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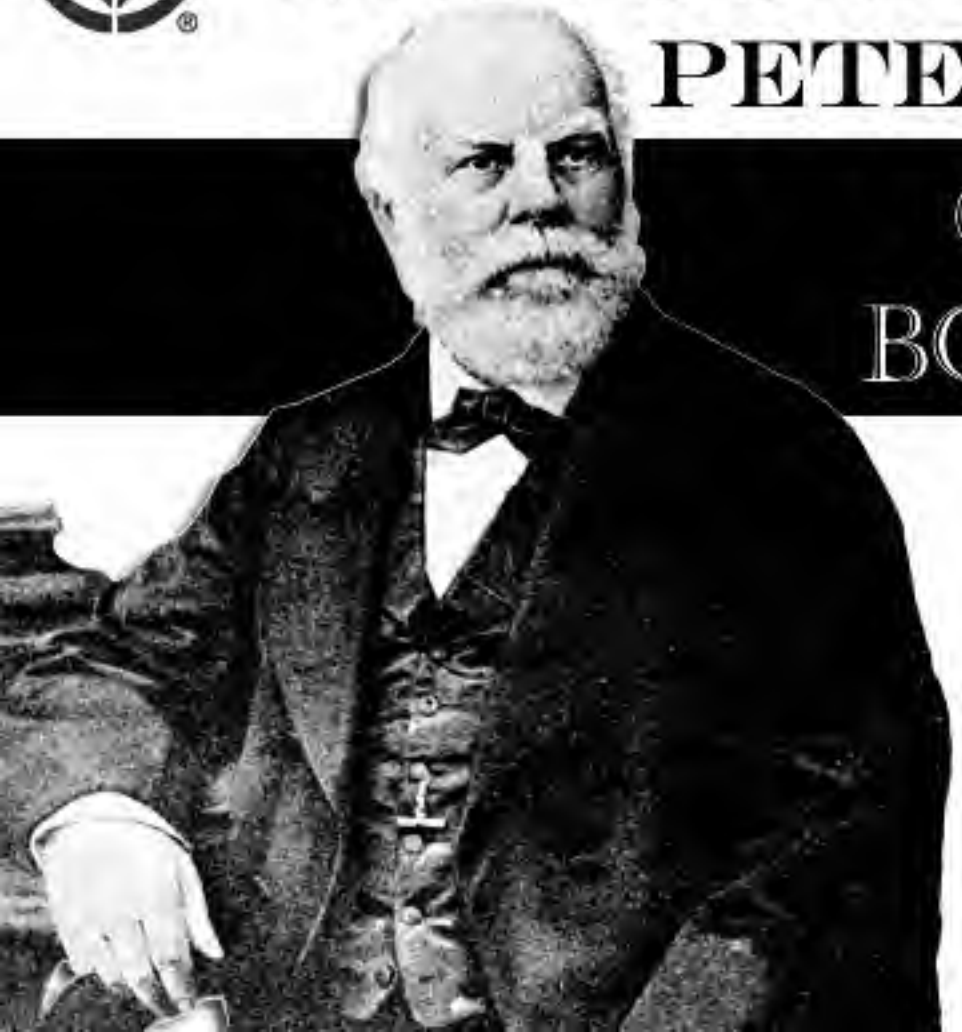

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Opt. Transversely
thin leg [9''] [illegible]
[illegible]

pl. small, fruits deeply
umbilicate

Leaves 3'' longitudinal or deflexed
fruit [illegible]

brown bark rough, other spec.
[illegible] Sept 1880

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Müller Turcomania May 1881

20–25 areol. ÷ Ovary

ovary tuberculated, not spiny

capsule 1½ l. long ?

fl. yellowish 1½ ''' ?

est. aspects circular! short ♂

fl. often deeply 5 ?

all ♂ yellow spotted pale

(no brown seen ?)

& capitate yellowish pale stigma

perhaps Cornuta 9 ''' long

tubercles 10–12 ''' long, linear

Areolae large, terminal, oblong

with 12–15 short (2–4 ''')

brown spines with paler sheaths.

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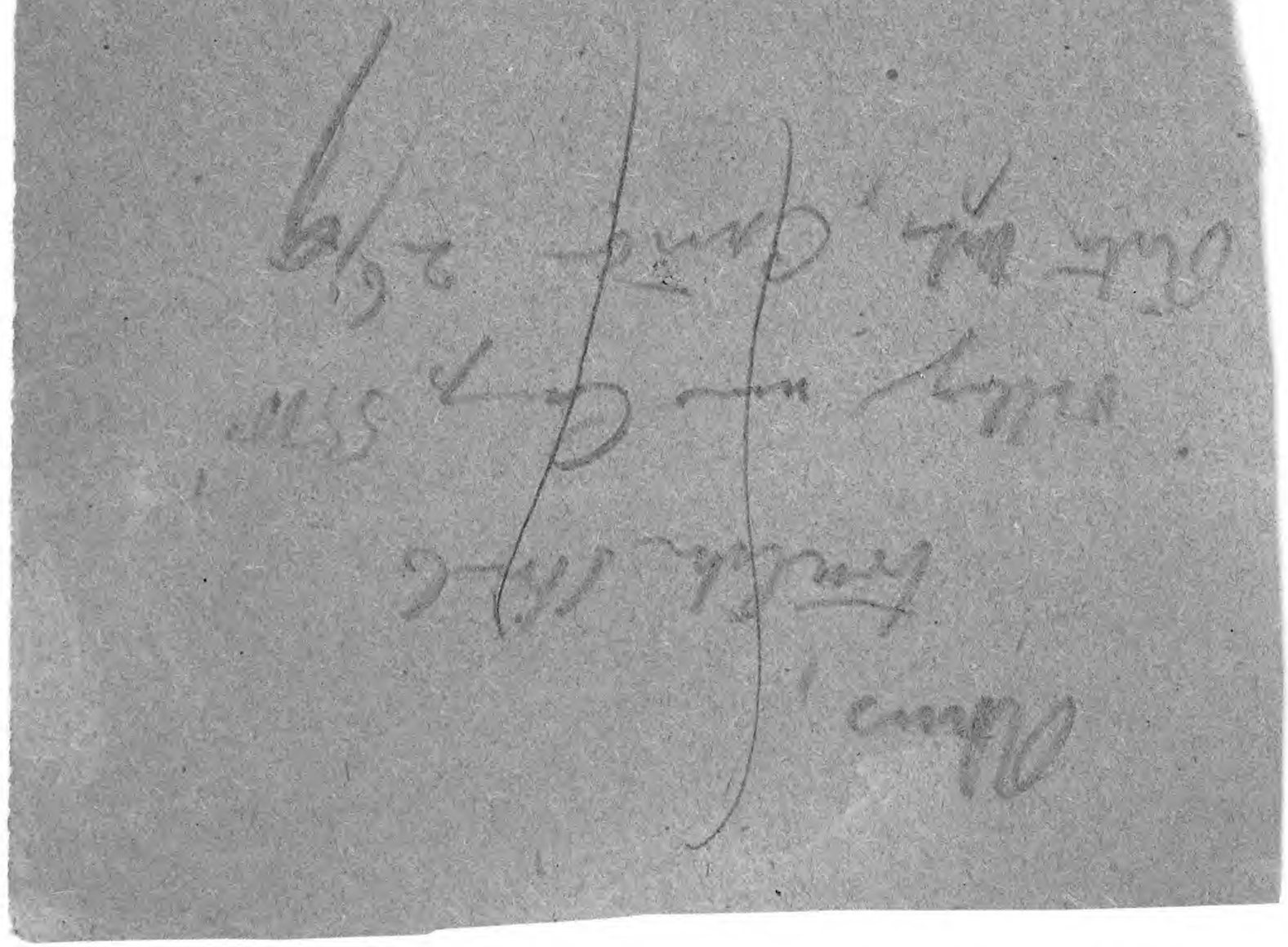

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Sept 24 1880

Cylindropuntia Tucsonensis Hills just north of Tucson with Cev. giganteus, Mam. Grahami, Opunt. leptocaulis etc. common near the Mexican houses at base of hill –
fruit small, oval, 10 lines long with few (20?) areolae, now yet green and fleshy, but apparently unripe; umbilic flat, seeds irregular, angular, with broad commissure.

