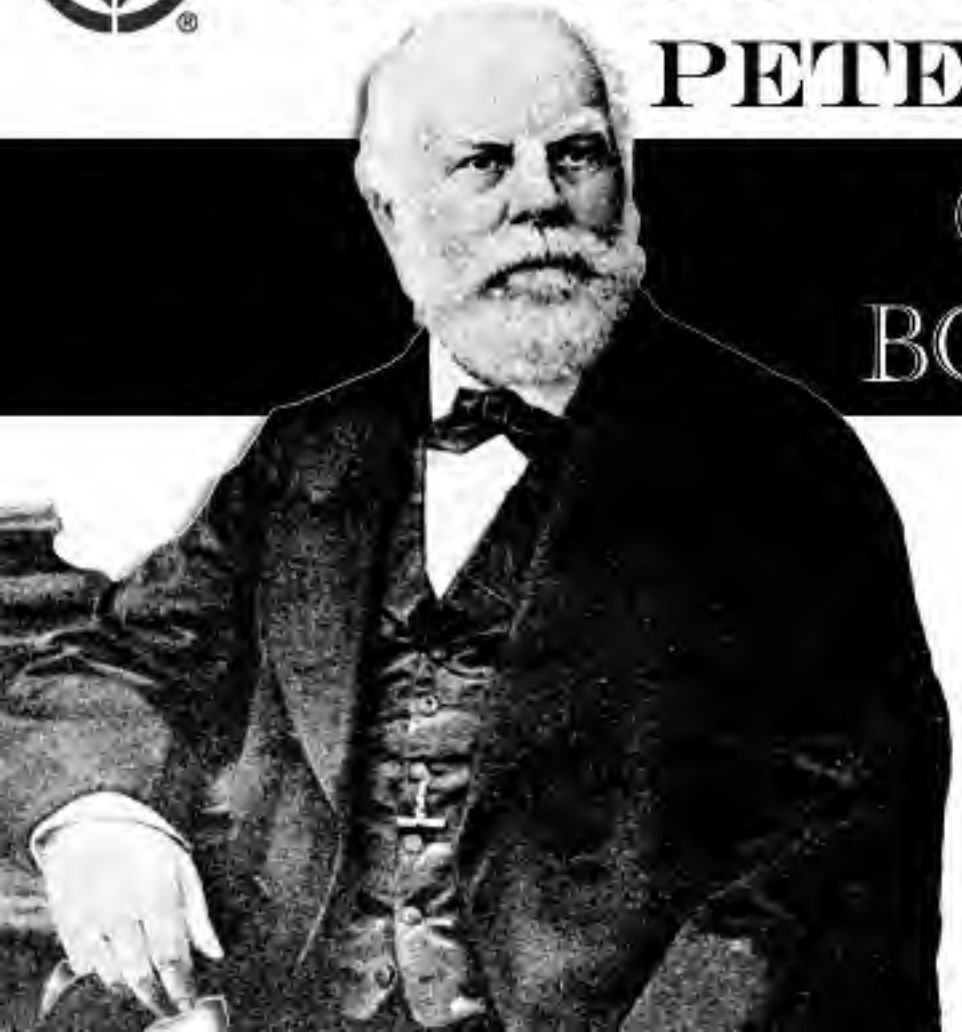
Missouri Botanical Garden
Peter H. Raven Library

George Engelmann Botanical Notebooks



Pagination Note:
Since many of the items lack a specific page number, the page number displayed online refers to the sequentially created number each item was given upon cataloging the materials.

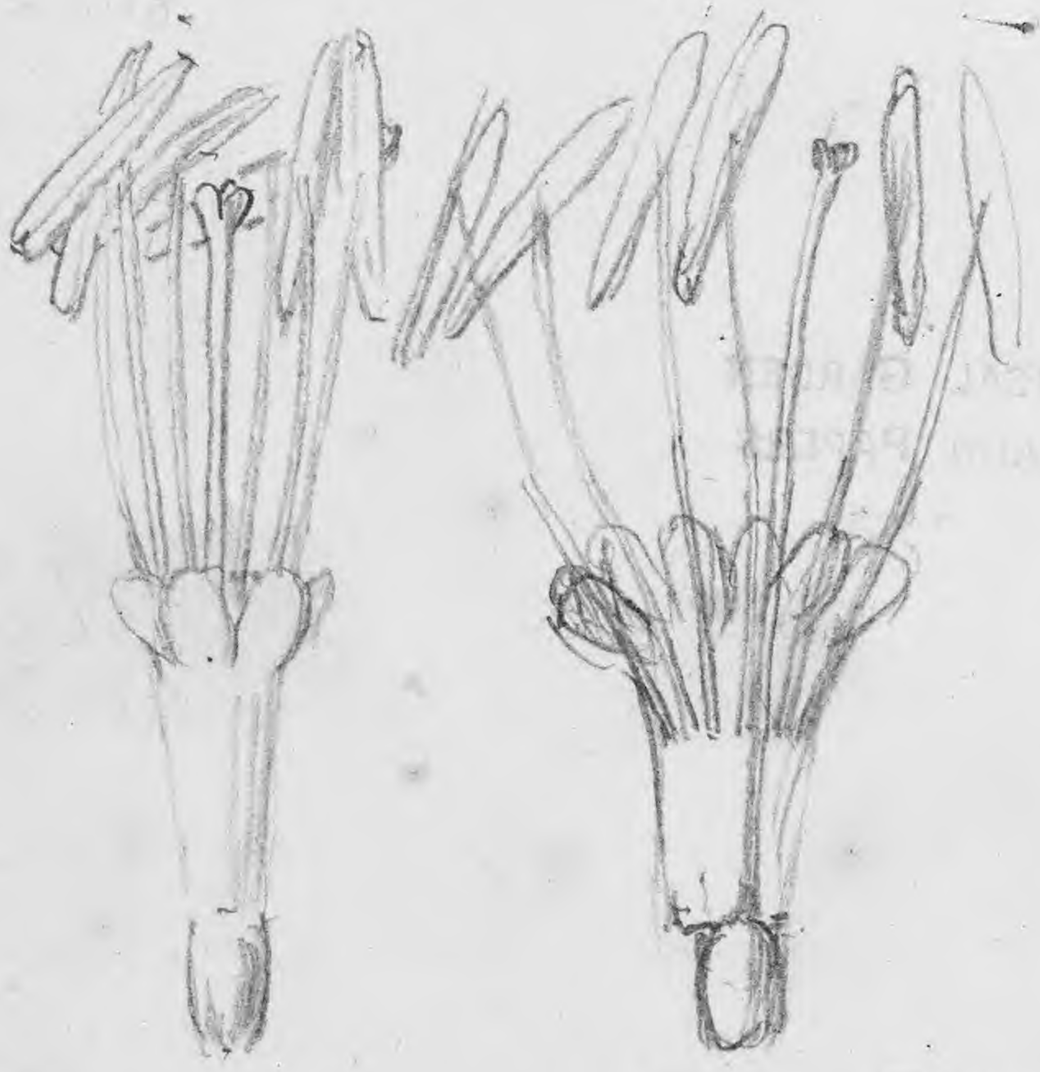
ARTICLES.	Johnson. Lines.	Johnson. Cols.	Appleton. Cols.	Excess in Appleton. Times more.
Silver,		6⅓	20	2⅜
Slander,	50		3¼	2¼
Slang,	3		4½	74
Slavery,		1	28	15
Smilax,	8		2¼	13
Snake-root,	26		2½	3⅞
Socialism,		1	7½	3⅛
Society Islands,	14		3	10
Solder,	8		1	5¼
South Australia,	34		4	4⅞
Spectacles,	42		4¼	4½
Spinal Disease,		1⅜	6½	1¼
Spruce,	14		3	10
Squash,	8		3	17¾
Squirrel,	55		3¼	2¼
Stocking,	28		2	2½
Stratford-upon-Avon,	4		1½	15½
Strawberry,	35		3	3¼
Sumach,	53		5	5½
Sunflower,	11		1¼	5
Swimming,		¾	3	1⅛
Thebes,	63		4¾	2⅜
Tides,		1	18⅜	1⅜
Tin,		3½	11	3⅛
Toad,		⅜	4¼	2⅝
Tomato,	7		2⅜	17
Tortoise,		1	7	3
Trades Union,		1½	8	2
Transfusion of blood,	13		2¼	7½

