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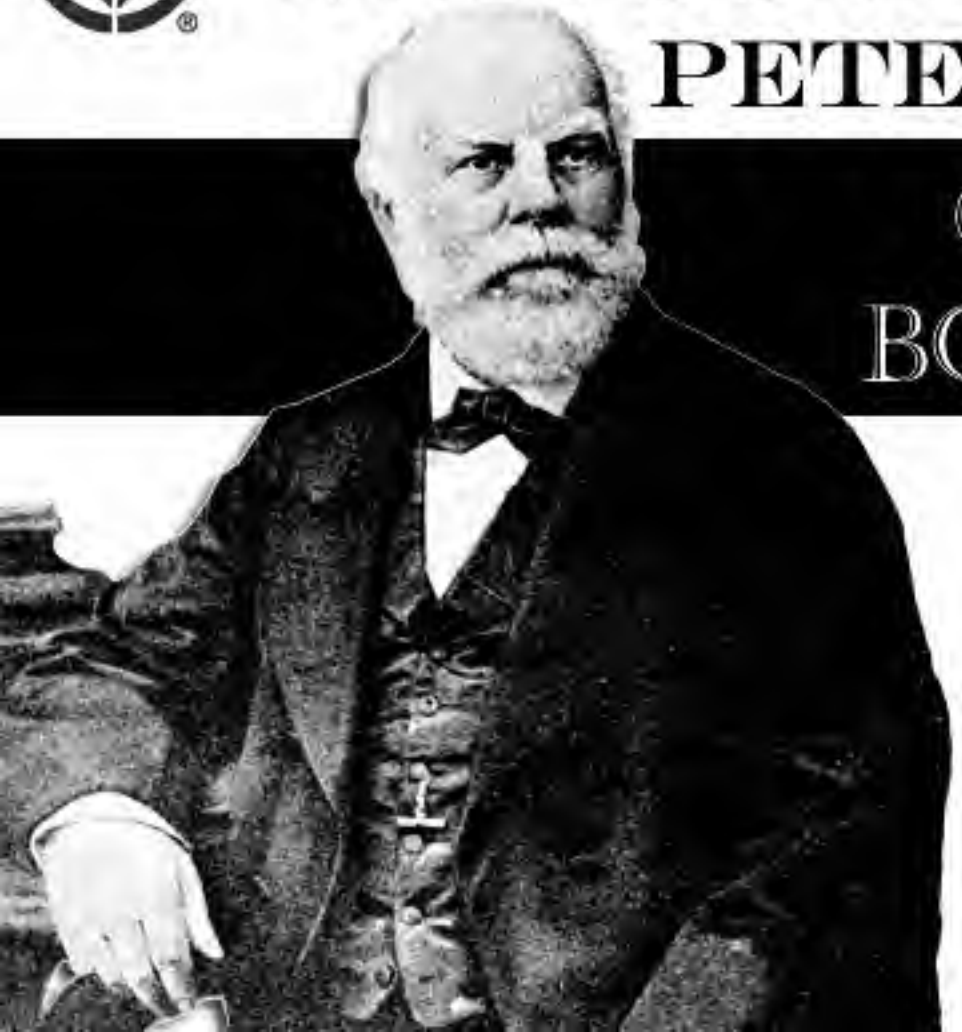

Pagination Note:
Since many of the items lack a specific page number, the page number displayed online refers to the sequentially created number each item was given upon cataloging the materials.

Ephedra antisyphilitica, Berlandier

R. Max exsicc. n. 1590 C. A. Meyer Ephedr. p. 101 (1846)
Cadl. Synopsis Conif. p. 263
fide Carrière Conifères (1855) p. 560.

Eph. Americana Torr. in Stansb. Rep. p. 395 (4' high)

(Eph. occidentalis Torr. (Capsa alaeni pro Americana) in Emory Rep. 157
3–4' high.
has 3 parted sheaths with long subulate points — Stansb. Rep. (l.c.)
E. trifurcata (sic) Torr.)