Cylindropuntia north of Tucson Sept 24 1880

about 20 areolae on green fruit, now (unripe) fleshy, umbilicus flattish

seeds irregular, angular, with a broad commissure

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[7—037.]

Tenth Census
of the
United States.

2770

Wood specimens
of
~~1 Abies magnifica~~
1 Cupressus near Blue Lake.

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Gratis

2771

Mo 27 Mildy
[illegible] of the Pines
[illegible] Conifers!
[illegible]
Di 28 — Mesa [illegible] Opuntia Cogn
[illegible]

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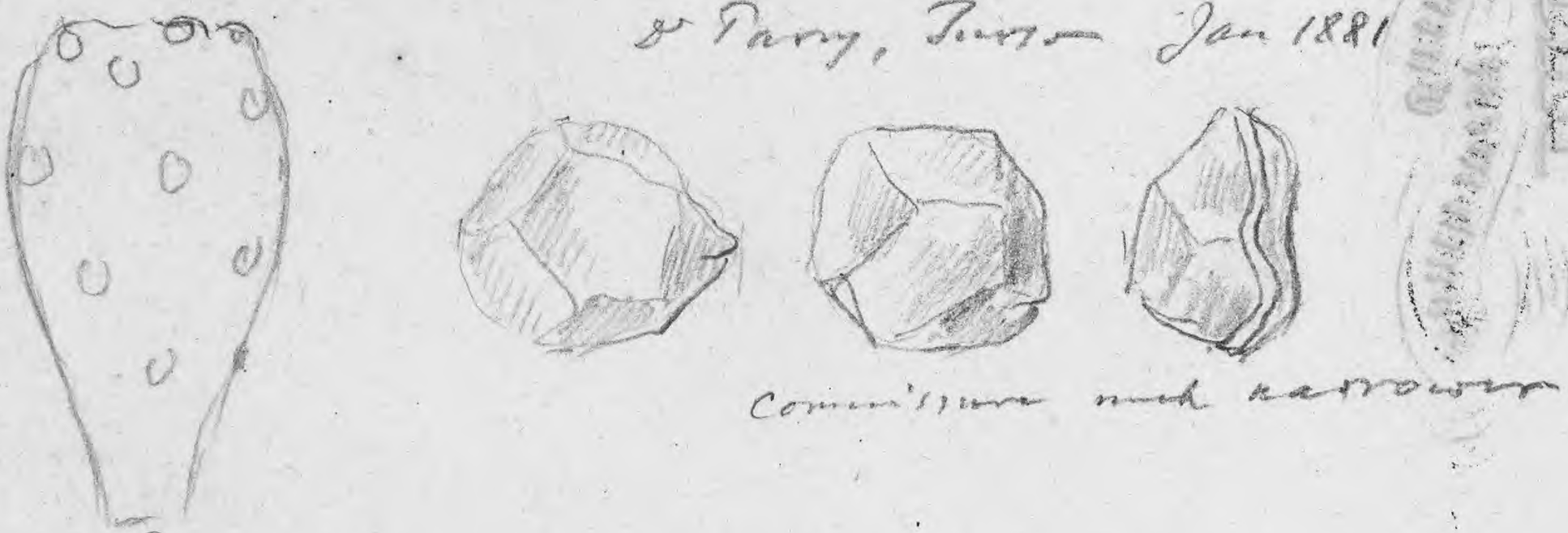
Opuntia Tucasenensis March 29 1881

Turso Sept 1880 G.E

fruit dry ish
about 20 areoles

seeds irregular, thick, with broad rather
prominent commissure; 2–2½ lines
in diameter

Dr Parry, Turso Jan 1881



about 20 areoles

Commissure much narrower

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Lilly & Grilley

DRUGGISTS

Corner Fifth and Market Streets

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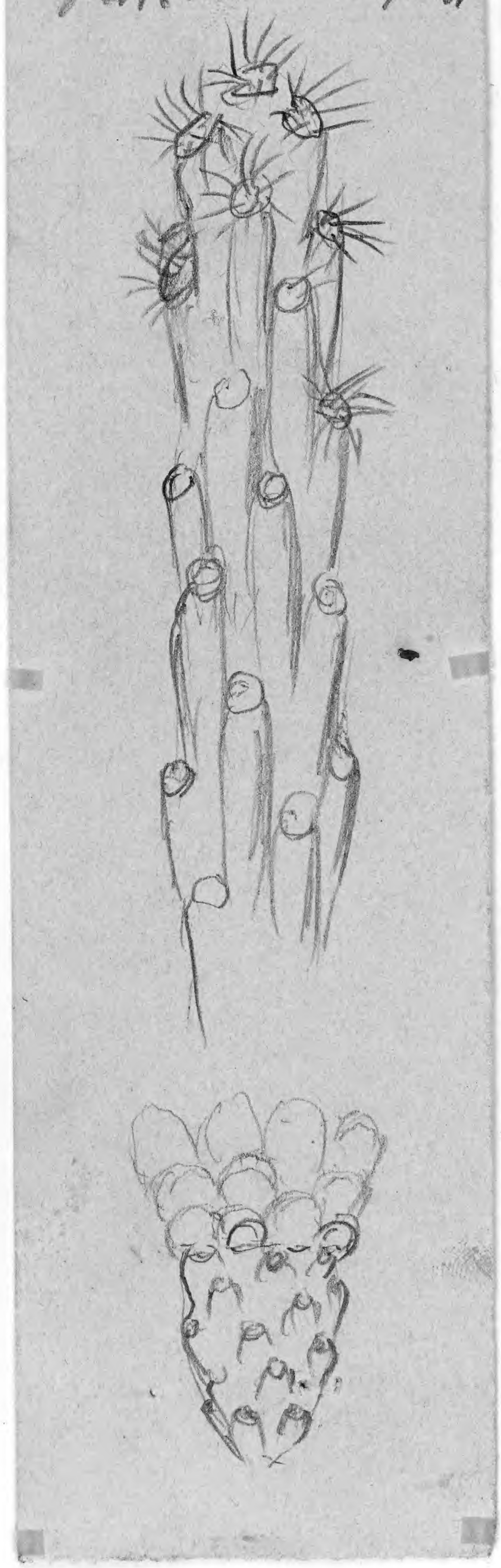
Op. Jussorensis
Benson, Ariz.
F. A. Miller May 1881



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Reservation of 1897

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Dr C C Parry Jan 1881

No 3. Opuntia ——— ?

3 to 8 ft high irregularly branched
main trunk 2–3 inches diameter
1–2 ft long. lower branches 8–18
inches long. rounds cylindric. spines
quite persistent. tubercles on older
branches flattened. prominent 6–7" long in young
shoots. dull purple or greenish?
of a drooping habit; fruit terminal
bright yellow? when mature.
you must have seen this in the
RR near Tucson or beyond the Gila
the seeds are characteristic.

thin thorny, spineless, irregularly much-branched?

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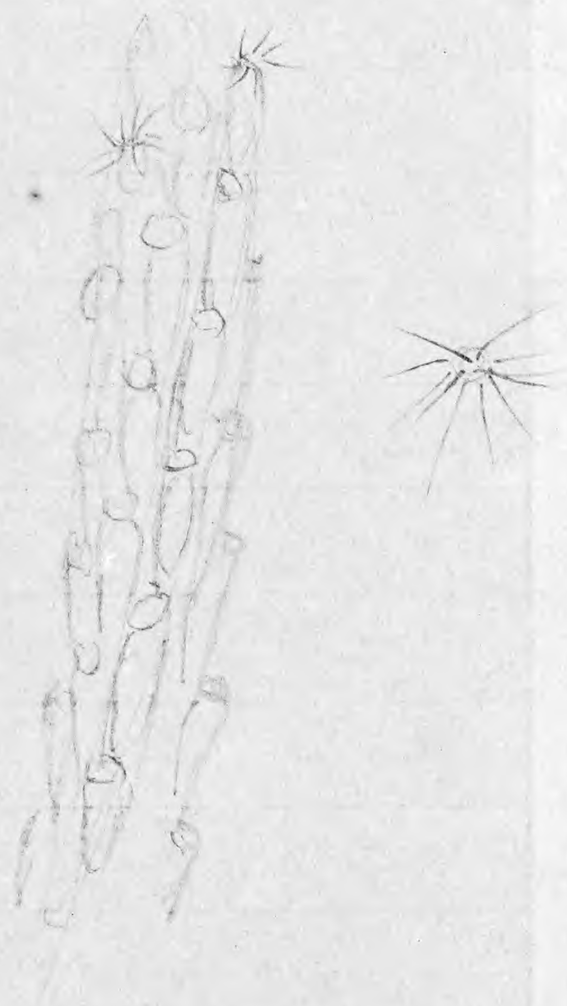
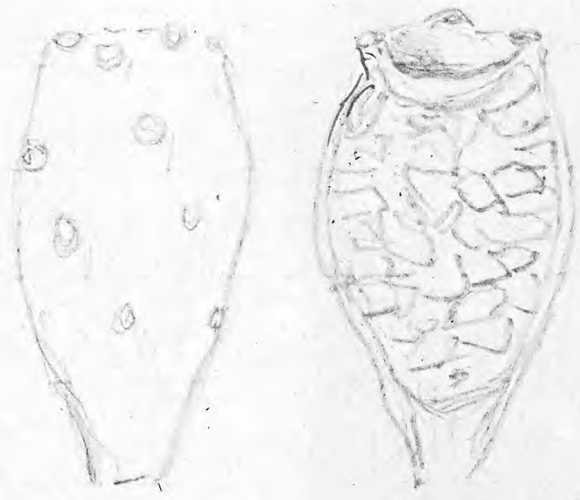
No 3 Dr Parry