ARTICLES.	Johnson. Lines.	Johnson. Cols.	Appleton. Cols.	Excess in Appleton. Times more.
Treason,		⅜	6	4¼
Tripoli,		⅜	4	2½
Tulip,	12		3½	6½
Turnip,	23		3	3¼
Turtle,		⅜	5	4⅛
Venezuela,		1⅛	12	4⅛
Verbena,	9		2	10
Veterinary Science,		1⅜	10⅜	2⅝
Violet,	11		4	17
Violin,	16		7⅛	22
Viper,	20		1⅞	3½
Wales,	24		5	6½
Walnut,	17		3	8
Water Lily,	4		4⅞	60
Western Empire,		¾	4⅞	2⅜
Whale,		1⅛	5	1⅛
Whale Fishery,		*	4¼	3¾
Wheat,		½	6	5¾
Wheel,		1⅛	4½	1¼
White Mountains,	21		3	6
Whortleberry,	4		3	36½
Willow,	16		4½	13
Woodpecker,		¾	3	1⅜
Writing,	28		9⅜	16¼
Yale College,		1⅞	9¾	2
Yam,	13		2⅛	8
Yew,	14		3	9¾
Zinc,		1	21	11
Zymosis,	14		2	6½

ARTICLES.	Johnson. Lines.	Johnson. Cols.	Appleton. Cols.	Excess in Appleton. Times more.
Nelson, Horatio,		¾	6½	4
Netherlands,		3	15½	1⅞
Nettle,	21		2	2¾
Newfoundland,		2	12½	2½
New South Wales,		⅔	5	3¼
Newton, Sir Isaac,		2	11¼	2¼
New Zealand,		½	11½	12¼
Nicaragua,		½	11½	12¼
Nile,		1	13½	6½
Nineveh,		1½	7	1⅝
Nomenclature,		2	10	1⅞
Norway,		1⅞	11½	2½
Nutmeg,	13		4½	16¼
Oat,		½	2½	1⅞
Ocelot,	11		1½	6
O'Connell, Daniel,	28		2	2½
Onion,	22		3	5¼
Opal,	19		1½	3
Ophthalmia,		1	4	1¼
Orange,		⅔	6½	4⅝
Orang-Outang,	15		3	9
Orchids,	20		5¼	12⅛
Oude,	9		6	32⅛
Owl,		½	9	9⅜
Oxford University,		1⅔	12	3¼
Oyster,	29		3¾	5¼
Oyster-Plant,	5		1¼	11½
Pæony,	15		3½	10⅔
Painting,		3⅓	22½	3
Palm,		1	17½	9
Panama,	17		5	13⅞
Pantheon,	10		1	4
Panther,	2		⅔	15½
Papal States,		1	6¼	2½
Paraguay,		2	14	3
Paralysis,	25		1⅓	1½
Paris,		5⅓	34	2¾
Parrot,		⅔	3⅓	1⅞
Parsley,	6		2	15⅔
Parched,	17		5½	12¼
Partridge,	6		2½	20
Passenger,	12		1	3½
Passionflower,	17		4½	12¼
Patagonia,		⅞	7	3⅝
Paul. St.,	39		5	5⅝
Pauperism,		4½	20	1½
Pawn,	33		3⅓	4
Payment,	35		3	3¼
Pea,	13		4⅞	17¾
Peach,	17		7⅓	20¼
Peanut,	16		2	5¼
Pear,	40		4⅓	4¼
Peasants' War,		1	3⅔	1⅛
Pecan,	5		1	9
Peking,		1	9½	4⅜
Pelican,	26		4½	7½
Penn, William,		1	6½	2¾
Pension,	26		4¼	7
Pepper,	10		2	9
Pepsin,	8		1	5¼
Perch,	8		1⅔	9½
Periodical Literature,	56		15¾	13¼
Persia,		3	19	3⅜
Peru,		2⅓	22	4⅜
Peter, St.,	39		2⅓	2⅓
Petrel,	4		3	36½
Petunia,	7		1½	9¾
Pewee,	4		1½	18
Pheasant,	17		4½	12¼
Philippine Islands.		⅔	38	3¾
Philosophy,		8	38	1⅝
Phlox,	6		2	15⅔
Phœnicia,		1	9⅞	5⅝
Phosphorescence,	30		4	5⅔
Pigeon,	49		7	6¾
Pike,	39		3	2⅞
Pins,	26		3	4¾
Pine,		2⅓	11	1⅓
Pineapple,	8		2⅔	15¾
Pink,	12		3	11½

ARTICLES.	Johnson. Lines.	Johnson. Cols.	Appleton. Cols.	Excess in Appleton. Times more.
Pipe,	11		1½	6
Pipe-Fish,	3		2	32⅓
Piracy,	5		2	19
Pitt, Sir William,		1	5⅓	2
Plant and Botany,		10¾	43	1¼
Pleading,		1⅓	4	¾
Plough,	9		5½	29½
Plover,	5		4	39
Plum,	23		3½	6½
Poker,	10		2⅓	10½
Poland,		2⅓	14	2¾
Polar Sea,	52		9½	8⅜
Police,		1	8	3⅝
Political Economy,		3⅓	30	4⅙
Polygamy,	22		2	3½
Polyglot,	7		2	13¼
Pomegranate,	13		2	6¾
Poplar,	26		4¼	7
Poppy,	35		4¾	4
Porcupine,	33		4	5
Porpoise,	17		2	5
Portland,	39		5¼	5¾
Porto Rico,	33		1¾	1⅝
Portugal & Literature		3⅓	17½	2⅓
Potash,		1	3½	1
Potassium,		1⅓	9	2⅞
Potato,		2	11⅞	2⅜
Presbyterianism,		3⅓	20	2¾
Preservation of Food,	23		3	5½
Pride of India,	13		1¼	3¾
Primrose,	21		4	8½
Princeton,	15		4	12½
Prison Discipline,		3¼	22	2⅞
Protoplasm,	16		6¾	20
Pruning,	18		4	10
Ptolemy,		1	8	3⅝
Pugilism,	14		8¼	28½
Punjaub, B. India,	22		7½	15½
Pyrenees,	20		2½	5¼
Pyrometer,		2⅔	13⅔	2
Quail,	30		3	4
Quebec,		4½	21	1⅝
Queensland,	5		4	39
Quince,	10		2⅞	13⅓
Rabbit,	20		2¾	5¾
Radish,	5		1½	14
Rail (bird),	17		3	7⅞
Raspberry,	14		3	9⅔
Rat,	39		4	4
Rattlesnake,	28		4⅓	6¾
Raven,	13		2½	8½
Red Sea,		½	3⅞	3½
Reed Instruments,	25		3⅞	6¾
Reformed Church,		2	16	3⅝
Reynolds, Sir Joshua,	24		2⅓	6
Rhine,	39		2⅓	2
Rhinoceros,	40		3½	3⅝
Rhubarb,		¾	5	2⅞
Ring,	17		4½	12¼
Rio Janeiro,		⅞	5½	2⅝
Road,		1	4	1¼
Robin,	12		2⅓	8¾
Rocky Mount. Locust,		⅔	5	5
Rope,		2	8¾	1½
Rose,		2¼	9	1¼
Rowing,		2	7¾	1⅓
Rush,	14		1⅔	5
Sage,	5		1⅔	15½
Sago,	17		1⅔	4
St. Petersburg,		1	5	1⅞
Salmon,		⅞	5⅔	2¾
Sassafras,	13		2	6¾
Scotland,		2	17	3⅞
Sealfish,		⅞	12¼	7
Servia, and language,		⅞	7⅞	7¼
Shakers,		½	5¾	4¼
Shark,		¾	3½	5½
Sheep,		1¼	8	2⅝
Shoe,		1	7½	3¼
Siberia,		1⅓	9	2⅞

Agave polyanthe Dec 23 1866
Sieb.
Miq & Schott



stamens Tube
ultra medium adnata

Leaves flexuose or falcate, serrulate — ~~can it be~~
~~Agave Californica Hort Kew — i Jacobi Nachtr p. 47~~

8022

ALEX. LEITCH,
APOTHECARY & PHARMACEUTIST,
Marble Building Cor. Fourth & Clive Sts. St. Louis, Mo.