C. antisyph. Berl. Torr. in Pilgrims Rep 174

— — — — — Bot. Whipple p. 140

— — — — — Bot. Boundary p. 207 with notes.
authors mostly p. 4..

Dioica Ephedra pedunculata, nov. spec.

pubescens squamosissima, ramis numerosissimis vertisillatis V. foliis fasciculatis oppositis subulatis divaricatis vagina abbreviata bis terve longioribus V. decidius ~~amentis duobus dein~~ ~~ad nodos~~ (inter ramulorum basis) amentis ~~masculis~~ dioicis oppositis s. plerique verticillatim ~~paucioribus~~ aggregatis, masculis breviter pedunculatis, ovatis, membranaceo ~~non~~ magnitudine bilocularibus supra squamam trigonis ex certo anthemi V. sub 8 penicillis brevibus longius ve pedunculatis, squami 16 basi parum connati ~~vaginis~~ ~~fermis~~ ovatis obtuse V. ovula bina ~~intermediis~~ semidibus trigonis dentibus sub squamam damosas (non plane maturi) fructo (quarta parte fere) superantibus.

* Sandy & Saline deserts near Wilkes Alvap counties Utah; ~~common throughout parts of Utah~~. also in other parts of Utah near Camp Floyd on Rocks

This ~~Species~~ This shrub grows usually about 2–4 feet high, but has occasionally been observed to attain a height of 5 or 6 feet. The largest stems seen had a diameter of ~~about~~ 4 inches. The greyish bark finally ~~divides~~ separates into very fine, almost capillary fibres; the wood is almost white rather compact but not hard; the annual

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layers are not easily distinguished, and apparently less than half a line thick. The joints in young specimens are ½–2 inches long, but sometimes much shorter; the flower bearing branches (always at least 1 year old) are rather stout, ¾–1 line thick; the subulate divaricate but not reflexed leaves are (from their insertion) 2½–3½ or 4 lines long, united at the base and raised membranous there forming a sheath ½–1 line in length; with flower bearing branches leaves & sheaths have entirely disappeared. — The aments of flowers are usually crowded at the base of the ascending vertical lateral branches, or on their lower portion, and are interspersed with young shoots. The male & female plants are always separate on different stems; have naked peduncles of 1 line. The minute aments are about ⅓ of the male are oval, 4–5 lines in length, consisting of 6 or 8 and even 10 pairs of fleshy scales with a membranous margin, each bearing as all the species of this genus do a vagina, compressed with a transverse slit at the obtuse apex, enveloping the connate filaments, with 6 or usually 8 anthers, or sometimes less; the anthers are versatile the upper or very short stipes, with two cells, one or both 2 lines above usually on long pollen grains elliptic. The fertile aments are peduncled, in fruiting the peduncles of the fertile aments are fruit at length usually 2 and sometimes even 3–4 lines long; they bear at base several pairs of very small rudimentary scales, above which they are alternate, and of very long with pair about the middle; they are commonly naked. The ament itself consists regularly of 3 pairs of scales fleshy but at base; the upper most being far the largest. The seeds almost always 1 pair, single, flattened on the chord obtusely carinate on the back of an oval outline and with a rather obtuse point & perforated from which like a style the elongation of the inner coat of the seed protrudes.

