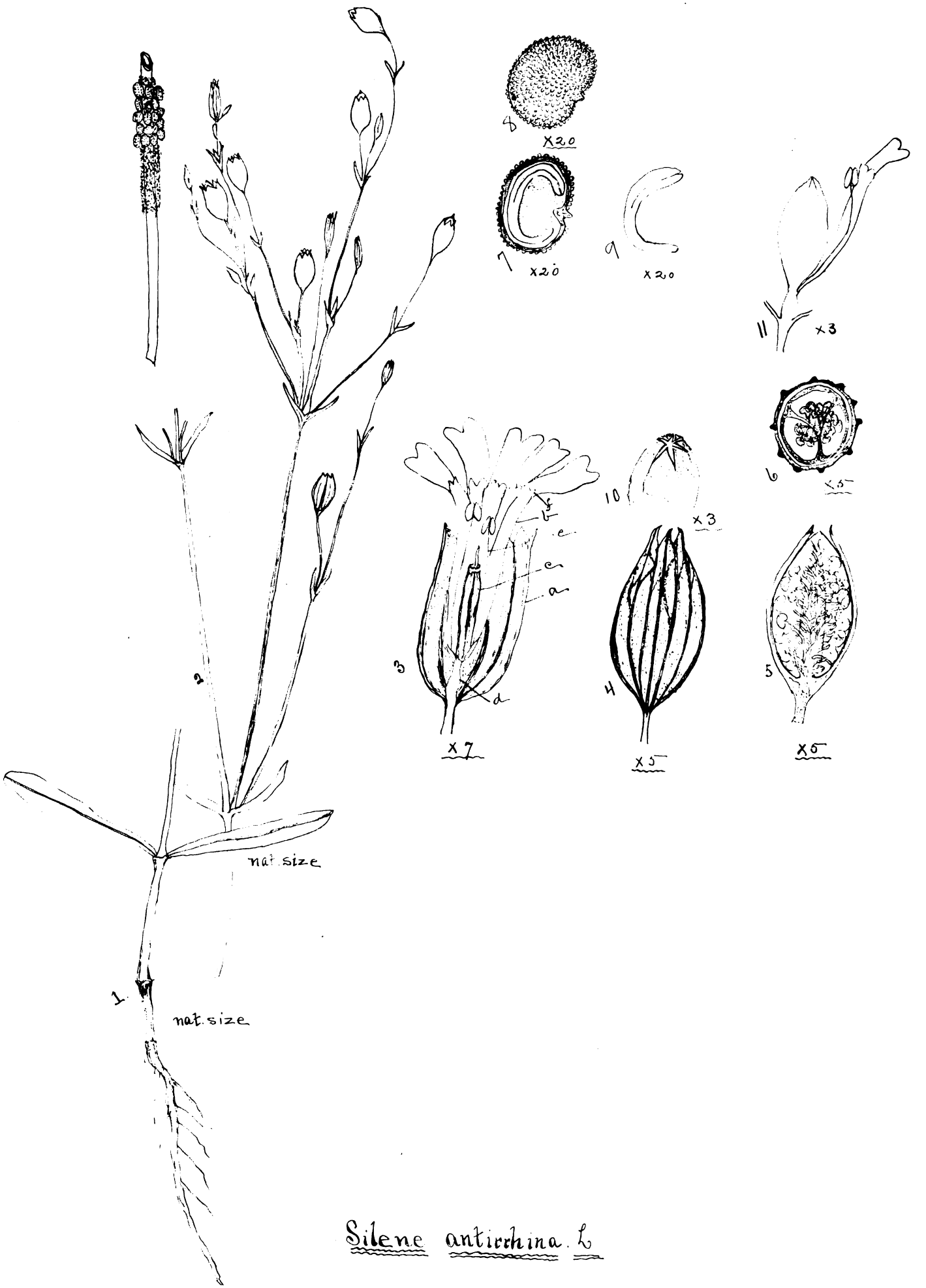
[illegible]

Stem — [illegible] erect, [illegible] 8–30' high, [illegible] slightly enlarged [illegible], [illegible] with a slow [illegible]

Leaves — [illegible] entire, [illegible] lanceolate, [illegible] 1–2 in. [illegible] lanceolar ½–1½ in. long.

