



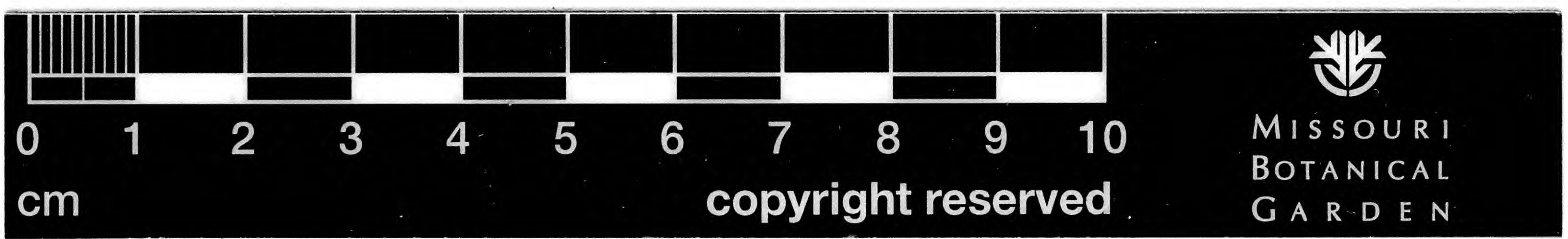
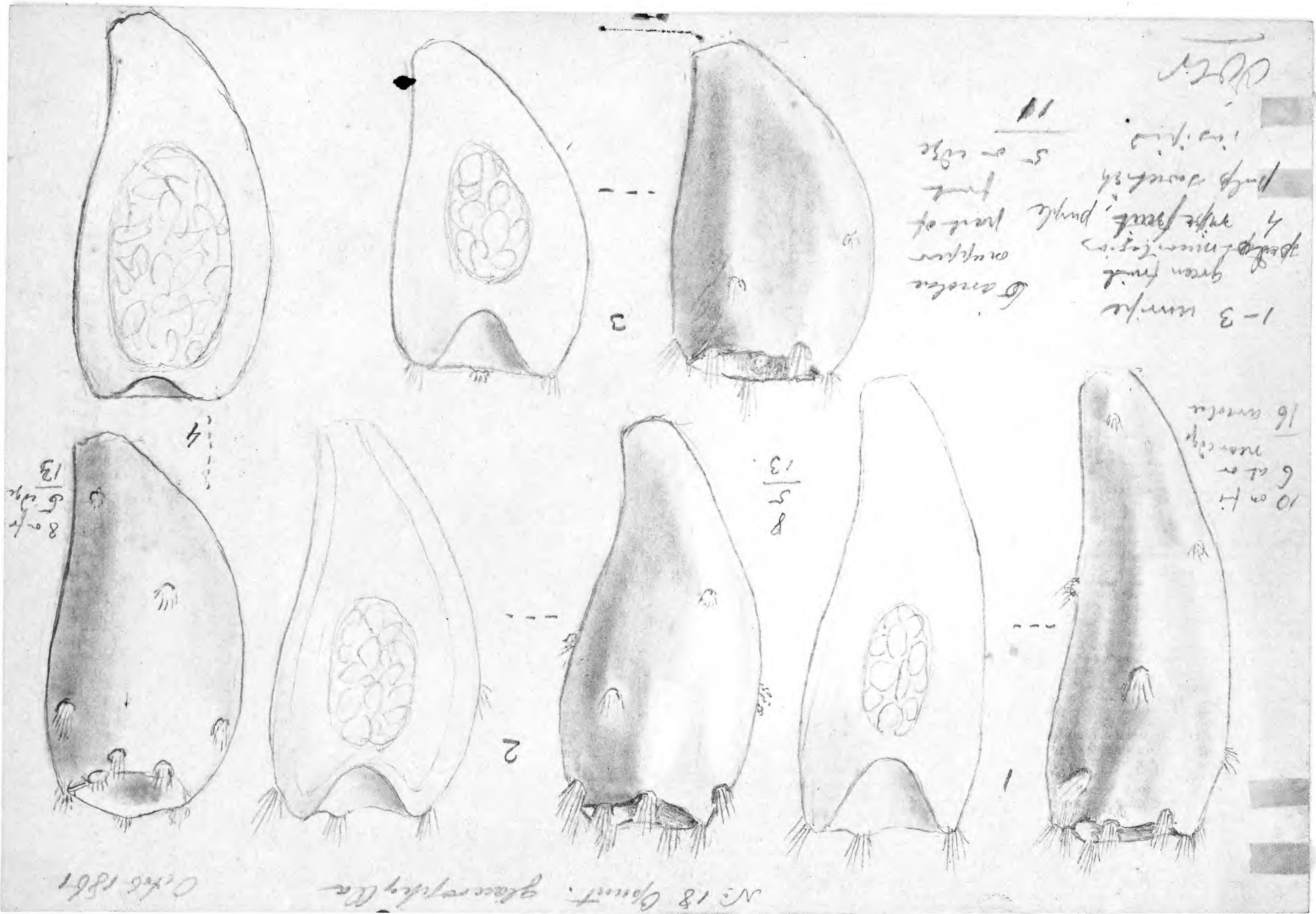
MISSOURI BOTANICAL GARDEN
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GEORGE ENGELMANN
BOTANICAL NOTEBOOKS

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2930

M. W. ALEXANDER,

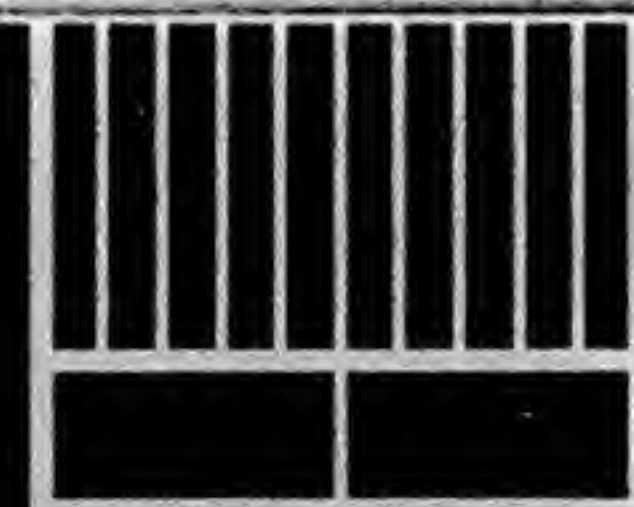
SOUTH-EAST CORNER OF FOURTH AND MARKET STREETS, DEN

ST. LOUISE ENGELMANN PAPERS

most fruits unripe, green, some short
plump, others elongated, angular (No 1)
branch like with fewer and less developed
seeds. -

seeds of all these very glutinous,
making a large quantity of water when
macerated, or sopped - cells figured of

fruit No 4 was the only one on this
same plant which was ripe; deep purple
with deep purple pulp. - ^{other paper} not at all
glutinous, but sweetish insipid
cells like those figured of *O. Puzosiana*
and flesh also the same, with crystals.



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cm

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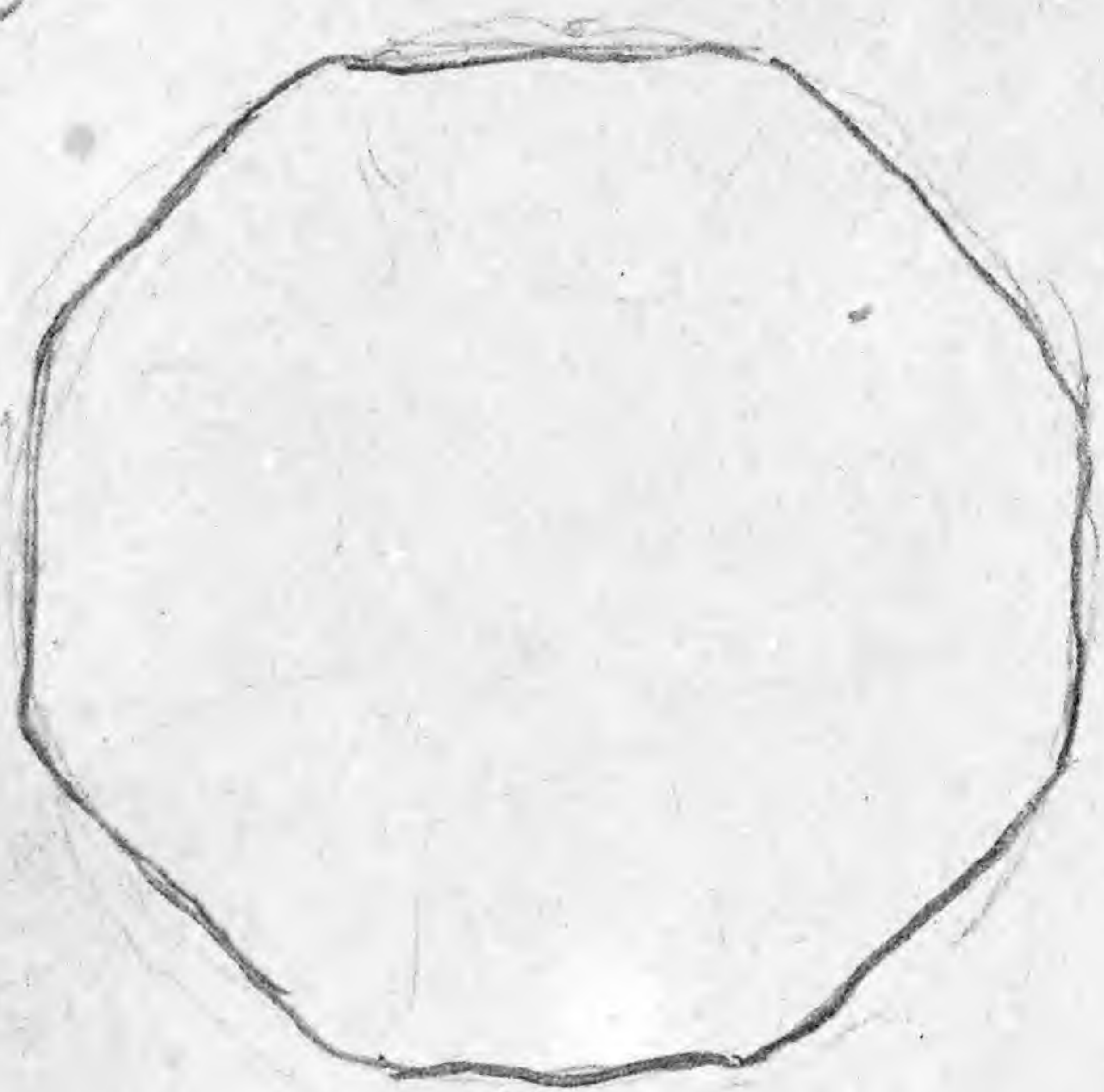
MISSOURI
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Quintia glaucophylla

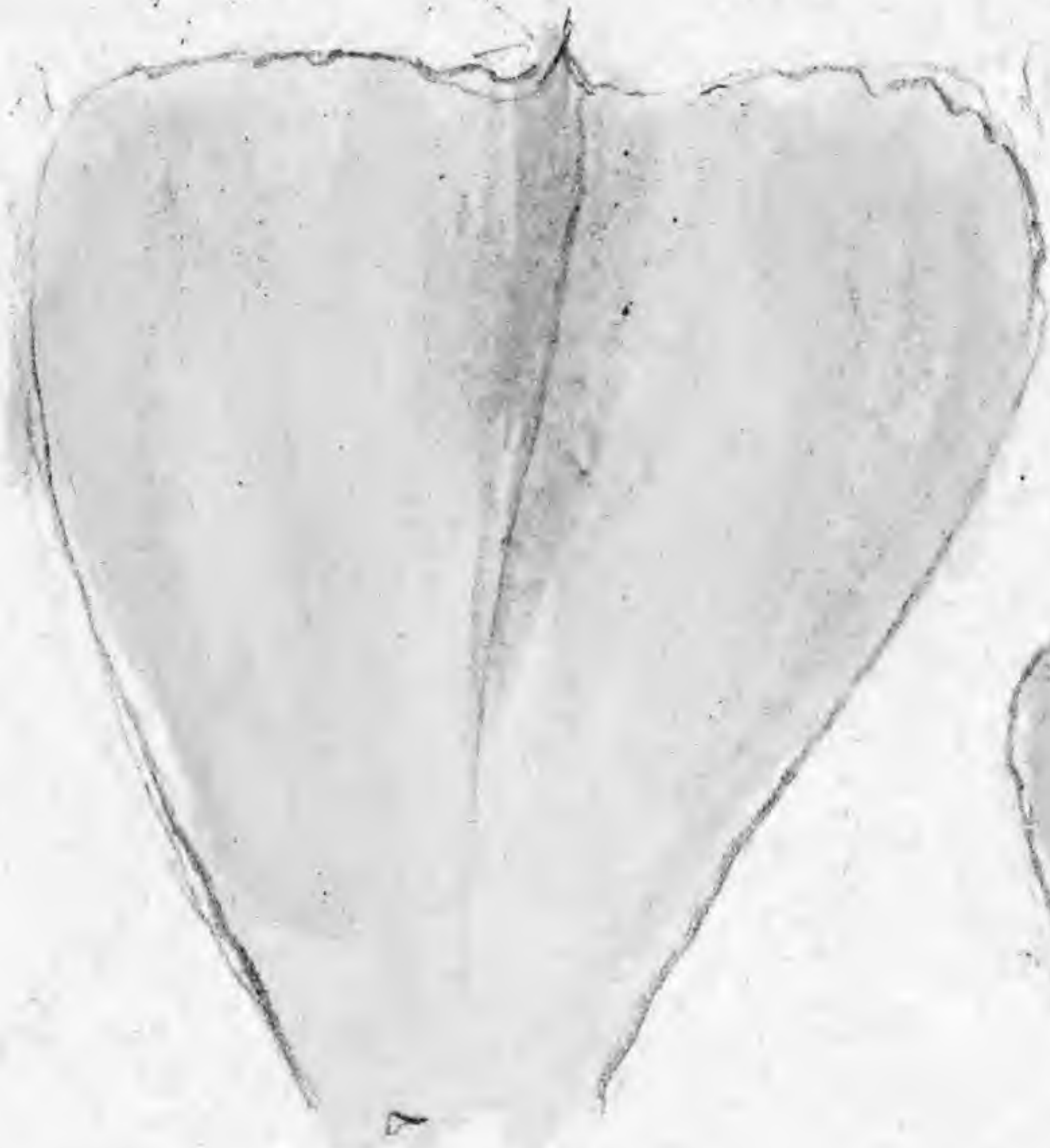
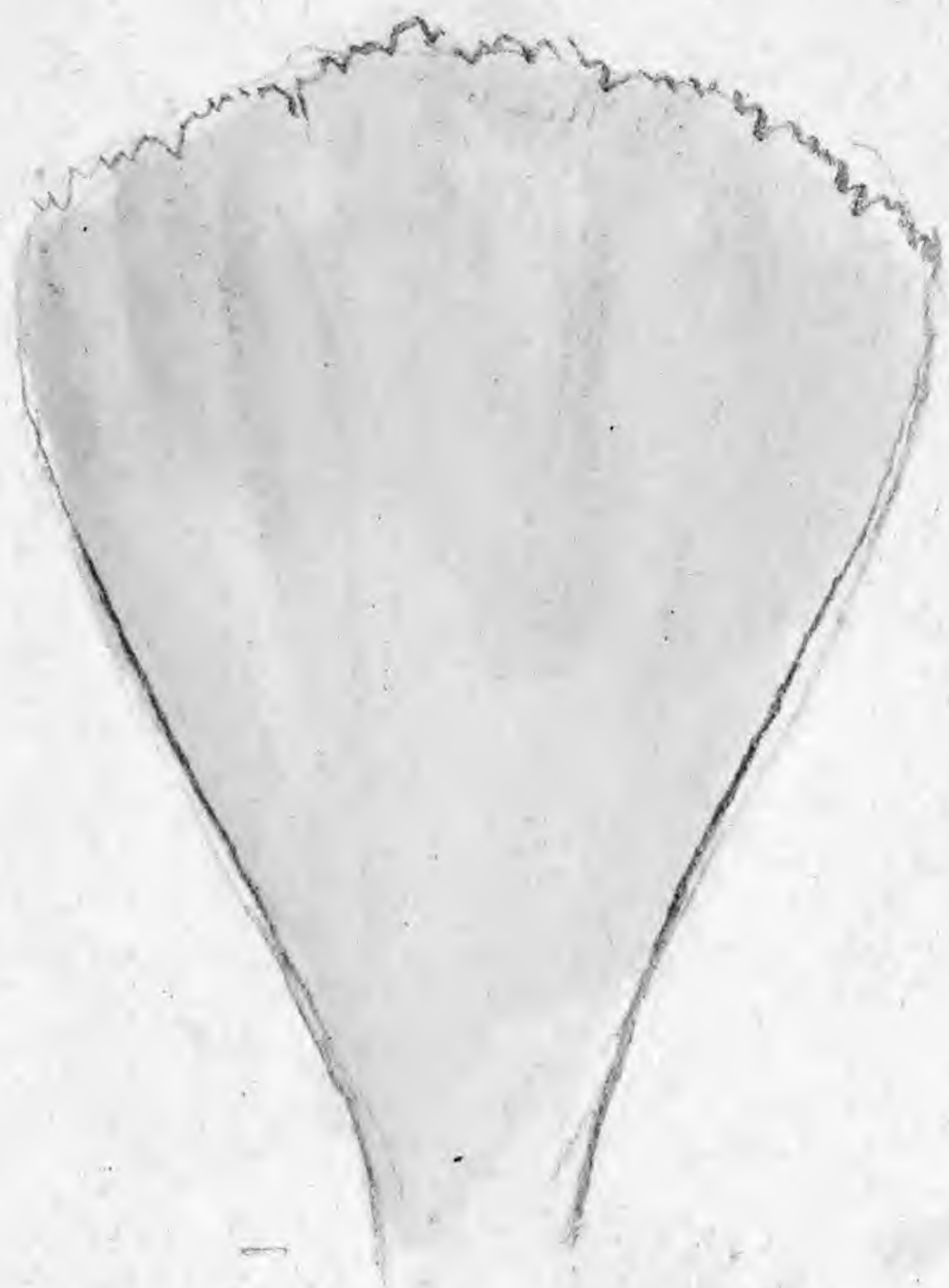
July 20 1862