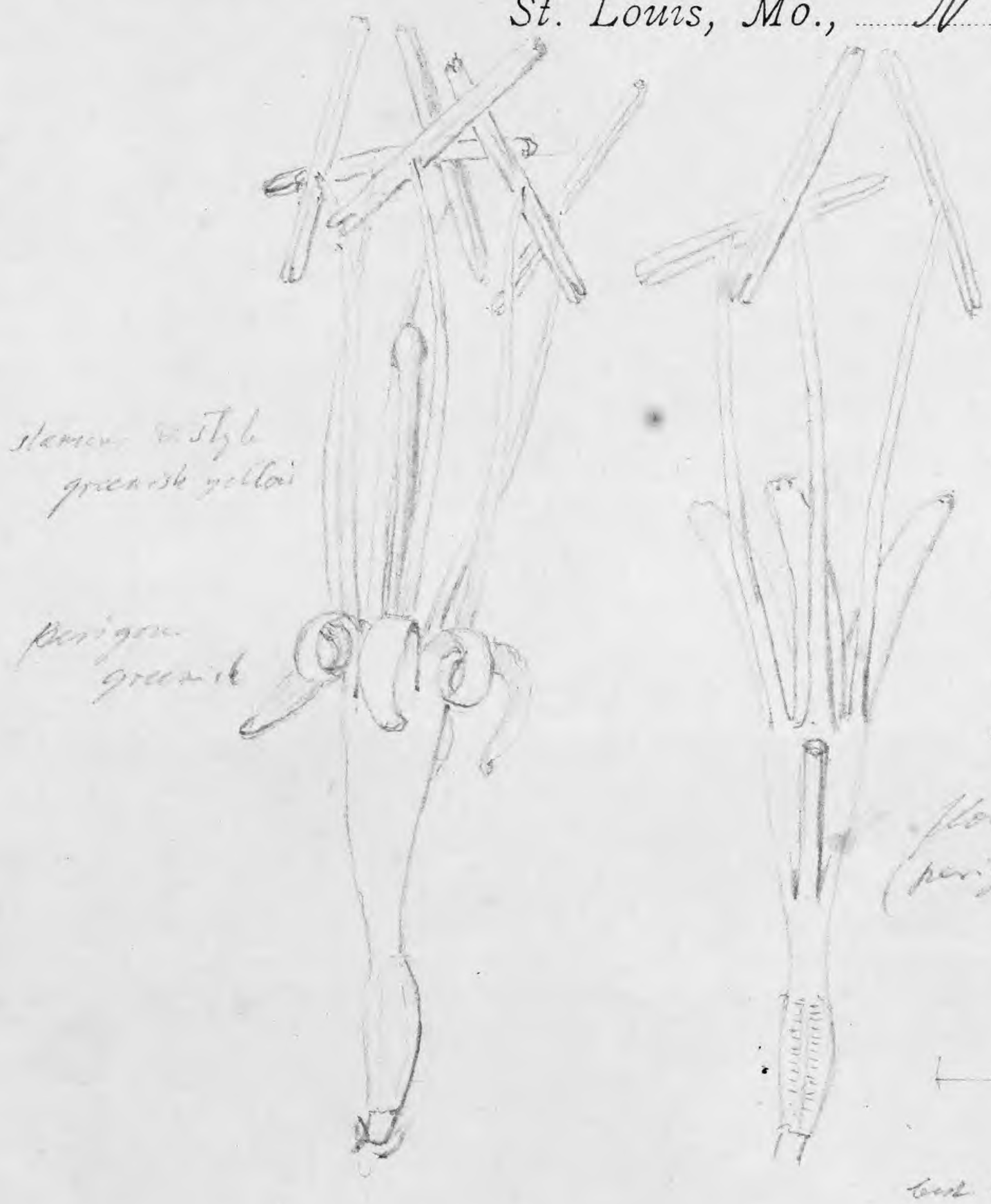
GEO. ENGELMANN, M. D.

3003 *Locust Street.*

Agave filifera Salm
coll by Gustav Schmidt Chicago
198 West Randolph Str

St. Louis, Mo., Nov 20 1878

over



1/3 below 2/3 above

anther lower half 10 } 25 mm
upper half 15 }

stamen above insertion 48

lobes 22

tube (inside) 16 } 25
" outside
neck 9 }

ovary proper 12

flower 59 mm
(perigon with ovary)

Diam of Pollen
test development $\frac{33}{415}$ mm = 0.08 mm

8023

filaments

Baker – Gard Chron Jarvis p. 198 Mexico spec.

perianth greenish 2 inches long 1 3/4 2/3 inch

ovary 1/2 – 5/8 inch

1/2 inch

Tube as long as ovary 4 lines twice as long 1 inch

segments brownish, half as long as tube 9–10 lines nearly as long as whole tube 11 lines

filament 1 1/2 inch long 1 1/2 – 2 reddbrown or greenish 2 inches greenish

anthers 3/4 inch 1 inch

style longer than filaments

This is one of the chief reasons of the superiority of the system of water pipes for heating plant houses—the easy means it affords of distributing heat evenly and at a low temperature through a large amount of piping; and in this low temperature of the radiating surface, lies the secret of the relative quality of water, steam and fire heat. If it were possible to heat the same amount of radiating surface, at the same low temperature, with fire-heat, the purity of the atmosphere, would be retained in an equal degree as with water; on the other hand if water was circulated under the same pressure as steam, the evil effects would be precisely the same.

Reference is made to the great quantity of water to be heated in a water apparatus as compared with steam—but the heating of the larger quantity does not involve a loss of fuel, because all the heat received by the water is transmitted to the atmosphere of the house, through the pipes as the water cools; and the heat contained or stored in the large volume of water, maintains a greater permanency in the temperature of the house with less frequent firing. When the apparatus is of proportion and power, a fire of anthracite coal may be safely left, without attention from [illegible] h hours during severe sufficient for moderate weather only, and suffers in consequence.

SPRAYING PLANTS.

BY DR. WM. F. CHANNING, PROVIDENCE, R. I.

An instrument comes to us from France this year for spraying plants on the large scale. It consists of a common pair of bellows, to the nozzle of which is screwed an "atomizing" apparatus, similar in principle to the little atomizers, commonly sold by druggists for vaporizing perfumery, and figured also in the catalogues of some florists for spraying plants. This apparatus in the French instrument consists of a spherical metallic receptacle for water or other fluids, and two tubes meeting each other at nearly right angles, one of them being screwed into the bellows and conveying the air blast, and the other dipping into the water receptacle. This receptacle, however, is not rigidly attached, but hung to the air-tube so as to swing freely and allow considerable motion of the bellows, without spilling the water. The water tube is made of rubber where it dips into the receptacle to accommodate itself to the swinging motions of the latter.

The instrument is well made and will vaporize

One advantage which American house gardeners have over our English friends is that they can plant so many of their pot plants out in the open air in summer. Indeed not only window plants but large numbers of greenhouse plants can be treated in the same way ; of course some care has to be taken in the fall, when they have to be put into pots again, but this is no great difficulty. As for unhealthy pot or tub plants, such for instance as gardenias, oranges or lemons, oleanders, pittosporums, camellias, azaleas, or any thing of this class, there is no better way of treating them medicinally than to cut them back severely, and plant out into rich garden soil. It is always best in these cases to leave some green leaves and young twigs. If cut down to old bare stems, once in a while, they will not break again.

COMMUNICATIONS.

HOT WATER AND STEAM.

BY CHAS. F. HITCHINGS, NEW YORK CITY.

steam, it would of course flow into a greater length of pipe, but increased pressure diminishes the volume and requires more fuel. Again the steam boiler that is capable of furnishing ten times more heat than the hot water boiler, must be something more than ten times its size and will consume more than ten times the quantity of fuel.

It is true that more heat can be obtained from pipes heated by steam under pressure, than from the same amount of pipe heated by water open to the atmosphere, but not ten times, as stated. Take for example, water pipes at an average of 190 degrees, which is a fair working heat for cold weather, compared with steam at 241 degrees, which is equivalent to a pressure of ten pounds to the square inch, and say 45 degrees as heat required in the greenhouse, and it will be found that seventy-four feet of pipe heated by steam, will have the same heating power as one hundred feet of pipe heated by water; and the saving in first cost would be in this proportion, were it not for the facts, that pipe does not admit of r, that there are many r the safe use and proper e not eeded with water, ought iron.

they will not break again

COMMUNICATIONS.

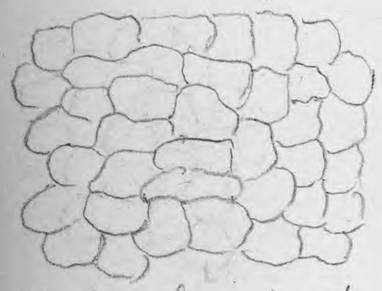
HOT WATER AND STEAM.

it will be found that heated by steam, will have power as one hundred fe water; and the saving in this proportion, were it

A. Utahensis

May 20 1872

x150



cells of epidermis of nerve, white, seed

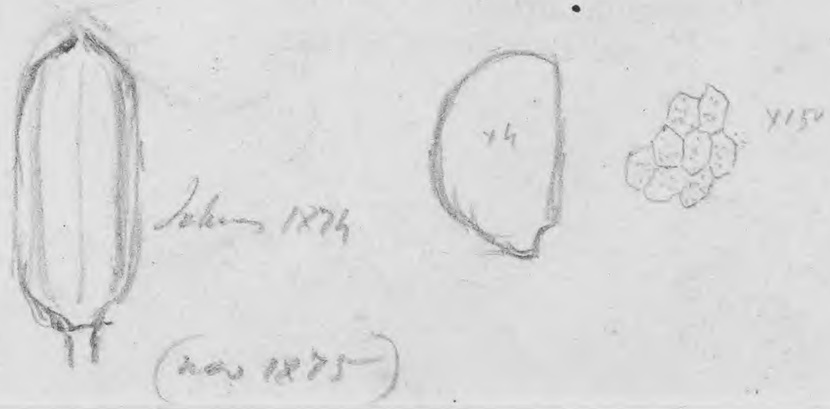
seed, even nerve only thick consisting of many layers of cells

