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About the Institute

The Hunt Institute for Botanical Documentation, a research division of Carnegie Mellon University, specializes in the history of botany and all aspects of plant science and serves the international scientific community through research and documentation. To this end, the Institute acquires and maintains authoritative collections of books, plant images, manuscripts, portraits and data files, and provides publications and other modes of information service. The Institute meets the reference needs of botanists, biologists, historians, conservationists, librarians, bibliographers and the public at large, especially those concerned with any aspect of the North American flora.

Hunt Institute was dedicated in 1961 as the Rachel McMasters Miller Hunt Botanical Library, an international center for bibliographical research and service in the interests of botany and horticulture, as well as a center for the study of all aspects of the history of the plant sciences. By 1971 the Library's activities had so diversified that the name was changed to Hunt Institute for Botanical Documentation. Growth in collections and research projects led to the establishment of four programmatic departments: Archives, Art, Bibliography and the Library.

Rockford Ills Box 1302
Oct 13 1878

Dr L. S. Branderger

Dear Sir

I have examined with much interest your collection of Colorado Willows and report as follows.

No 21 Salix irrorata Anders D.C. Prodr 16(2):262.
Found before in Colorado at Golden City,
by Rev E. L. Greene. otherwise known
only from No 812, coll. Fowler, New Mexico.
Have not seen the ♂ plant from
Colorado.

No 22 ♂ & 23 ♀ S. lasiandra Benth var
Fendleriana Benth, Fl. Cal. ined. S. Fendleriana
♂ Anders Sal. Amer. S. arguta Anders var
Fendleriana Anders D.C. Prodr. Mr Lemmon
has found the same form in the
Hunt Institute for Botanical Documentation

Sierra Nevada. A transition from
S. lasiantha of the Pacific slope to
S. lucida Muhl of the eastern States

26 *S. amygdaloides* Anders

23 *S. cordata* Muhl

24 *S. rostrata*, Richardson, *S. vagans*
var *rostrata* Anders - but Andersson
clearly has no right to impose a
new name for the species!

S. lucida Muhl var *occidentalis* Gray
but the question as to whether
S. lucida should stand as the type
of the species is far from clear
and Dr Gray ought to have retained
the old name, ^{rostrata} for the variety. In
the Wheeler ex bot med I have
followed Koch Fries & Maximowicz
in retaining *S. depressa* L as the
type of the species - i.e. *S. depressa* L
var *rostrata*,

28 *S. arctica* R Br var *petraea* Anders

29 *S. reticulata* L

Does No 21 *S. arizata* grow when
you cured without great incon-
venience get cuttings before
spring opens. I would like of
all things to grow it in my
Willow garden.

I have *S. Fendleriana* a small
plant from some cuttings sent
by Patterson but would be glad
to get more - especially as I have
now but one sex probably ♂

S. arizata (like its European
prototype) may be difficult to
strike - I would like therefore
in case you ~~should~~ you may
be able to send me cuttings
to suggest thus you cap the
ends of the cuttings with wax
and wrap them in oiled paper
or similar impervious material -

I would be happy to reciprocate
the favor if possible
Yours very truly
M. S. Beth

926 Grand Ave
Rockford Ills
Feb 25/87

My dear Mr. Curick

I have lately, had
in my hands a small collection
of Willows marked "Ex Herb Hooker
Willows from British America. Studied
and named by Dr. Bursat. Before the
publication of that portion of the Flora
Boreali-Americana containing the
Salices". I had seen the same
fasciculus fifteen years ago when
I was young in the study of Willows.
I am surprised really to find how
much more useful and instructive
I find the specimens to-day - old
worm eaten fragments as they are
for the most part - but still the
types of the Flora Bor.-Amer.!

One thing, I feel pretty sure of
viz that Patterson collected leaves
(only) of S. Drummondiana Bursat in
Colorado two years ago - broad leaved
forms like the type - others evidently

a var angustifolia of the same species - and here I think also belongs your No 1302. - Don't say anything about it for the present - I mean to not distribute specimens under this name till the determination is assured. - How I do wish you might find the OT plant of this. I want to know if it is a Rocky Mtn equivalent of *S. Hitchcockii* - which the single stamens - either present or absent would demonstrate.