H. B. Minn.

x280



Dry pollen from fresh anthers



fl. $2\frac{1}{2}$ - $3\frac{3}{4}$ inches diam
8 sepals 8 petals 3-4 intermed.

open later in evening than others

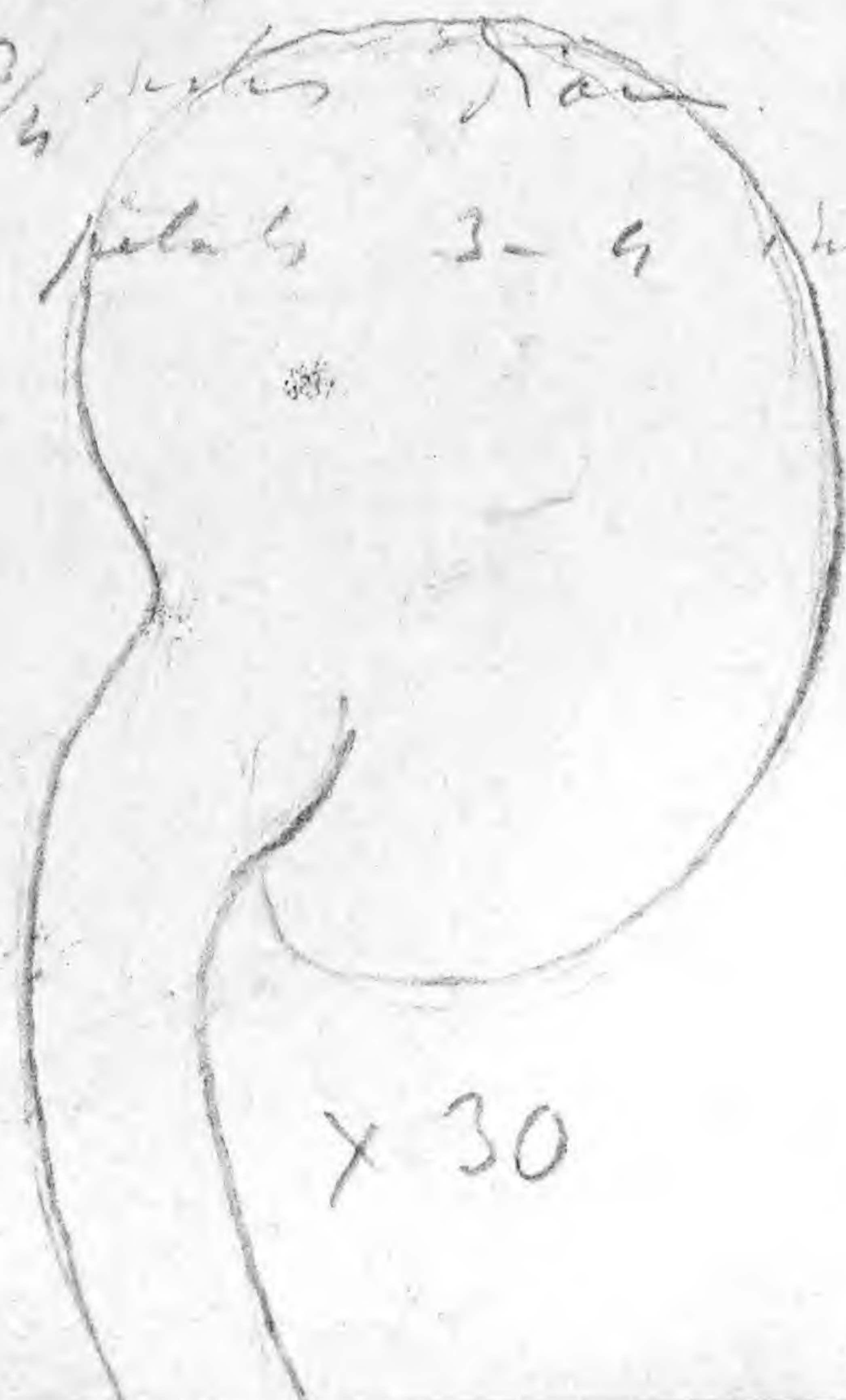


ovilla x780

stigma
whitish
erect
obtus



style white



x30



stigma at last
springs yellowish



x10



0 1 2 3 4 5 6 7 8 9 10

cm

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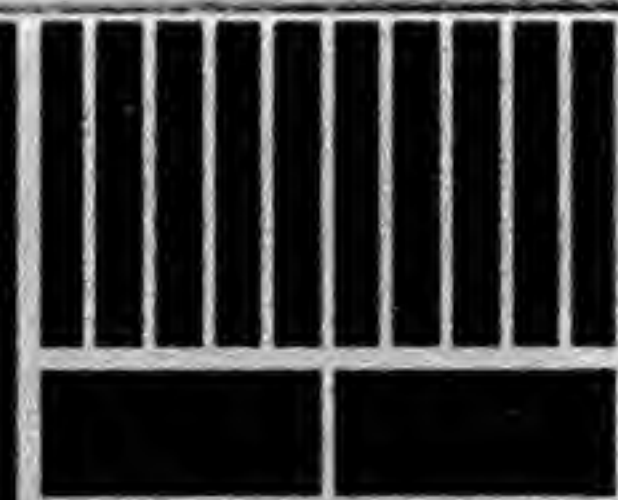
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ST. LOUIS.

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MISSOURI BOTANICAL GARDEN
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Opuntia glaucophylla