Agave Utahensis

St George, Utah, Dr Palmer 1870

June 26 1871

x4



Sohn 1874

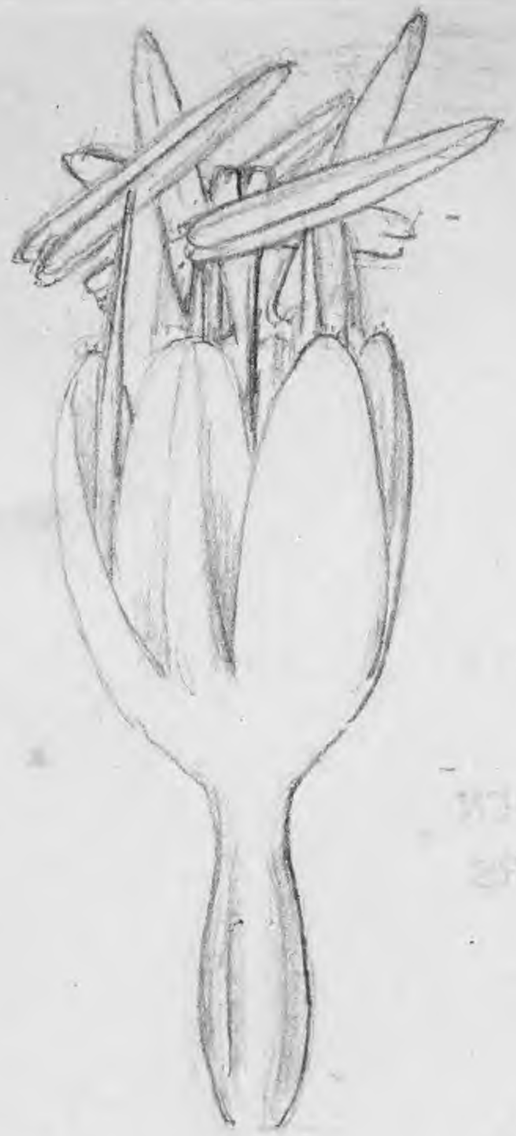
(now 1875)

greenhouses. While admi[illegible] the [illegible] of | and the boiler and pip[illegible]

Agave Utahensis n. sp. Nov 20 1870
St George, Utah, Dr Palmer 1870

65

x2

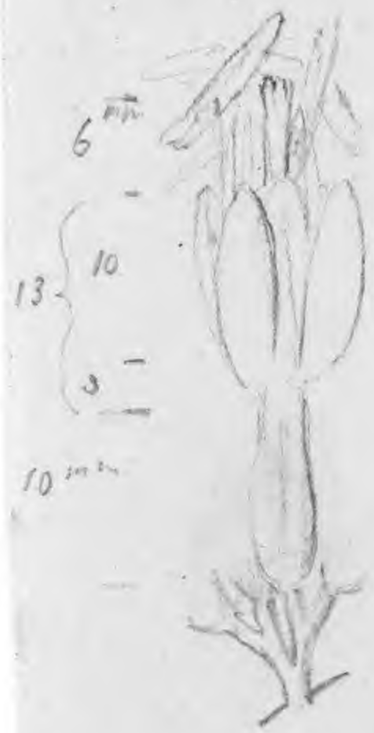


x2

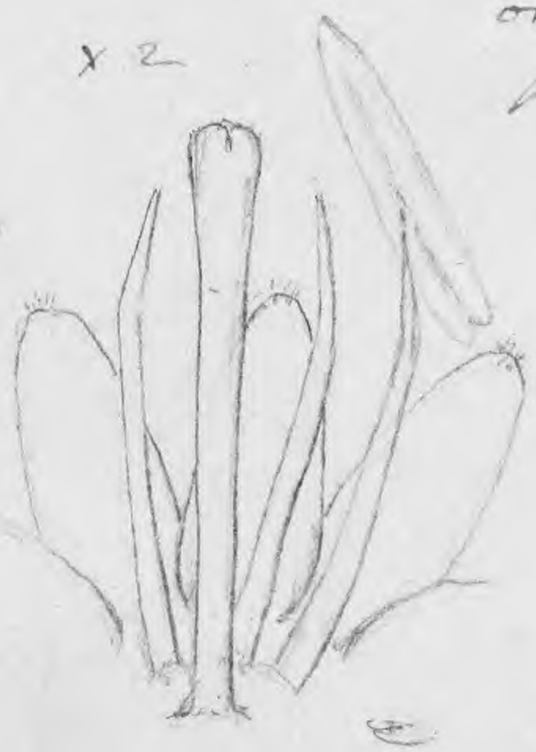
lower upper side

flowers 24 mm long
ovary 10, pedicel 14 mm
tube 3 mm segments 10 to 11 mm
anthers 10 to 11 mm
style exceeding perianth about
half the length of tube;
filaments not quite so long
segments of flower white, woolly at tip;
flowers spiked; peduncles
very short (1") forked, 2 flowered,
or pedicells again forked, so that
peduncles are 4 flowered.

x 2



6 mm
13 10 3
10 mm

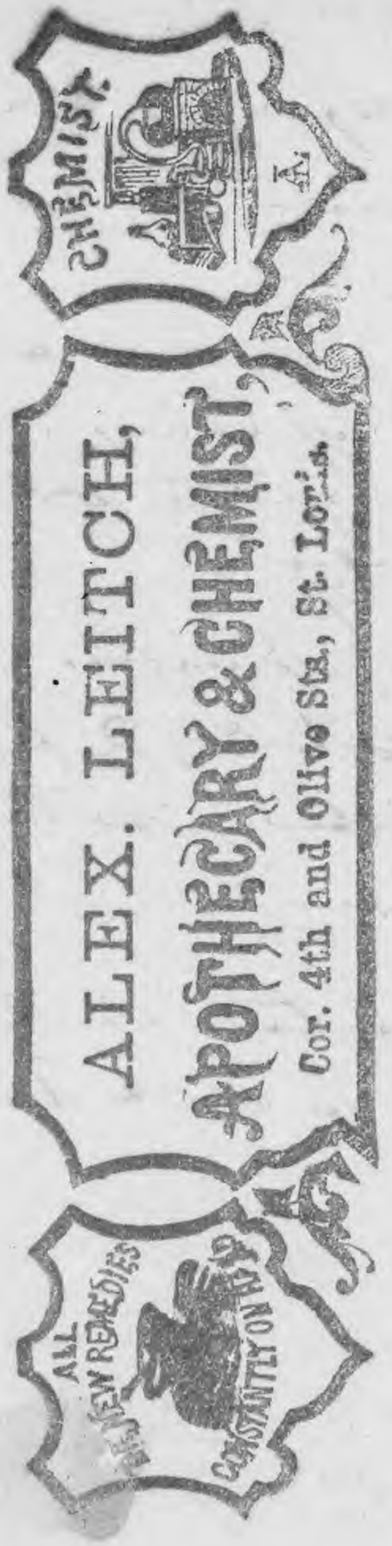


with 11 mm

stamens inserted about
the middle of short tube

allied to Lechuguilla
but stamens inserted
middle of tube

8027



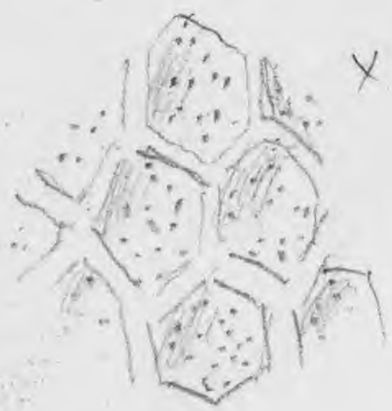
Agave Utahensis Engl. May 16, 1872

St George, Dr Palmer 1870

x150

cells sunk in
seed therefore irregularly
pitted, surface very minutely dotted

some seeds (unripe?)
look thus.



