



Hunt Institute for Botanical Documentation
5th Floor, Hunt Library
Carnegie Mellon University
4909 Frew Street
Pittsburgh, PA 15213-3890
Telephone: 412-268-2434
Email: huntinst@andrew.cmu.edu
Web site: www.huntbotanical.org

The Hunt Institute is committed to making its collections accessible for research. We are pleased to offer this digitized item.

Usage guidelines

We have provided this low-resolution, digitized version for research purposes. To inquire about publishing any images from this item, please contact the Institute.

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.

April 2, 1910

Prof. Edw. G. Schneider,
Colorado Springs, Colo.

Dear Sir:-

Dr. H. L. Shantz of this Bureau, recently told me that he thought you would be much interested in some of my papers dealing with the genus *Salix*. I am therefore sending you, under separate cover, those of which separates are available, and trust that they will reach you safely. ✓

At any time between November 1 and January 30, I am always glad to make prompt determination of any material submitted. There is still a great deal remaining to be known about the Rocky Mountain species, and I am glad to assist in any way possible.

Very sincerely yours,

Agronomist.

CRB-MH

Colorado College.

DEPARTMENT OF BIOLOGY.

RECEIVED
APR 14 '10

218 E. Uintah St.

COLORADO SPRINGS, COLO., April 10-'10.

Mr. Carleton R. Ball,
Washington, D.C.

Dear Sir:—

Accept my hearty thanks for the three papers on the genus *Salix*. I am very glad to have them.

I also appreciate the opportunity you offer me to submit material for determination. Before the summer is over I wish to send you several things that are bothering me.

Very sincerely yours

Edward C. Schneider.

From C. Schneider

ARNOLD ARBORETUM, HARVARD UNIVERSITY,

JAMAICA PLAIN,

MASS.

5/22/17

April 27, 1917

Dear Dr. Ball:

At the urgent request of Prof. Sargent I had to commence a study of the American *Salix*. I take the liberty to tell you quite frankly how I look at the matter. I am well aware of the difficulties which such an undertaking presents to me, and I do not want to publish anything without consulting you. I also got a very kind letter of Rev. Ehander in Sweden who plans a monograph of all the willows, and, who, in my opinion, is the foremost living salicologist. He will be so kind to do everything in his power to help me. I wrote him that I do not think of anything like a monograph, but that I shall try to make a good compilation of all what we actually know, based on proper investigation of as much material as I can get hold of.

The first thing I want to do, is to understand properly what the old authors like Pursh, Nuttall, Michaux, Andersson etc regarded as species or var. Prof. Sargent wrote to the British Museum and to Kew asking for Photographs of the types preserved in those collections with fragments of flowers and leaves. As I have found out already, most of the authors (old and new ones) did not pay sufficient or any attention to the structure of the flowers, especially to the real size and shape of the gland, or very often the glands. I also try to find out, if the presence or absence of stomata on the upper surface of the leaves furnishes some good character to distinguish certain forms. I have already made a good deal of sketches from the material preserved in the Arboretum, and I am going now to the Gray Herbarium. At the beginning of June I hope I can go to New York to examine the material of the Herb. of the B.G., and I would be only too glad to

meet you in Washington, to talk the whole matter over with you.

Professor Sargent believes he can get the *Salix* of the Nat. Herb. at Washington, otherwise I would have to stay some time at W. to investigate the material. It would, of course, be much more agreeable for me to have the material here, because I have to boil flowers and leaves of almost every sheet. Prof. Sargent has also written to Ottawa, Chicago and St. Louis. Do you know of any other big collection of *Salix* in the U.S.?

My time, I suppose, will be a limited one. As soon as the war is over, I have to go back to Vienna; and I hope we get peace at least in the fall. In going home, I want to go via Sweden, to see Rev. Enander, and also the Herbarium at Stockholm where I believe, Andersson has preserved some of his types.

I would like to ask you a few questions.

What do you think of the name *conifera* Wagh. 1787? So far as I can make out this is the oldest valid name for discolor, and is the same as Willdenow's *conifera* in his Berl. Baumz. 347, 1796. There is only one point in Wangerheim's description that apparently is a wrong statement, he speaks of "2-7 Staubfäden". Willdenow does not repeat this wrong statement. Otherwise Wangerheim's species is not founded upon a monstrosity, and the name could not be rejected according to the rules.

In Bot. Gaz. 60:51 you state that Prof. Piper has studied the types of Nuttall's specimens in the Brit. Mus. Do you know if he made good sketches of the flowers (glands etc)? Should I write to him about the matter? Probably you did already identify those species, and there is material in Washington named by you I could use for "types"?

So soon as I have looked over the material in the Gray Herbarium I try to make a provisional key

ARNOLD ARBORETUM, HARVARD UNIVERSITY,

JAMAICA PLAIN,

MASS.

3

191

for all the American *Salix*, as I did for those of the Himalayas and of Eastern Asia in the *Plantae Wilsonianae*. In making such a key one, usually, gets quite a different view regarding relationship and similarity.

Hoping you pardon my pretty bad English, I am with my best compliments,

very sincerely yours

C. Schneider

COPY

ARNOLD ARBORETUM, HARVARD UNIVERSITY.

Jamaica Plain,

Mass.

May 27, 1917.

Professor C. V. Piper,
U. S. Department of Agriculture,
Washington, D. C.

Dear Professor Piper:

I thank you very much for your letter of May 23. Prof. Sargent will be so kind to ask in Philadelphia for the co-types of Nuttall's Willows. I am fully aware what is to be taken for S. sessilifolia after having seen Dr. Ball's material in the Gray Herbarium. But what I want to know is what has to be taken for macrostachya Nutt. There is some doubt in my mind according to Nuttall's statement "amentis longissimis praecocibus." In the Gray Herb. there is a specimen "Coll. Nuttall, presented by Elias Durand 1866" named in pencil "Salix macrostachya Nutt., banks of Columbia River, Nuttall." It has been determined by Rowlee as S. macrostachya, and shows a long old fruiting catkin and leaves which I am unable to distinguish from those of sessilifolia. It looks like a form of it which flowered very early. According to your statement in Fl. Wash. 212, and your specimens I believe macrostachya and sessilifolia being the same or the first only a form of the last.

There is another specimen of Nuttall's in Hb. Gray, named S. malachophylla, from the Lewis River, which is sessilifolia in a form somewhat approaching S. Hindsiana. Is the latter to be regarded as synonym with the true argophylla Nutt.? Dr. Ball seems to be not quite sure about this fact.

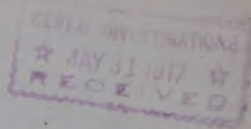
I have investigated very carefully all the material of the Longifoliae in this Herb. and Hb. Gray, and I hope to be able to make a somewhat better arrangement of this section than did Prof. Rowlee. I am waiting for more material from New York, Washington, St. Louis, etc.

As far as I can see almost all the "species" are connected by somewhat intermediate forms. It remains doubtful to me if we have to regard these forms, at least partly as hybrids.

There is another doubtful species, namely S. taxifolia, of which I believe the type is in Paris. I am sure what S. microphylla s. str. is, but I have some doubt that the typical forms of both are identical.

If you can spare some time please let me know something regarding S. macrostachya and argophylla. The argophylla of your flora is exigua of which there are some forms with glabrous or hairy, as well as sessile or pedicelled capsules. Besides this, there is one, the true nevadensis, of which the female flowers possess two glands.

from C. Schneider



I cannot hope to clear up all those forms but I shall try to show how they do vary, and what we have to look for in collecting living material and studying the species in the field.

If you have any opportunity to see Dr. Ball kindly let him see this letter, because I believe he is even more than you interested in those questions. I hope he will find some spare time to give me some more information.