Sept 4 1862

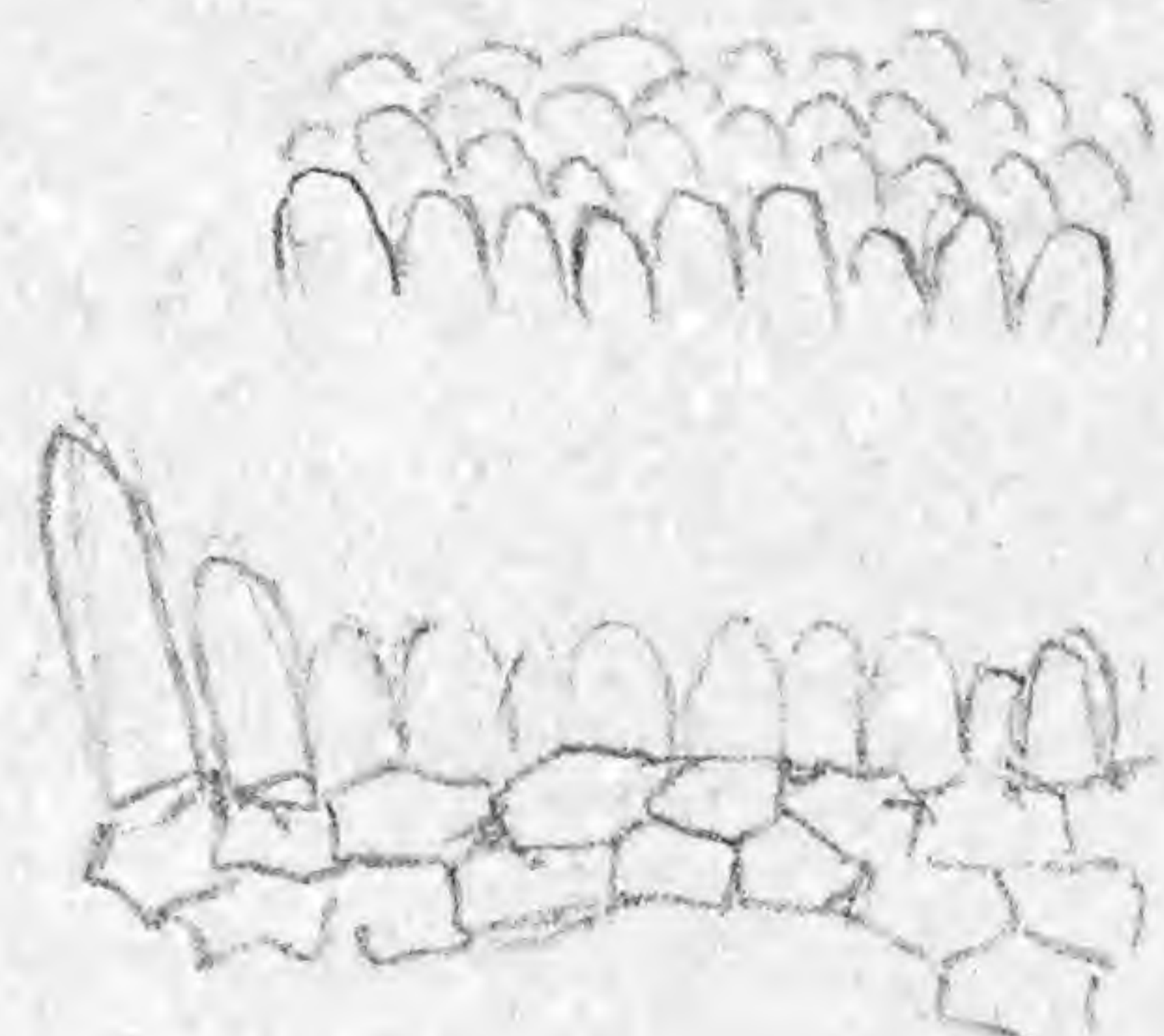
x 10



x 10

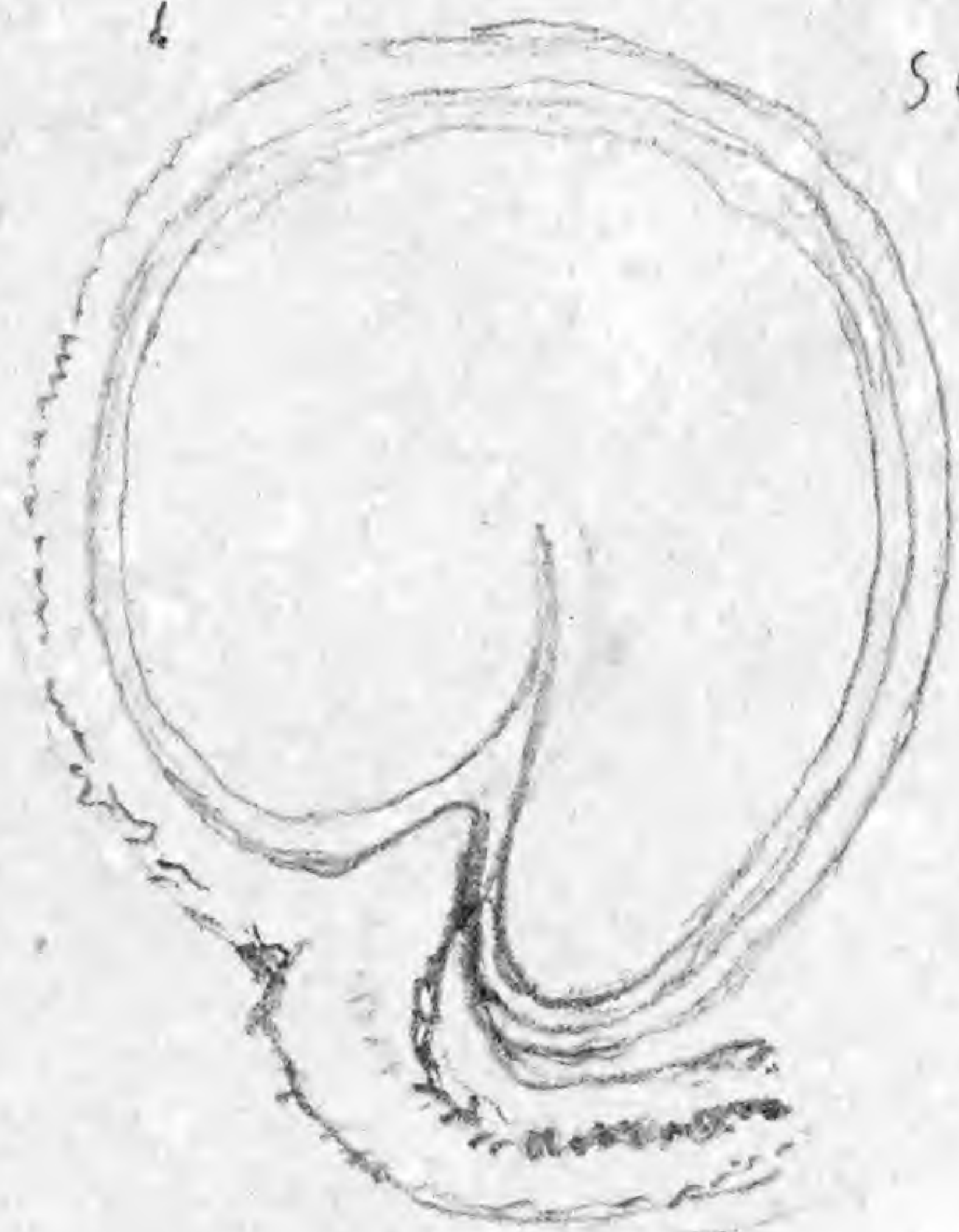


x 280



viewed from above

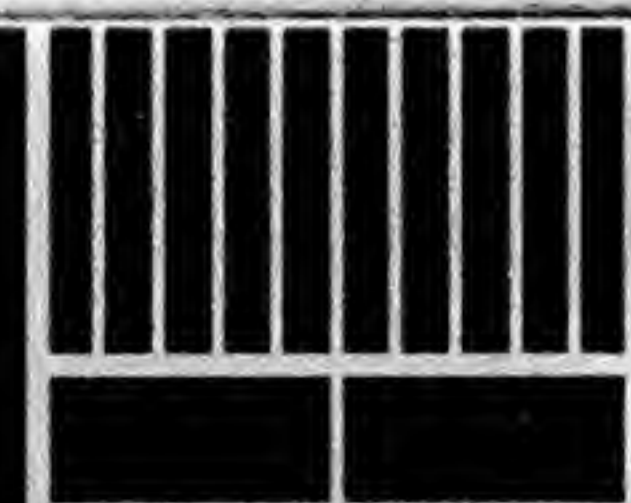
sect



sect. of epidermis on different parts of young seed



fibres on epidermis of seed



0 1 2 3 4 5 6 7 8 9 10

cm

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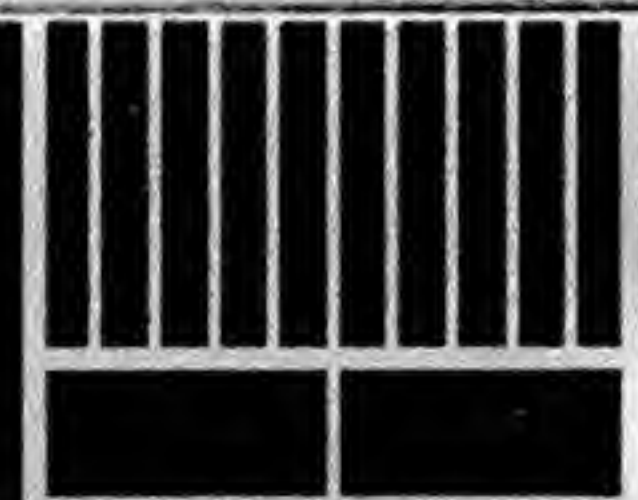


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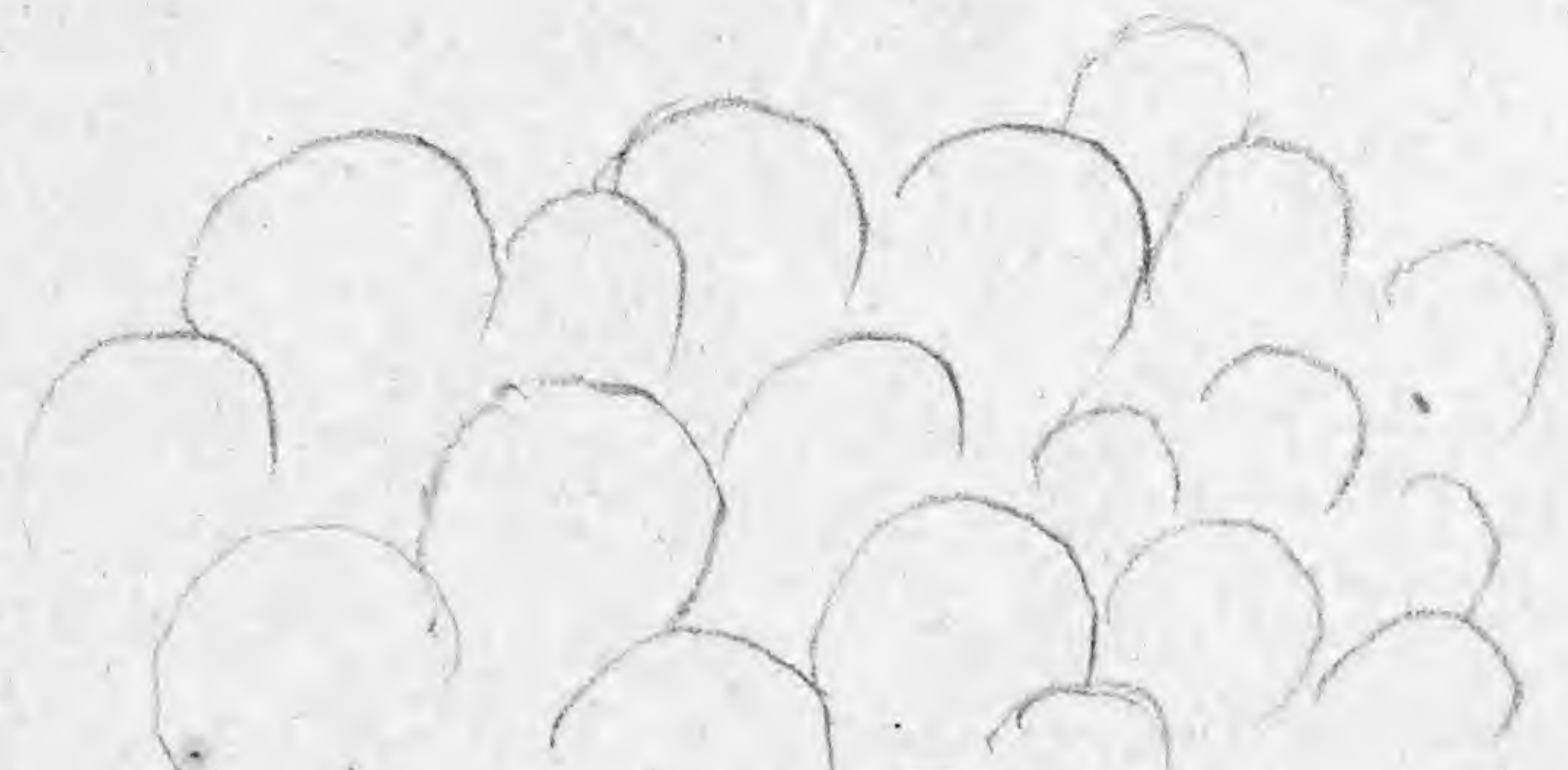
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No 18. *Op. glaucophylla*

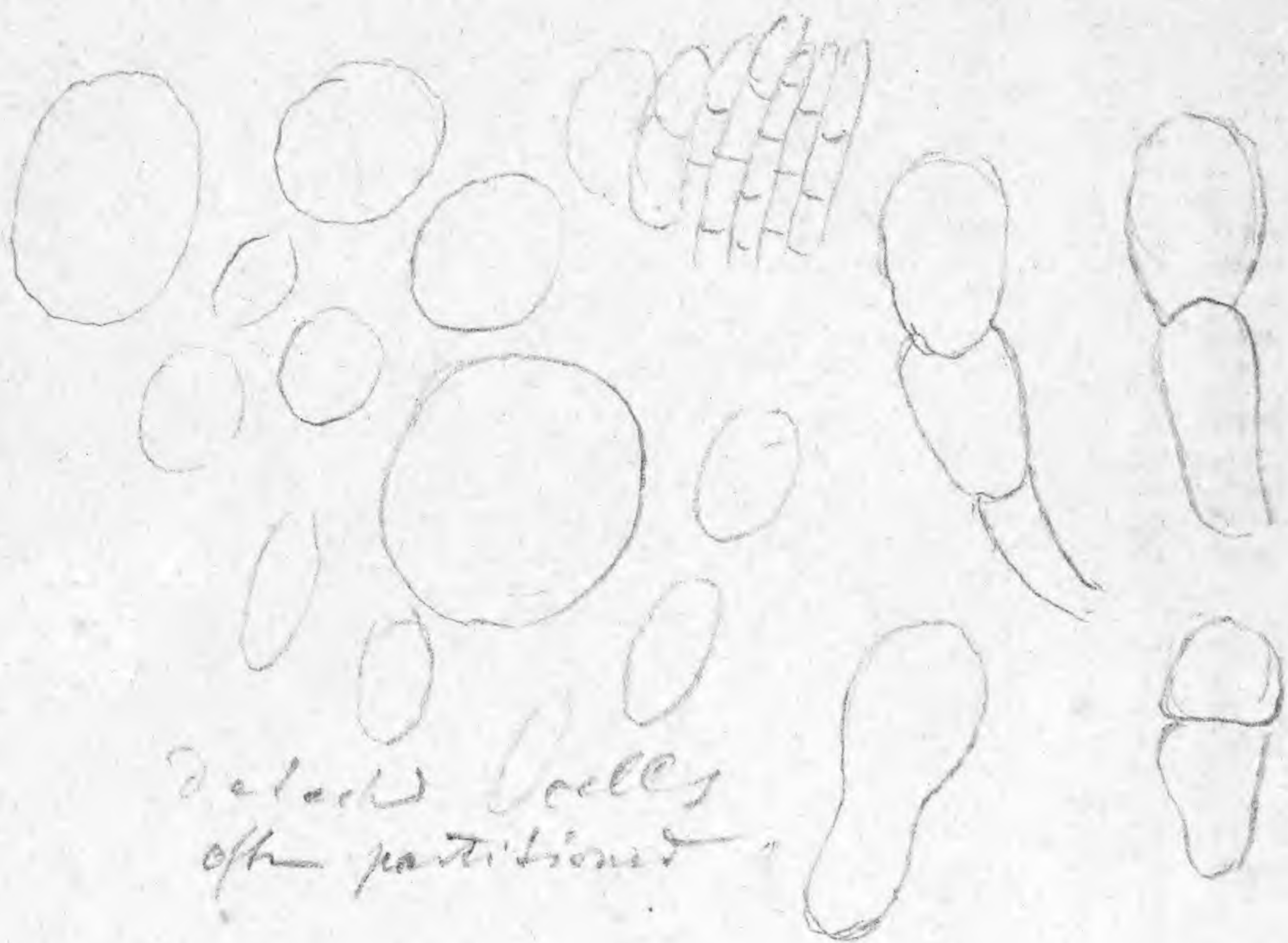
Octob 1864

x60

Hot Col Mission
coating of unripe seed, very glutinous



cells covering nearly ripe seed
transparent, containing mucilage



Selected cells
of the partitioned



cells covering unripe seed



no partition of cells seen

juv' cells also
is mucilaginous
enlarges but is
distinguished from
the mucous cells of
the seed coat by
the abundance of
crystal masses (and
spiral vessels)



0 1 2 3 4 5 6 7 8 9 10

cm

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GEORGE ENGELMANN PAPERS



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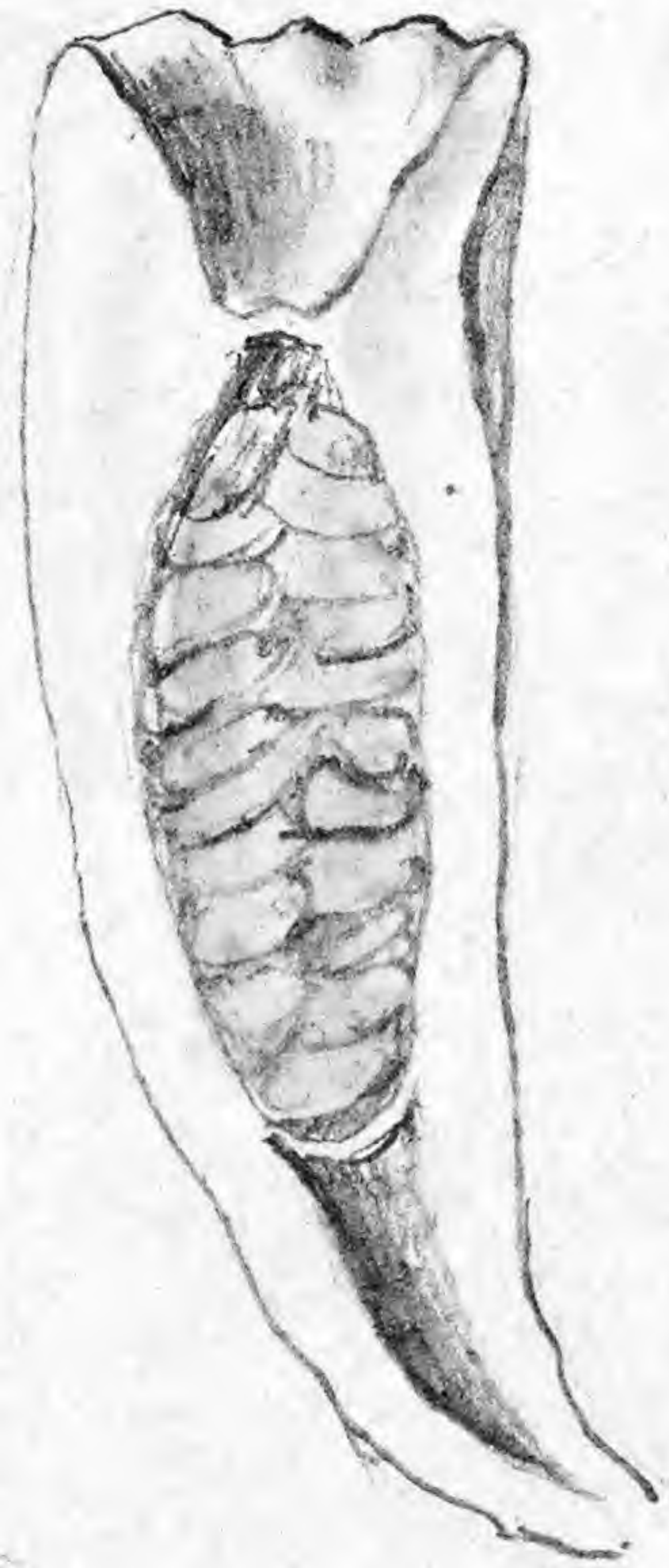