Other points are made clear for example *S. Barrattiana* is well represented, and is clearly a geographical representation of the European *S. lanata* - (probably (along with *S. Richardsonii*) a purely arctic plant. - It is out of the way in revising the glaucae at all events - and so likewise is *S. subcordata* Anders (a species said to have the anthers of glauca with the leaves

of cindata) which proves to have
been composed (that is just the
word) of three specimens belonging
to as many species - viz S. arctica
S. crassigutis and S. adnophylla!!
There's work for you by a distin-
guished Professor in an European
University! - I have done my share
of things to be ashamed of after-
wards in the way of millum-work
but never as yet have I floundered
quite so badly as that!

I inclose some aments
which I found mixed with your
specimens of S. flavesceus - They are
not flavesceus as you will doubtless
see for yourself - The males of that
species being, closely sessile and
without bracts - They seem too large
and robust for S. macrocarpa but
though excepting, in the matter
of size alone much like S. macro-
carpa - Had they come to me
from the Sierra Nevada I should
have guessed S. Lemmonii - As it

is I am led to believe that the
near affinity of *S. Lemmonii* is
with *S. macrocarpa* - Possibly it
may be only a more vigorous
modification of that species -
At any rate if you can recall
when you got the flowers indeed
we might get some insight into
the range and variation of *S.*
macrocarpa by having the leaves
to match - I have this much faith
at all events - I have mounted your
staminate aments on one side of a
broad clean sheet - leaving ample
space for the leaves to be laid
down along side hereafter - The
aments of your 1802 seem to have
been only partially fertilized - Do
you find on any of the specimens
fully developed capsules?

Yours as ever

O. Bebb

926 Grand Ave
Rockford Ill
Mar 7/87

My dear Mr Curtis

I have just
been studying your Salix No 1306
and in connection therewith looking
over again the characters of
Salix macrocarpa Nutt and S.
Lemmonii, not.

Macrocarpa appears to be
throughout a smaller shrub
aments shorter. Scales very pale or
only rosy tipped. Thinly villous with
short hairs. style obsolete, stigma
lobed or as to appear concave.

Lemmonii is larger in every
way. Scales very dark often pitch
black, clothed with long silky hairs.
style evident - stigma mostly
entire.

If Lemmonii can be kept
up as a valid species it is to
this that your No 1306 would
surely be referred - and along with

(See over)

at the stamens mentioned in
my last!

I make sketches now of
all critical Salices in my herb
and include tracings of the
capsule scale &c of S. macrocarpa
ex Seckendorf - and S. Goumieri ex
Curcio.

Do you recall the character
of this plant (1806) its habit &c -

S. Austinae I am sorry to
say will have to go - founded
also like so many other poor
species in Salix upon what proves
to have been mixed material.

Yours cordially
M. S. Peck

S. glaucophylla Bebb

ms of work published, with
description of n. sp. in part in
Wheeler + Smith Cat. Fern.
x Vass. Crypt. Pl. Mich.
77-78. 1881

Typed under both
S. Barclayi and
S. glaucophylla, for
original descriptions,
Species file and
Herbarium sheet

Note by C.R. Beal

24

No. 45. Ten years ago I was inclined to regard this as a robust variety of S. cordata, but in a constantly increasing accession of specimens from the most luxuriant growth down to the starveling of the arid sand dunes of Lake Michigan it was always clearly recognizable as something distinct from cordata. I myself tried to find a place for it under S. Barclayi Anders., being misled by the authors assertion that S. Barclayi was very nearly related to cordata of which it might be regarded as a "quasi modification occidentalis robustior" with "shorter and broader leaves" "turning black" &c. - misled also by the figure in the Monographia Pot. in which whatever it may represent was certainly not drawn from the type specimens of S. Barclayi. This was published as a new species in the authors preliminary synopsis of N. S. Williams 1858 based wholly upon a single specimen in herb. book 1 from Kodiak, Barclay and one p. 31, l. c., it was arranged in a group of over

American species "manifestly representing European types" as "belonging to the type of S. planca". Through the courtesy of Sir Joseph Dalton Hooker, who sent me a few fragments from Barclay's specimen, I am able to give figs 4 to 9 representing the typical plant. It is clear that we have here, in the succulent, thick villous (not "glabrous"!) capsules and laciniate ^(sic) stigmas, a form nearly allied to S. planca, while the elongated, entire style, taken in connection with other characters, indicates affinity with S. subrotata, S. Californica, & S. adenophylla, American members of the same group Planca. It answers my present purpose to show that S. glaucophylla n. sp. differs widely from the typical S. Barclayi in its smooth capsules, longer pedicels, shorter style, and very different stigmas.