Do you know if there is any possibility to see the material Mr. M. J. Jones based his studies upon? Prof. Sargent told me that this gentleman never answered a letter. Do you know where his types are and if we could lend them?

Regarding the American Mahonias I am sorry to say that I not yet had any opportunity to investigate those species. I know only the species of the Old World. I thank you for your kind information from which I believe that the true *M. aquifolium* is the same as has been regarded hitherto as this species by most authors. I suppose that the anatomical structure of the leaves and a careful examination of the flowers, ovaries and fruits may reveal some good characters to distinguish *aquifolium* and *repens* which are parently and connected by hybrids.

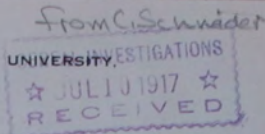
The last study of *Eu-Berberis* I made concerned the garden forms and hybrids.

Very truly yours,

C. Schneider.

Copy for Dr. C. A. Ball.

ARNOLD ARBORETUM, HARVARD UNIVERSITY,
JAMAICA PLAIN,
MASS.



July 9 1917

Dear Dr. Ball:

Having received a month ago, very interesting material of *Sect. longifolia* from Wash. and having before me also all the *Salmies* of the Herb. Mus. Bos. Gard. (over 4000 sheets) I have almost finished a revision of this peculiar section. There are a few forms from S. Calif., some of them seem to belong to the rather unobscured *S. Parishiana* Roul., which I cannot interpret at present. We need, of course, much more investigation in the field and all I can do is to point out the forms which are, especially, in need of further observation.

Regarding your determinations in Herb. Wash. and Hb. Gray I cannot agree with you concerning the use of certain names. I regard *S. macrostachya* Nutt., according to a specimen of Nuttall in Hb. Gr., as a synonym of *sessifolia*, and I am almost convinced that *S. argophylla* Nutt. is the same as *S. macrostachya* of Piper and you; it certainly

ly is not the same as *Hindsiana* Benth., as far as I can judge by the material of W. Fidalgo before me.

I believe one can distinguish the following "species" or main forms and varieties of this section:

- 1 a. *S. terifolia* Kunth
- 1 b. — — v. *microphylla* (Ch. et Bhl.)
- 2 a. *S. sericeifolia* Nutt.
- 2 b. — — v. *Hindsiana* (Benth.) Nutt.
- 2 c. — — v. *leucotendunculoides* (Rosl. ex. p.)
3. *S. fluviatilis* Nutt. var. *Ball.*
- 4 a. *S. bolanderiana* Nutt.
- 4 b. — — v. *Bolanderiana* (Rosl.)
5. *S. argophylla* Nutt. (*macrophylla* Piper p. n. m.)
- 6 a. *S. exigua* Nutt.
- 6 b. — — v. *stenophylla* (Rydb.) var. *provis.*
- 6 c. — — v. *heterosericea* (v) " "
- 6 d. — — v. *nevadensis* (Wats.) " "
 flor. ♀ glauc. 2.
- 7 a. *S. longifolia* Muhl.
- 7 b. — — *typica* f. *Wheeleri* (Rosl.)
- 7 c. — — v. *pedunculata* Nutt. (*S. linearifolia* Rydb.).

ARNOLD ARBORETUM, HARVARD UNIVERSITY,
JAMAICA PLAIN,
MASS.

3.

191

8. S. Thunbergii Benth.

9. spec. incerta. (incl. *Parrishiana* p.p.).

I am now commencing to investigate the Fauna of Mexico and S. Am. and the Sect. *Nigrae* and *Pentstemonae*.

There are quite a few forms I cannot judge correctly at present, and I think it best to leave them till I have investigated the forms of all the different sections.

Did you find where to publish your manuscript of *Condamet*? I do not touch this group before you have published your study of it.

I wish I could talk with you some time about many topics concerning these willows.

With very best compliments

very truly yours
C. Chröder

July 23

7

191

Dear Dr. Ball:

Kindly excuse me writing to you so often but I still hope you may be able some time to give me a little information regarding my questions.

I have now before me all the material of the Mexican and S.-Am. Willows of the big herbaria here, at N.Y., Wash. and St. Louis, and I am making some rather interesting discoveries. After speaking with Prof. Sargent I want to write a special article about those Mex. forms for the Bot. Gaz. I believe, it should also be good to say that I am making an investigation of the Am. Willows, and that I would like to get material and information from people interested in *Salix*.

But before I commence such an article I like to know if you have in your unpublished monograph of the Cordatae something about Mex. forms. There is *S. cana* Rowlee p.p., non Mart. & Gal., that belongs to this section, being closely related to *S. lasiolepis*. Furthermore there are forms I am inclined to take for *S. latifolia* M. & G., non Forbes, which may belong to this section and should need a new name, but I know only of male specimens, distributed as *lasiolepis* var. *Bigelowii* (det. by Bebb). I do not think that the true *lasiolepis* or one of its forms occurs in central Mexico.

The group of *S. Hartwegii* and *S. mexicana* is interesting because there is a dorsal gland in the male flowers.

S. cana M. & G. I know only in a male specimen of Ehrenberg in Hb. W. but from the description I believe that *S. Endlichii* v. Seem. must be very similar to what I take for *cana*.

Sept. 13. 1917

Dear Dr. Ball:

To-day I am sending back to the U.S. Herb. most of the first loan of *Salix* keeping 40 sheets here because I can not yet name them correctly.

As I told you I have already asked for a new loan containing material of *S. Gooddingii* (*vallicola*), *Wrightii*, *Toumyi*, *lasindra* et var., all unnamed *Pleandrea* and *Longifoliae*, and several *longifolia* (from the NE States) and f. *Wheeleri*. Would you be so very kind to speak with Mr. Maxon about the matter? Prof. Sargent is in W. probably next week.

I have almost finished the *Nigrae* (*Humboldtiana* et var. *stipulacea*; *nigra* et var. *altissima* et *Lindheimeri*; *Gooddingii*) -- the *Triandrae* (*amygdaloides* et var. *Wrightii*) -- the *Pentandrae* subsect. *Lucidae* (*serissima*; *lasindra* et var. *caudata*; *lucida* et f. *angustifolia* et var. *intonsa*) -- and the *Bonplandiana* (*Bonplandiana* et var. *pallida* et var. *Toumyi*; *laevigata* et f. *arapiqua*; *longipes* et var. *venulosa* et *Wardii*; *dasyopoda* spec. nov. mex.).

I am going to Vermont for a few days, and in Oct. I shall write the article on the *Salix* of Mex., C. and S. America. After that I shall look over the alpine willows.

Could you be so kind to let me have a list of all the species and forms of the *Cordatae*? I shall not touch this group but I think it would be very good if you could determine the material of the C. in the A. Arb. Herb.

As soon as there is any reasonable hope for peace I do nothing else than to "finish" those groups I have dealt with. Then I shall write to you about the "book" and how it is intended to publish the 1st part of the *Salices Americanae*. If you shall be so kind to add the *Cordatae* this would be, in my opinion, the best we could do.

Nothing can be done before I am back in Europe because the illustrations shall be made in Vienna. I also want to see Rev. Enander, the eminent Swedish salicologist, at Lillherrdal, Sweden, who I believe, is the man who knows most of all the Willows. He will be glad to exchange Herb. specim.

I inclose a list of all the photographs of Salix-specimens of which I could let you have prints in exchange for similar prints or Herb. specimens. Please mark those phot. you want to have a print of, and send the list back.

I should be only too glad to come to Wash. to talk over so many things with you but heaven only knows if and when it will be possible. If you should see Prof. Sargent could you kindly give him a hint!