= Turbinata

Opuntia bigelovii var

Blue





fruit yellowish, nearly dry, areolae about 20 tubercles, not bristly

tree like

Trunk 2–3 inches through, spineless, irregularly much-branched; lower branches elongated (8–18" long) terminal ones 4–6 in long, 1/2 in diam (in water purple); tubercles 6–7 lines long linear, prominent, soon flattened out and disappearing on the older branches in 4/y order

areolae terminal, very short gray tomtose; scarcely any trace of very short bristles on upper edge.

Spines 6–12 on young 15–20 on older joints; red brown acicular with a close and soon disappearing vagina; the longest ones rarely more than 1/2 inch long; usually 3–5 l. long.

Older bark smooth, brown, ~~with~~ marked with large prominent areolae, from which the spines wear off — oldest bark dark gray, rough

fruit in my specimen green, turning yellowish, obovate, apparently getting dry (consistency of fruit of Op. arborescens?) seeds numerous, (angular and very irregular) a little over 2 lines wide.

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"D." Dr Cones

Opuntia Whipplei Engel & Bigel

~~Cereus~~ ——— ?

The commonest & most widely distributed Cactus about Fort Whipple. Found everywhere on open, dry, flat, & grassy or barren plains: preferring those sparsely grassed, & inclining to be stony. - In patches several yards in diameter: irregular & straggling in shape: two to four or five feet in height. - Young plants form closely set bushes, more or less spherical in shape; a foot or so high and in diameter; fleshy & green nearly or quite to the roots; appearing from a distance almost white from the abundance & close aggregation of the white spines. The older the plant the more irregular, ragged & uncouth the aspect, both of the individual & the whole patch. The main stems have then become quite hard and ligneous, the bark resembling that of some species of Juniperus, in its peculiar ragged & fibrous character. The general character of the plant is then very straggling: the lower portions are nearly bare, & dark brown; and only the tops & the newer shoots retain their softness & greenness this color, as in young plants veiled by the white spines. Very often more or less of the young shoots, or perhaps the greater part of the fleshy portions of the plant are of a dull reddish purple color.

In general habit the plant is "erect, arborescent." A shoot, near its apex gives off an indefinite number (2 or 3 to a dozen other shoots; which may grow off at a

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right angle; or what is more frequent, incline forwards, in a loose-set bunch, around the axillary shoot, — the prolongation of the main stem. This axillary shoot continues forward and soon gives off another series of lateral ones; each one of which may in turn become a parent stem.

Each stem, or shoot, as long as it remains in the green "fleshy" condition is composed of a number of small closely-compacted oblong lobes [Tubercles], the direction of each series of which is ascending spirally round the ~~stem~~ periphery of the stem. Each lobe bears upon the central or (more frequently) the anterior portion, its spinifer, pulvillus.

The spines are very thickly set; averaging from 2 to 5 or 6 on a pulvillus. Those growing upon the pulvilli nearest the base of the shoot are very small & few in number; but only a very few pulvilli want them altogether. They increase in size towards the apices of the shoots, where they are also most numerous. They there average 1/2 – 3/4 of an inch in length; are very slender & pure white in their whole continuity.

The fruit is borne upon the apices usually, — on the lateral surfaces nor rarely of the newer shoots. Sometimes it is single; but much more frequently in a cluster of 3 – 5 – 6; when the shoots ~~are~~ usually curve pendant downwards with their weight. When unripe they are deep green, like the stems themselves; they gradually lighten, ~~to~~ becoming yellow; pass

2777

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ongh various shades of yellow to a bright chrome;
finally become of a light dull scarlet red.
hey are broadly, obtusely pyriform in shape
pically deeply umbilicated: their surface
omposed of a number of large, more or less
ziform, out=standing lobes. - [tuberculated]

When fresh this Cactus possesses
a very peculiar & slightly nauseating odour.

Dr E Lowes

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"D."

Field notes on

Cereus — ?

Elliott Cous.

December 5 1864

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Dr. E. COUES
U.S.A. Washington, D.C.
DEC 1864

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Dr C C Parry Jan 1881

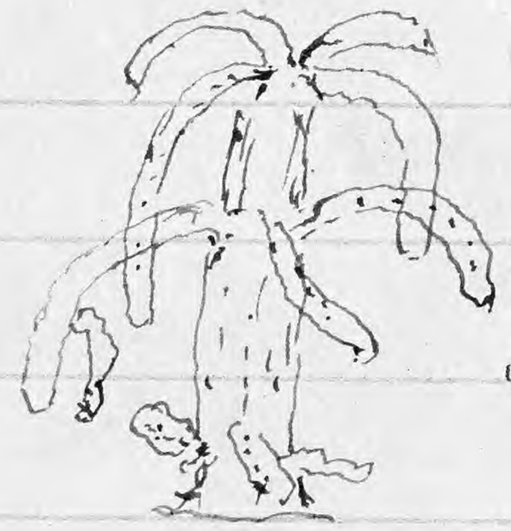
Whipplei

No 2 Opuntia (lurida)? n sp ?

Trunk short or occasionally small tree like 1 – 3 ft. sending off divaricate drooping branches 1 foot long generally in 3 – 5 – tubercles prominent stem purplish green. fruit terminal bright yellow seed orbicular smooth

See specimen

See specimen



Trunk too thick

Should be even cylindr.

Hab. gravelly hills near Benson. Jan 21st/81

I confounded this in my specimens with No 3 which is distinctly tree form. seed very different. must examine this again & make diagnosis better)

Do you recognize it ?

2779

elongat

(

Tassles short

terminal bri

the stouter ones

t or off bro

Fruit oval, no

obicular ac

what prominu

seeds rather regu

a narrow, widen

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O. Whipplei

Opuntia Cylindrica = echinocarpa

D. Parry Jan 1881

Trunk short and ~~thick~~ stout, sometimes tree-like, 1–3 feet high, with divaricate drooping (only in winter?) rather simple branches,

branches 8–9 lines diam, livid purplish (only in winter?) ~~of~~

tubercles short (6''' long) remarkably prominent, ~~oval~~ with terminal bristle-less areola, bearing 7–10 short whitish or ~~of~~ the stouter ones brownish spines; 3–5 l. long, well sheathed.

Fruit oval, somewhat fleshy, bright yellow (= arborescens) with orbicular seeds — areolae of fruit 25–30 on somewhat prominent tubercles

Seeds rather regular, orbicular 4–5 mm diam, half as thick with a narrow, wider or very wide (1/3 the thickness of the seed) commissure.