But it may be well to trace the history of S. Barclayi further. With the publication

45
4-5

2

of the Monographia, 1863, (and essentially the same account is given in DB P. 16.2) we have material added from Ussuriysk and Sitcha collected by Mertens, Karstetski, etc., upon which is given the varieties retundifolia, grandifolia, and angustifolia, and from which, no doubt, the figure was drawn and affinity with cordata pedicellata. I have reproduced, rudely, Anderson's figure and, for the sake of more accurate comparison, have enlarged the capsule (fig. 2) to correspond with my other sketches and, as there is a slight discrepancy between the length of the styles and pedicels as given in fig (d) and the accompanying scale (e), I have also drawn the capsule from the measurements afforded by the scale. Figs 10, 11, 12 represent a specimen from Kodiak. The longer pedicels, glabrate capsules, and stigmas "more or less parted" show the transition toward cordata insisted upon (over)

by Anderson in his later works. What disposition should be made of these forms is a question which bids fair to find no satisfactory answer in many years to come.

Everywhere from the Great Lakes to Alaska and southward along the mountains to California we have a host of intermediate forms between S. planca and S. cordata ^{rich}, with our present material, defy methodical arrangement, - all imperfectly understood, perhaps incapable of clear definition.

4
4-5

13

S. glaucophylla, n. sp. Leaves broadly ovate or elliptical lanceolate rounded or narrowed at base, apex more or less cuspidate acuminate, coriaceous in texture, glabrous, dark green above except the yellowish midrib, intensely glaucous and obscurely reticulate veined beneath, the young drying black, margins sharply serrate with glandular implexed serratures, petioles short downy, stipules ovate, serrate; aments with leafy bracts at base, thick, cylindrical, densely flowered appearing with the leaves, when in flower about 1 in long the fertile when mature sometimes very large 3 inches long $\frac{3}{4}$ in thick, capsules elongate-conical from an ovate base 2-5 lines long, glabrous greenish, turning brown in drying, pedicels 4-5 times the length of the nectary, concealed by the copious long white hairs with which the scales are clothed, ~~stigma~~ style produced, stigma short thick, entire or 2-lobed.

(over)

var. latifolia, Leaves crowded, broadly
ovate-lanceolate, rounded or subcordate at base
3-4 inches long, nearly 2 inches wide, stipules
conspicuous reniform. Chicago & Batcock
species No 14, 13, 15, 47. Macrom Wisconsin
St. Helens in hot country. Formidabile!

var. angustifolia, Leaves lanceolate, cuspidate
narrowed at base, 3 in long $1\frac{1}{4}$ in wide, stipules
small often wanting, amlets elongated-cylindrical
Chicago & Batcock species 14, 25, 45, 22, 8

var. brunifolia, Leaves obovate, acute, wedge-
shaped at base, $1\frac{1}{2}$ in long 5-6 wide, prominently
articulate veins, stipules none. Leaves
strikingly like those of S. strimosa. Found on
Dutch Prairie May 30th 77 C. F. Whittier

4
x-5

4

Differs from S. cordata in the leaves proportionately shorter and broader with somewhat the texture of S. lucida, the young drying black, more glaucous beneath, especially when old; aments thicker and more densely hirsute (much as in S. discolor) capsules very much larger and drying brown. — As indigenous at Montanidale this is a straggling shrub about 6 feet high, the young twigs glutinous and bright yellow stained with crimson where exposed to much sunlight. Some of the plants in the Salicetum however are more erect 8 ft high. brownish twigs pubescent and the whole habit that of S. discolor.