With my best compliments

very sincerely yours

C. Schneider

Digitized by Hunt Institute for Botanical Documentation

1/ part 1. Asiatic Willows.

part 2 American " follow next week.

Nov. 19. 1917

Dear Mr. Ball:

I am sending the rest of the list of the photographs of Willows I have for exchange. Did you get the first part of it with my letter? I should be very glad to hear from you. Kindly let me have a list of all the species and var. and the synonyms belonging to the sect. *Cordatae*. It should be of greatest help for me in certain respects. I am sorry to make you so much trouble because you shall probably very busy with other things than *Salix*.

I do, apparently, get no more *Salix* from the U.S.N.Herb., and the Field Col. Mus. is likewise unable to loan its collection. Therefore, I shall have to visit those two places before I start in writing down my MSS. This entirely depends how the war is going on. I believe that I can not finish a study of all the American willows before spring 1919. If it should happen, that the war is going to be over before this time I have to stop my work at a certain point as soon as there are real signs of peace, and I have to begin to finish those sect. I have been able to investigate. I suppose that I shall have to stay in Washington as well as in Chicago at least one month.

I want to talk over every thing with you as thoroughly as possible, and there are only too many things I have to leave unfinished now. Besides I must go and see Rev. Enander in Sweden. He shall know many species which are found in Asia too or are nearly related to Asiatic ones of which we have here in America no

ARNOLD ARBORETUM, HARVARD UNIVERSITY,
JAMAICA PLAIN,
MASS.

2

191

authentic material. If it could be done I should like to see the material in Petrograd before publishing the results of my studies. It is of no value to repeat conjectures ever and ever.^x

I am now investigating the species of the sect. Reticulatae, Herbaceae and what is called Arcticae. Mr. J.M. Macoun wrote me a very nice letter, and he is willing to send me all I want from Ottawa. Unfortunately the first box sent by express disappeared at the border and could not yet be found. I hope we get hold of it, because if anything should happen to destroy or damage those specimens I would not get any other material.

If you want any of the photographs of the list please mark the numbers in sending the list back. I shall be glad to make an exchange as I told you in my last letter.

My MSS regarding the Mexican and S.A.M. willows is ready and Prof. Sargent shall send it to the Bot. Gaz. Do you want to say anything regarding those species?

With my best compliments, I remain, dear Mr. Ball,

very sincerely yours

C. Schröder

^x From Kew we shall get photographs and scraps of about 70 types!

2. American Species. size 6 1/2 to 8 1/2 inch.

1. amygdaloides And. f Davis 51, Shepherd, Ill.
m Davis 119 "
2. " fr Eggert, Cahokia, Ill.
st Engelmann, St. Louis, Mo.
3. amygdaloides var. Wrightii (And.) Schn. f m Earle 465, El Paso, Tex.
4. " " fr Mearns 1511, El Paso Co.
st. Rehder 445, Sacramento Mts., N. Mex.
5. same, co-type of S. Wrightii And., Wright 1877, Herb. Miss. Bot. Gard.
6. " , same Herb. N.Y. Bot. Gard.
Wright no. 1876, type no. of nigra latifolia brevifolia testacea [And.]
7. argophylla Nutt. s. str., m Macbride 228, Idaho
fr. Nelson & Macbride 1057, Idaho
8. Bonplandiana Kth. m f Pringle 13788, Hidalgo
m fr " 2003, Chihuahua
9. " ? var. pallida (Kth.) And. f Schaffner 263 (895), San Luis Potosi
m fr Conzatti 1721 Oaxaca
10. Bonplandiana var. Toumeyii (Britt.) Schn. m fr Shear 4201 type of Tou-
st Toumey, Santa Catalina Mts. Ariz. Dec. 7, 1894. meyl.
11. S. Bonplandiana forma f m J.D. Smith 333, Guatemala
fr v. Türkheim II 1526, Guatemala
12. " X ? m Rose 1308, Mexico, Low. Cal.
m Palmer 77 " "
13. cana Mart. & Gal. m Ehrenberg 1280 Mexico (that is what I take for cana)
14. exigua Nutt. f m Elmer 208 Washington
15. " forma co-type of longifolia opaca And., Wright 1873, fr
16. " var. luteo-sericea (Rydbg) Schn., var. prov., m Rydberg 369, Nebr.
f Rydberg 368, Nebr. type of luteosericea
17. " var. nevadensis (Wats.) Scha. m fr Anderson 196 Nevada
18. " Watsonii 1005, type of nevadensis
m Wheeler anno 1871, Nevada
19. exigua var. stenophylla (Rydg.) Schn. m Rydberg & Vreeland 6393 type of
S. stenophylla
f same coll. 6392
20. same var. fr Wright 1874 N. Mex.
f m " 1875 " (longifolia angustissima And., one of co-type)
21. same var. m f J.H. Cowen July 5, 1895, Colorado, Fort Collins. forma ~~incerta~~
22. " " f Wootton 39, N. Mex.
m " May 3 1899 Mesilla N. Mex.
23. " , forma incerta, Pringle 220 Chihuahua.
24. exigua tenerrima Schn. , fr type of longifolia tenerrima Hend.
25. longifolia pedicellata And., Eastwood 303, Yukon, f.
26. exigua forma incerta, Jones 3730, Mexico, Low. Cal.
27. fluvialilis Nutt. fr Ball 2015 Oregon
m " 1891 "
28. Gooddingii Ball st Rehder 164, Cal.
fr Ball 1901 Ariz.
29. " m f LeRody Abrams 3256 Cal., type no. of nigra vallicola Dudl
fr " " 3484 " (vallicola Britt.).
30. " f Goodding 689, Nevada, type no. of Gooddingii
m " 719 " m type
31. Hartwegii Bth. m Hartweg 390 Mexico, type no.
32. " f fr Nelson 26 " f type.

32. Humboldtiana Willd. fr Morong 788 Paraguay
m Gay Chile
33. " var. Martiana (Leyb.) And. fr Traill 717 Brazil
fr Spruce July 1850 Brazil. ^{as 804}
34. " var. stipulacea (Mart. & Gal.) Schn. m Goldman Anno 1904 Chiapas
fr J.D. Smith 2631 Guatemala
35. Jaliscoana Jones, Jones Jalisco, prob. co-type
m J.G. Graham Mexico
36. " m Diquet Jalisco m type
37. laevigata Bebb fr Bolander anno 1872 Alameda Co. Cal., co-type
m f Anderson Cal. type ex herb. Bebb.
38. " fr Elmer 3673 Cal.
st. (f. araguipa Jeps.) Rehder 162 Cal.
39. " fr Green Yreka Cal., type of var. angustifolia Bebb
m f Bolander 4632 type no. of var. congesta Bebb
fr " 6333 " "
40. " m f Jepson anno 1891 Berkeley Cal.
41. lasiandra Bth. Hartweg 1954 m type no. ex herb. Gray.
" " " " New York Bot. Gard.
42. " m Nuttall Columbia banks, co-type of S. speciosa Nutt
43. " m f st Jepson anno 1891 Berkeley Cal.
44. " m Lyall anno 1859 Lower Frazer River, type of S. lucida
macrophylla And. and of S. lasiandra Lyall Serg.
45. " var. caudata (Nutt.) Sudw. m f A. & E. Heller 3941 Idaho
fr Mrs. J. Clemens anno 1908 Flathead Lake Mont.
46. " " m Geyer 287 (S. arguta And.) mixed with f cordata
m Burke anno 1849 Rocky Mts. (S. arguta And.)
m f Geyer 287 Herb. Gray (above from Herb. N. York)
47. lasiolabis Bth. Hartweg 1955 co-type herb. N. York.
47. lasiandra Bth. fr Jepson 1891 Berkeley Cal.
st. L. E. Smith 720 Cal.
48. " m f Fendler 816 type no. of S. Fendleriana And. ex herb.
Gray and N. York
49. longifolia Muhl. st Williams 162 S. Dakota
fr Davis anno 1913 East Hannibal Ill.
51. " var. angustissima And. m Pringle 10086 Coahuila
f Lindheimer 1190 Texas
52. " " m Wright 668 Texas co-type of S. Thurberi Rowlee
53. " " f ~~Anderson~~ 3341 " " " and also
of var. angustissima And.
54. " var. pedicellata And. m Bourgeau anno 1859 Saskatchewan, co-
type
m Richardson type of linearifolia Rydbg. Herb. Gray
55. " var. pedicellata And. m f Richardson anno 1837 Cumberland House
type of S. linearifolia Rydbg. Herb. N. York
56. ^{56 wanting!} " f. Wheeleri (Rowlee) Schn. Bebb anno 1877 Fountaineau Ill. fr co-
type of S. interior var. Wheeleri Rowl.
58. longipes Shuttlew. f m f Rugel April 1843 St. Marks Fla. type of S.
longipes var. pubescens And. (gongylocarpa Sh.)
59. " m fr Small & Carter 3898 Florida, type of S. amphibia Small
60. " f Poeppig Febr. 1824 Cuba (S. occidentalis Bosc)
61. " f Rugel April 1843 ST. Marks, type of longipes.