Inflorescence — [illegible] terminal clusters. [illegible] radicles ¼–1' long, from the axils of leaves, [illegible] 5 [illegible] 10-nerved [illegible] swollen [illegible] 5, [illegible] ovary, [illegible] salverform, [illegible] slightly exerted, scale [illegible] faintly notched. Blade [illegible], opening in one plane. Stamens 10, [illegible] longest [illegible] salverform, [illegible] opposite and alternate with petals. Filaments delicate, anthers adnate, introrse, [illegible] dehiscing longitudinally, [illegible] 3-celled, [illegible] free, [illegible] 3-lobed, stigmatic [illegible] bearing on slender [illegible] branches, [illegible] from a central [illegible] placenta, [illegible] horizontal, [illegible] embedded in calyx [illegible] exserted, [illegible] called [illegible], [illegible] into [illegible] 3, [illegible] seeds [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]

Plate IX.



Silene antirrhina. L

[illegible] is [illegible]

— [illegible] [illegible] — X.

1. [illegible] a single [illegible]
1. [illegible] a [illegible] and one [illegible] a pair of leaves [illegible] [illegible] [illegible] [illegible].
2. A single [illegible] [illegible], showing small ovary and its [illegible] [illegible] of [illegible] and [illegible].
3. A [illegible] flower [illegible] both of calyx [illegible] down to [illegible] the [illegible] [illegible].
4. A [illegible] [illegible] [illegible].
5. A single stamen.
6. A [illegible] [illegible].
7. Cross [illegible] section.
8. Transverse section [illegible] [illegible] [illegible] embryo.
9. Showing [illegible] [illegible] [illegible] [illegible].
10. Transverse section of bud, showing tubular calyx, and [illegible] position of parts.

#

[illegible] – 2 – 6 in. long.

[illegible] of the main axis, [illegible] rather few [illegible] branches.

(about [illegible] 5 mm. diameter [illegible] at base)

[illegible] with a long [illegible] branches, in different [illegible] from each node as [illegible]

[illegible] at base [illegible] with [illegible] linear or [illegible] with [illegible]

[illegible] about [illegible] long [illegible]

Calyx – tubular, [illegible] 10-nerved, 5-lobed at summit, [illegible] lobes prolonged into (1½ – 2) [illegible] as long as its tube – [illegible]

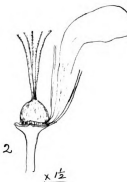
[illegible]

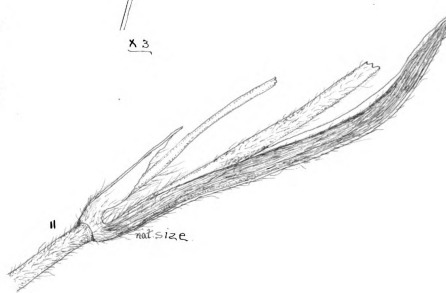
[illegible] about [illegible]

[illegible]

[illegible] margin [illegible]

Plate X





Lychnis Githago. Lam.

[illegible] Plate IX. [illegible]

1. One of the lower nodes of a branch.
2. A single flower.
3. A bud.
4. A flower, calyx & corolla cut partly away (a) petal with [illegible] appendage (b) stamens (d) pistil.
5. Vertical section of [illegible] ovule.
6. Young ovule.
7. Seed.
8. Transverse section of ovary.
9. Cross section to show plan of flower in bud.