4
4-5

6



4-5

7

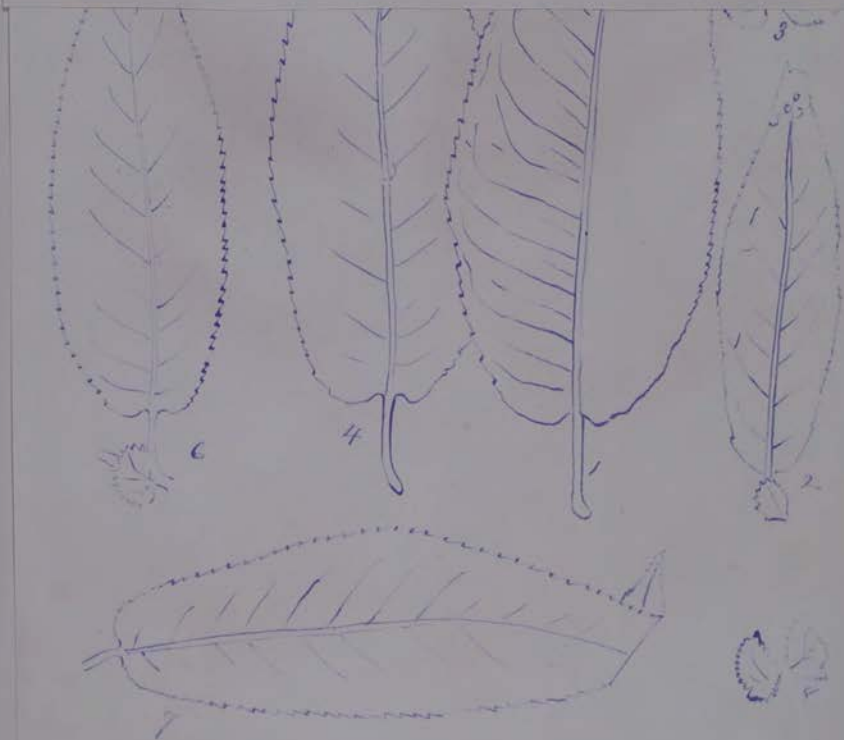
5

- 1 Tracing of Andersons fig 16 of S. Barclayi
- 2 Capsule d. enlarged
- 3 " " according to scale (2)
4. 5. 6. Capsules of S. Barclayi from type specimens
7. 8 Scales " " "
- 9 Fragment of leaf " " not size
- 10 Leaf of S. Barclayi var. so called - from Kodian
- 11-12. Capsules of same.
13. Capsules of S. glaucophylla n. sp. No 4
14. 15 " of S. cordata No 6 - introduced for comparison

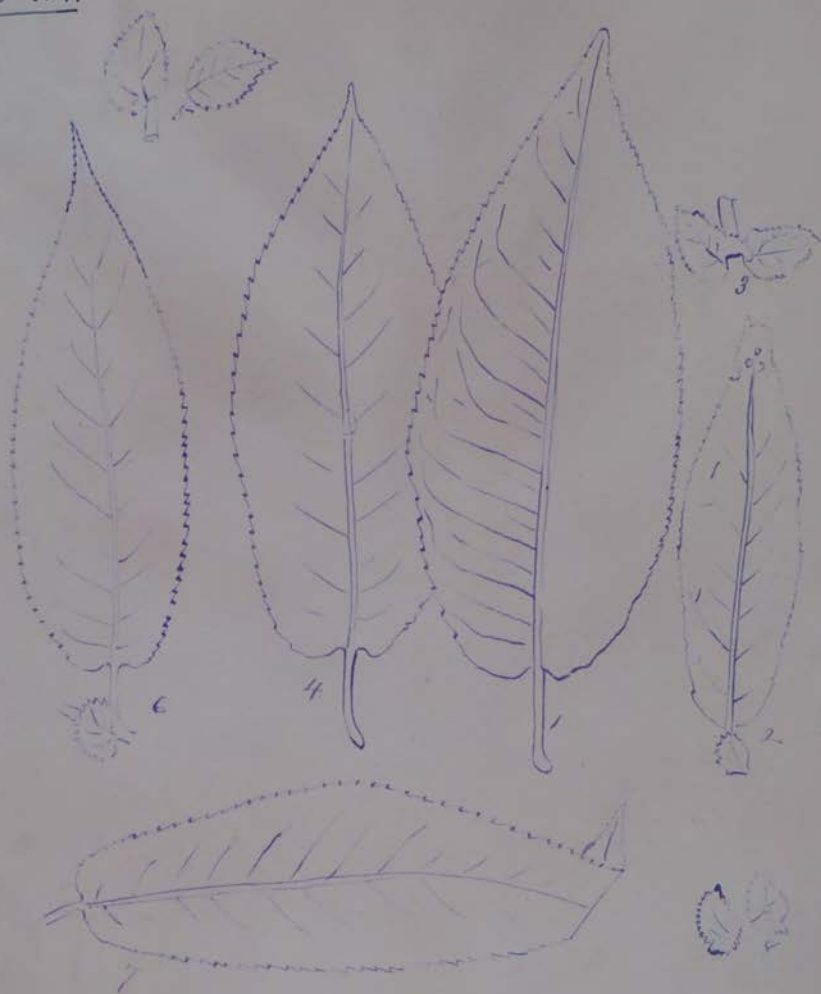
No. 7.