63. longipes Shuttlew. fr Van Name March 10 1915 Florida
m st Wright 2132 Cuba
63. " m f Harbison 1425 Fla.
st Sargent anno 1914 Little River Fla.
64. " var. venulosa (And.) Schn. fr Wright 1879 type of S. nigra
longipes venulosa And. Hb. Gray & N.Y.
65. " " m f Drummond 303 New Orleans, type no. of S. nigra
marginata And. (*S. marginata* Wm.).
66. " " m f type of S. Pitcheriana Barr., Carey Georgia
67. " " m f Heller 1621 Texas
68. " " fr Curtis 4535 Fla.
fr Heller 1903 Tex.
69. " var. Wardii (Bebb) Schn. m Letterman May 1890 Allenton, Mo.
f Davis 3578 Mo.
70. " " fr st Ward May 11 1881 Washington, D.C., cotype of
S. Wardii
71. lucida Muhl. st Fernald & Wiegand 3143 n. Foundl.
var. angustifolia And. fr Collins, Fernald & Pease anno
1904 Quebec
72. " m f Bissell 182 Connecticut
72. " var. intensa Fern. fr. Fernald & Collins 301 Quebec
73. melanopsis Nutt. m Ball 1868 Oreg.
f Ball 1868 Oreg.
74. " var. Bolanderiana (Rowlee) Schn. m f Bolander 4958 Cal., type
of Bolanderiana
75. " " m f Tracy 3295 Cal.
76. " forma vel hybr. fr Coville 719 Wash.
fr Walpole 33 "
77. mexicana v. Seem. m f Brille 8337 Hidalgo
78. nigra Marsh. m f Small May 18 1889 Safe Harbor Pa.
79. " fr ~~St~~ Davis 4803 Mo.
st. Glatfelder June 1893 Mo.
80. " var. altissima Sarg. m fr Cocks 91 Louisiana
81. " var. Lindheimeri Schn. m f Lindheimer 415 Tex., types
82. " " m f Sargent April 1915 Tex.
st Reverchon July 1844 "
83. " " forma incerta, f Lamb 581 Tepic
m Palmer 134 Tamaulipas
84. oxylepis Schn. (latifolia M. & G.) Nelson 272 Mt. Orizaba, m.
85. paradoxa Mart. & Gal. fr Pringle 19185 Oaxaca
st Pringle 5698 Oaxaca
86. " var. ajacense Schn. type m f Pringle 6795 Fed. District
87. Parishiana Row. st Coville & Funston 263 Cal. cotype
88. Rowleei Schn. fr Pringle 13204 Fed. Distr. type
m " 13. Feb. 1899 " "
89. " var. ? cana (Rowl.) Schn. fr type Pringle 6794 Fed. Distr.
90. Schaffnerii Schn. type m Schaffner 265 (894) San Luis Potosi
91. serissima Fern. m Deam 19882 Indiana
fr Maxon 4574 N. Y.
92. " (incerta) Lake Winnipeg 1827, type of arguta erythrocoma
(Barr.) And.

93. sessilifolia Nutt. m Ball 1963 Oreg.
fr Ball 1974 Oreg.
94. " fr Nuttall Columbia River, cotype of *S. macrostachya* Nutt
95. " var. Hindsiana And. m f Copeland (Baker) 3264 Cal.
96. " " m fr Hartweg 1936, type of *S. Hindsiana*
97. taxifolia Kth. m f Pringle 23 1/2 Chihuahua
98. " forma incerta m f Palmer 1193 Colima (*microphylla* Rowlee)
99. " var. microphylla (Ch. & Schl.) Schn. m f fr Bourgeau 1619 et
3031 Orizaba
100. " " st Schiede & Deppe 1111, cotype of *S. Microph.*
101. " " f Skinner Guatemala

Nov. 17. 17.

C. Schneider

Febr. 2 1918

Dear Dr. Ball:

I hope you received my last two letters and it is only due to your being busy with other matters that you did not answer them. Be this, however, as it may, I take the liberty to write to you again because I want to keep you informed regarding my study of *Salix*. As soon as I get the reprints I shall send you one of my last article in the Bot. Gaz., and I should be very glad to have your judgement on it.

We have here a willow collected by Prof. Lowell in the Sycamore Canyon, Ariz., last fall in leaves only. But he also sent cuttings which did flower in our greenhouse last week. As far as I can tell it is very closely related to *S. lasiolepis* but may represent a new species. May I send you some material to look at and to tell us your opinion? Prof. Sargent is very anxious to know whether it is a new species. In this case he would like to have it named in compliment of Prof. Lowell. I should like very much if you could go over all our *Cordatae* because I want to make a key for all the American Willows in the same manner as I did it in Pl. Wils. for the species of eastern Asia. If you should like to have photographs of about 50 types of the new species I described on the Pl. Wils. I could let you have prints (5 by 7), and even copies of the sketches of the flowers I made.

I am thinking how to do best in case we should get peace this year as president Wilson predicted the other day. It is now almost a year that I started my study on *Salix*, and I suppose that I should need another year, at least, to finish it in the same manner I am working. I do not want to make it in a hurry but I think it best to do only one part as thoroughly as it can be done by means of herbarium study only.

Not being able to get the *Salix* from Washington and Chicago I have to go to those places to look over the material. To do this I need, I guess, at least 3 months. Furthermore, I have to compare all the literature I can get hold of at least in so far as I know the species well enough to understand what the different authors may have had in mind. This will take some time too. Besides this, as I told you above, I want to give in my book (or may I say in our book?) a key of all the species now recognized in America.

I hope I can deal fully with the *Pleian-drae*-group, the sect. *Longifoliae*, *Retusae*, *Reticulatae*, *Arcticae* sensu Rydberg, and probably also with some of the other sections. You would be so kind to contribute the *Cordatae*, and, I hope, when staying at Washington, I shall be able to discuss the whole matter with you and to get your much needed advise.

As soon as I can leave America I shall try to go to Kew to see the *Salix* of Hooker's herbarium and others, also, at the Brit. Museum. From England I want to go to Sweden to pay a visit to Reverend Ehander, because without having seen him, I should not be able to deal with the arctic willows in a sufficient way.