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2. Ephedra.

the seeds (not fully ripe) are rather over 3 lines in length, and the whole ament is about 4 lines long, the seed protruding not more than about 1/4 its length beyond the innermost scale. The aments of several other spp. are described but now it is difficult to distinguish these species from E. antisyphilitica, Berlandier, at least for the species described by Prof Torrey in the Pacific R. Rep. p. 207 (Wright n. 1883.) near El Paso have less crowded branches, leaves in twos or usually in threes, subulate from a broad base, spreading or recurved, as long as their common sheath or shorter, to at most 1 line long; aments long-sessile not crowded, generally paired along the branches, rarely in fours, closely sessile, staminate ones globose or short-oval, 3-4 lines long (consisting of 5 or 6 or more pairs of flowers, rarely with the perianth varying from 3 to 5 pairs), scarcely protruding over the scale; anthers 4-5 or 6, the filament being about 4 lines long compared with the 5 or 6 pairs of scales, which are membranous with the margin; ~~and usually~~ ~~the~~ ~~long~~ the seed is usually single and accumbent and protrudes 1/3 or even 1/2 its length over the scales. — I am not quite sure that this is Berlandier's plant (from Laredo) which is described by C. A. Meyer as having the sessile aments crowded at the base of the numerous fasciculate branches, like our E. fedmulata.

A third western species (from the "Del Norte and the Gila") had been doubtfully indicated by Prof Torrey in Emory's Report p. 152 under the name of E. trifurca, Torrey (see also Torrey in Stansbury's Report p. 395). Dr Wislizenus has collected the same from near Valverde south of Santa Fe, but also without flower or fruit. It is a stouter plant, with slender growth, erect verti-

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collate branches, joints abt 1 in thick long; leaves always in threes ~~erect~~, subulate very ~~acutely~~ sharply pointed, strictly erect 2 lines shorter than the long sheath (2–3" long) or of the same length. — Wright's no 1884 from ~~the banks of the Rio~~ ~~Cows~~ the country above El Paso, which has been described by Prof Torrey in the Pacific R.R. Rep. p. 208 is the same plant; the ~~male~~ ~~sessile~~ are sessile aments ~~appear~~ in pairs along the branches or in clusters at their base; the male aments are small and globose (abt 2 1/2 l. long) shorter than the persistent ~~imbricate~~ bottom sheaths and leaves; the female aments have been described by Prof Torrey, but whether they or ~~very~~ ~~varies~~ those in their membranous thin striped scales are very varies to a shape is owing to a monstrosity ~~may be doubtful~~ as suggested, ~~may be~~ must remain doubtful, as the ovary seems to be perfect. — Moreover several other species of Ephedra appear ~~to be somewhat analogous~~ such as Ephedra Dae, E. lomatolepis, E. ~~Tweed~~, in approach ~~this~~ somewhat in their particular,

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The North American species of Isoëtes & Marsilea.
by Prof. Alex. Braun communicated by Dr. G. Engelmann.

Octob 1846

Dr A. Braun, since last spring Professor of Botany at the University of Freiburg, Germany, has from time to time communicated to me the result of his investigations of the cryptogamous plants of the U. States. His ~~investigations~~ notes on Chara and on Equisetum have been published in a former number of this Journal; I am now enabled to offer some remarks ~~about~~ on the above named ~~two~~ Genera of Rhizocarpous ~~Cryptogamic~~ plants. Those on ~~Isoëtes~~ ~~have been published in~~ Marsilea have been furnished in manuscript; the paper on Isoëtes was published in Flora oder botanische Zeitung, No 12, 1846. ~~I have late this first in the words of Prof Braun~~ Prof B. says ~~Dr B. says in this paper~~:

~~The species~~ The species of Isoëtes hitherto discovered in ~~North America~~ the United States (especially one found in Pennsylvania) have been considered identical with the European I. lacustris Lin. But this as well as two others obtained in ~~Atlant~~ from that country ~~proved to be~~ on careful examination prove to be distinct species, The true I. lacustris, if ~~found~~ ~~occurring~~ any where in North America, must be looked for in the northern regions.

~~Within~~ within a few years ~~Durieu~~ Three new species of Isoëtes have been discovered by Durieu in Algeria and ~~were described~~ ~~a few years~~ by Bory under the names of I. Hystrix I. longissima and I. Durieui.