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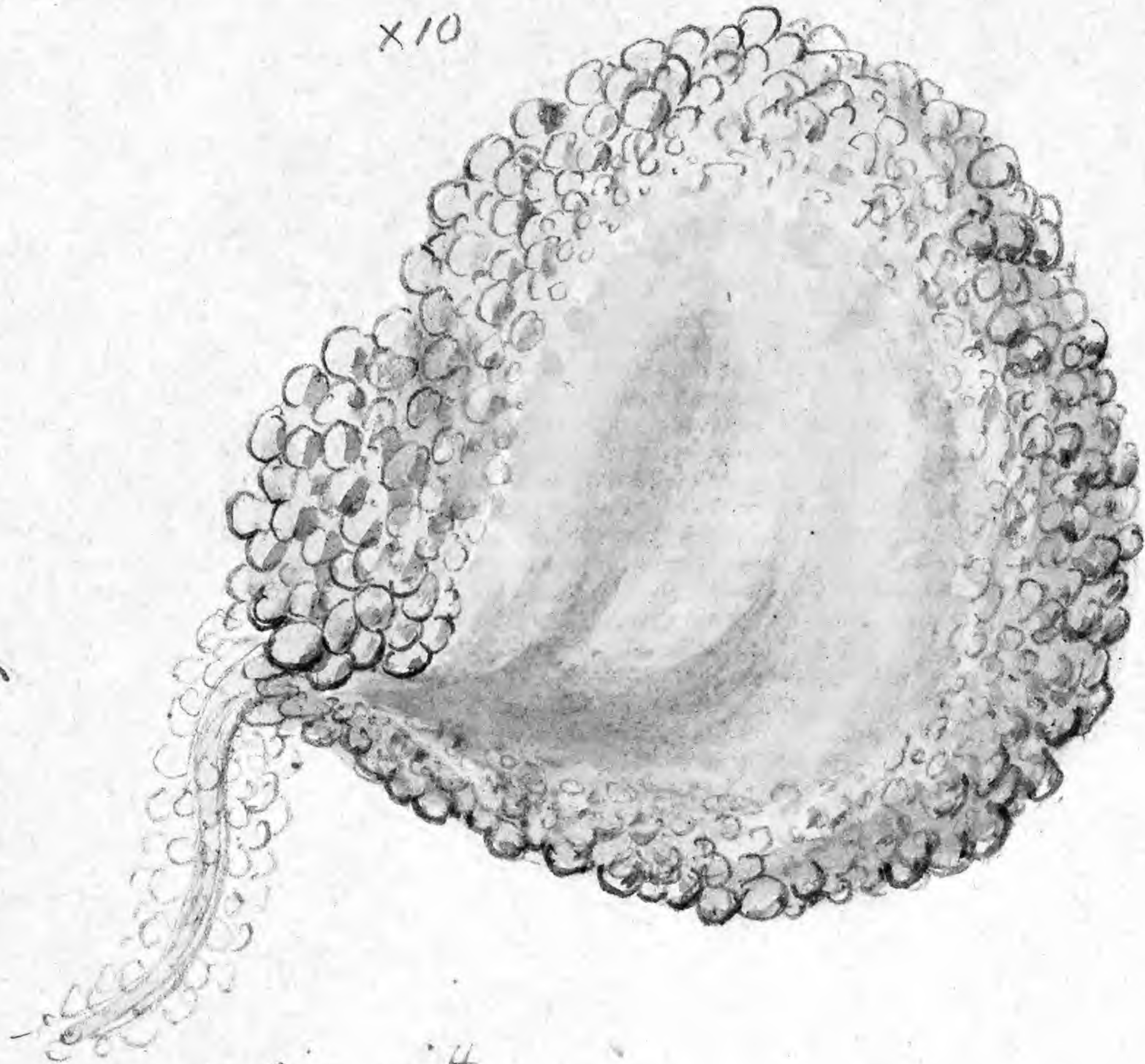
Opuntia Rafinesquii

April 15. 1862

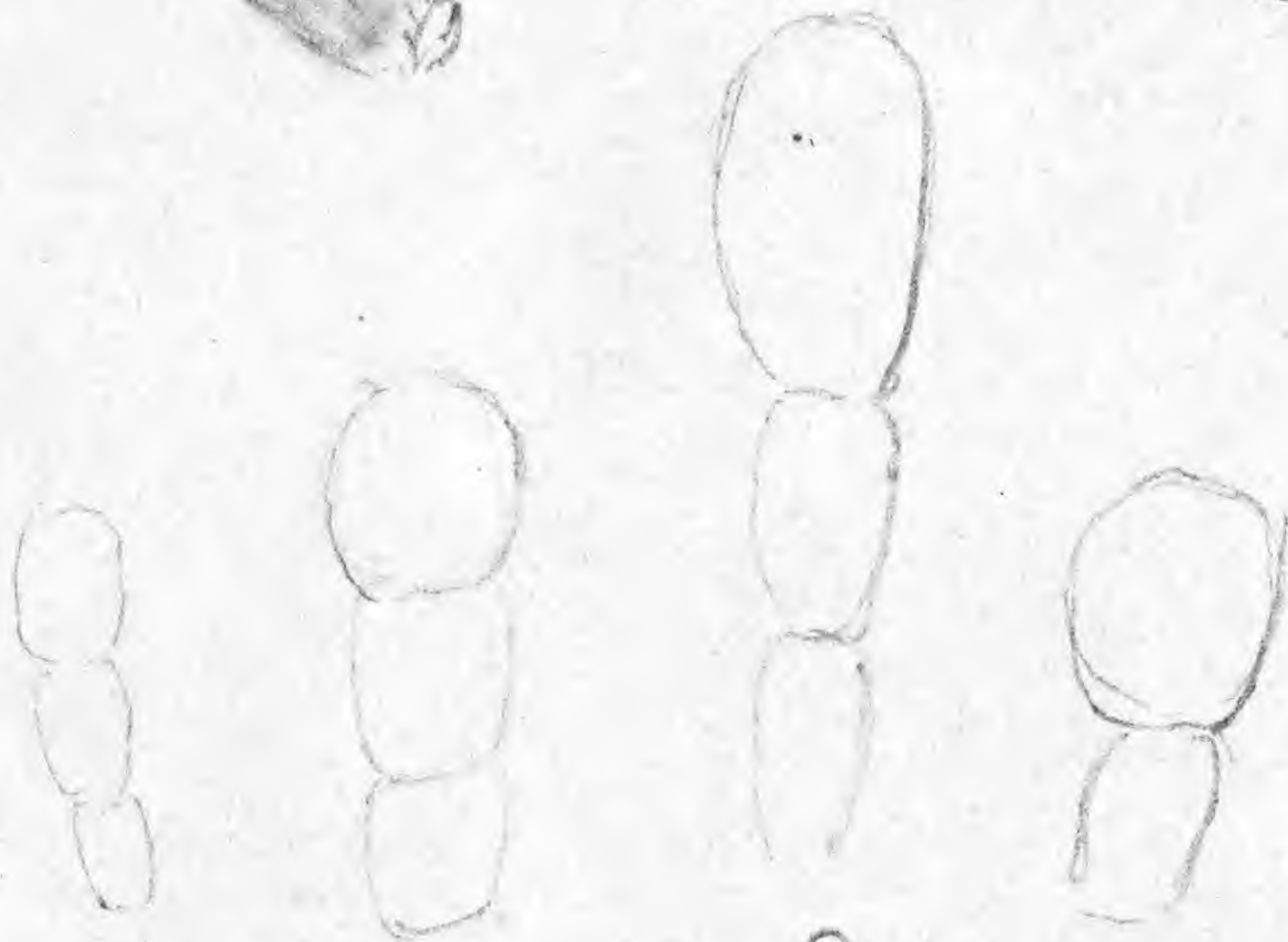
fruit exposed during the whole winter
on the plant, not yet fallen off.



x10

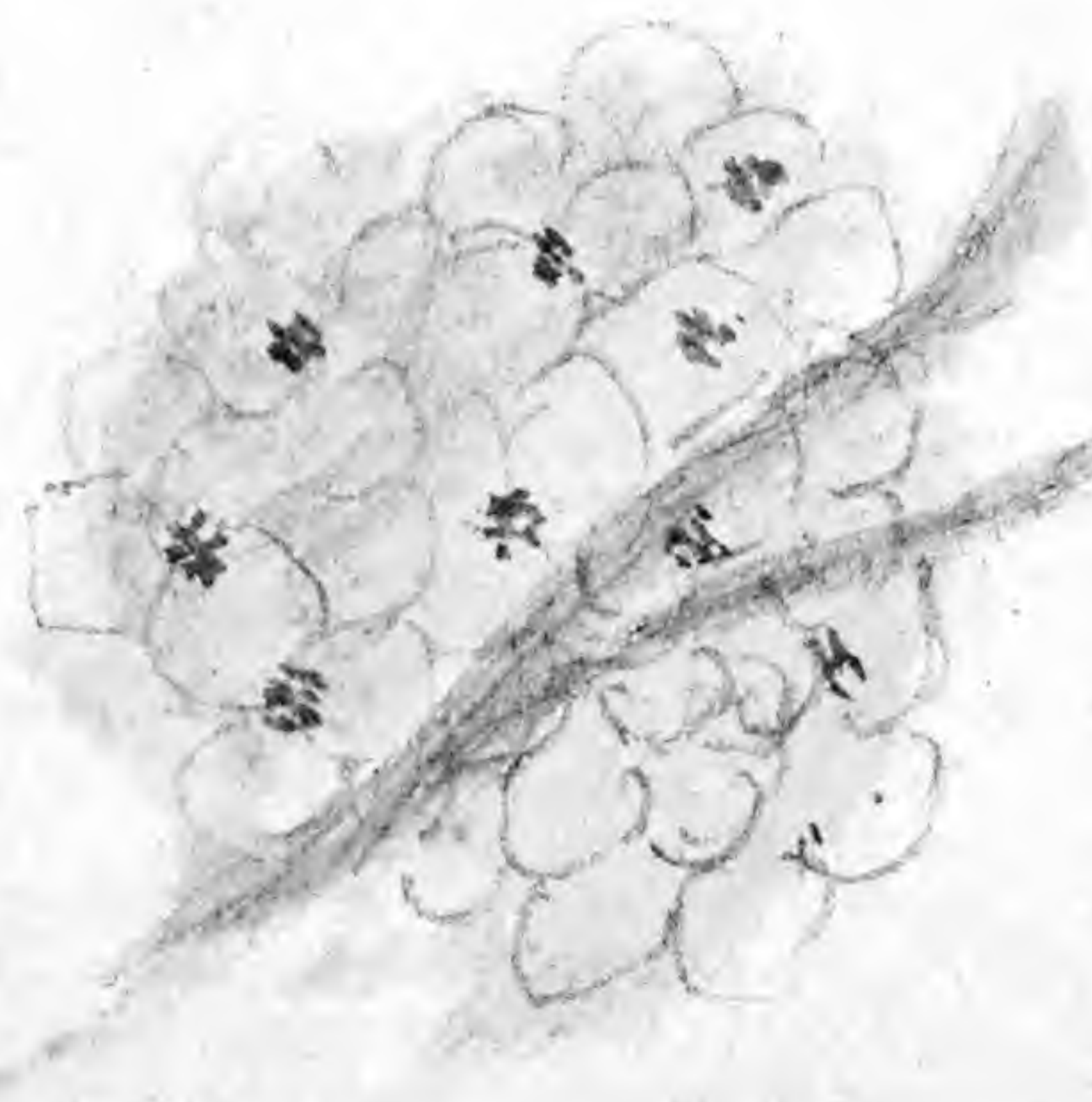


pulp insipid
very mucilaginous
only on rim of seed



cells on seed x30

funiculus with
pellucid colorless
cells



x30

parenchyma of fruit
green, slightly reddish
bundles of fibres
stellate crystals
with sparing



0 1 2 3 4 5 6 7 8 9 10

cm

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GEORGE ENGELMANN PAPERS



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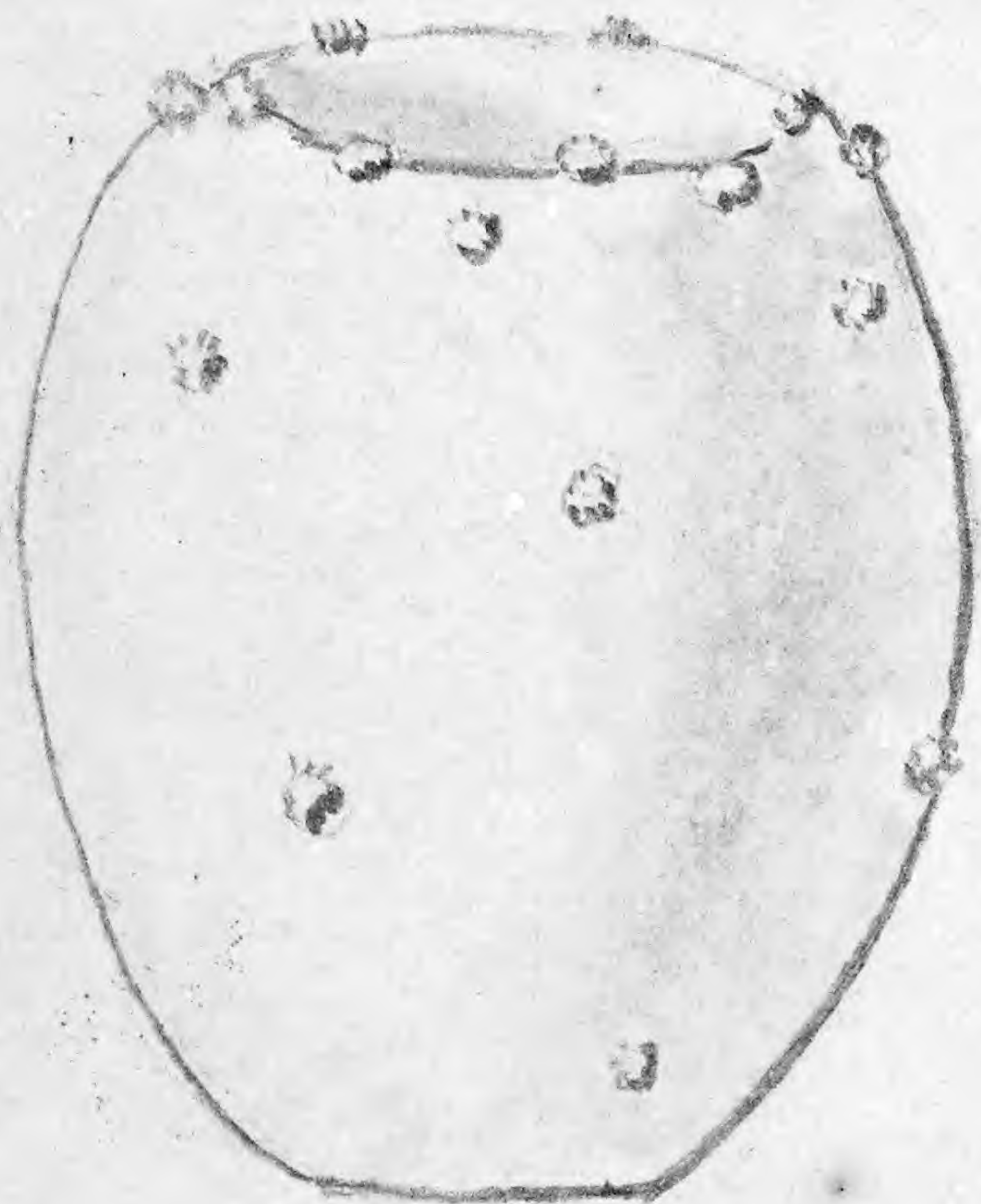