[illegible]

Genus [illegible]

[illegible] – [illegible] shrubs, [illegible] armed [illegible] a [illegible] roof [illegible] [illegible]

[illegible] [illegible] [illegible] [illegible]

[illegible] [illegible] [illegible] [

[illegible] mostly united, [illegible] the outer 5 outside ... in bud. [illegible]

[illegible] in fruit, raise[illegible]

[illegible] al organ[illegible]

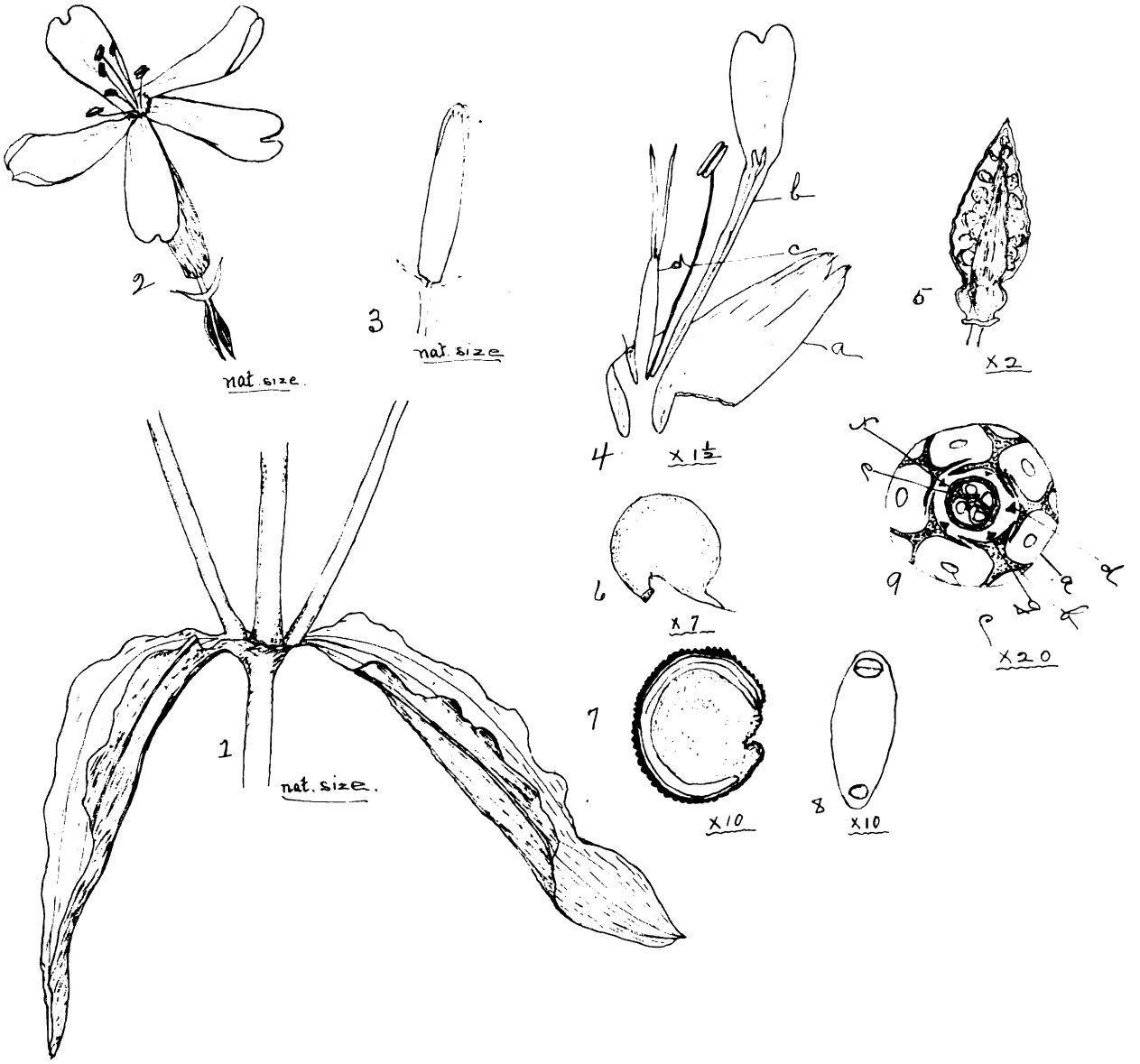
[illegible] the larger is [illegible] 2 inner [illegible]

flattened, 2 mm [illegible]

are [illegible]

[illegible] near [illegible] of Lake Michigan. [illegible] roadsides [illegible] much [illegible] of western part of state. [illegible] ground around [illegible]

Plate XI.



Saponaria officinalis. L

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