Then I commence to write down my MS at home, and I hope, I can include yours on the *Cordatae*. We shall make the necessary arrangements as soon as I can meet you at Washington.

I am busy with the 'Arcticae' having all the types of Rydberg here from Ottawa and from N.Y. It is a very difficult job, indeed.

Be so kind to let me have a reply as soon as you find the time to write. I fully understand the importance of the work you may have to do at present in the interest of your country.

With my best regards, I am, dear Dr. Ball,

very sincerely yours

C. S. Driscoll

Sept. 27

8

CEREAL INVESTIGATIONS
★ SEP 27 1918 ★
RECEIVED

Dear Dr. Ball:-

To-day I am sending you a reprint of my article in the August number of the Bot. Gaz., and I dare once more to address to you the following letter. I hope you will understand that your co-operation is of the greatest importance to me, and you would oblige me extremely in letting me have a decisive answer as soon as possible.

Hitherto I have dealt with the *Salix* treated in my first article (Jan. 1918) and with all the species of the sections *Nigrae*, *Pentandrae*, *Triandrae*, *Bonplandianae*, *Ovalifoliae* (*Arcticae*), *Glaucae*, *Reticulatae*, *Herbaceae* (*Retusae*). The last 4 sections are spoken of in my notes I-III, and note IV refers to sect. *Longifoliae*. Furthermore I have investigated the *Phyllcifoliae*, and I intend to prepare an article on the species of this group before the end of this year. Now I am studying those groups as the *Commutatae* and *Lanatae*. From your complete silence I draw the conclusion that you are so much occupied with other things that you do not find leisure at all to answer my letters at least partly. I should prefer not to bother you at all with my questions but I need your help at least in one way. You have already finished, as you told me, a monograph of the *Cordatae*, and from your determinations in herb. Gray I learn that you described several new species, like *S. monochroma*, which have not yet been published. What I need is an enumeration of all the species referred by you to the *Cordatae* with their synonymy. As far as I see you have no time to compile such a list, therefore, I take the liberty to ask you whether you could not send me for a certain time those parts of your MS from where I could get all the information I need. I would,

certainly, make no use whatever of that information in the notes I am going to publish except in such cases I would get your special permission to do so.

As soon as I know what species are already studied by you in a definite way I could try to determine the material of them here in herb. A. (because I do not believe you will at present find the time to look over it yourself), and I could commence the arrangement of a key including all American species.

A week ago I again received some material from the U.S. Nat. Herb., and I hope to get all I need by and by.

I am very sorry that I am not able to talk over with you the whole matter but I have not yet lost the hope that you will be so kind to give me a decisive answer.

By my articles you can judge yourself how I treat the whole matter. I am more than convinced that your cooperation would be of the greatest value for my studies, and I fear you will find many mistakes in my statements which could have been avoided if I had had the opportunity ask your counsel.

Did you make another journey this year to study and collect certain forms?

Very sincerely yours

C. Schneider

November 23, 1918.

Dr. Camille Schneider,
Arnold Arboretum,
Jamaica Plain, Mass.

Dear Dr. Schneider:

Your letter of September 27, together with other communications received at intervals throughout the year, have been duly received. I owe you an apology for not having replied to them. When I tell you, however, that primarily I am an agronomist rather than a botanist, and that my entire energies in every waking moment have been addressed to the complications and important problems of cereal production in this country in connection with our war program, you will understand that every other scientific activity, either official or personal, has had to suffer neglect. By reason of recent events, our stress is somewhat relieved, and I hope now to be able to give some little thought to other activities than the production of grain.

I will endeavor now to give your various letters a careful reading and such attention as still is possible. I have much appreciated the several papers you have been kind enough to send me, and have even taken the time to read one of them within the last few days. I will endeavor to write you again after a reading of your letters and a summary of the requests you have made.

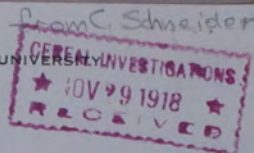
With regards, I am:

Very sincerely yours,

Cerealists in Charge.

CRB/LRG

ARNOLD ARBORETUM, HARVARD UNIVERSITY
JAMAICA PLAIN,
MASS.



November 26 1918

Dear Dr. Ball:

It is quite a relief to me to have your letter of Nov. 23. Surely I understand that your important duties during the war did not allow you to occupy your time with the willows. As I told you in my last letter the most valuable thing you can do for me is to let me have all possible information about the Cordatae. I am not sure how you have limited this group, and which species (old and new) you intend to refer to it.

It is my intention to get so much knowledge of all the other species as possible before I leave America. If I have time enough I should like to prepare a key for all the species because in doing so I would learn to understand better their affinities and similarities.

Besides the Cordatae you have made studies on a good many species of other groups. I have ready in MS an article on the Longifoliae and another on the Pleonandrae^x. As soon as I get the promised material from Washington of the Phyllicifoliae I finish my MS on this section too. Here the name chlorophylla has to be changed to *S. planifolia* Pursh.

Probably you have something to say on those groups too, and I even presume that you have descriptions of new species (one related to amygdaloides) and forms as yet unpublished. I do not intend to interfere with your previous studies, and I should deem it a favor if you would let

x I would send you the MS if you want to read them before they go into print.

ARNOLD ARBORETUM, HARVARD UNIVERSITY,
JAMAICA PLAIN,
MASS.

2

191

me know what you already have done, and even enable me for publishing new facts in my notes.

From my articles you will pretty well see how I handle the matter. Whether I shall be able to carry on my studies to the finish I do not yet know. That entirely depends on the conditions I shall find over there when I am able to go home, and on the arrangements I can make with Prof. Sargent. Before I leave I should like to discuss the whole matter with you because I could not make any final decision regarding my book without consulting you. Prof. J.M. Macoun, M.L. Fernald and others take great interest in my studies, and I should like to complete them as much as possible.

May I take the liberty to tell you that all those statements in the newspapers about my sending "large sums of money" to Germany etc. are all nonsense. I came into conflict with the war-laws because I sent a very small sum of money (I am earning at present not half of what I ought to get) to my starving family in Vienna which I have not seen for 5 years.

With my best regards

very sincerely yours

C. Schneider

CERTAL INVESTIGATIONS

JAN 1 1919

RECEIVED

Arnold Arboretum

Jamaica Plain, Mass.

Jan. 1. 1919

Dear Dr. Ball:

I am sending you by registered mail copies of all my Chinese *Salix* types which I believe will be of value to you. Furthermore I enclose a copy of my list of those species I have already dealt with. Kindly keep it and look it over by and by. I wish to keep you well informed regarding the progress of my studies because I should like not to publish anything on such species or groups of which you may already have made an extensive study without giving you an opportunity to save your priority.

As I told you in my last letter I have MSS on the *Longifoliae* and on the *Pleonandrae* ready to go to the printer. I should deem it a favour if you could read them before they appear in print. If you can not spare time at present I shall send the MS on the *Longifoliae* to the Bot. Gaz. in 2-3 weeks. I just received a lot of interesting specimens from California but I am afraid that it is impossible for me to elucidate some of the Californian forms of this group properly without having got much better acquainted with them.

As soon as I receive the material promised to me from Washington which I expect every day I shall prepare a MS on the *Phyllifoliae* of which group your two species *pennata* and *Nelsonii* are far from being familiar to me. Could you let me have some good specimens of them?

What I need most as I told you already is a statement regarding the species, varieties and the synonymy of the *Cordatae*! I hope I can finish at least a preliminary study of all the remaining species within the next 3 months, and then I shall try to elaborate a key to all the species before I commence to work out the sectional arrangement and deal with certain hybrids.

I should think we shall have peace about April, and I will be able to go home at this time.