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Opuntia Engelmannii

Sept 25 1861

Hort Bot Missouri



laminis corollae laevis nec tuberculata
atque purpurea, iuteo
siccata (nec minime
glebiosa) purpurea
poly sperm - insipida
nec amara

17 anthera on fruit

7 on edge

24



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cm

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GEORGE ENGELMANN PAPERS



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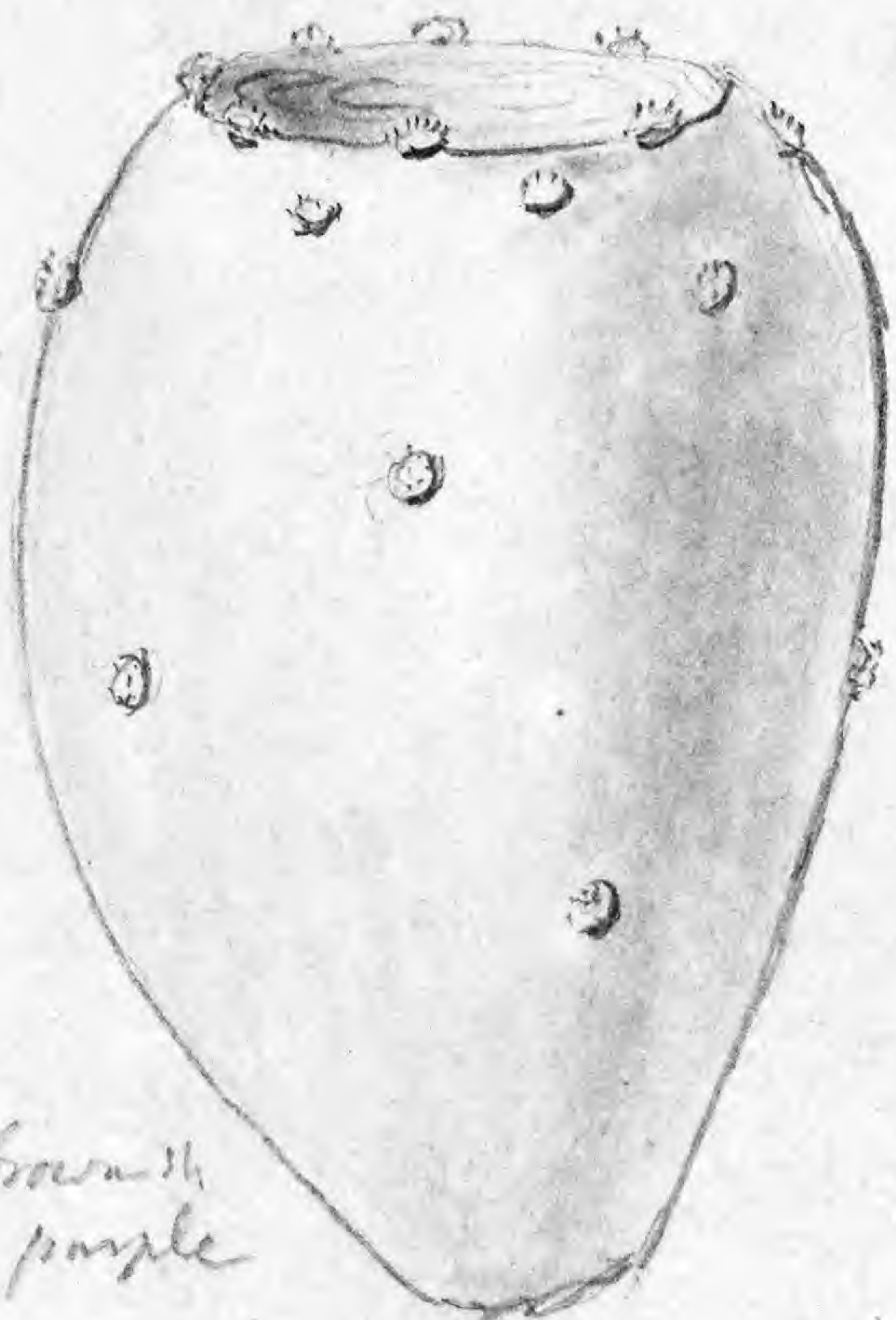
Opuntia *Saxicola* ?

Octob 1861

no 97. Hort bot Missouri

see descr. of flower & plant

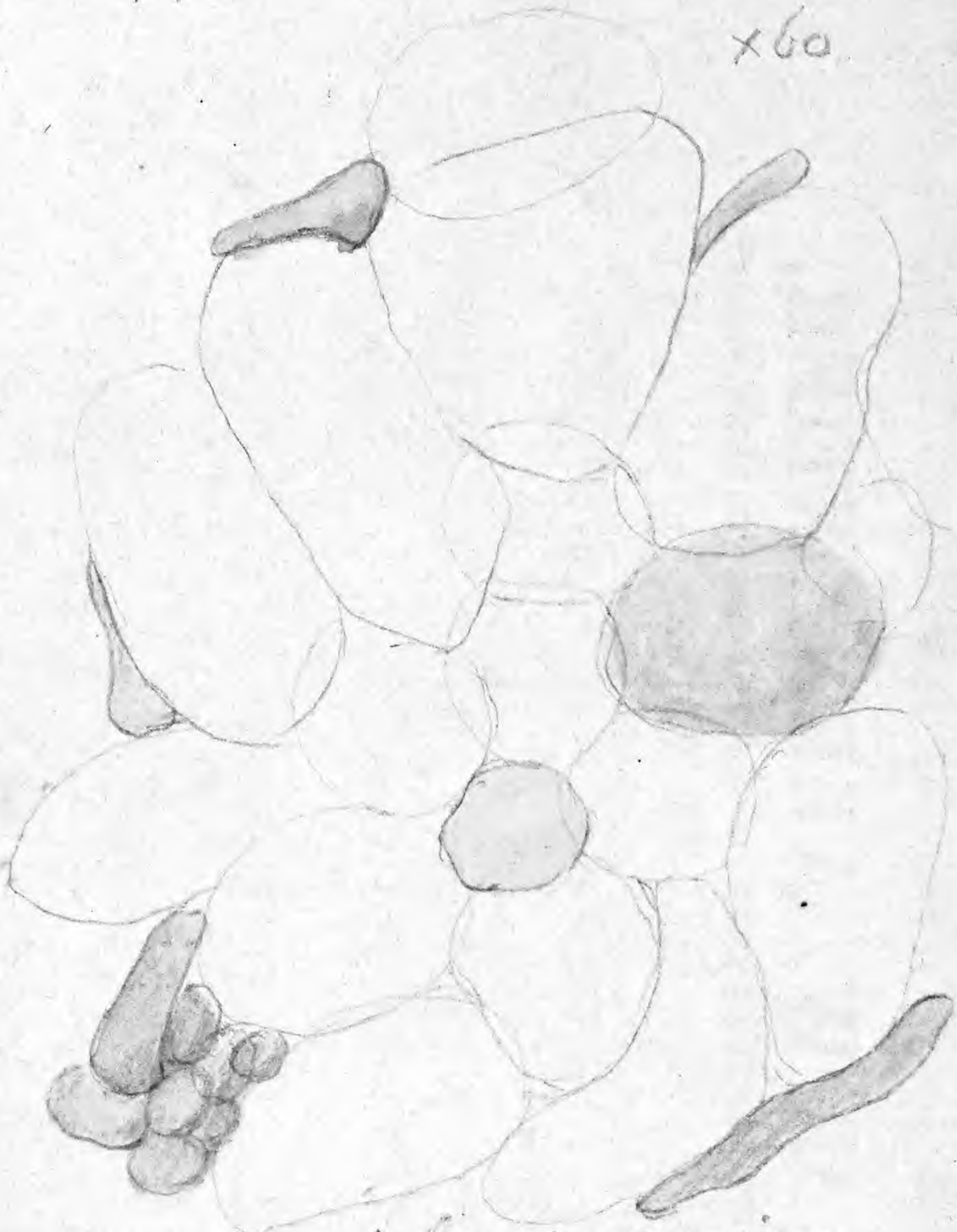
15 on fruit
11 on or near
edge
26 areolae



deep brownish
purple



deep red
especially the pulp
about the seeds
juicy but not glutinous
flesh acid



x60

pulp in ovarian
cavity, very large
transparent cells, fewer
smaller red ones

x60



parenchyma of fruit, few cells red
others transparent, many masses of crystals. Large



0 1 2 3 4 5 6 7 8 9 10

cm

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GEORGE ENGELMANN PAPERS



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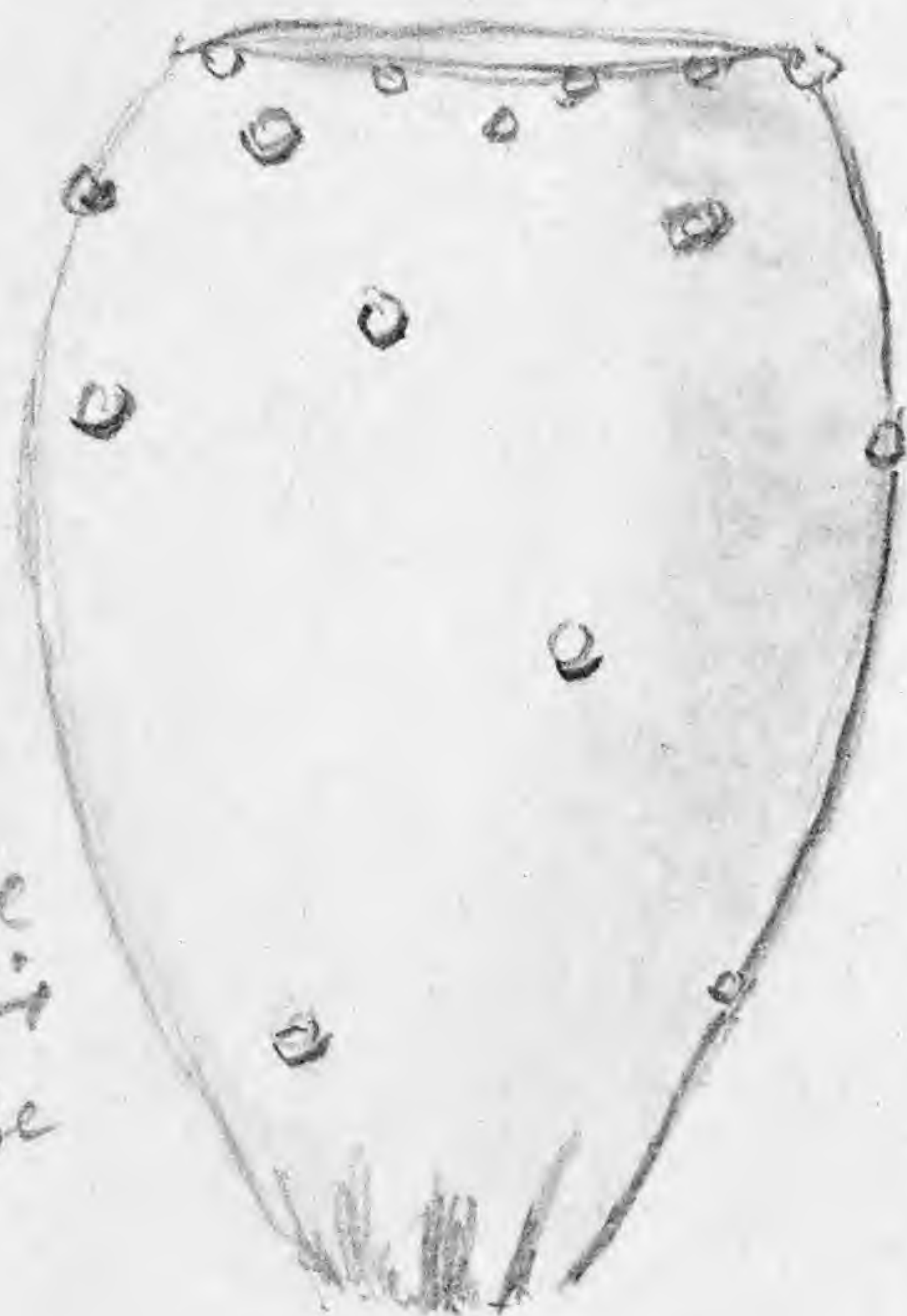
Octob 1861

Opuntia Engelmanni
from Eagle Pass

in Herb. Bot. Missouri
see descr. of Plant.