S. co. lata, Muhl.

1. 2. 3. Leaves, stipules &c of type specimen (No 569)
in the hb. after tracing by Prof. J. T. Howell
4. 5. do - do after sketch by W. M. Cunniff
6. Muhlensberg's original figure after tracing
by the Rev Thomas Morong
7. 8. *S. rigida* Muhl. type (No 5, 6 in Muhl.)
after sketch by W. Cunniff - length of petiole
not shown.



No. 7.





No 10. In Kent County,
New Brunswick *Salix*
balsamifera appears to be
the prevailing species of
the *cordata* group, while
S. cordata so common
in New England was found
but once by Mr Fowler. In
sending me cuttings he remarks
"I only know of this one sample
apparently from the same root
and have never seen the A
plant". I regret that it
does not grow well with
me the heat of mid-summer

causing the leaves to wither and fall off.
I am therefore unable to distribute the fully
developed form shown on the margin—a tracing
from one of Mr Fowler's herbarium specimens.
The most noticeable variation however from
cordata typica is in the ovate-conical and
shortly pedicelled capsules.

Cord

Nos 12 to 17. This is the commonest of Americans hybrid Willows, as it is also the only one, with the exception of the little known Salix Pamelochiana, which botanists have sought to distinguish as a species. It commonly shades off into cordata with capsules glabrate at maturity when it has received the name of S. myricoides, Pursh! and S. angustata, Hook: more rarely into sericea when it is quite likely to be mistaken for S. pyralicarpa. Lord Dunnington appears to have been the first to observe that along with leaves "tapering in (rather acute) instead of cordate or truncate" at base "the capsules were" often pubescent "Hebber ex v. p. 278. This significant description, so at variance with the stereotyped S. myricoides of the older Floras led me to suspect that back of it would be found sustaining evidence in Munz's herbarium. Those who are familiar with the interesting "observations" scattered through the second and much the most valuable edition of the Flora Cestrensis and

(over)

not be told how painstaking Dr Darlington ever was
 to verify his determinations of Muddenberg's species
 by a critical examination of the type specimens.
 Less independence of opinion is manifest in the
 3rd ed. which makes the few exceptional cases all
 the more noticeable and I therefore felt compunctious
 that in this particular instance when the author
 had not clipped his description to make it suit
 Carey's reduction of myreoides but on the contrary
 "rather inclined to consider S. myreoides as specifically
 distinct from the original S. cordata" he would be
 found resting his opinion upon indisputable data.
 I had already received, from my friend Cauby, the
 sketch fig 1 which being made merely to help to
 a better understanding of typical cordata was
 unaccompanied by any nice examination of the
 capsules. We are now indebted to Prof Rothrock
 for the tracing and figure 2 & 4 which fix
 beyond all question the true character of Muddenberg's
 plant. At the same time that I requested Dr