~~The Communications of~~ ~~Mr~~ My friends Engelmann & Chatteworth have enabled me to describe ~~here~~ three more species, so that the number of the known species ~~known~~ is at present 9 or with the two fossil ones, 11. It is to be expected that this number will be considerably increased by future researches

as the species of Isoëtes are easily overlooked by collectors on account of their apparent sterility.

All the species examined by me can be distinguished by their size, different size and surface of their spores. Other differences are to be found in the shape of the rhizome, and in the ~~[illegible]~~ ~~section~~ characters furnished by the skeleton of the leaves. This last can only be observed in living plants, the ~~other character~~ shape of the rhizome may also be seen in dried, but not much pressed specimens. Collectors should pay attention to these circumstances.

In the general habit all the species are very much alike; some ~~grow~~ are found only under water as the european I. Caroliniana which never reaches above the surface of the water; also I. flaccida & I. Congissima; Other species ~~[illegible]~~ grow in shallow water, or on wet places, ~~and are frequently above the surface or in~~ which frequently become quite dry; so I. setacea, I. Engelmanni & I. riparia. Some others again grow on perfectly dry hills, as I. Durieui & I. Histrix. The I. setacea of the south of Europe grows often also on dry places; Perrey mond has found it near Trejas at the foot of walls, forming dense patches of a beautifully green colour. I have cultivated this species in flowerpots which were kept moderately moist and I will here take occasion to remind travellers & Collectors, that which may meet with species of this genus, that all of them are very tenacious of life much like bulbous plants, and may in the same way obtained for botanical gardens. The specimens of I. setacea, cultivated by me had been ~~[illegible]~~ preserved ~~[illegible]~~ in the herbarium, when (here two years) I have the pleasure ~~in the~~ (to see them vegetated) soon after throwing them in water).

For the sake I enumerate both European species with the north american, so that they may be compared together.

1. I. lacustris L. — middle & northern Europe
2. I. Engelmanni Mich. — Missouri
3. I. riparia Engelm. mss. — Philadelphia
4. I. setacea Ross — South Europe
5. I. foveolata (Muhlenb.) — Florida

The first, I. lacustris, has been found only in middle & northern Europe. It is distinguished from allotters by thicker, stiffer dark green (in the herbarium blackish-green) leaves, and large spores, ~~[illegible]~~ irregularly covered with granulation. The sporocarpia measures sometimes ~~one~~ inch in diameter. The leaves are mostly straight & 6-8 inches long; a variety with shorter 2-3 inch leaves which are rounded at tips occurs rarely probably in shallow water, as the leaves never rise above the surface.

I. Engelmanni has been distributed (by Dr E.) to many correspondents as I. lacustris var. microspora, and was afterwards distinguished by him as a species, and named I. Microspora; but as this name ~~proposed by the discoverer~~ is not sufficiently characteristic, the spores ~~of the Isoetes~~ being not much smaller than those of I. lacustris and other species, having much more minute ones, I have taken the liberty to give it the name of its discoverer. While I. lacustris inhabits ~~at least~~ in middle Europe, only the bottom of ~~cold mountain~~ lakes, mostly with Nuphar Spennerianum and Sparganium affine, this species grows ~~in the shallows~~ on the margin of shallow ponds in the hilly country southwest of St Louis, in the warm climate of Missouri. ~~in Europe~~

~~of~~ with Cephalanthus, Lycopus angustifolius, Sium cicutæfolium, Sagittaria, Decodon, Polygonum etc. In the spring it is covered by water, but late in summer and in the fall ~~it is on~~ the ground in which it vegetates is mostly dry, or nearly so.

It forms thick bushes with many leaves, 9 to 12 inches high, of yellowish green colour; the rhizome is slender flat depressed and often one to 2 ~~to the~~ one inch in diameter. The dilated base of the leaves, which bears the

x, The places where it has been collected as late as 1842 are now altered by cultivation or the vegetation destroyed by drains & hogs; and I have not been able to find it; since there but doubt exists that it still inhabits some secluded ponds in this remarkable region where the strata of the carboniferous (or mountain=) limestone offers in its numberless "sink holes" indubitably from the caving in of the roof of caverns, and peculiar in this region at least to this formation, many localities of a similar description. E. —

Sporangia is longer and the sporangia thus solitary somewhat larger than in any of the other species!