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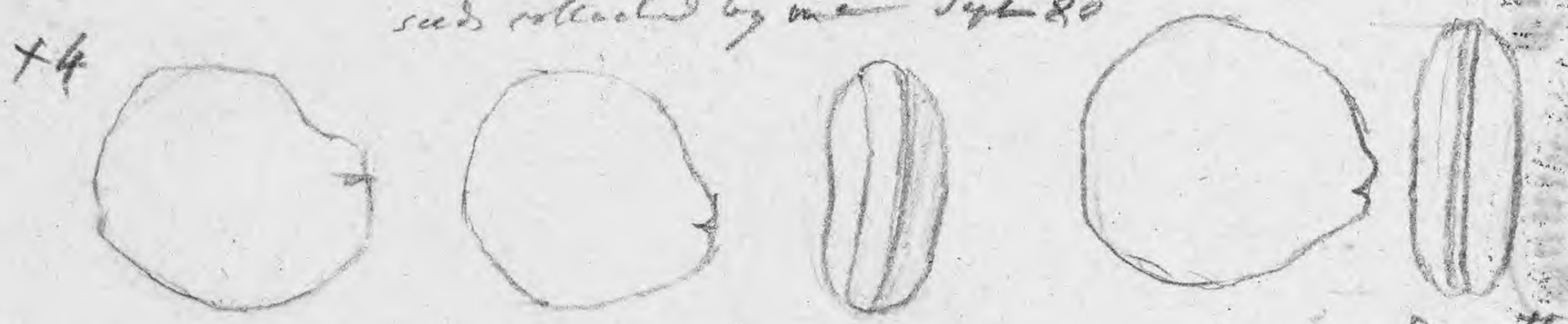
Opuntia Whipplei March 29 1885
(echinocaulis) G. E Arizona Sept 1880

Parry's and my fruits are all alike

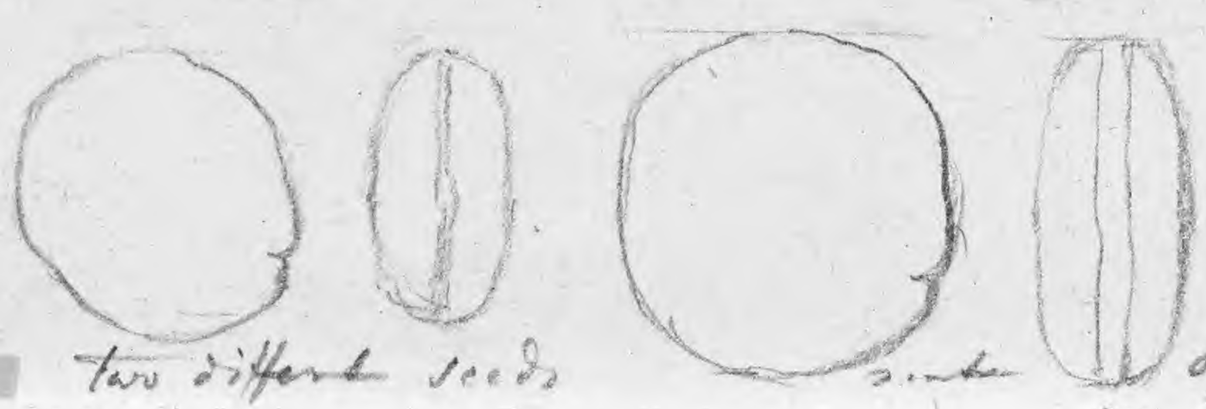
20 — 20 areol

seeds collected by me Sept 80

×4



larger seed with narrower commissure from another capsule



two different seeds seeds by Dr Parry, Jan 1881

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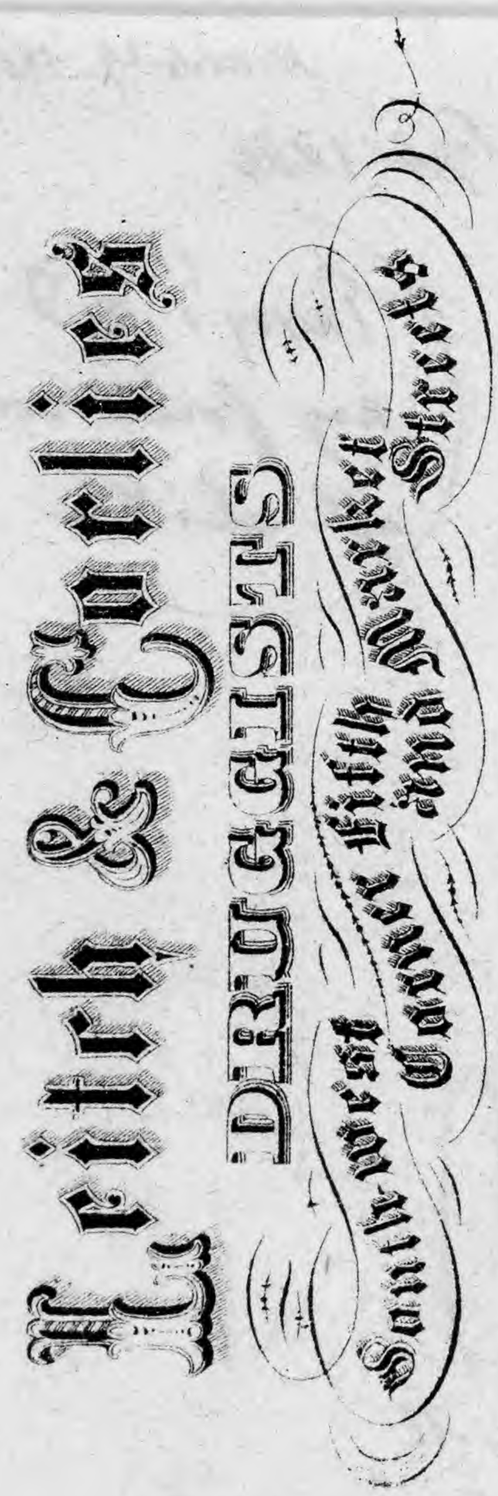

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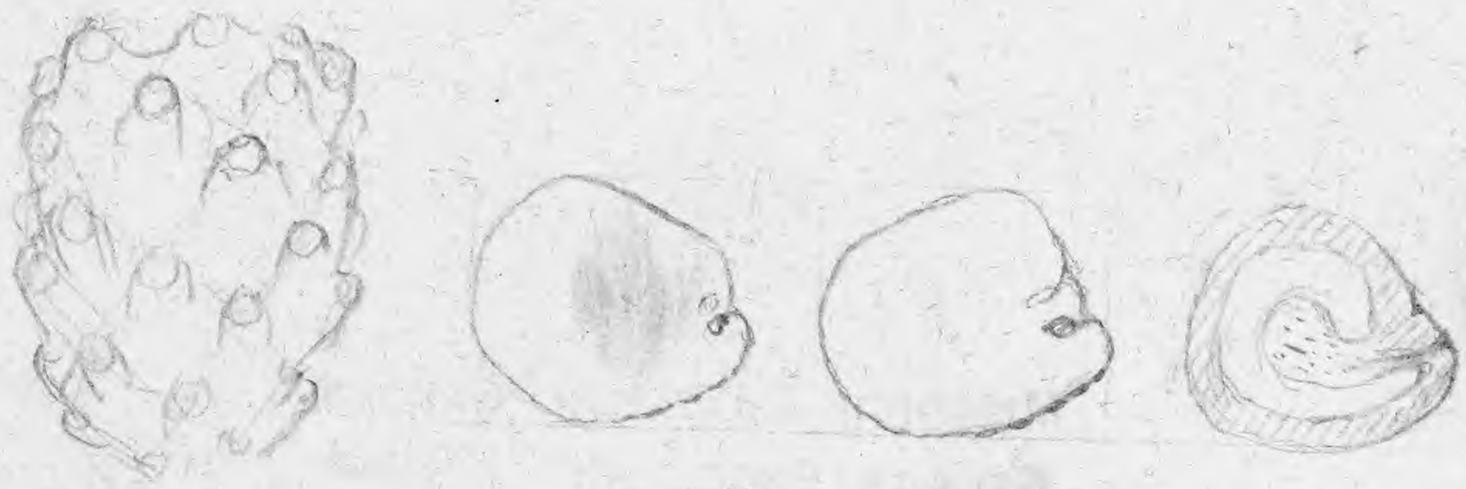
Opuntia Whipplei ? March 28 1876

old specimen (1853-55 ?) no label



shape indistinct, areas
or indicated by tubercles

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Alex. Leith,

APOTHECARY & CHEMIST,

Cor. 4th & Olive Sts., St. Louis.