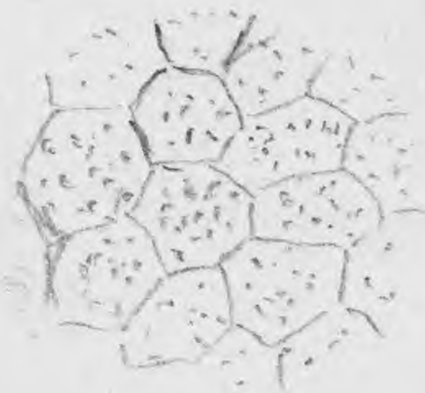
x 300

Better

x150

seed negosen-pitted
uneven, but
cells the colors
even x and delicately
punctured (pitted?)

x 200



x 200 slightly
depressed

Leitch & Carlies

DRUGGISTS

South-west Corner Fifth and Market Streets

8028

Agave utahensis?
Mojave Desert

May 1882

anther ± bud
9 mm long

lobes 10 mm long
tube 1 mm
filament adnate to tube to middle of lobe

8029

Smith & Collier

DRUGGISTS

Smith-West Market and Fifth Streets

Sent by Dr Palmer from South of St George Utah June 1877

Agave Utahensis, scape over 7 feet high spike over 2 or 2½ feet long

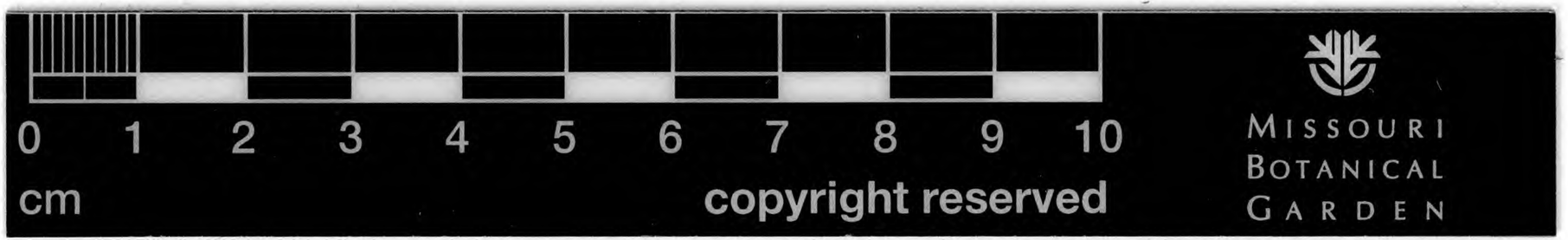
Where there are 4 flowers, the two outer ones (or inferior: ⊕ O O (O (O) are much later, and those on lower part of spike

Five specimens sent: Dept.

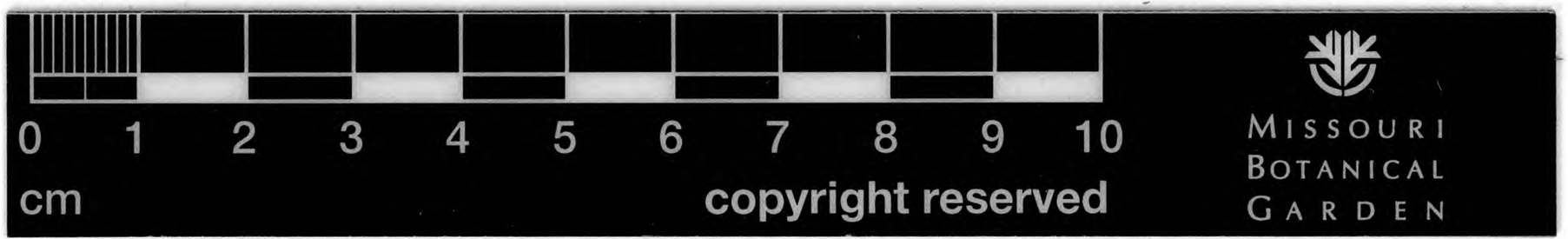
straight, rigid glaucous rough bloom with the apparent primary leaves 18" long at base 3", 3 inches above base 1½" wide, tapering, very thick & rigid. ONLY

Terminal spine white, with horn color, 3 angular, varicose below, broadly grooved above 18-20 lines long; running down on edge of leaf, white, ½-2 inches teeth short, hardly, thick, 2 l. long & wide, ½-2 inches apart.

Yucca ultramarina spring leaves — over a foot long, dense spike of flowers
scape 5–6–7 feet — yellow 2/3 of scape naked
Palmer 1870
1–2 feet of dense flower-spike. St George, Utah



8031



Caldwell, Rutherford, Wilkes, Hertford, Burke, and Orange. Great fatality, involving three-fourths of the entire stock of Newberry, South Carolina, is reported, and small losses are mentioned in Spartanburg and Lexington, in the same State.

Georgia has suffered little loss; 50 per cent. is reported in Clinch, 30 in Morgan, and small losses in Bartow, McDuffie, Lumpkin, Jackson, Harris, Catoosa, Floyd, Butts, Forsyth, Towns, Pike, Walker, Clay, Milton, Clayton, Putnam, Newton, Pulaski, White, Franklin, and Heard.

Our correspondent in Dallas, Alabama, lost 44 out of 56 old hogs; pigs were not so generally attacked. In Lawrence a loss of 25 per cent. is returned, but the mortality was reported slight in Tallapoosa, Marshall, De Kalb, Calhoun, Clarke, Jefferson, Etowah.

Very little disease among swine is reported in Mississippi; a few cases have occurred in the following counties: Attala, Kemper, Neshoba, Pike, Amite, Tippah, Yalabusha, Yazoo, Lafayette, Winston, and Carroll. In Gonzales, Texas, a disease, assumed to be "an affection of the lungs," carried off most of the pigs and a few hogs. The fattest were first to fall; of a litter of pigs, fat and apparently healthy at night, half would sometimes be found dead in the morning. In Upshur, a loss of one-tenth of the pigs is credited to carelessness in permitting them to eat *ad libitum* freshly ground cotton-seed. A few losses appear in Austin, Collins, Harris, and DeWitt.

There is scarcely a live pig in Benton County, Arkansas; the result of a cough and wasting away. A loss of 20 per cent. is returned from Newton County. Large losses occurred in Clarke, attributed to "too much cotton, and want of corn." One-third of the stock in Jackson County died, generally in full flesh. Losses are also reported in John-

of milk or slop; mix well by stirring; pour into a trough sufficiently long for all the hogs to get to readily; then let them go to it all at once. It will be better where there is a large lot of hogs to bring them to the trough in detachments of not more than twenty. This course, if persevered in for a week, when there are any indications of the disease, it is believed, will arrest it.

The curative treatment is very similar—carbolic acid in the same amount three times per day, adding to each dose a tablespoonful of *sulphite of soda;* if the hog is too sick to eat, catch it, turn it on its back, and pour the medicine into its mouth; in this case a half pint of milk is a good vehicle in which to administer the medicine.

The Spencer Reporter makes the following statement:

Hog cholera has prevailed, and still prevails. Its presence is confined to no particular district or locality, but is spreading in its visitations. When it becomes present on a farm it generally takes off all the young pigs, and from one-fourth to three-fourths of the rest of the swine, leaving the surviving in an unthrifty state. Within the last fifteen years two-thirds of the farms have been visited with it, and some farms more than once. The effect has been to discourage the raising and feeding of hogs, which was a specialty.

In Anderson, Kentucky, the loss is estimated at 500 head; in Hardin, 33 per cent., and the disease still spreading; in Bourbon, $5,000; in Whiteley, 50 per cent.; very heavy in Clarke, while in Christian the loss is placed at 25 per cent., 20 per cent. in Kenton and Laurel, about the same in Graves, and less in Shelby, Hopkins, Scott, and Warren.

In Clarke, Missouri, the loss is estimated at 50 per cent., "confined principally to pigs up to six months old;" "many deaths from insufficient shelter, but all attributed to cholera," is written from Bates; loss 1,000 head in Holt, 375 in Bates, 200 in Pettis, and small percentages of loss in Benton. Cass, Dent, Butler, De Kalb, Montgomery, Marion,