18 anal
8 edge

25



19
8

27



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cm

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GEORGE ENGELMANN PAPERS



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cm

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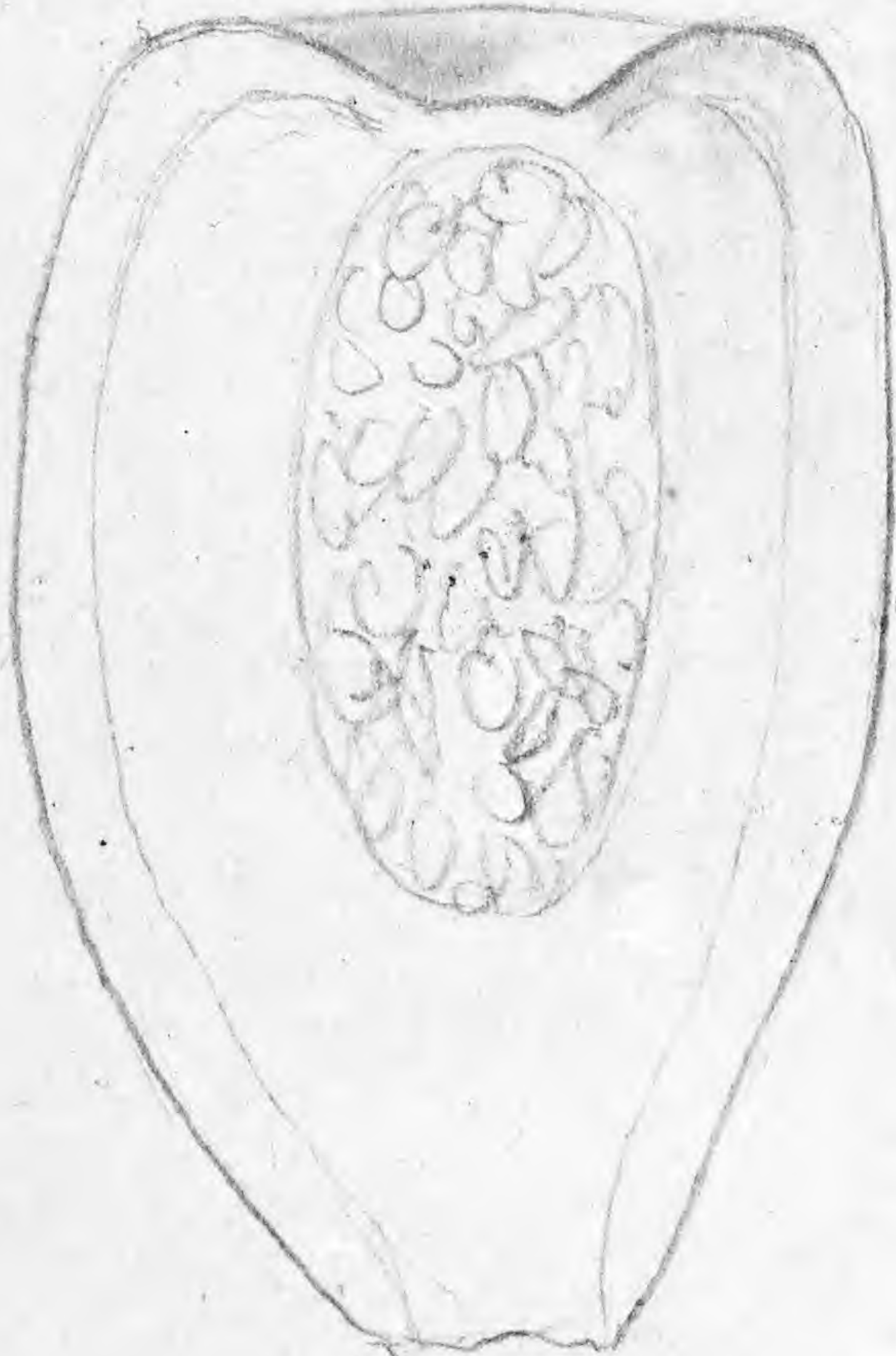
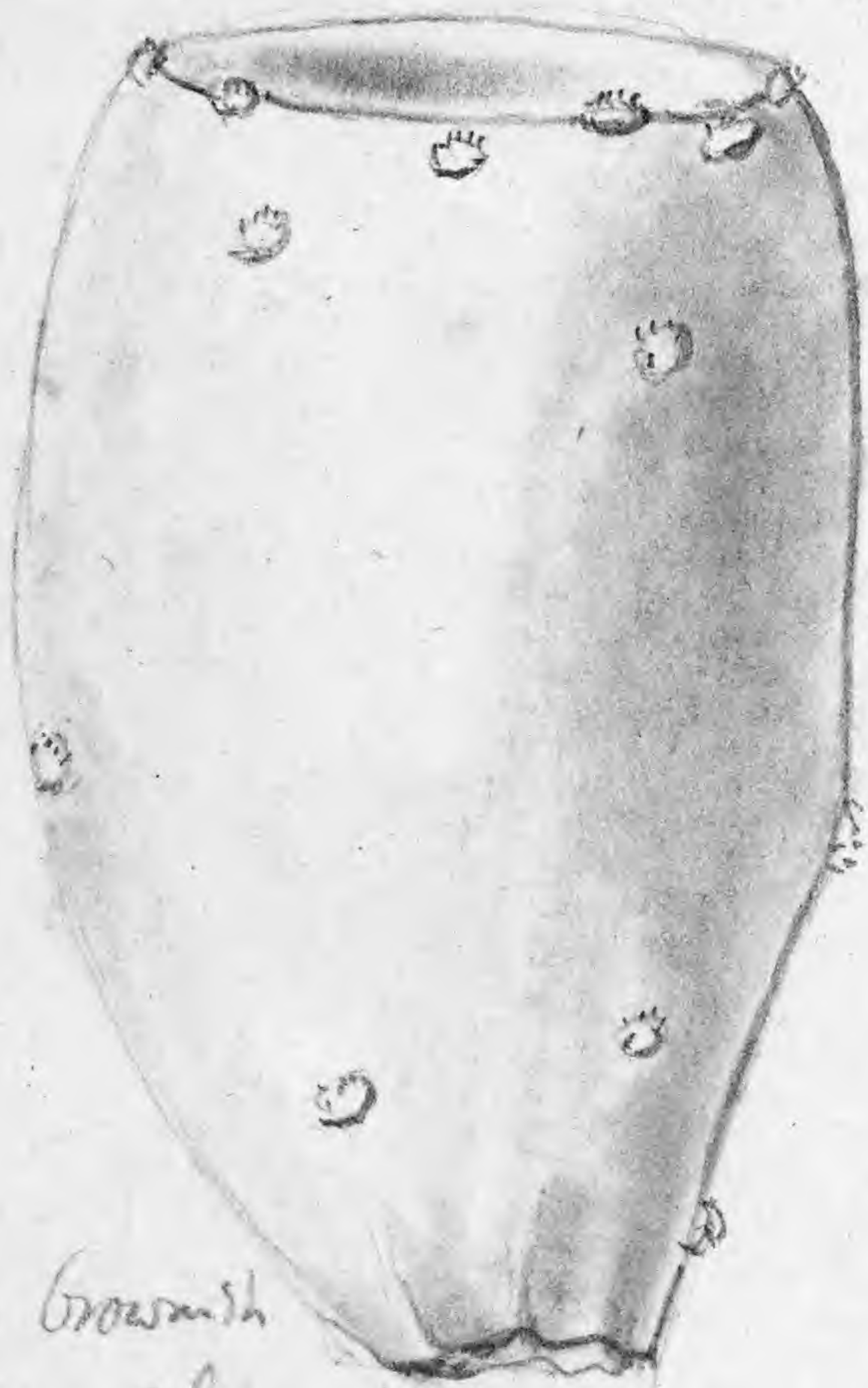
Oct. 1861

Opuntia Engelmannii

"El Paso"

24 Dec. of Plant.

Herb. bot. Missouri.



Deep brownish
purple

17 ribs on fruit

8 — on edge

25



0 1 2 3 4 5 6 7 8 9 10
cm copyright reserved



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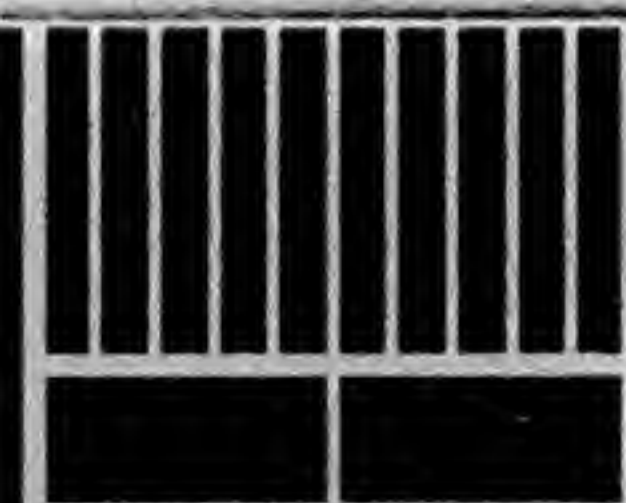
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GEORGE ENGELMANN PAPERS



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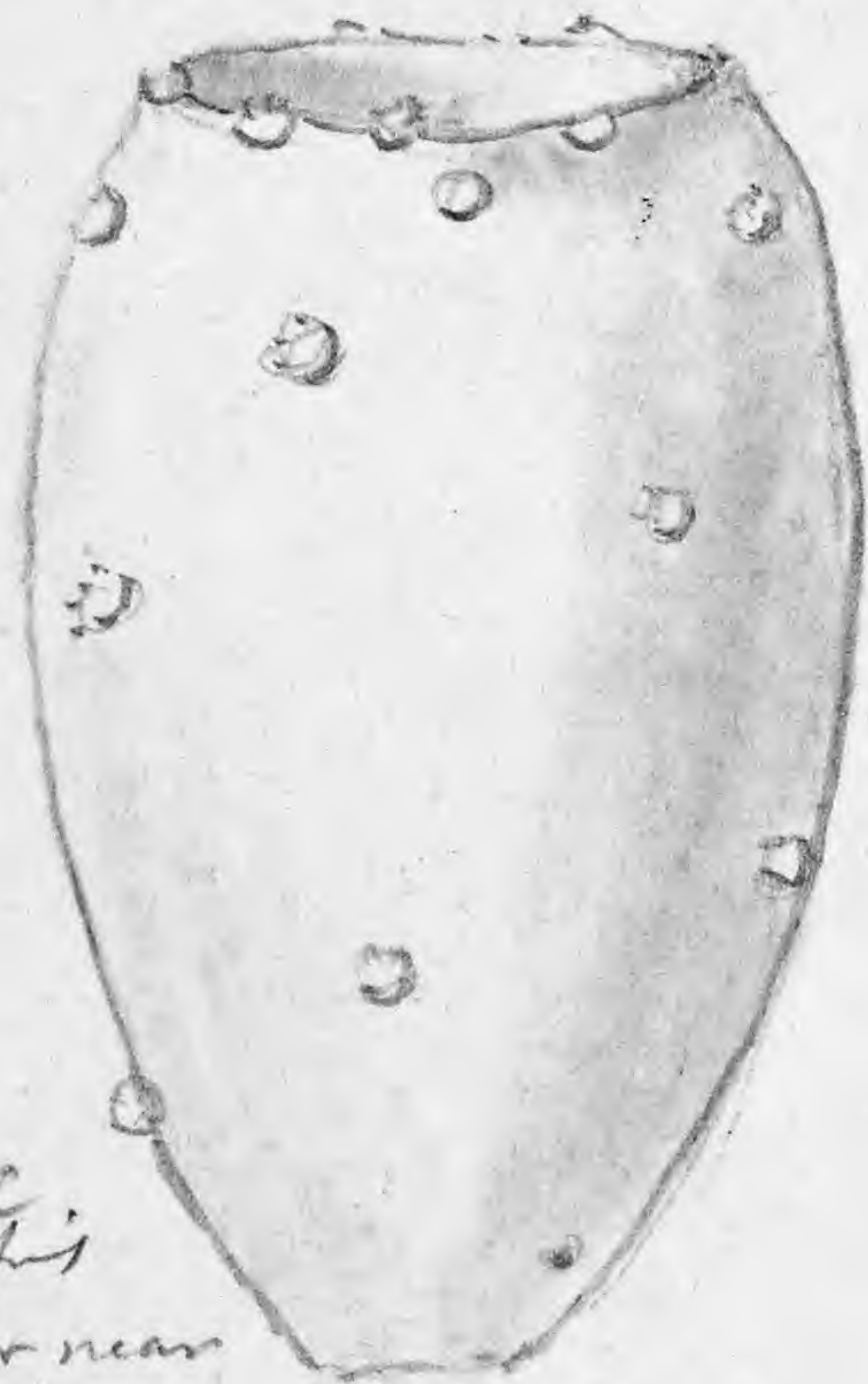
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Octob 1861

Opuntia Engelmanni
Herb bot Missouri (Label: *Tuna*
monmouth
Engelmann?)



17 areol.
on fr
9 at or near
edge

26



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cm

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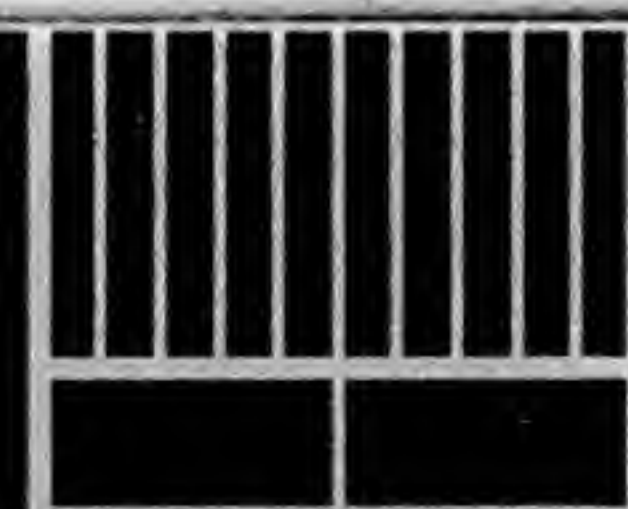
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ST. LOUIS.

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GEORGE ENGELMANN PAPERS



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cm

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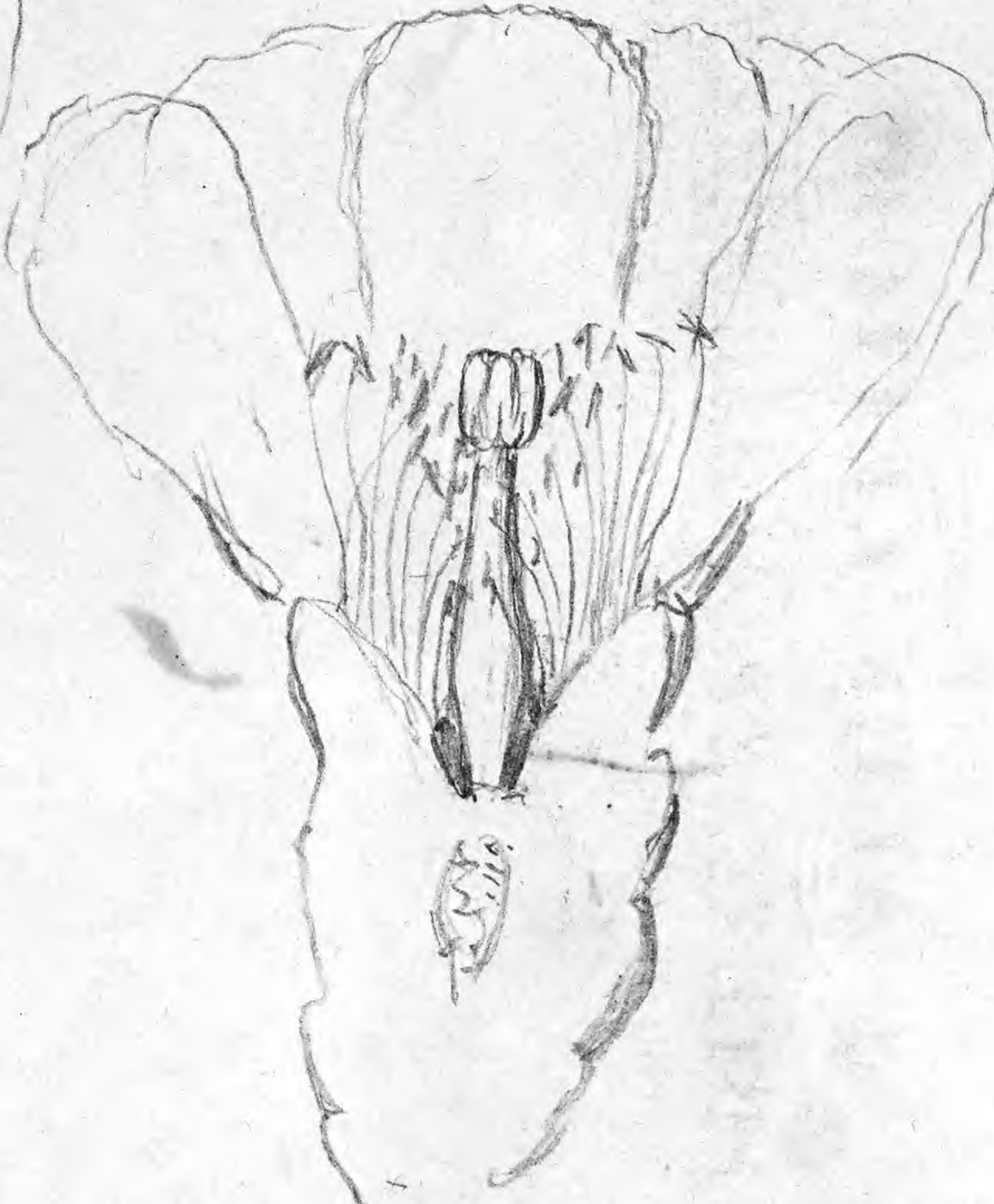
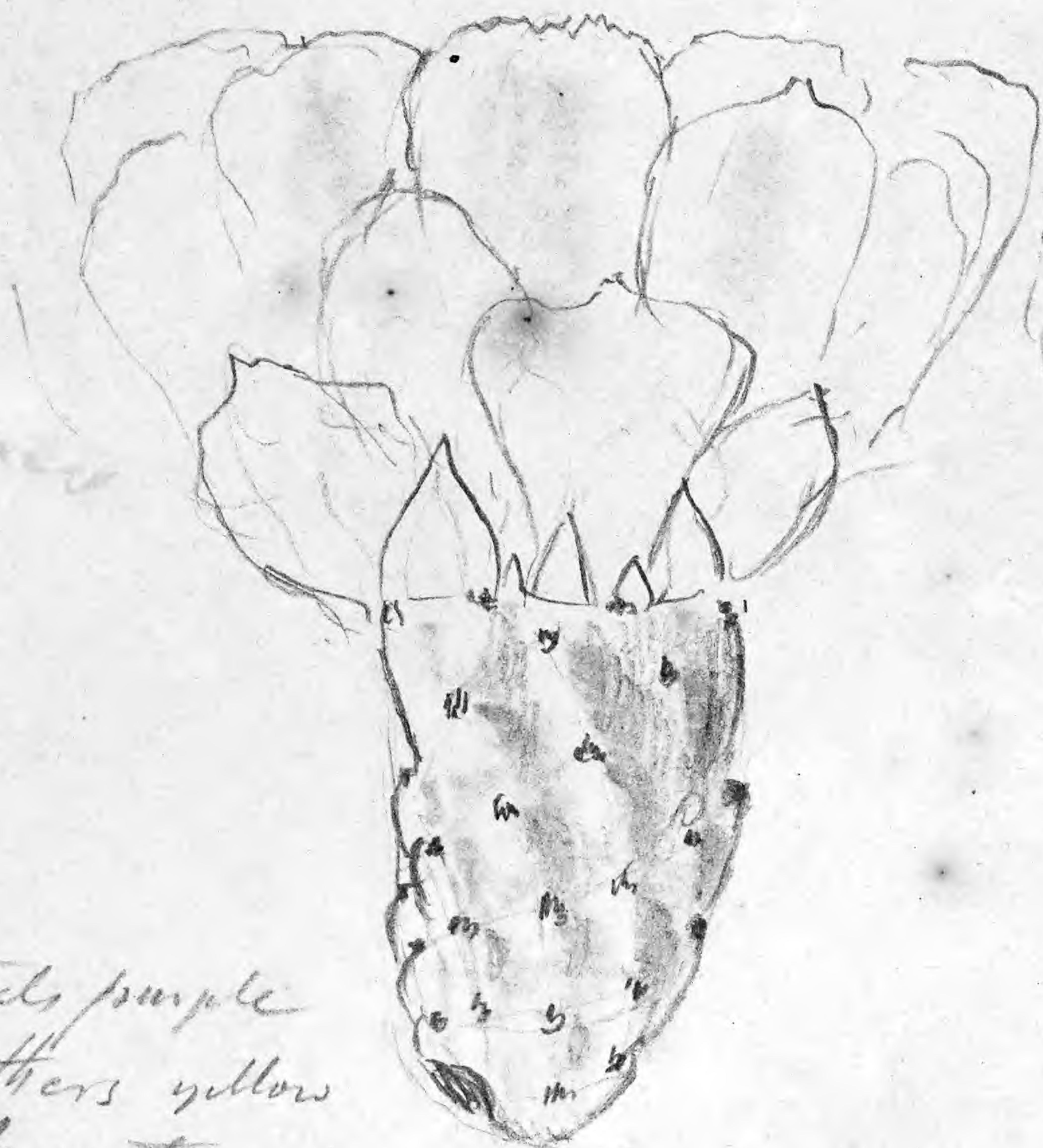