I. riparia has been described from specimens collected by Dr Zaugsinger on the banks of the Delaware below Philadelphia, where it grows on gravelly soil between high & low water, therefore frequently exposed to the air and on dry soil. The specimens examined by me are small, the rhizome hardly ~~one third to one~~ 4 to 5 lines ~~half an inch~~ in diameter, the leaves 4 to 6 inches long, narrower than in I. Lacustris, only 10 – 12 in number. (I. ~~lacustris~~ Engelmanni has 30–40 ~~Their~~ their base is shorter than in both ~~the~~ mentioned before, and the sporangia only half as large as in ~~I. Engelmanni~~ the last. — I was not able to examine specimens of the Isoetes, found in Pennsylvania or Ponds and studied and mentioned in Darlingtons Flora ~~of~~ Cestrica ~~which has expanded~~ "wet places" ~~with~~ nor any from New York etc, and it is not known whether they are ~~perhaps~~ identical with I. riparia. —

I. setacea is common in the south of Europe especially in the south of France and in Sardinia and also in Northern Africa, and is sufficiently well known; the bushes are always smaller than those of ~~I. riparia~~ Lacustris or Engelm. but larger than

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Isoetes 2

~~Those of~~ I. riparia, the leaves are ~~thinner~~ narrower than in the 2 last species and 8 to 12 inches long.

I. floridana has been discovered by Rugel in Lake Jamonia in Florida and has been first distinguished ~~distributed~~ and named by Shuttleworth. It has a small roundish rhizome, leaves ~~of~~ 18 to 24 inches long, as narrow as in I. setacea, but of thinner texture and somewhat transparent; sporangia smaller, and spores by far the smallest of all those enumerated here. I am ~~not yet able to~~ not at this moment prepared to decide, what relation this species bears to I. Congissima Bory, from Lake Houbeira in Algeria, or to an Isoëtes from California, which Kunze considers identical with I. Congissima, but which ~~may~~ perhaps belongs to the Florida species.

The north american Marsileae form a peculiar group, very much distinguished from the European species by ~~the short rhaphe and~~ the large purple stomata of the capsule, which is always single at the base of the petiole, and the two ~~large~~ conspicuous approximate teeth of the rhaphe.

Marsilea uncinata (A Br.) ~~capsules~~ fruit basilar & single; stipes erect, nearly twice the length of the capsule; capsule horizontal oval or suborbicular, considerably compressed, truncate behind, with a long rhaphe, ~~which~~ terminating in two approximate teeth, the ~~two~~ upper one being the longest and uncinately recurved; ~~the~~ stomata of the capsule large, purple; paleae appressed; 13 to 14 sori on ~~each~~ both sides in the capsule; — ~~pinnulae of the frond~~ leaflets narrowly fanshaped entire, naked.

Marsilea mucronata A Br. fruit basilar & single, stipes ascendent, hardly as long as the capsule; capsule nearly horizontal or slightly ascending, ovate somewhat obliquely ovate, slightly compressed, rounded

above, carinate below, truncate behind, with a shorter rhaphe, which terminates in two approximate teeth, the upper one being the longest and straight or slightly ~~recurved~~ at the point; stomata of the capsule large and purple; pulese appressed, indistinct 8-9 seeds on each side in the capsule; ~~Foliola~~ Leaflets spathulate, entire, slightly hairy.