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Aug 1877

×4

Op. Whipplei

St George, Utah

Dr Palmer 1877

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Opuntia Whipplei (dense wood)

very much branched
birds build nests
in it (for protection

South east of St George towards the
Colorado off about 3 feet high, rarely
more + usually 2 feet

E. Palmer May 27 1877

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Missouri

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SIR: Being engaged in preparing a memoir upon the "Burial Customs of the Indians of North America, both ancient and modern, and the disposal of their dead," I beg leave to request your kind coöperation to enable me to present as exhaustive an exposition of the subject as possible, and to this end earnestly invite your attention to the following points in regard to which information is desired:

1st. Name of the tribe.
2d. Locality.
3d. Manner of burial, ancient and modern.
4th. Funeral ceremonies.
5th. Mourning observances, if any.

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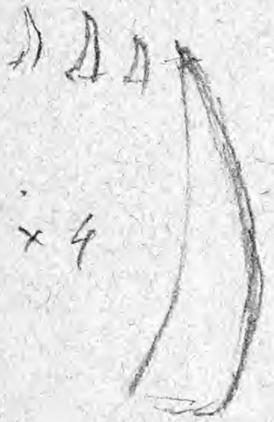
Opuntia [illegible] ? rec'd Aug 18 1877
& Palmer rec'd



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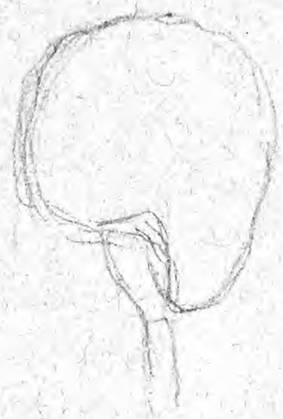
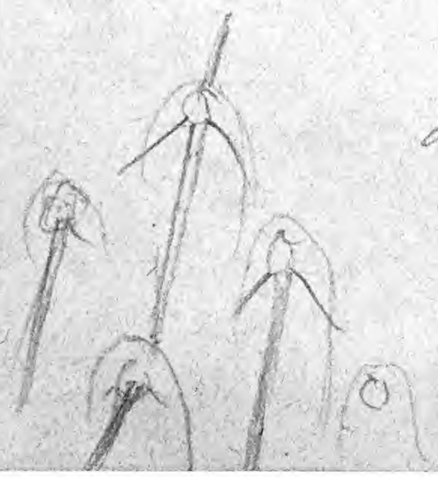


×10
young
seed

leaves
on upper part
of ovary
5 mm long

young fruit
40–45 areolae

older branches of younger bearing
branches 6 lines diameter



areolae 4–8 or 9 lines
apart, 1 sheathed
deflexed spines
a few other weaker ones, and occasionally an
erect one

areolae [illegible] of order

cuticles of very pale yellowish
fine bristles on upper part of fruit
not immersed areolae

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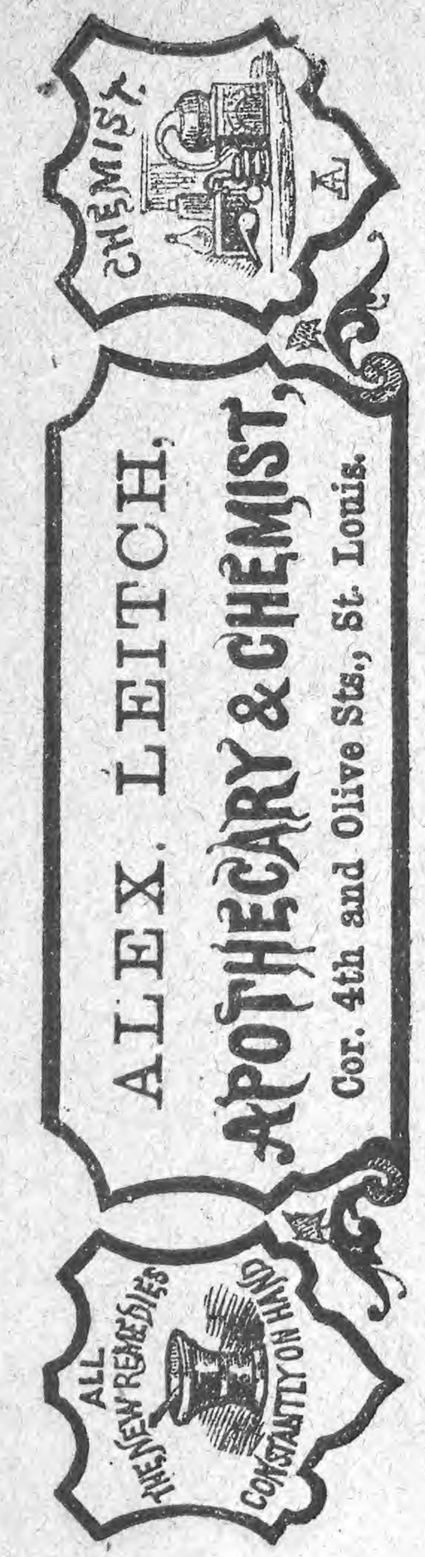

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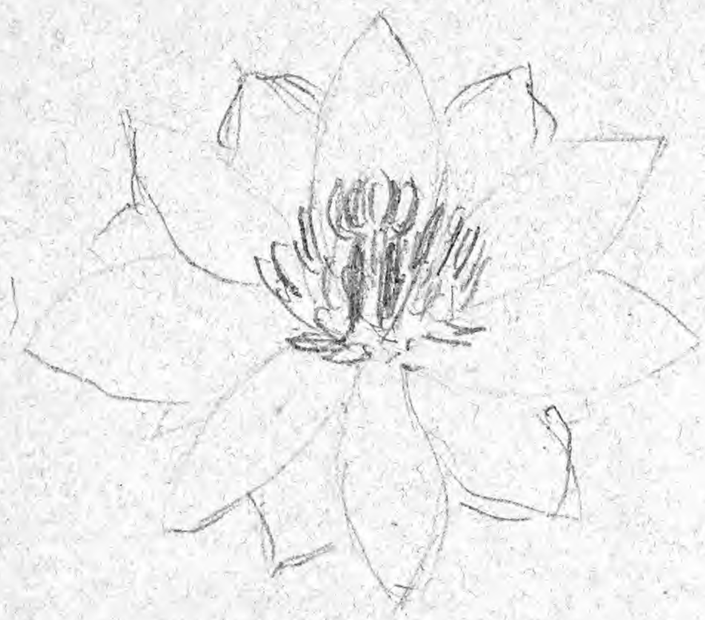
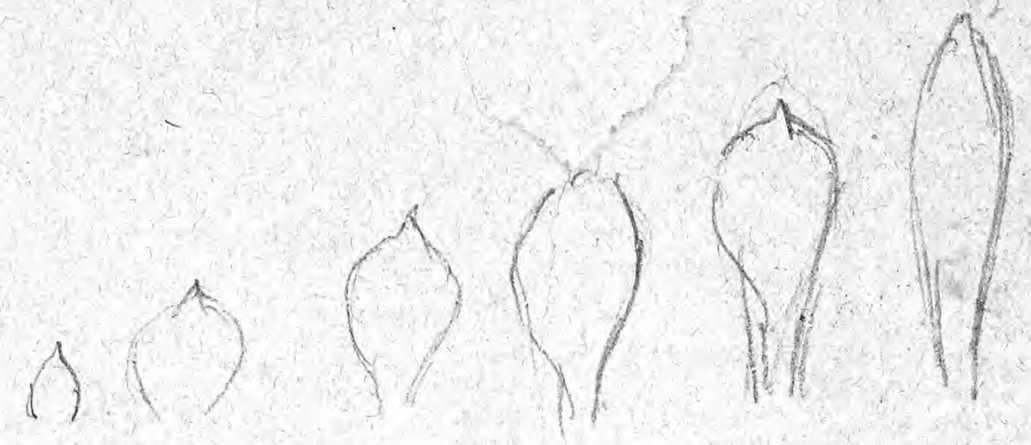
Nymphaea Odorata?
S Palmer, Utah