MISSOURI
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GARDEN

Opuntia tomentosa

H. D. Meserve

July 2nd 1865
x 12th —



petals purple
anthers yellow
filaments greenish yellow
style purple
6-7 erect thick stigmas

ovary with 40-50 arched
6 x 10 ribs, prominent $\frac{6}{16}$ arranged



0 1 2 3 4 5 6 7 8 9 10

cm

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0 1 2 3 4 5 6 7 8 9 10

cm

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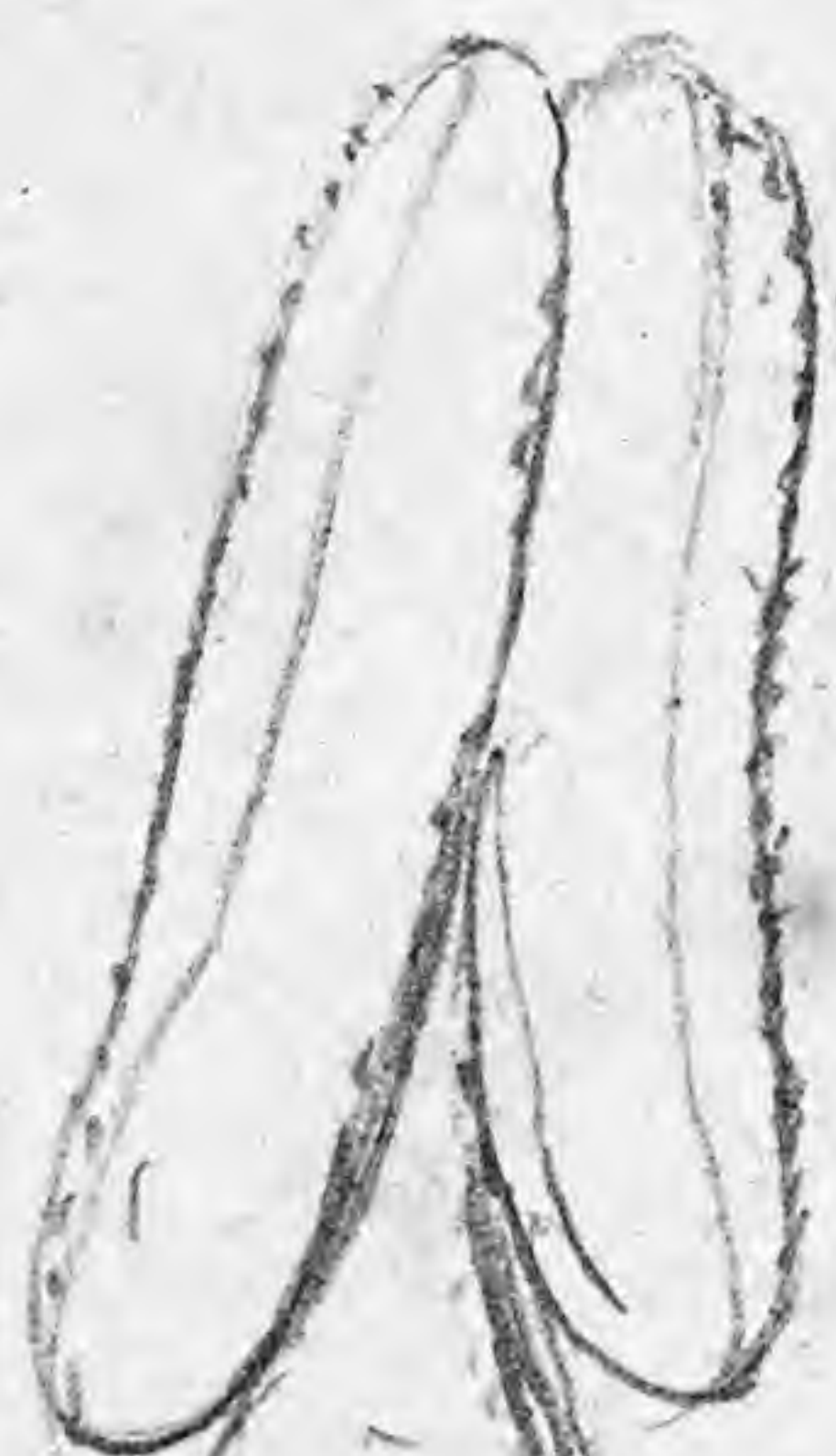


MISSOURI
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Opuntia tomentosa

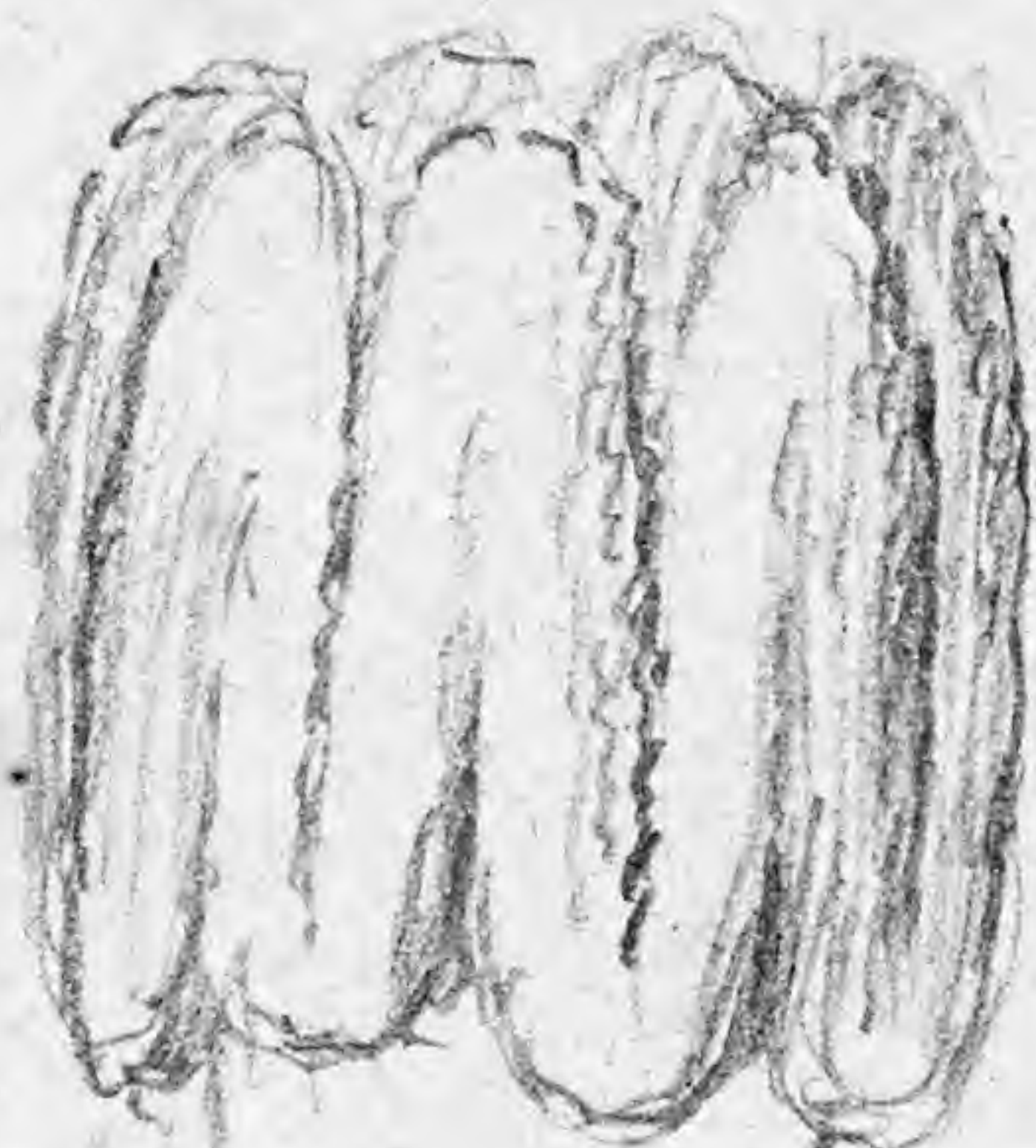
July 6 1865

Hb. Missouri



x10

anther
and
filament
vesicles
rough



x4

Diameter of soaked pollen x415
 $\frac{28 \times 29}{415} = 0.067 - 0.070$ lin
globular



x415

0.050 lin

13 sepals

(green part
pubescent)

9 purple

petals

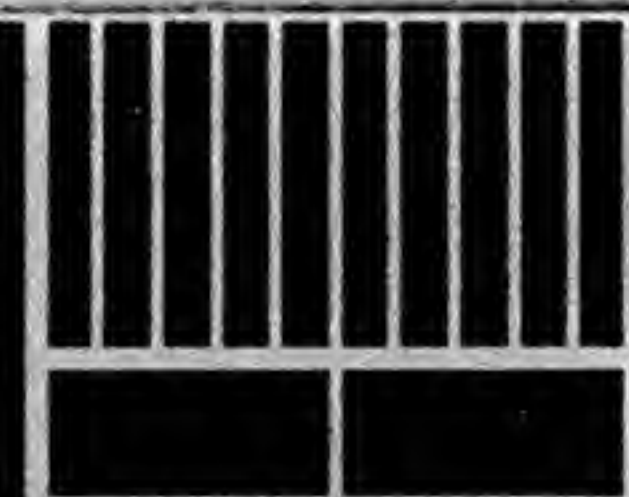
5-7 erect

flesh colored, soon yellow

at ² stigmas

on purple style

most pollen grains
of this size & appearance
(incomplete?)