Marsilea vestita (Hook & Grev) fruit basilar & single; stipe erect, hardly as long as the capsule; capsule ascending oval, somewhat compressed, with a short rhaphe, which terminates in two approximate teeth, ~~of the~~ which the lower one being short and blunt the upper one acute, a little larger, hardly curved; ~~stomata of the capsule large and purple~~ pulese long, dense and somewhat pateloy; — 7-8 seeds on each side in the capsule; — leaflets entire covered with pulescens hairs. —

(Stomata of the capsule not seen in the young specimen examined by me, but undoubtedly similar to those of the other species, only more hidden by the pulese (Hooker)

This last (species) was the first discovered in North America of this genus. It was described and figured by Hooker & Greville (Icones Filicum tab 159.) ×

×, from collected by Douglass on the Columbia river, Oregon and was very densely hairy. The whole plant is small, petioles 3 to 4 inches long. The subterranean stem or rhizome is ~~entirely~~ covered with long hairlike pulese, like the fruit and to some extent also the leaves. (Oregon this specimen) The description of H. & Gr. mentions only one tooth on the fruit, but this figure shows both.

Marsilea uncinata is nearly related with it but sufficiently distinguished by the naked ness of the plant, and especially by the shape of the capsule. the rhizome is ~~long, creeping~~, elongated and without the fasciculated branches of the following the petioles are 2 to 3 inches long and the leaflets ~~about~~ 3 to 4 (spathulate or slightly fan shaped) lines long. It was collected by Mr Geyer in Nicollet's North western Expedition July 24th 1839 in small dried up ponds near devils Lake (with North west Territory between the Mississippi & Missouri. It is doubtful mentioned by Prof Torrey in the Catalogue of Nicollet's plants (appendix to N's report pag 165 as M. vestita. — ~~The~~ ~~Fitzpatrick~~ several European herbaria ~~is~~ is preserved under the name

of M. quadrifolia (Herb Ward) — pour where derive is unknown to me. —

M. uniflora has been discovered by ~~Dr Engelmann~~ the translator of these notes in July 1835 on the margins of small ponds in the ~~bottomless bottom~~ deep bottom lands of the Arkansas river below Little Rock with Azolla caroliniana etc; It was first described under ~~this name~~ in Flora, or botanische Zeitung 1839 I p. 300. — It is a much larger plant than both others, nearly naked ~~easily distinct~~ ~~at~~ with long petioles (5 to 9' long) and fan shaped leaflets 6 to 10 lines long; — the rhizome ~~is slender and~~ producing many fusiform branchlets which are paleaceous at tips. — But the ~~is~~ shape of the capsule ~~which only~~ ~~nearly twice~~ ~~the number of~~ as many and the number of pore ~~(Both on each side)~~ ~~the the others~~ is the distinguish it ~~easily~~ at once from the others. —

Note. Besides these 3 species I have received a fourth one from Mr Lindheimer, collected by him in swampy soil on the lower Guadalouque near its mouth in the Matagorda bay Texas. It is widely distinct from the three others by having long and branching stipes (30-14 lines long) ~~which are three or four times as long as the capsule~~, and bearing 3 to 5 capsules, 3 or 4 times as long as these, and at base connected with the petiole; capsule obliquely oval, with short rhaphe, lower tooth blunt, upper one very indistinct; stomata not observed on the paleaceous capsule; rhizome nearly naked, only the ends of the branches paleaceous; petioles 4 to 9 inches long, hairy; leaflets more or less covered by fine paleaceous hairs; triangular to fan shaped entire, 7-12 lines long. — It is not improbable that this

is the sterile polypanpe Hook & Grev. found throughout south America and lately discovered in Mexico by Shide. Of which plants however I have not seen a dessen ~~the same plant, I believe~~ ~~has also been collected in Texas by Drummond~~ ~~but I have only seen sterile specimens~~ For the same species probably the sterile specimens prove to be referred, which were collected in Texas by Drummond X.