July 19 1877





flower 18–20 l. diam
yellow

diameter of Pollen

$\frac{35-39}{415}$ mm

= 0.084 – 0.094 mm

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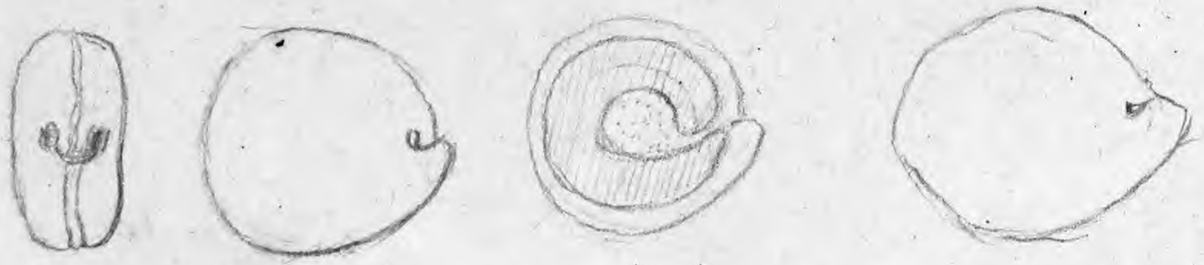
Op. Whipplei

Dr Bigelow 1855

Jan 26 1875

x 4



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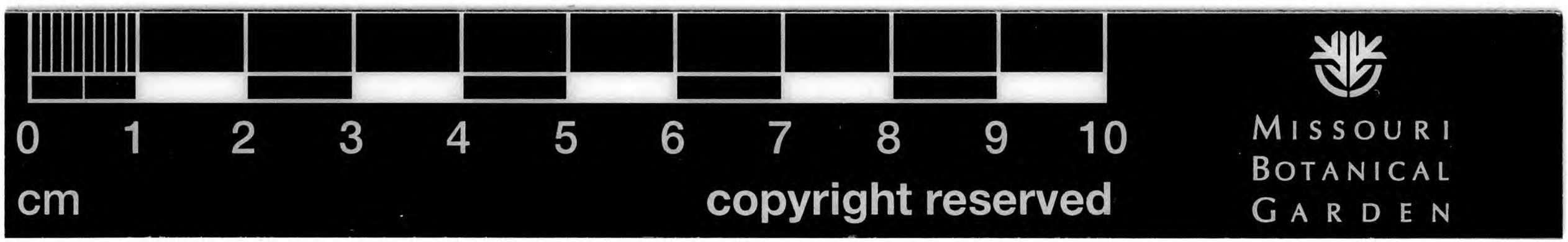


March 28 1876

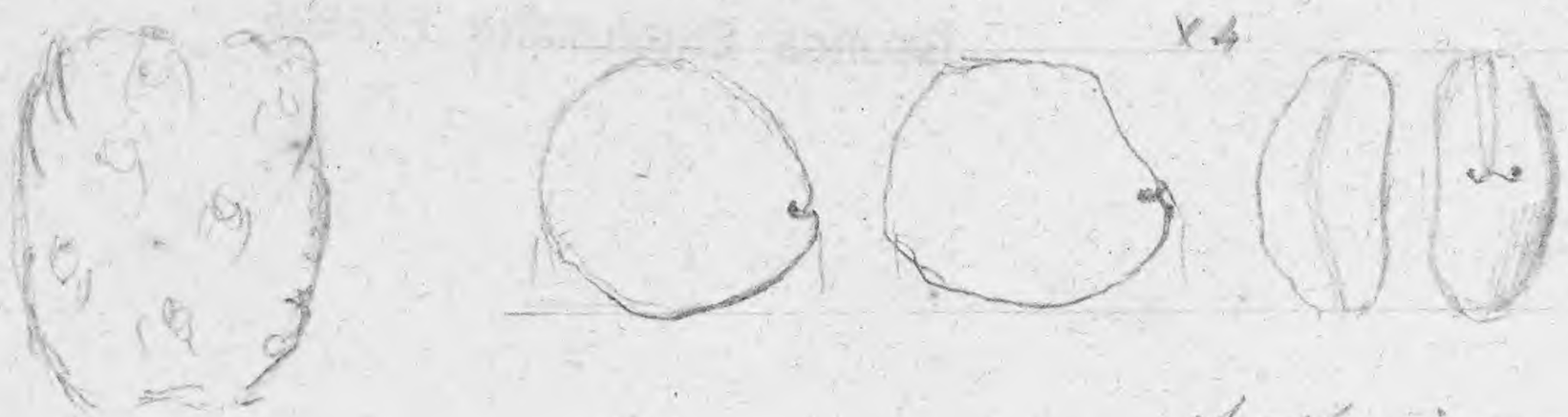
Spiranthes Whipplei

Spiroxior

No 5 A Schott, Chihuahua

Valley of Santa Cruz River

June 1855



shape incomplete

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J. Leitch,

DRY & CHEMIST,

Olive Sts., St. Louis.

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Opuntia Whipplei nearly two feet high
(nearly 3 feet) very much branched
bushy — birds build nests in it

E Palmer 1877

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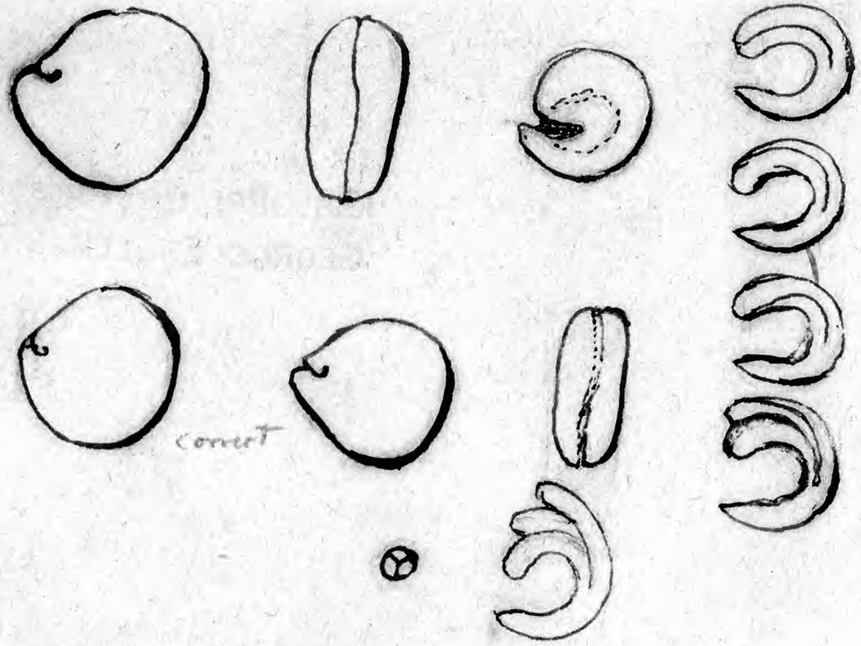
1855

2 Op. Whipplei

Bigelow



March 1876

Seed: larger ones 1.8–1.9 broad 1.6–1.7 high 0.7–0.9 thick — commissure linear, distinct

smaller ones 1.5 broad 1.4–1.5 high and 0.6–0.7 thick — Commissure a little broader, but not 0.1 line wide

Seeds rather regular and smooth, with no beak or a blunt and short one

Cover lip much protruding above the upper one

Cotyledons regularly ~~[illegible]~~ or oblique

in one instance 3 Cotyledons seen

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"H" N E Cones

Opuntia Whipplei var ? ~~[illegible]~~

Cereus - Much resembling and apparently not specifically different from Cereus "D" of these Mss. notes.

Strong specimen, taken when just commencing to bud. - "Skull Valley" 20 miles South of Whipple.

The very numerous individuals of this species met with everywhere, still retain, at this date, the fruit mentioned under "D"; in color and general aspect hardly ~~[illegible]~~ changed from last Fall

N.B. For remarkable ~~change~~ difference in forwardness of plants of Whipple & Skull Valley, (only 20 miles south, but considerably less elevated) notice specimens in general herbarium marked with that locality.

May 3rd 1865

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"H."

Field notes on
Cereus

Albert Carnegie

Albany, Ind. Feb. 1865

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Dr. E. COUES U.S.A. Washington D.C.
JAN 28 1866

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Arizona

Febr 1868

E. Palmer No. 88
(private mark 103)

Opuntia Whipplei, spinosior (but fl. purple
wide branching bush, bright purple flowers, white stigma
near Tucson in fl. & fruit Aug 10

branch before me 3 years old 6 inches long, 1 inch
diameter, tubercles 9 l. long 4 l wide in 6/10
arrangement, about 10 or tender sheathed spines, a central
one longer than the others, all 3-6 l. long

3 flower bearing branchlets, 3 inches or over long
& 10 l. diameter, somewhat clavate; tubercles 7 l long
2-2½ l wide, in the same 6/10 order, spines fewer
and shorter. — Another detached branchlet with smaller
shorter tubercles in 7/11 order

flowers 2½ inches in diameter "bright purple"
ovary nearly 1 inch long (or (stride?) longer and
more spiny) tuberculated, about 30 white woolly
areolae, upper ones with some spines; about 8
ovate cuspidate sepals 8 or 10 large obovate-spatulate
purple petals, 1 inch in length or thirds half as wide, anthers linear
5 or 6 rose colored incurved stigmas.