0 1 2 3 4 5 6 7 8 9 10

cm

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0 1 2 3 4 5 6 7 8 9 10

cm

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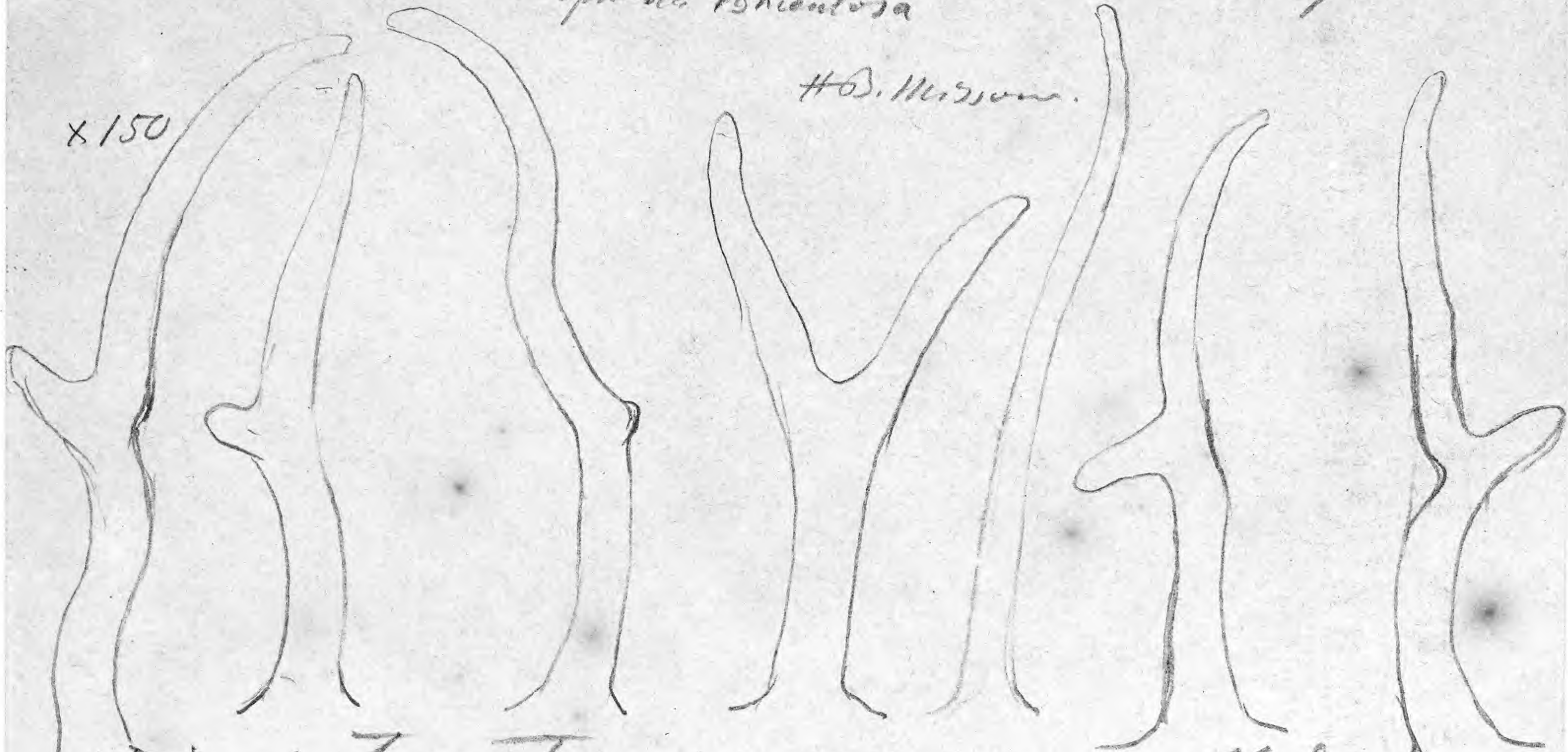
MISSOURI
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Opuntia tomentosa

July 2^d 1865

H.B. Missour.

x 150



Pair of tomentum on ovary - 1 called,
 rarely single, sometimes forked, usually with
 a short lateral prong.

x 150

hair of tomentum
 of areola



0 1 2 3 4 5 6 7 8 9 10
 cm

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0 1 2 3 4 5 6 7 8 9 10

cm

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Opuntia elata

July 12 1865

X30



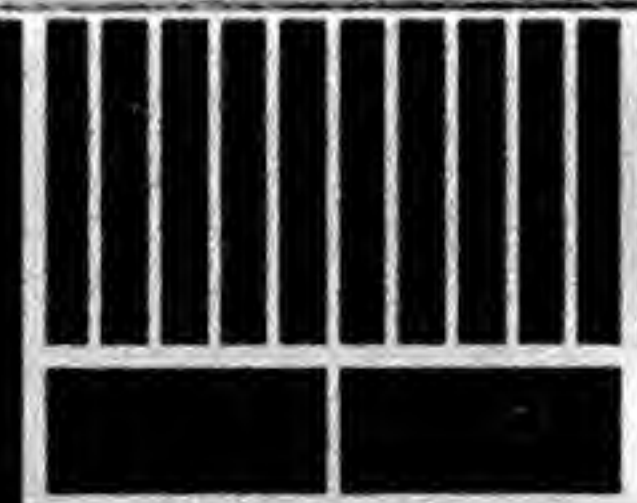
Diam of Pollen $\times 415$ soaked.
all grains somewhat irregularly
angular — perfect?
usually 0.052-54, largest 0.060

X10



anther & filament
slightly rough, when
filament filiform

magnified



0 1 2 3 4 5 6 7 8 9 10

cm

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0 1 2 3 4 5 6 7 8 9 10

cm

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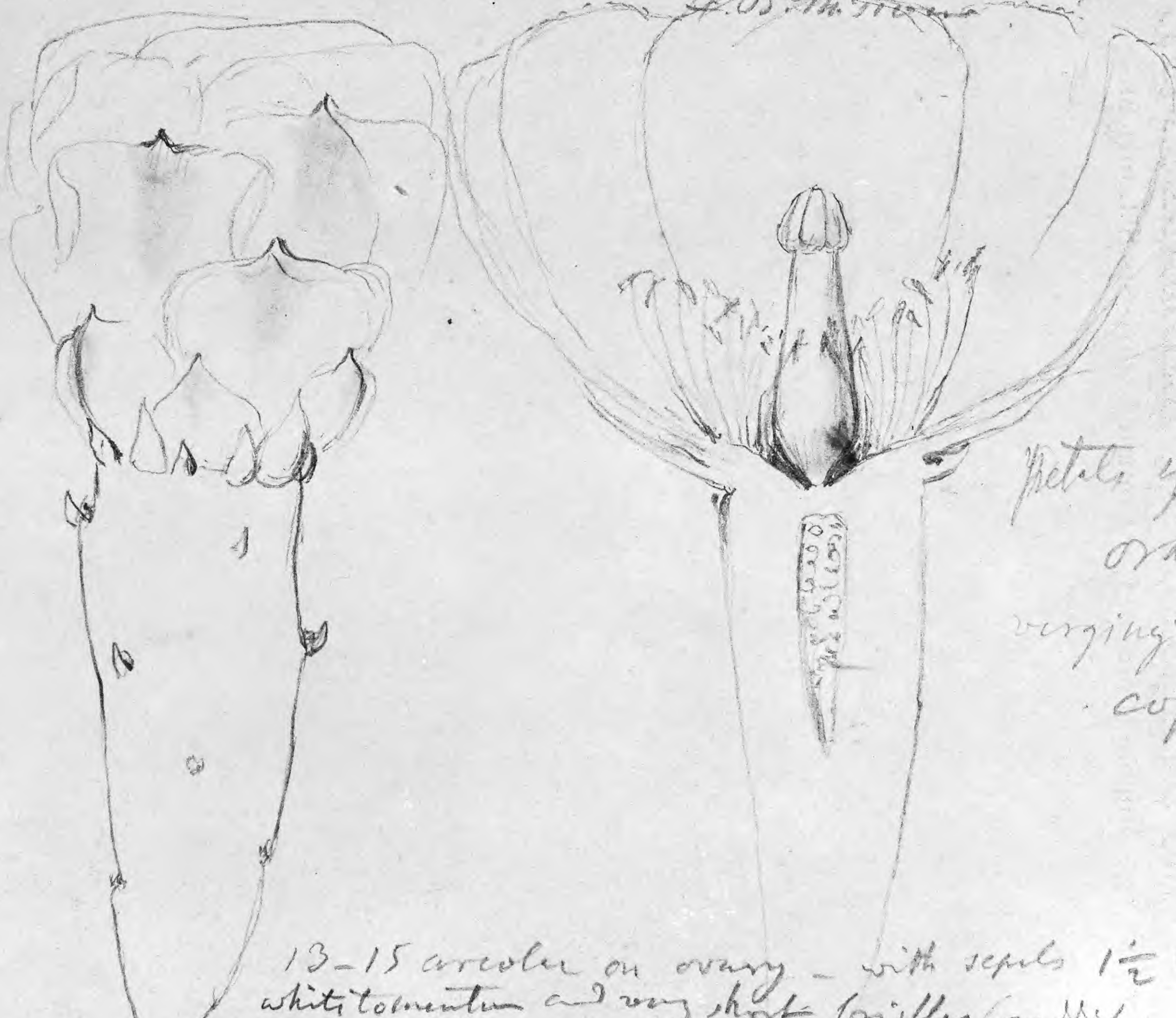


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Opuntia elata

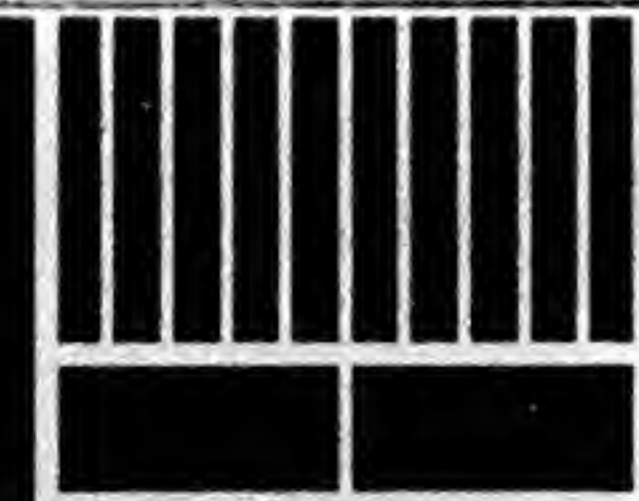
July 12 1865

405. 1/2 in. diam



petals yellow
orange
verging to
copper

13-15 areoles on ovary - with sepals $1\frac{1}{2}$ lines long
white tomentum and very short bristles (reddish)



0 1 2 3 4 5 6 7 8 9 10

cm

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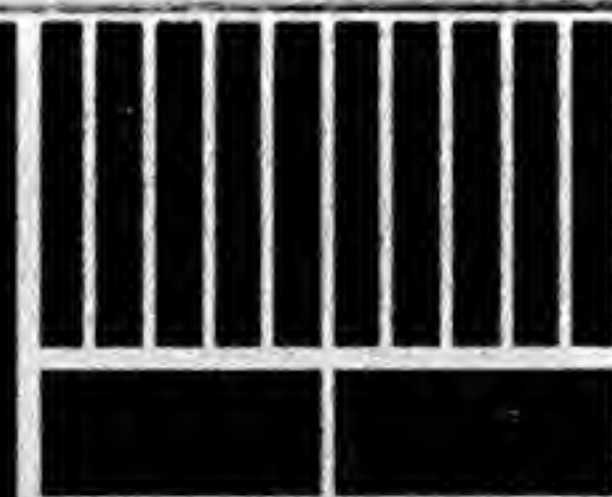
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0 1 2 3 4 5 6 7 8 9 10

cm

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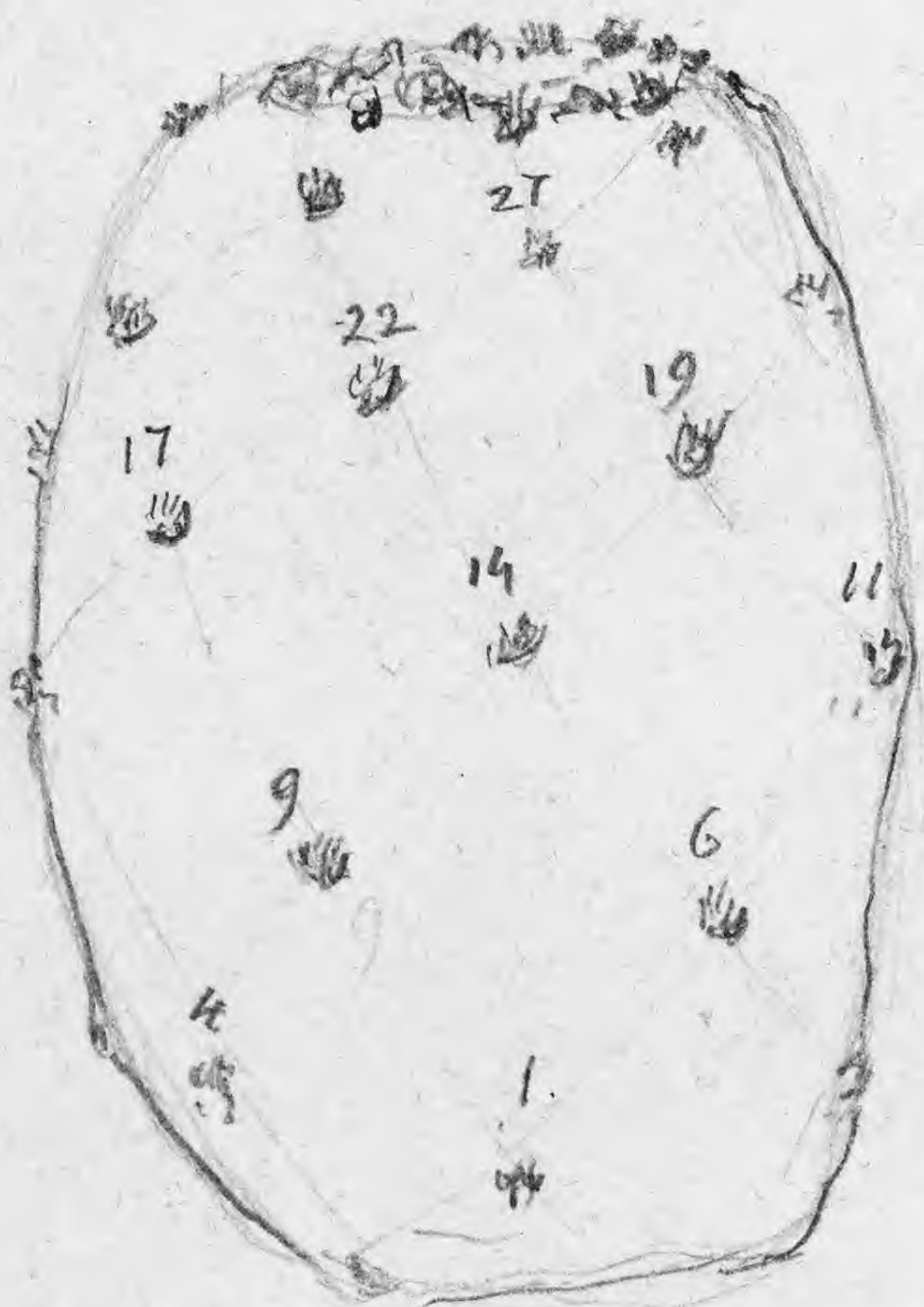


MISSOURI
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Op. Securimana ex Herb. Paris Jan 1 1872
1868

fruit orange - HB Herbarium May 1872

why not = O. Friesii?

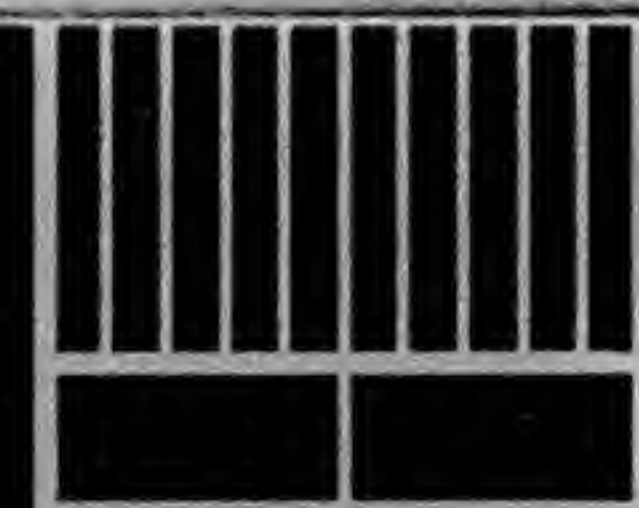


5 ↗

↖ 8

$\frac{5}{13}$

about 50
areolae on



0 1 2 3 4 5 6 7 8 9 10

cm

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MISSOURI
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GARDEN

2945

Leitch & Corlies

DRUGGISTS

**South-west
Corner Fifth
and Market
Streets**

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0 1 2 3 4 5 6 7 8 9 10

cm

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