Wetmore to examine the type specimens I asked the
Rev Thomas Morong to send me if possible a copy
of the original description. (It is so easy for a
botanist living out on our Illinois prairie to
fall into a habit of begging favors from friends
more fortunately situated as to Libraries &c). I
was not before aware that the only copy in the
U. S. of the work in which S. myricoides was
originally published is on the shelves of the
Boston Public Library. Through the kindness of
Mr Morong I am able to give this drawing
(fig 3) from Muhlenberg's original illustration.
S. myricoides was published (along with cordata)
in 1803. The capsules were described as platanus
(they do appear to be so the villous base being con-
cealed by the scales) and the narrowed base of the
leaves was not mentioned then be clearly shown in
the accompanying figure. The original descrip-
tion seems to have been copied over and over again
in the older Manuals - The mythical "basi bifid
ultrius"
(Boer)

never omitted (Satan than ed 3. 1822. Barrois &c) but
 with one most unfortunate addition of "capsules
long pedicelled" - showing. & so far as any attempt
 was made to check the supposed inaccuracies of
 Muhlenberg's description narrow leaved forms of cordata
 had been mistaken for myricoides - a mistake
 nowhere more prominent than in our very latest
 revision of American Vitis by Tr. Anderson
 where myricoides is arranged under S. rigida
 sub species and the leaves described as "lanceolatis
 basi subrotundatis vix cordatis".

S. angustata Pursh 1814, I have been unable to
 verify. There are no specimens from Pursh in the
 Herbarium of the British Museum - nor elsewhere -
 far as I can ascertain, but it is clear from his
 description of the leaves alone "fol. lanceolatis
 acutis longioribus basi sessile attenuatis" that he
 must have had in view some one of the intermediate
 forms which are here regarded as hybrids between cordata
 and virginica and for which S. myricoides is an older name

Scorata x sericea. A shrub 6-9 feet high leaves
toughs slender tough and pinnate but brittle near
the base, purplish, downy, older branches grayish
or olivaceous; leaves lanceolate acuminate 3-5 in
long tapering at base, rather coriaceous, smooth
and dark green above except the whitish villous
midrib, glaucous, prominently veined and more
or less sprinkled with appressed hairs beneath,
margin glandular serrate, petioles 7/8 in less in
length, villous, stipules small, obliquely ovate,
pointed, denticulate; axillary with a few small leaf-
like bracts at base, cylindrical, about 1 in long
when in flower - the pedicels rather lax in fruit
capsules conical or rostrate from an ovate base
more or less tomentose when young, usually be-
coming glabrate at maturity, 2-3 lines long, the
short pedicels about equalling the dark, villous
scales, style medium sized, stigmas 2-lobed.
Smyrnioides, Thunb.!

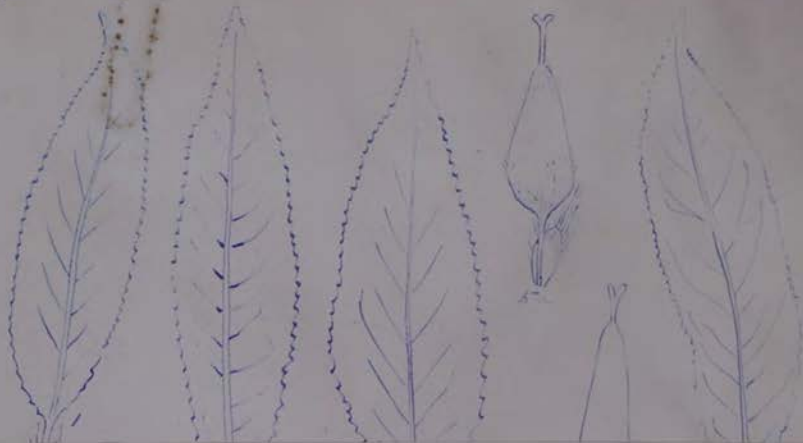
forma angustata. Leaves soon becoming

(over)

small, mature capsules platate more pointed
angustata Pers. Transition to *S. cordata*
forma subsericea Leaves more silky beneath
 drying black, mature capsules villous