I suppose you will perfectly understand the reason of my writing you so many letters, and I hope that the new year will give you some spare time to help me.

May I take the liberty to wish you a very happy New Year!

Very sincerely yours

C. Schneider

Jan. 23, 1919.

Dr. C. Schneider,
Arnold Arboretum,
Jamaica Plain, Mass.

Dear Dr. Schneider:

Your very interesting letter of January 1, with which you were kind enough to transmit an outline of the species of American willows as you have determined them and photographs of a number of Chinese species, was duly received. Up to the present time, however, I have not been able to give your communication attention.

I have looked through the proposed arrangement of the species and find a great many questions which I would like to discuss with you in the light of the studies of the species which I have been making. Is it not possible now for you to come to Washington? Beside the abundant material in the National Herbarium I have a private collection numbering nearly 3,000 sheets in which there is a considerable range of material, especially from the western United States, which I am sure you would be interested in seeing.

I will, of course, be very glad to go over your manuscript of the Longifoliae and Pleonandrae, provided you have not already transmitted them to the printer. I am especially interested in that of the Longifoliae because I feel certain that a further study of Western material would change your arrangement of some of the species and varieties.

If you are not able to come to Washington, perhaps Dr. Sargent would be willing to arrange for the expense of shipping some of my material to you at Jamaica Plain.

If you send manuscript I will engage to give it very prompt attention. I regret that the conditions which have made it possible for you to work so extensively on the American willows have made it practically impossible for me to give any time to them at all.

Very sincerely yours,

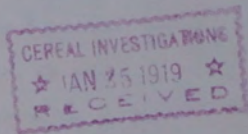
Cerealist in Charge.

CRB:JLW

ARNOLD ARBORETUM, HARVARD UNIVERSITY,
JAMAICA PLAIN,
MASS.

Jan. 23 1919

My dear Dr. Ball:



Prof. Vargent just told me, that the Curator of the U.S.N. Herb. did not send the willows I am waiting for because the gentlemen in W. read the story about me in the Papers. It just occurs to me that you may have read the same story, and being not willing to correspond with a man who is under suspicion, that ~~this~~ may be the reason for not answering even my last letter. Did you get the set of photographs?

I think it best to tell you quite frankly what has happened. The case has been dropped weeks ago by the U.S. Authorities. They had got hold of the checks I used to send to a friend in Norway (about 40 \$ a

(See over)

month, not more; I am a poor man,
making very little money at present, and
all the papers said about "large sums
of money" is nonsense). I sent this
money to my family in Vienna who
is in a pretty bad situation. I had to
act as I did even if brought me in
collision with the laws.

If the papers had printed nothing
but the true facts there would have been
no "case"; I am sorry that they made
me a professor on Harvard, and represen-
ted me as a friend of the late Kaiser.

Kindly keep in mind that there
is now not the least in my behaviour
the U.S. Author would complain of.

I am getting such a friendly support
by Prof. Fernald, F. H. Howden, Persons,
Abrams etc. that I hope you will
also be so kind to help me in the
interest of science.

I sent my MS. on the *Longifoliae*
to the Bot. Gaz.

Very sincerely yours
C. Schurder

Arnold Arboretum
Jamaica Plain, mass.

January 30, 1919

CEREAL INVESTIGATIONS
★ JAN 31 1919 ★
RECEIVED

Dear Dr. Ball:

I thank you for your letter of Jan. 23, and I am extremely glad to hear that you will be so kind to go over my MSS. As I wrote you a few days ago I have already given the MS on the Longifoliae to Dr. Coulter. I have written to him to be so kind to send it back directly to you. Please look it over and send it back to me until the 10th of February because Dr. Coulter wants it back not later than the 15th of February. I shall make all the necessary alterations or annotations as soon as I get it from you. I am sorry that I can not leave it with you any longer but I was waiting quite a time before I received your letter, and it must be printed in April.

Whether I can come to Washington or not depends entirely on Professor Sargent. I have made a proposal to him but I have not yet got his decision. He seems not yet to have made up his mind whether he really wishes to publish an extensive monograph or only some more of those notes as have already appeared. I have to think of my future because I suppose that I can go back in May or June.

As soon as I know what Sargent really wants I can decide upon my course for the future. Even if I can not finish the monograph I wish to see Bebb's material in Chicago and to talk with you about the last notes I am going to publish. It is my intention to write about 12, the last two of which shall contain additions and corrections of the first ten, and, if possible, a condensed key for all the American willows, taking for granted that you might be so kind to give me your assistance.

If you would be so kind to send me some material of your own please send it by express to the A.A. (to collect!), we send it back 'prepaid'. Would you have any other expenses?

Kindly make your annotations to the Longifoliae on separate sheets and let me have the MS until the 10th of February. I could let you have the MS on the Pleonandrae for a few weeks. The next I prepare is on the Phyllicifoliae.

As soon as I have heard from Professor Sargent so that I can make my disposition for the time I shall be still here I let you know.

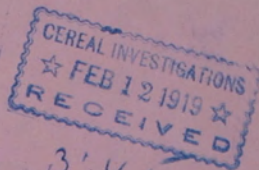
Very sincerely yours

C. Schneider

U. S. DEPARTMENT OF AGRICULTURE,
OFFICE OF THE SECRETARY,
WASHINGTON, D. C.

TELEGRAM.

69wub 2pm. 9



(j) Jamaica-Plain, Mass. 115pm Feb 12-1919

Carlton Ball
Agriculture
Washington.

If manuscript still there kindly send it at once

Schneider.

Feb. 13, 1919.

Dr. C. Schneider,
Arnold Arboretum,
Jamaica Plain, Mass.

Dear Dr. Schneider:

Your letter of January 30 and telegram of yesterday concerning the manuscript of the Longifoliae duly received. The manuscript came from Dr. Coulter not many days after your letter and I gave it a hasty reading and hoped to be able to thoroughly digest it and communicate to you my conclusions and suggestions. It was impossible, however, to give it the time required with this especially difficult group, and so yesterday I sent the manuscript back to Dr. Coulter by registered mail in order that there should be no delay in the printing of your paper.

I must confess that I was disappointed in the result of your study of this group. It seems to me that you have left unsolved the problems which those of us who have been studying American willows have long recognized as existing. At the same time you have augmented the problem of nomenclature and synonymy by a large number of new combinations. I am sure that no one knows better than I how difficult it is to monograph a group from herbarium material alone. As a matter of fact, I have not attempted to publish anything on this group myself but have been studying it in every State in which I travel and accumulating notes and suites of specimens of critical material. I believe that hindsiana is a species abundantly distinct from sessilifolia. The shape and pubescence of the leaves is different, the aments appear to me to be different, and the habit of the plant is different. In California hindsiana grows to be a large tree. The reasons which you give for regarding hindsiana as a variety of sessilifolia apply equally well to several other pairs of species, as for instance interior and exigua, or fluviateles and melanopsis. However, it probably is unprofitable to enter into a discussion after a manuscript is in the hands of the printer.

Very truly yours,

Cerealist in Charge.

CRB/JLW

from C. Schneider
Arnold Arboretum
Jamaica Plain, Mass.
February 15, 19

CEREAL INVESTIGATIONS
☆ FEB 17 1919 ☆
RECEIVED

Dear Dr. Ball,

replying to your letter of Febr. 13 I wish to say that I am extremely sorry for having been unable to hear your critical arguments before the MS went back to the printer. I fully understand that the time was too short for you but if you had been so very kind to let me know by postcard that you needed more time I would have made another arrangement, and could have given to Dr. Coulter my MS on the *Pleonandrae*. At present I am in a terrible fix. Dr. Sargent said, that it is impossible to publish the final book he was thinking of when I was urged by him to commence this study very much against my will. We agreed a few days ago that I shall prepare from 10 to 12 notes at all to bring my work to a certain conclusion in dealing with those species of which I have already made an investigation.