Berry 1 inch long, oval, tough fleshy, with
a wide and shallow umbilicus, somewhat tuberculate
at last spongy and dry (is this regular, or only in
consequence of being gathered unripe?)

Seeds regular, orbular, 1½ - 1¾ l. diameter
commissure narrow, often nearly obsolete

× O. Whipplei has yellow flowers!

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over 8" diam at base all over covered with spines

Op echinophloea 8' high, 3 main branches 4-5" thick, branching up 5 feet from ground, last branches 1 inch thick; fruit tubercled never proliferous

over

Op. echinophloea

flowers 2' diam. May & June, purple
saddle
3 nests of Mocking birds in this bush

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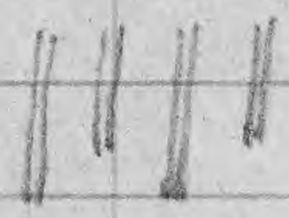
Jamestown 27/9 Broadleaved

carries fold in the tube of the calyx, bending

somewhat closing the nectar cavity, sinuous,



the 4 upper lobes of the corolla corresp

with the 4 upper (calycine)

stamens, the 4 lower with

the 4 inner (petaline) stam

Palmer Cons 17 x 2" scape 8. nat

8" corolla

13 bracts

over

Opuntia echinoplora Sept 25 1880

on Mesa

12–15 spines, grayish or brownish

older joints; shutters firmly

adhering.

tubercles large – obovate, prominent;

large areole at the end – berry

loses its spines – tuberculate, yellow

tough – flesh – allied to O. arborescens

to which seeds approach – bracts horizontal, vanishing

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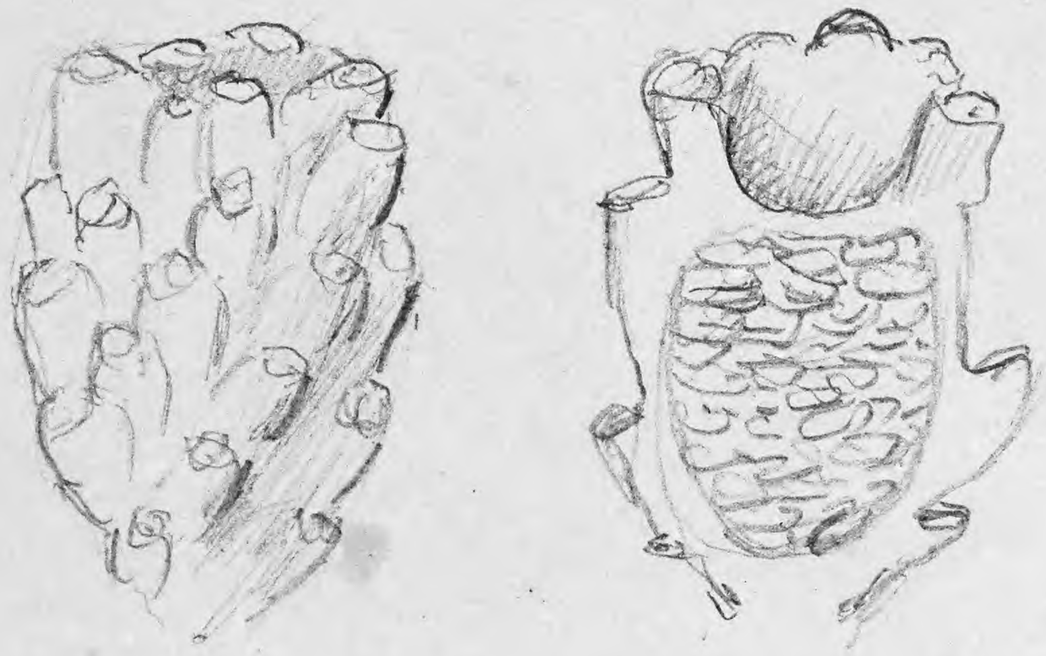
Opuntia echinocarpa Jan 27 1880

Mon, ~~south~~ of Tucson, Arizona, Whipple, t. th. Sant Rit. Mountains Sept 80

GE



fruit 1½ inch long, nearly 1 inch wide yellow, rather fleshy, deeply umbilicate, with about 40 spineless areolae on tubercles, in $\frac{6}{10}$ $\frac{7}{11}$ $\frac{8}{13}$ & $\frac{10}{16}$ order, in the latter (all the larger fruit) the 6 and 10 spirals most conspicuous

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Henry T. Rohlfing,

APOTHECARY,

No. 2600 Laclede Ave., S. W. Cor. Jefferson Ave.,

ST. LOUIS, MO.

No. ..... Date, ... 187

℞

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Geo. Engelmann, M. D.,
No. 3003 Locust Street.

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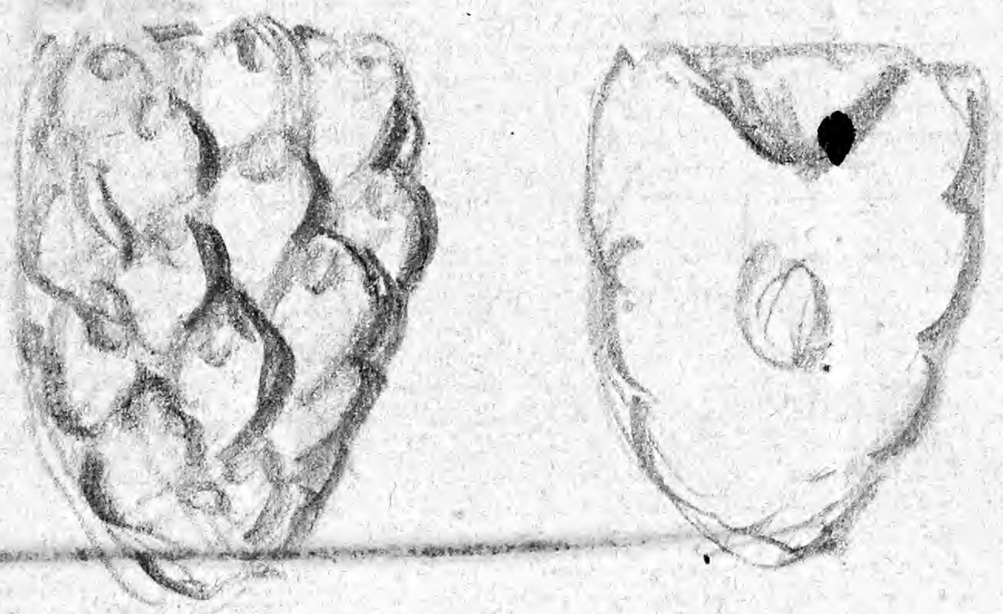
good Opuntia fulgida?

Dr Palmer 1870 Arizona



only sterile fruits, viscous-juicy, with rosettes and some sprouts - tuberculous with 25 areolae on rhombic faloilli. Areolae bristled not spiny, bristles greenish-straw coloured.

These fruits were planted & fell sprouted the following spring and have made well grown plants - 1873

Living - 1876

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Engelmann

St. Louis

Alabama

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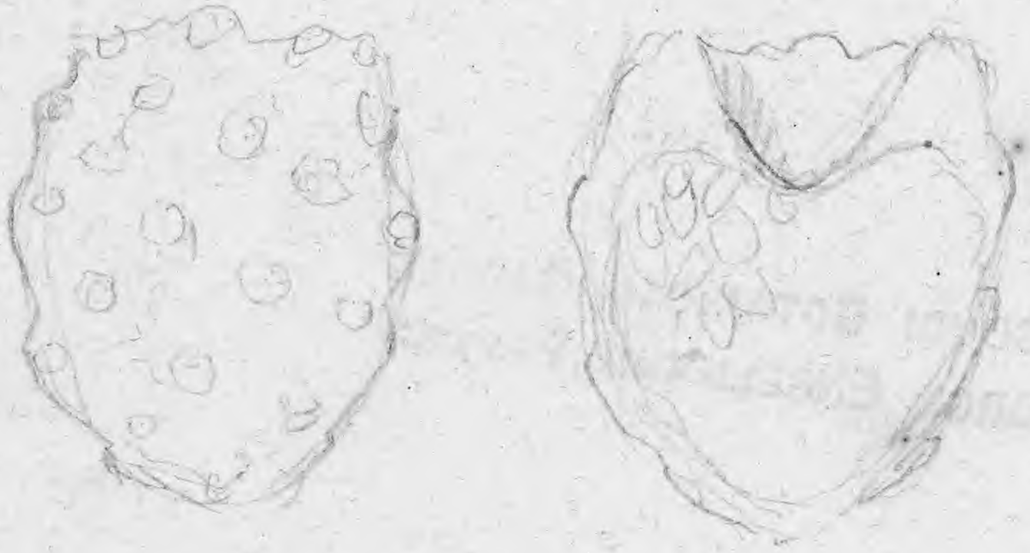
O. Bigelovii ? ?