Differs from *S. cordata* in the leaves even
 those of the most vigorous shoots being narrower
 and rather acute at base, stipules smaller
 narrower and more pointed capsules more or less
 villous and shorter pedicels, branches brittle at
 base, from *S. sericea* in the larger, smoother
 leaves having less tendency to blacken in drying
 more open leafy-bracted axments, more pointed capsules
 and longer style. — Distribution co-incident
 with that of *sericea*. Washington D.C. Prof L. F. Ward
 Delaware Wm M. Cauty Chester Co, Pa. Townsend
 in Herb. Darl. On the Susquehanna Middlebury
 and recently Mr J. Martindale, Amherst Mass
 Rev H. G. Jones. Hunt Mich, D. D. Clarke

12

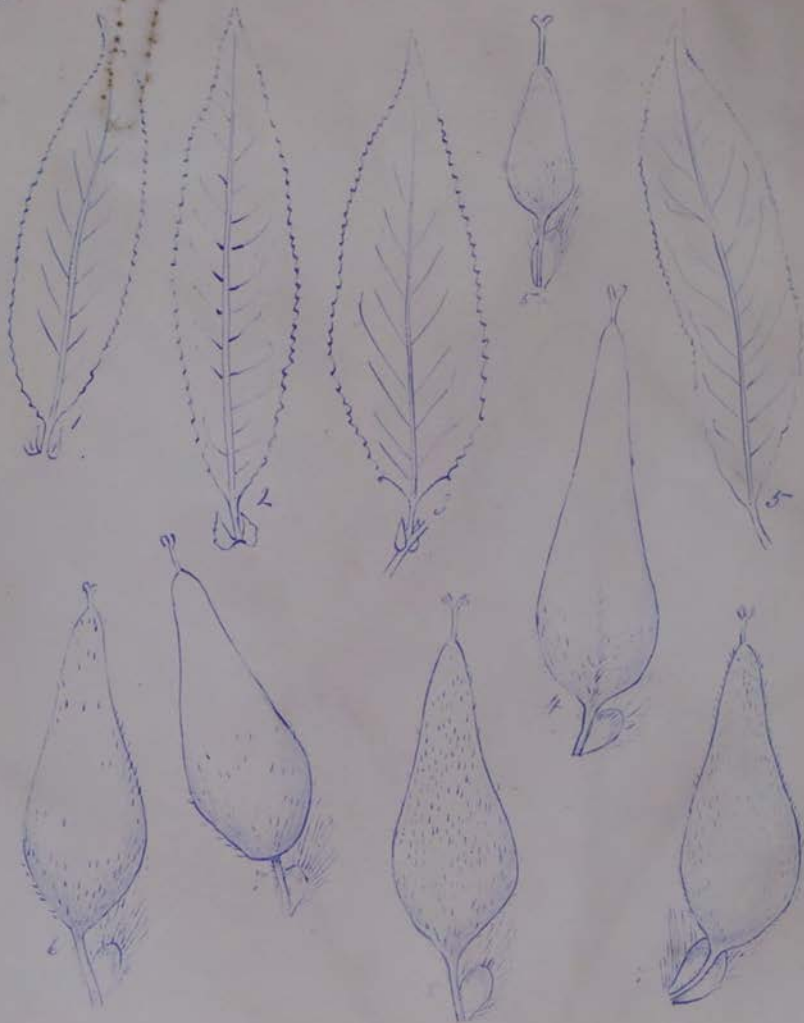


12

S. cordata x *sericea* = *S. myricoides* Thunb.

- 1 *S. myricoides* Thunb. type specimen No 569 h. Thunb. leaf after sketch by Wm. M. Canby Esq
- 2 Same after tracing by Prof J. T. Rothrock
- 3 Thunberg's original figure after tracing by the Rev. Thos. Moray - Dots supposed to represent the "basi glandulosus"
- 4 Capsule of Thunberg's No 569
- 5-5a Long and Capsule (miniature) of *S. cordata* var *myricoides* Darl. Hb. Cest. from fragments kindly communicated by Josiah Hoopes Esq
- 6 Capsule of No 16
- 7 " " - 14
- 8-9 Capsules of No 13 (No 8 from a young plant)

12



No 47 has been omitted on account
of the scantiness of the material. This
will be supplied at the close of the
present season. No 41 is in like
case - names having been by accident
left at Hunterdale. In other numbers
omissions have been made in writing
which will be supplied hereafter.