I know from my experience with Asiatic willows that it is impossible to come to a thorough understanding of any member of this difficult genus without studying them in the field. The only thing I can attempt now is to investigate the types and to point out where the difficulties seem to lie. I am almost in the same position you (and also Mr. Bebb) were when commencing your study. The only difference is that I have much more material at hand. But we never ought to forget the fact that no two salicologists are likely to agree fully as to the interpretation of certain difficult forms. I do not think it is a very serious difference whether I regard as a variety a form which you are inclined to establish as a good species, or vice versa. The limitation of a species is always a very subjective problem. I never dreamed of being able to solve the mystery of a good many of the Am. willows under the condition I have to work.

I have just made an arrangement with Prof. Sargent that I am going to Chicago in a couple of weeks to look over the material in Bebb's herbarium. From Chicago I shall come to Washington, probably at the middle of April (or later if there is no possibility to leave for Europe in May). I would deem it a great favor if you would give me an opportunity to talk the whole matter over with you in a thorough way.

To-day I beg you very earnestly to let us both come to a clear understanding, as to the help you will and can lend me. Be so very kind to give me in your next letter as soon as possible definite answers to the following questions. I take the liberty to put them somewhat bluntly but I hope you will perfectly understand my motif because I have only very little time left to terminate my studies, and I shall probably never again have an opportunity to touch the willows after I have left America.

I wish to ask you the following questions:

1) Would the last two weeks in April or the first two weeks in May be convenient to you to discuss with me the whole matter, or would you prefer any other time? In case you should be absent during this time I would have to go to Washington before I go to Chicago but, of course, I should prefer much to see you after I have been at Chicago and after I have gained a more definite opinion on certain willows.

2) Would you be able and willing to assist in preparing a key for ALL the American willows for one of my last notes? I think that such a key would be very valuable for every student of this genus, and in preparing it (in the manner I did it for the Asiatic species in Pl. Wils. 1916) we surely would get a better understanding of many intricate forms.

3) Could you be so kind to tell me which species in your opinion are to be referred to Sect. *Commutatæ*? I wish to treat this group in note 7 or 8. Note 6 is dealing with the *Phylicifoliae*.

4). Would you like to look over my MS on the *Pleonandrae*? You could keep it until March 15 and then send it to me at Chicago. I should of course be only too glad to have your critical advice.

5) Would you be able to let me have duplicates of the following species and others from your collections in exchange for the photographs I sent you? (*S. Nelsonii*, *pennata*, *monticola*, *Piperi*, *Wolgi* and var. *idahoensis*, *Tweedyi*, and typical specimens of all the forms of the *Cordatae*).

6) Do you have some kind of a key for all the *Corydatae*, or could you let me have a list of the names and synonyms of all species and forms you distinguish?

Kindly keep in your mind that I am in a rather embarrassing situation, and that my only desire is to interfere as little as possible with the work of more advanced investigators as you, Prof. Fernald or others.

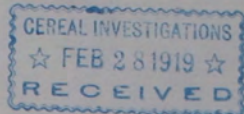
I shall always be very thankful for your help and your open criticism.

Anxiously awaiting your kind reply, I am, dear Dr. Ball,

very sincerely yours

C. Schneider

Jamaica Plain, Mass., February 26 1919



Dear Dr. Ball,

Not having received an answer to my letter of Febr. 15 I take it for granted that I shall meet you at Washington toward the end of April or the beginning of May. Therefore I shall leave for Chicago next Tuesday. Kindly address your next letter c/o Herbarium, Field Museum, if you did not write already to Boston.

My further articles shall be published in the new Bulletin of the Arboretum which Prof. Sargent is going to start very soon.

Hoping that you will be so very kind to send my your reply to my different questions very soon, I am, dear Dr. Ball,

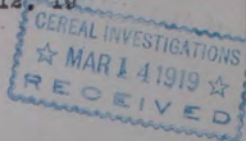
Yours very sincerely

L. Schneider

P.S. I could not get any material of *S. pennata* from Washington or New York. I hope there is some in Chicago. The specimen from Wilkes' expedition does not belong to this species.

c/o Herbarium of the Field Museum
Chicago, Ill.

March 12, 1919



Dear Dr. Ball,

I am now going over Bebb's *Salices*, and I shall make a lot of notes regarding his types etc. From your notes in the herbarium I see that we do not always agree as to the real type or the value of different forms. Each of us has his own way to look at the matter.

You should much oblige me by answering the questions I took the liberty to put in one of my last letters. Especially I would like to know which species you refer to *Sect. Commutatae*!! I have not time enough to study all the species.

I shall probably leave here for Washington toward the 15th or 18th of April. Please let me know whether this time will be convenient to you or not.

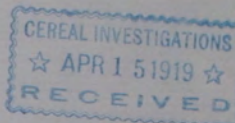
Prof. Sargent asked me several questions about *Salix* for the new edition of his Manual which is now going to the printer. I told him about the name *conifera* Wagh. for *S. discolor*. You promised me long ago to look into the matter. I believe we have to accept this change. *S. glaucophylla* Babb has to be changed too, there is a name made by Gandoger which so far as I know must be accepted.

I shall be extremely glad to have an opportunity to discuss with you my questions. I am sorry that I bother you so much with my letters but I am in a hurry, and have to complete my work as far and as quickly as I can.

Very sincerely yours

C. Schneider

Chicago, Ill.
April 14. 1919



Dear Dr. Ball,

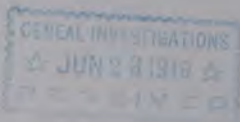
Having finished the study of the material of *Salix* contained in the Bebb Herbarium at the Field Museum, I shall leave here Wednesday and go to Ithaca to see Prof. Rowlee. I hope to be at Washington about the 24th of April, and I have the intention to stay there until about May 3rd. It is my most sincere wish to come to a full understanding with you regarding my further notes on *Salix*. Kindly let me know at the U.S.Nat. Herb. where and when it would be most convenient to you to discuss the matter very thoroughly. I am really sorry that you did not answer my last 3 letters but I suppose you are at W. and willing to talk over everything with me.

Very sincerely yours

C. Khurider

Camillo Schneider
Arnold Arboretum
Jamaica Plain, Mass.

June 15. 19



Dear Dr. Ball,

During the last few weeks I tried to get some understanding of the northwestern species of Sect. *Cordatae*. I have fairly good material of *S. Mackenziana*, *monochroma*, and *lutea*, but I have no good idea of *ligulifolia*. All the specimens you have referred to it in Herb. Chic. and Wash. show only flowers or fruits and no good leaves. You would do me a great favor in letting me know whether the following numbers belong to *ligulifolia*, and if possible in letting me have some good material of it.