Agave Schottii

Pringle mis. vic. May 1881

Dec 7 1881

1 cut of leaf

×2

both surfaces of leaf
quite rough
convex on both sides,
more so below

×2

spine slender
terete, grooved
only at base
tip dark

8033

Alex. Leitch,

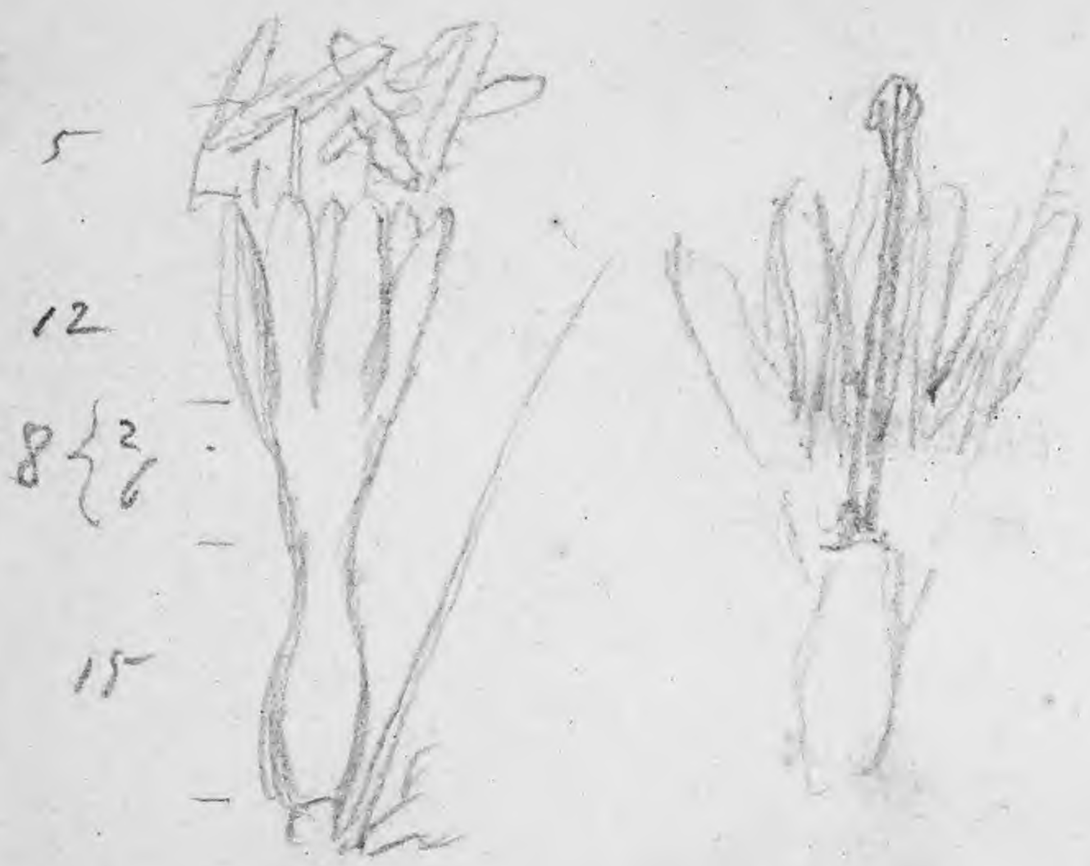
APOTHECARY & CHEMIST,

Cor 4th & Olive Sts. St. Louis.

anthers 13

Agave Schottii
yellow flowers
Arizona, Pringle 1872
June

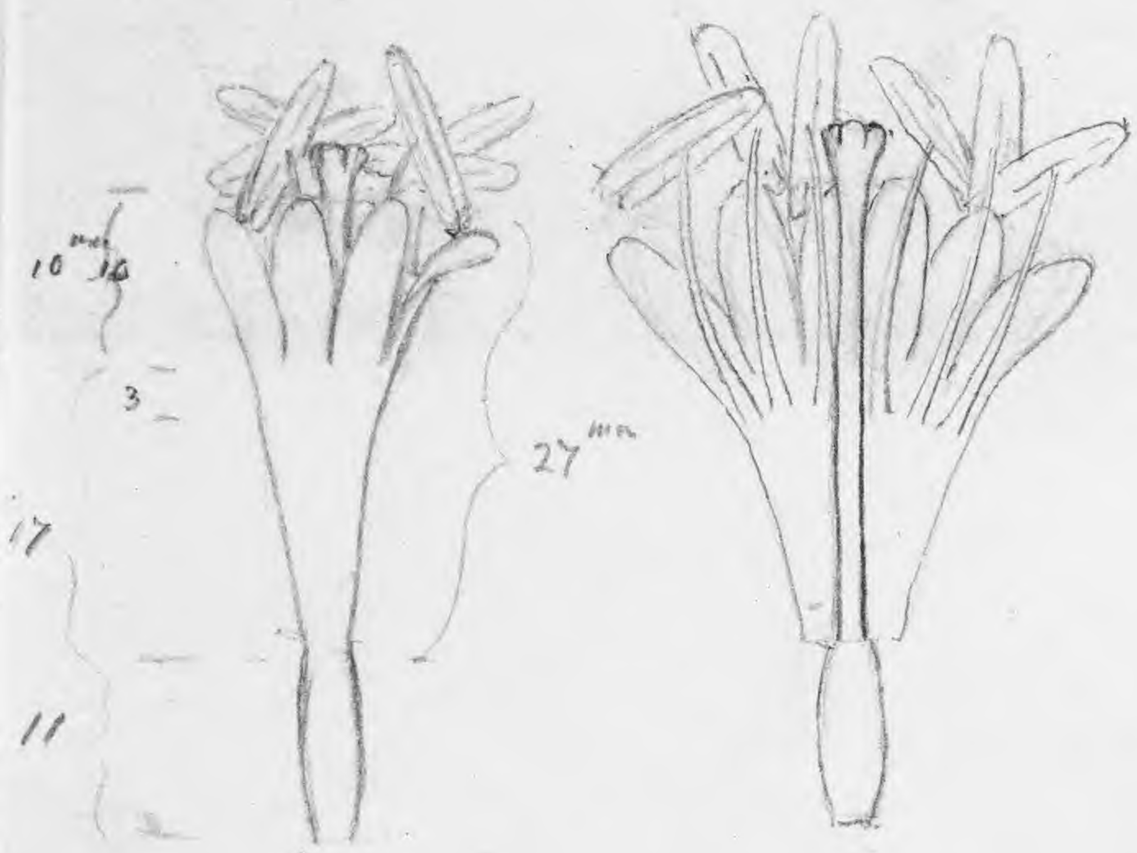
June 17 1872



Agave Schottii Engelm
A. geminiflora? Torr Bot Bound p. 214
A. Schott Eng

Feb 13 1871

allied to Engelm



oblong linear lobes of perigon
tube infundibuliform, 1/2 length of lobes
stamens inserted 3 mm below faucet
in upper fourth of tube
filament a little longer the perigon
anthers notched at base, attached in middle 11 mm long
style thick, slightly exserted, stigm thickened
or equal to perigon
triangular

Leitch & Co

DRUGGIST

Southwest Corner Fifth and Ma

ALEX. LEITCH,

APOTHECARY & PHARMACEUTIST,

Marble Building Cor. Fourth & Olive Sts. St. Louis, Mo.

8035

Agave geminiflora

[This folder includes enclosures sheets 61-62].

CYCLOPÆDIA ILLUSTRATIONS.

[*From the New Haven Palladium.*]

A School-Teacher wandering through Two Cyclopædias—Illustrations which illustrate.

To the Editor of the Palladium:

In looking over "Johnson's Cyclopædia" I was struck at the small number of illustrations, and, by chance, turned to the last page of the last volume, where the closing paragraph reads: "Thus it turns out in the end that 'Appletons' Cyclopædia' has lost largely in type-matter, and Johnson's gained as largely, by the former containing so many old views of cities, public buildings, etc., while the latter has utilized space to the best advantage in illustrating only where it seemed necessary in order to convey a clearer idea of the subject treated. As *Harper's Monthly Magazine* said: 'Its illustrations illustrate; they are not mere pictures brought in to justify the title-page; and it is characteristic of the work that the moral and religious topics are put into the hands of disciples, and not enemies.'"

"After reading the above 'blow from their own trumpet,' I turned to the article in John-

huge cuts papering sides of barns or high-closed fences by the street advertise special objects for sale. A table in the foreground is literally covered with three large cumbrous volumes of his Cyclopædia, so there is not possibly any room for the fourth!! And this he calls a "handy-work for the corner of any one's table!" A little less conspicuous, but still very prominent, is Johnson's "Atlas supporting the world!" The question arises, Is this picture of special value as an *illustration* of Cyclopædia matter? It certainly seems to be a cheaply illustrated puff. As I read on I find this cut *does* illustrate the matter of the work, for, on page 317, vol. i., under "Atlas," it states: "The number of American atlases in later years is very great, the most complete and widely-known being 'Johnson's Family Atlas of the World,' containing a very thorough treatise upon physical geography by Prof. Arnold Guyot. Prof. Guyot is one of the editors-in-chief of 'Johnson's Cyclopædia!'" "An excellent work in which to immortalize one's self," he should have added. We do not wonder that carriage-makers, clock-dealers, and furniture-manufacturers, jump at the chance of advertising in such a work! It would be curious to know if Mr. Johnson paid his editors in puffs at so many cents per line. He is not the sort of man to scatter advertisements of other people about gratuitously. It is of little consequence what the public thinks of his editors, since they have informed the world what they think of themselves.