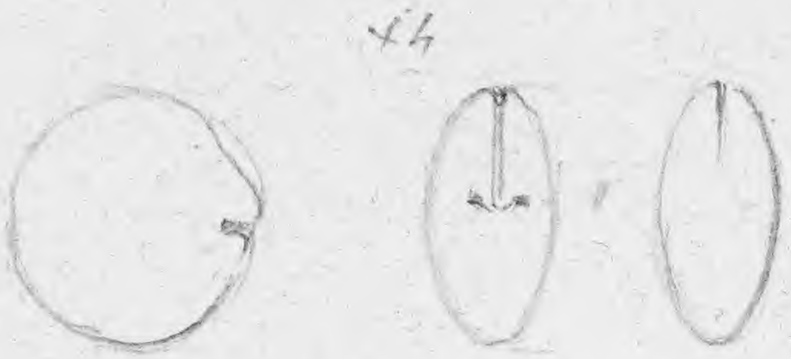
March 26 1876

Parry Arizona 1868 June B



30–40 areolae

This is the only seed seen, which I can refer to O. Bigelovii and from same locality.



seed regular lenticular

(commissure) shape linear and partial only on upper and ventral side visible !

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APOTHECARY & CHEMIST,

Cor. 4th & Olive Sts., St. Louis.

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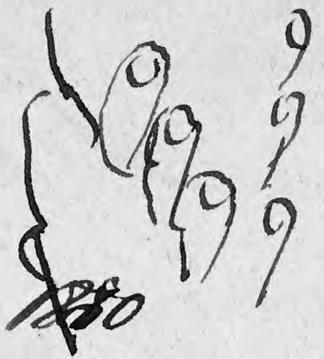
Cylindropuntia echinophloea



tubercles 1/2 inch long

mesas between Tucson and Santa Rita Mountains, Sept 25–28 1880

52

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Allenton, Mo. Nov. 13-1880.

Dr. Engelmann,

My Dear Sir:

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near St Xavier Mission

Opuntia (Cylindropuntia) Mesa, south of Tucson Sept. 25th 1880

6 feet high, very spiny stem, small and very slender leaves, fruit deeply umbilicate, tuberculate, seeds regular, stem 4 inches thick

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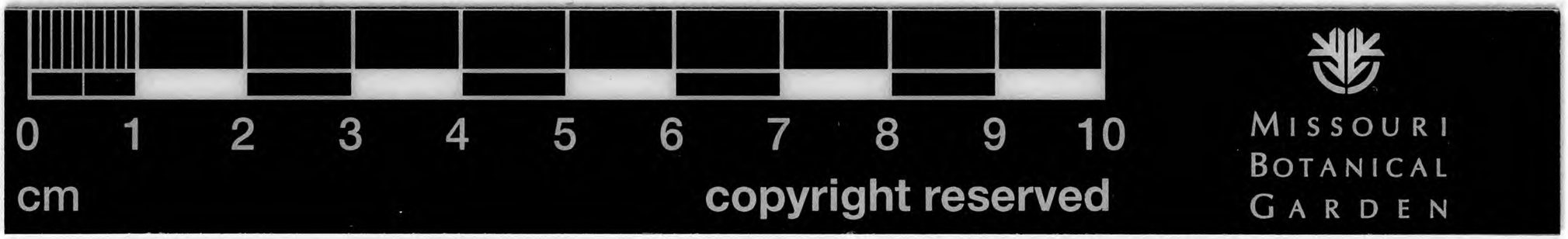
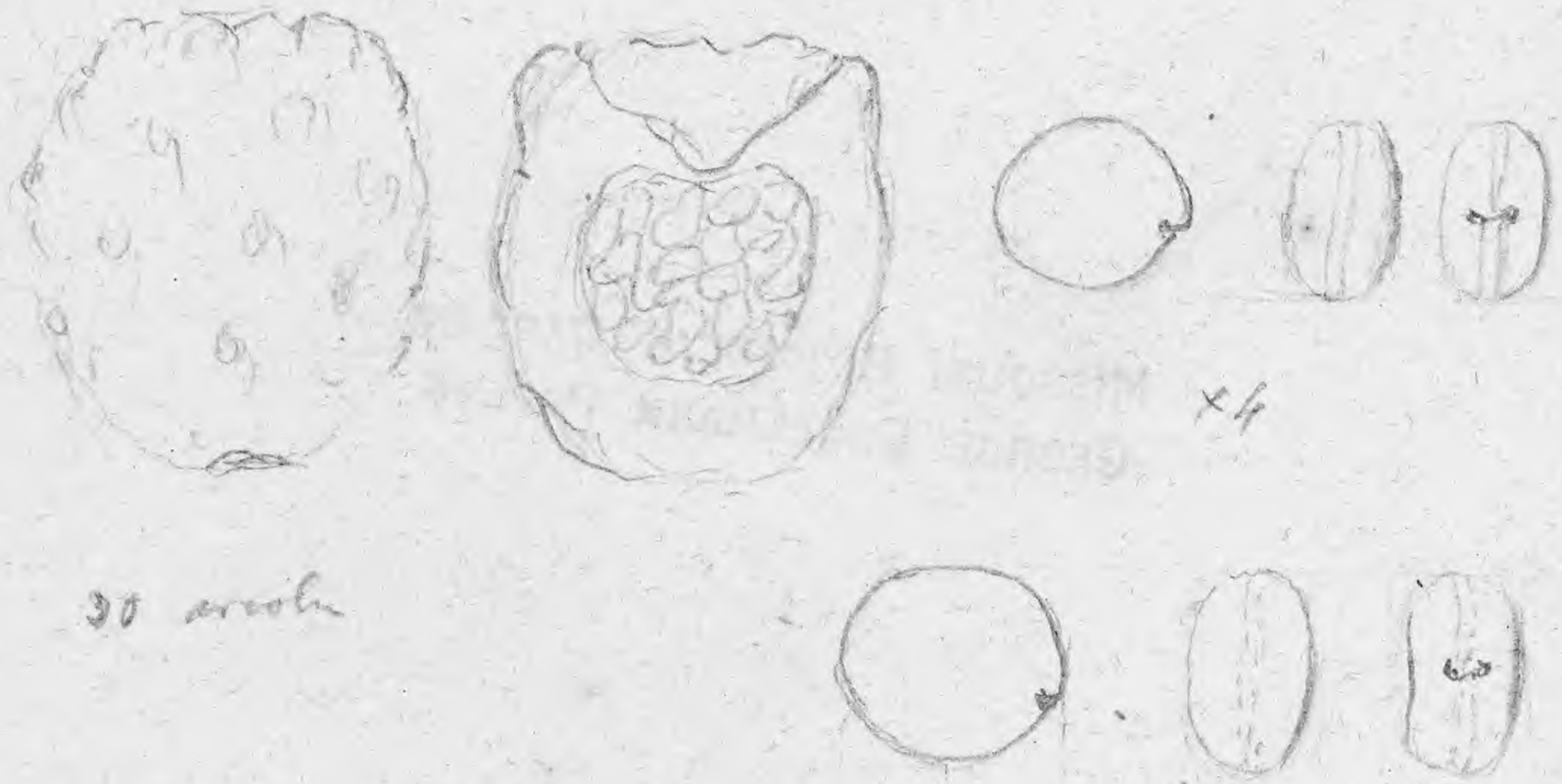


Opuntia March 28 1876

Palmer Arizona 88 (or 103) 1867



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