1. E.O. Wootton, 307, N.Mex., White Mts. Aug. 10.97 (st.)
2. O.B. Metcalfe, 1535, N.Mex. Kingston, May 2. 05 (fr. im.)
3. J.S. Brandegee, 1005, Colo., Carson City, 1874 (fr.)
4. M.E. Jones, 6553, Utah, Parley Canon, May 31.98
5. E. Palmer, 476, Utah, St. George, 1876 (m., f.)
6. Mrs J. Clemens, Utah, Ree Butte Canon, May 8.00 (fr. im.)
7. E.L. Greene, 376, Colo., Golden City, 1870 (m., fr.)
8. M.E. Jones, 1702, Utah, City Creek Canon, May 11.80 (f.)
9. E. Payson, 287, Colo., Naturita, May 9. 14 (m.)
10. L.N. Goodding, 1432, Wyo., Wood's Creek, July 3 03 (det. by you as *curtiflora* which is *myrtillifolia* and has concolor leaves)
11. A. & E. Nelson, 5626, Yell. P., Mammoth Hot Spr., July 1.99 (f.)
12. M.E. Jones, 4077, Nev. Empire City, (f.; is this *lutea*?)
13. " " 30. Colo. Manitou, May 8.78 (f., m.)
14. F.V. Hayden, Wind River Valley, 30 May 60. (m., ? *lutea*)

Is *ligulifolia* identical with your *cordata* of 1909 so far as it concerns the western forms? I wished I knew how to distinguish it from *cordata*, *lutea* and *Mackenziana*. What is your opinion on A. & E. Nelson's 6104 from Obsidian Creek. It looks to me somewhat intermediate ~~to~~ between *monticola* and *lutea*. What are the specimens of McCalla 2238 and a-c from near Banfi, May-June, August 1899 with cordate leaves and long styles?

As to *monticola* there seem to be a good many specimens with pilose pedicels. I am not sure how to separate it always from *Barclayi* because the aments are often more or less pedunculate in *monticola*. I have not time and material enough to study those forms as thoroughly as I would like to do. Rydberg's *padophylla* seems to be hardly different from typical *monticola*.

In a young state I find it very often difficult to separate *monochroma* and *Mackenziana* because the young leaves very frequently are not distinctly paler beneath. How do you distinguish the male specimens of the *Cordatae* without having mature leaves (or even semideveloped ones)? In *S. lutea* the color of the branchlets apparently is the best character but what is the color in *cordata* compared with *ligulifolia*? The young twigs seem to be hairy sometimes even in a species which usually has glabrous ones, and it may be the same with one year old branchlets. Are the anthers of all the *Cordatae* more or less violet when young?

I have before me some good specimens with mature leaves green on both sides, mostly from Moscow, Idaho, which I believe might be referred to *monochroma*. But the serration is dense and sharp and the texture rather firm. In some respect they resemble much more *Mackenziana*, and I do

x *S. monochroma* seems to possess fulvous hairs on the youngest leaves.

not know whether there may be another species with concolor leaves differing from monochroma by its dense sharp serratae. Other specimens before me with thinner leaves and a more shallow serration seem to represent monochroma sensu stricto. Besides there are sterile specimens here which may belong to pseudocordata in your sense but without fruits it seems almost impossible to decide this question. I am extremely anxious to see your notes on the Cordatae in print because your treatment of the western forms in 1909 is apparently not quite in accordance with your present views.

Sometimes the color of the lower leaf surface is neither greenish nor distinctly glaucescent (or it is variable in leaves on the same branch). What you called *pyrifolia obscura* in 1909 is now, according to your list, perhaps *pseudomonticola* of which I have not yet seen specimens. So far as I remember you told me that it is a doubtful species. Could you be so kind to inform me as to the type and other specimens you refer to it?

If you have time I should like to send you some 20 specimens of the Herb. A. for your determination which would be of greatest help to me.

I am preparing special herbarium sheets showing the different leaf forms of each species, and I should be very glad if you could find time to send me some good specimens of the Cordatae and other species of which you possess good material in return for the photographs of my Chinese types. I need this material for the key I am trying to elaborate.

As to *Myrtillifolia* and its congeners I wish to say the following. The name is undoubtedly the oldest for this group as Bebb already had pointed out. I have a photograph and fragments of the type ex Kew before me. Now the question is: how do those two forms differ from it which have been described in 1858 by Andersson as *S. myrsinites* (subspec.) *S. pseudomyrsinites* and *S. curtiflora*. The type of *pseudomyrsinites* is a specimen from 'the Grand Rapids of Saskatchewan' collected by Douglas in Hb. Hooker. Did you see it? It is the same which in 1867 Andersson made the type of var. *lingulata*. You state yourself in your MS list that the typical ~~*pseudomyrsinites*~~ *pseudomyrsinites* is coincident with *myrtillifolia lingulata*.

In 1858 Andersson cited under subspec. *pseudomyrsinites* also a specimen from the Rocky Mts. which is probably the same as the type of what he (in 1867 under *Novae Angliae pseudomyrs.*) called var. *cordata*. This was a sterile specimen (*Folia attamen tantum vidi*) which ought to be looked for at Kew. In 1867 he also refers a specimen of Drummond's to subsp. *pseudocordata*. The last one is in Hb. Gray, and represents no. 659 of Drummond which according to the label came together with 665 which I have here from New York. Those 2 nos. consist of male and female pieces with young flowers and leaves, and there is hardly a good character to separate them from *myrtillifolia*, except that the bracts (at least of the male flowers) mostly are 'crispo-albo-villosae' in no. 665 while they are almost glabrescent in 659 and agree in every respect with typical *myrtillifolia*. Of course the size and shape of the leaves of both nos. cannot even be guessed. I wonder whether you saw those specimens at N.Y.

Andersson's 2. subspec. *S. curtiflora* (1858) is founded on a specimen of Richardson's from Ft. Franklin. There are 2 specimens of R. in N.Y., one numbered '69 Hb. H., B. & T.'. They may be identical with the real type but they do not exactly fit Andersson's description given in 1858, where he says that the pedicels are twice longer than the bracts and 4 times longer than the gland, but some flowers of the numbered specimen agree rather well with these indications. I am unable to distinguish R.'s specimens from *myrtillifolia*, and you too refer *curtiflora* as a synonym to *myrtillif.*

In 1867 Andersson (without giving a reason) changed *curtiflora* into *pseudocordata*, referring to it also specimens of Bourgeau and Burke which I did not yet see, and also Drummond's 659 mentioned above (MS. in Gray Hb.)

When I keep the fact in mind that almost all the specimens of Macoun from Jasper Park which I ~~XXXXXX~~ tentatively called *S. pseudomyrsinites* are (according to Macoun) regarded by you as *myrtillifolia*, I am at a loss to distinguish Andersson's main subspec. from 1858 or var. of 1868.

The only form which I do not know is var. (vel. f.) *aequalis*. Did you see a type of it? I have some specimens before me named by you *pseudocordata* (or *pseudomyrs.*) *aequalis* (And.). Those specimens seem to me to represent a good species rather different from *myrtillifolia* or what you have determined *pseudocordata* and var. *cordata*. But from what Andersson said I am not sure whether your var. *aequalis* is really the same form as his *aequalis*. I almost believe that it would be the best to give to your form a new name. If you should agree with me in regarding this 'aequalis' as a good species I would like to propose a *S. Ballii* for it! Please write me what you think of it. I brought good material together of it, and it looks sometimes much like *Wolfii idahoensis* because in *aequalis* the young leaves bear almost the same pubescence, while on the other hand the mature leaves remind of *monticola* which however has bicolor leaves.

What you now call *pseudocordata* is not quite familiar to me but it seems as if it is hardly identical with Andersson's type (or even one of the cotypes in 1867). It is difficult to apply one of Andersson's names to it at all. At least Andersson's var. *cordata* seems to belong to *myrtillifolia* and not to be the same as your var. *cordata* of your *pseudocordata*.

Of course you certainly have seen much more material than I did, and you are better acquainted with the types. I thought, however, it would interest you to hear what I think about those forms.

I should be very thankful for an answer, because it is very inconvenient to have your names in the different herbaria without having published them in due form to make it possible to understand the real meaning of them. I have named a lot of specimens *pseudocordata aequalis* Ball MS. but I should like to use the name *S. Ballii*.

Very sincerely yours

C. Throeder