Being a lover of the fine arts, I turn to "Architecture" (Johnson's Cyclopædia), and find several columns, but not an illustration till I reach the pages devoted to "Architecture of the American Aborigines!" Why are they given preference to the rest of the world? Were they the originators of architecture? If so, why not give us illustrations of the progressive steps by which the art reached its present stage, as Appleton does? Is the exclusion of magnificent structures of Greek, Gothic, and Saracenic art, to say nothing of the works of various mod- of to-day, warranted by the superior architectural importance of the wigwams of

omission in flowery embellishments. Are

from London Arbor. Brit. p. 2529

fig. 2403

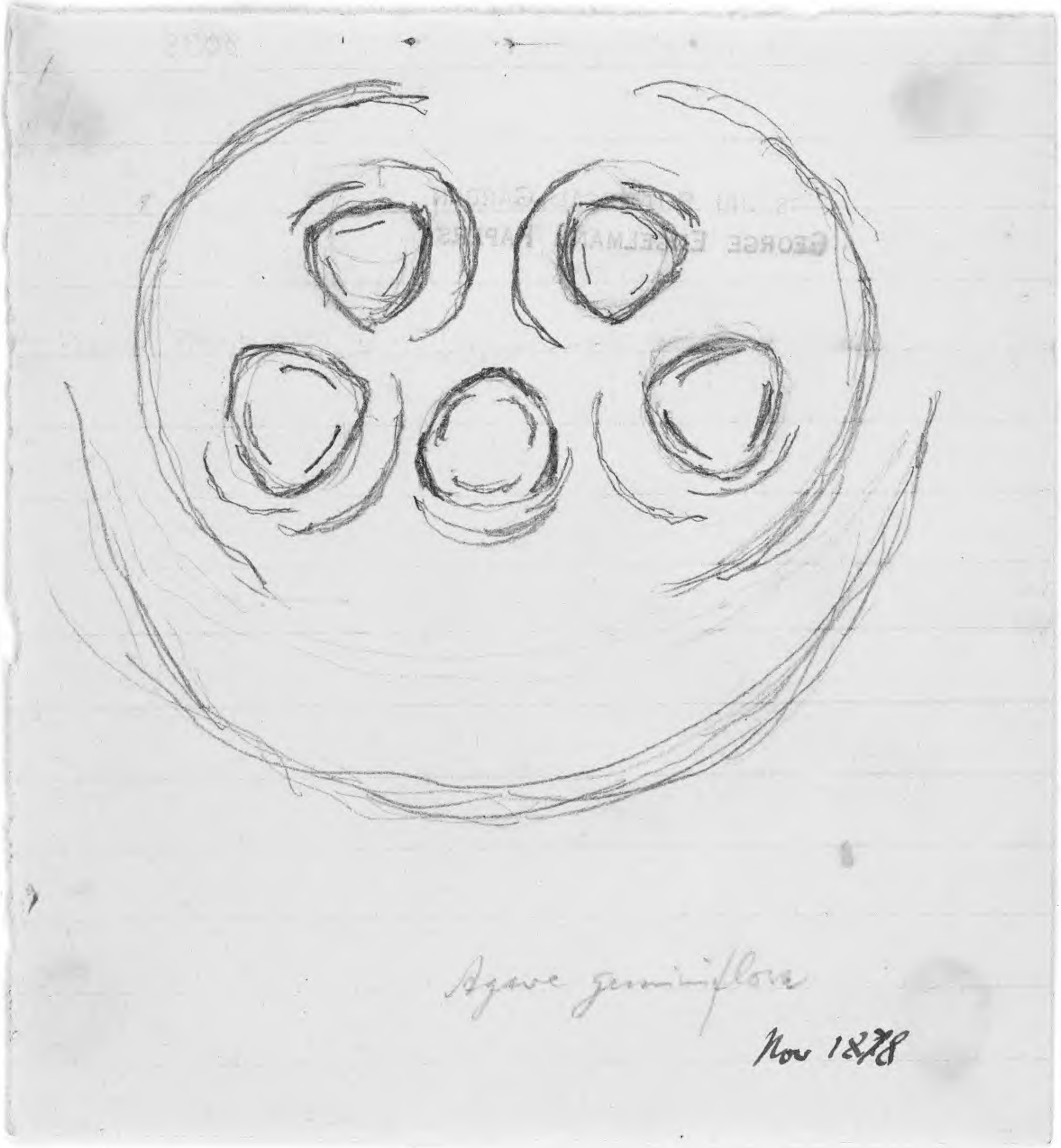
L. de Plantes

Littaea geminiflora Brig [Taylor.
Agave gemmiflora Ker [Gawl
Bonapartea juncea Haw [Willd.

Why not a spiked Agave?

geminiflora, not gemmiflora see Kunth Enum. V. 831

8037



8038

Agave geminiflora
observed Dec 5 – 9th – 1878
buds cut off – in water

Dec 5th buds opening enough to see some of the anthers between the lobes of perigon – which adhere to the (probably in the night) at tip

6th 10 A.M. stamens unfolded, except. anthers closed

8 P.M anthers shed pollen; filaments 10 lines longer than perig – style as long as perig.

7th 10 A.M. anthers shrivelled – full of pollen sticking on – style as long as perigon.

7 P.M. style ½ inch above perigon

8th 9 A.M. style as long as stamens, 9–10 lines longer than top of perigon lobes

8 P.M. style ¼ inch longer than stamens

9th 4 P.M stigmas slightly separating, drop of stigmatic fluid covering top of style. Plenty of pollen yet on shrivelled anthers.

3 days after the anthers shed their pollen, open the stigma is fully prepared for the pollen.

St. Charles den 18. Aug. 1878.

8039

Werthester Herr Dr. Engelmann!

Gestern Morgen aus Canada, da mich veranlassen morgen den 19. August via St Louis – Chicago – Detroit dahin zu reisen. Werde innerhalb 3–4 Wochen zurückkehren. Ist mir unendlich Leid die Versammlung der Gesellschaft der Wissenschaften nicht beimohnen zu können und wünsche Sie höflichst meine Anmeldung freundlichst besorgen zu wollen. Sobald ich zurückgekehrt sein werde, werde ich von Ihrer Gelaubniß Gebrauch machen und Sie einmal besuchen. Sie erhalten zu der Versorgt. Bitte Ihnen Sehr bestens zu grüßen,

Hochachtungsvoll

Ihr

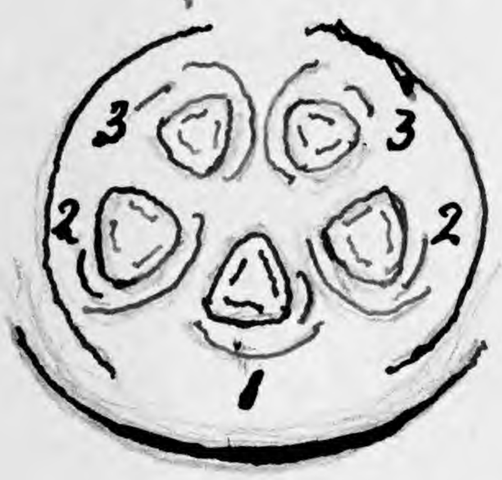
ergebenster

Dr. phil. A. Schaffranek.