G. Engelmann

X on further comparison

X If the texan species should prove to be distinct from the southamerican Marsilea the name M. macropoda would appear to be most appropriate

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Sporocarpia submersed, rhizomes placenta-shaped, depressed orbicular or irregular, leaves tubular, semi-cylindrical, above cylindrical, rigid, fragile dark green; spores large with coarse farinaceous tubercules, irregularly roughened, rarely reticulated.

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Linaria chalepensis Mill Spr II, 793
Antirrhinum " L
" album Lam
Osyris chalepensis Cyrill

Italia. Gallicum

H.B.F. 1825

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166 Cycadaceae

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Marsilia & Rhizocarp

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Aconitum vectum Benth

H. B. K. 1824

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Epidendrum Apiatum

Regel Plant nov. 1879

p. 193

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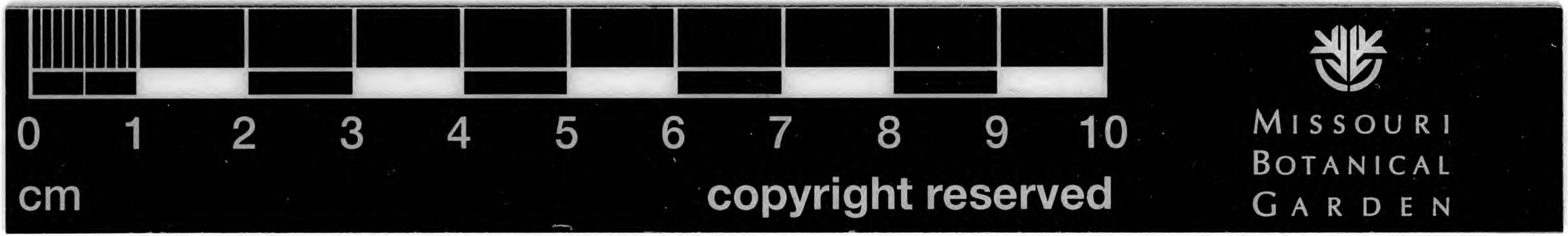

Cycadeae

Jacks' Botany — Cambridge Oct 4 1883

All the floral (or fertile, ♂ or ♀) leaves of Cycas [and all Cycadeae?] form single flowers. And so are the cones of Coniferae single flowers. ~~This last position is stated in so many words, but not further explained.~~

The male flower of Cycas have very numerous staminiferous leaves, much smaller than the carpellary leaves of the female, 7–8 cm long and undivided; they are furnished on the under side with a number of pollen sacs; the whole ♂ flower is from 30–40 cm long and probably not proliferous like the female flower regularly is [How does then the male plant further grow? from a lateral bud?? or does it die after one flowering??]

[I find no statement, whether the Jamia inflorescence is terminal and how the vegetation continues]

Cycas bears numerous ovules on the exposed and spreading carpel

but the other Cycadeae have concealed ovules & seeds (fertilized through a gap ~~in the~~ between the carpellary peltate scales, by insects probably)

formation of the several — called pollen, the largest cell, emitting pollentube opposite the other, inert, cells

De Cand Prod 16.2 p. 523 Cycadaceae: Strobili mares solitarii vel plures in gemma non centrales; feminei solitarii identidem vere centrales et tunc vegetatio per axeos ulterius progreditur [Cycas]