GEO. ENGELMANN, M. D.
3003 *Locust Street.*

Agave geminiflora Gaudler
Hort Bot Missouri

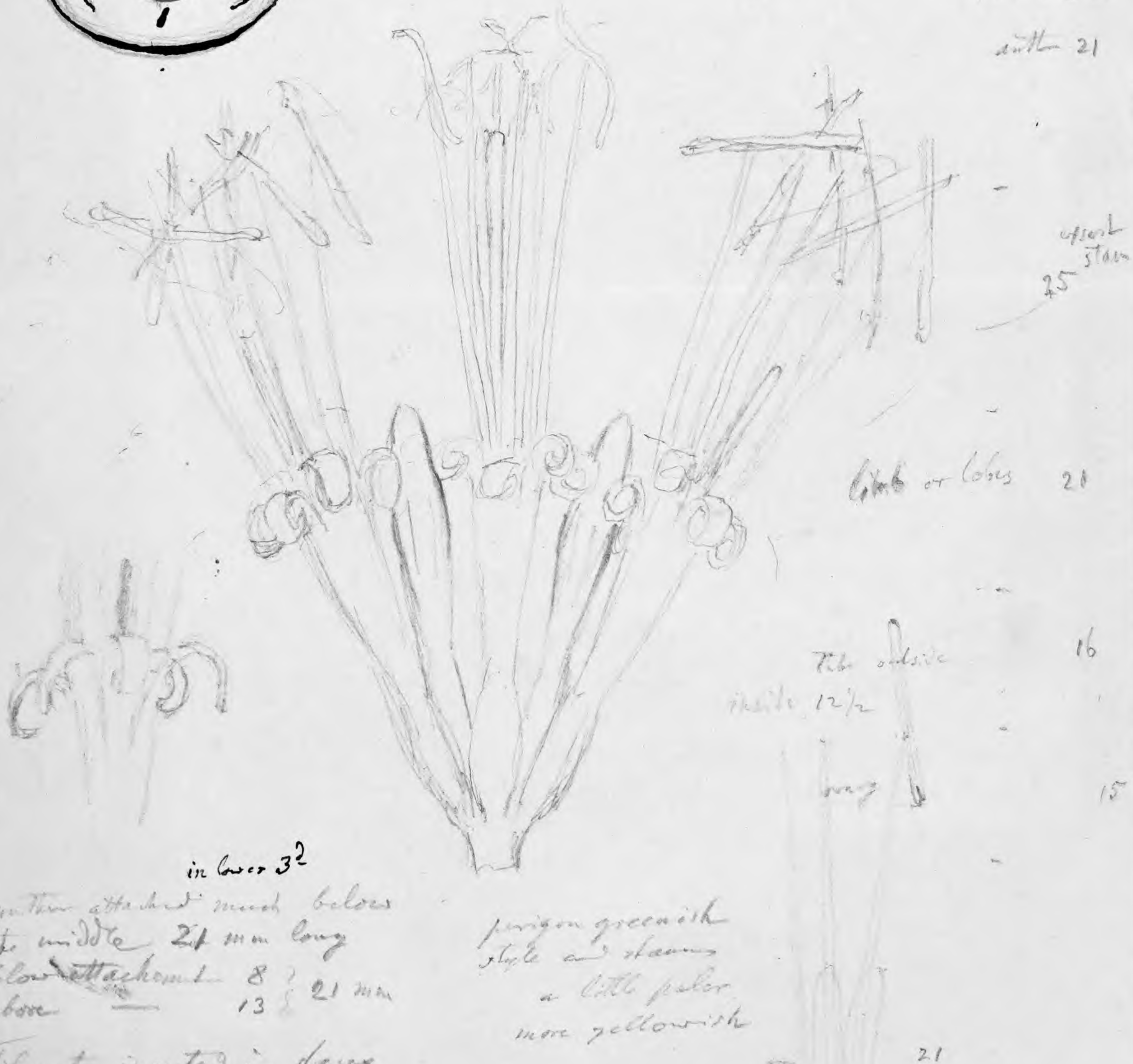
over



St. Louis, Mo., Nov 16 1878
9 o'clock P. M.

12 + 9 = 21

anther 21



in lower 32
anther attached much below
the middle 21 mm long
below attachment 8 } 21 mm
above — 13

perigon greenish
style and stamens
a little paler
more yellowish

outer filaments inserted in face
itself
inner ones a little below

Pollen usually $\frac{33}{415}$ = 0.08 mm
oft oval

8040

Baker & Gaind Clover — Missouri plant

perigon 1½ - 2 inches long — 2 inches long
reddish brown
Covering

segments as long as Tube — a third longer than whole tube

filaments twice as long as segments — same

anthers ½ - ¾ inch long — 10 times long.

animaux en captivité, qu'il donne cette explication, vraie en partie seulement.

Ce travail me tomba sous les yeux, il y a quelque temps; et comme à ce moment je possédais des Ampullaires vivant depuis longtemps déjà dans un bocal, l'inexactitude, ou pour mieux dire la fausse interprétation de certains faits, me surprit et me décida à reprendre ces observations. C'est le résultat de cette étude que je présente aujourd'hui. Il est probable que plusieurs des faits que je signale ont déjà été indiqués par Owen, par Gray, par Troschel et d'autres encore. Je n'ai pu, loin des centres scientifiques, m'en assurer; mais si cette note reproduit des faits peu nouveaux, je suis convaincu du moins que quelques-uns de ceux que je présente ne seront pas dans le même cas. D'ailleurs, je n'ai pas la prétention d'annoncer le fait, devenu classique, que les Ampullaires ont une poche pulmonaire (MM. Gervais et van Beneden classent, d'après Troschel, ces animaux parmi les Gastéropodes pulmonés) ; je veux seulement décrire cette poche dans l'Ampullaire des Antilles, et indiquer son fonctionnement dans les diverses conditions où l'animal se trouve placé, car je crois ce

MÉMOIRES ORIGINAUX.

LA RESPIRATION DES AMPULLAIRES,

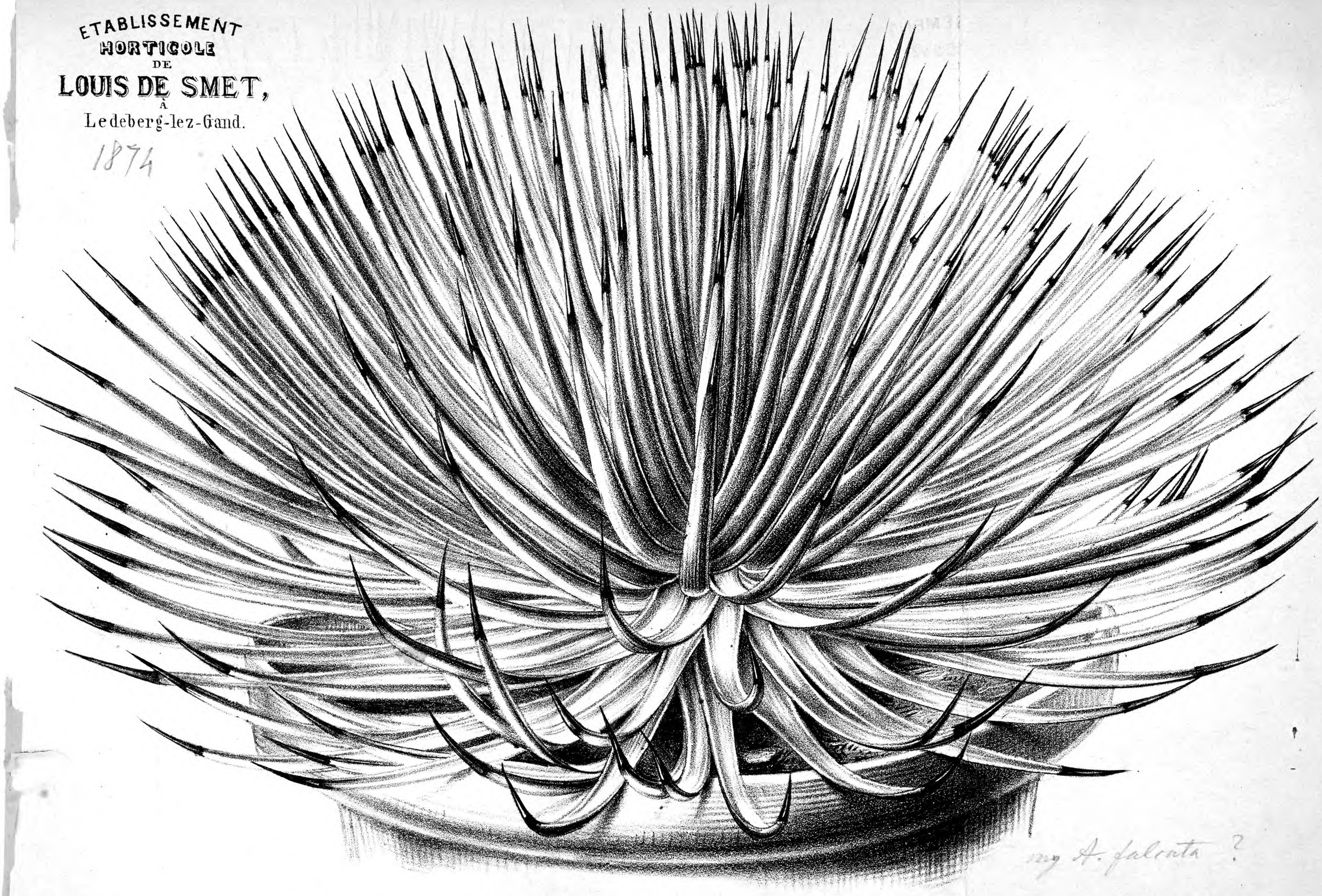
Par **M. BAVAY,** Pharmacien de 1re Classe de la Marine.

Il est fort peu d'animaux qui présentent à la fois la respiration aérienne et la respiration aquatique, ou qui du moins effectuent chacune d'elles par un organe différent.

On savait depuis longtemps que les Gastéropodes du genre *Ampullaire* avaient la faculté de séjourner des mois entiers hors de l'eau sans périr, et on avait supposé, avec assez de raison, que ces animaux pouvaient bien avoir un double système respiratoire[1]. On suppose aussi que les branchies pouvaient, dans l'air humide,

ETABLISSEMENT
HORTICOLE
DE
LOUIS DE SMET,
À
Ledeberg-lez-Gand.

1874



my A. falcata ?

Etab. Lith. de L. Stroobant, a Gand.

AGAVE. HYSTRIX (VRAI) BONAPARTEA

P. Stroobant, ad nat. pinx.