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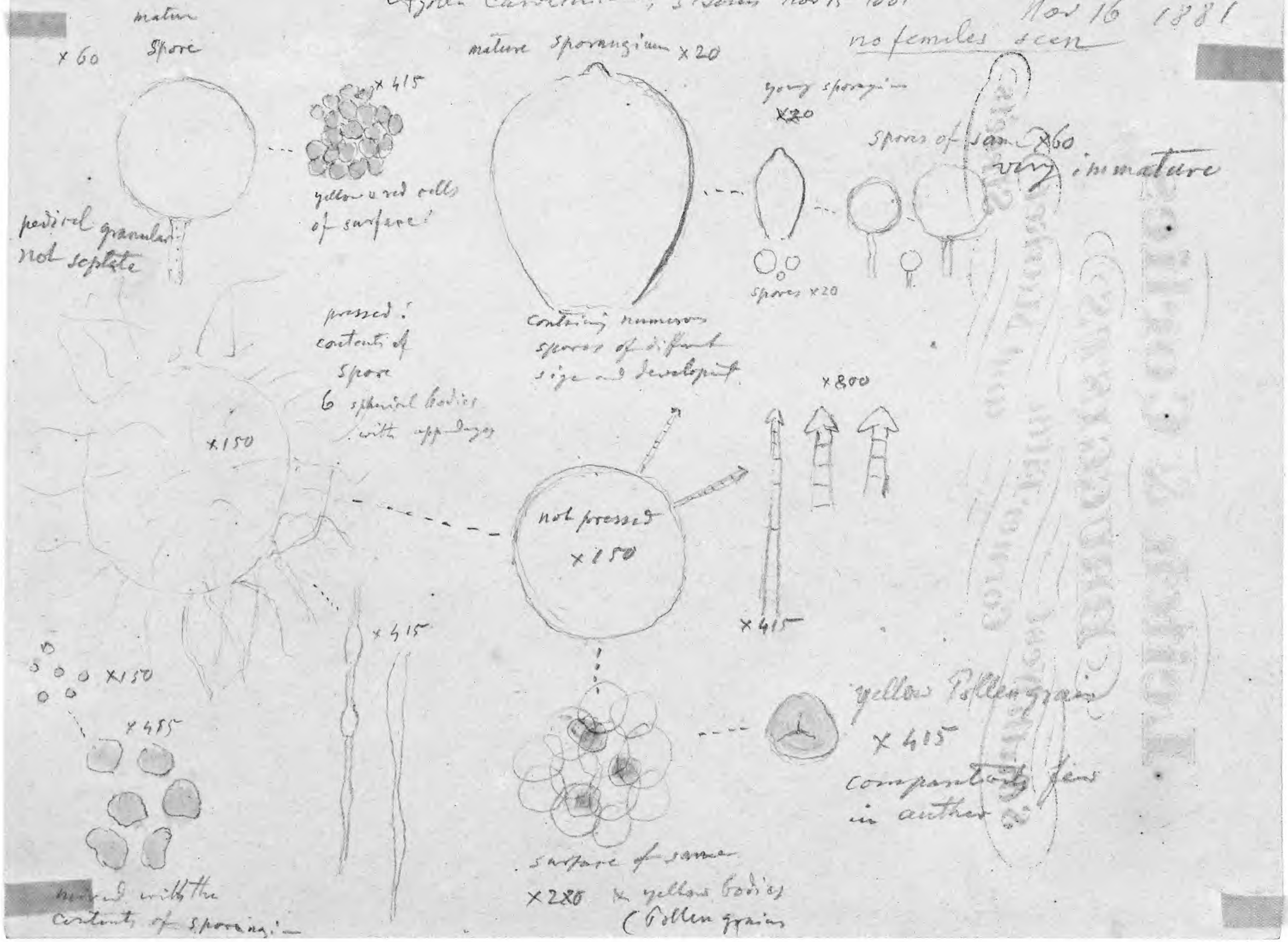
Apios Carolinia, St Louis Nov 15 1881

Nov 16 1881

no females seen



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Leitch & Corlies

DRUGGISTS

SouthWest Corner Fifth and Market Streets

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280 / 40 / 28 / 0.015 / 120 / 8 / 0.02

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Azolla ♂ conceptaculum completum demum clausum

Mettenius, Azolla Nelotica 1864

×20

×60

microsporangium
cum 6 massulis
(olim: anthera)

sori geminati

×150

processus
moniliatus

massula
microsporarum
cuticula communi
conglobatarum

×415

(L) Granum pollinis (fide Mettenius in Linnaea 1847)

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