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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.

IN REPLY REFER TO

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE

Blacksburg, Va.
January 4, 1944

Dr. C.R.Ball,
Agricultural Extension Service,
Washington, D.C.

Dear Doctor Ball-

The enclosed is being sent to you at the request of Professor Massey of this office.

The data relative to the genus Salix is that from specimens in the herbarium here and a few other collections in the State. Also authentic reports in the literature are added.

Professor Massey suggests that you look this over with the view of using it to round out a full report of the genus in the State. Would it be feasible for you to add the descriptions of the species, as given in your paper on the southern species, and supply description of those which are not mentioned in your paper and to develop a key for the whole? This sounds like we are asking a great deal of a busy man; however we expect you to answer the question frankly. If it is possible for you to plan to thus treat the taxonomic phase Professor Massey will add economic data, shape the whole into a final manuscript and submit it to you for criticism etc. The arrangement of the authorship will be in accordance to your wishes. When and how the final manuscript can be issued we cannot say at present.

The plan of the whole is a treatment of interest to one who wishes to determine species and to give economic information of value to the wildlife manager and the horticulturalist.

Correspondence relative to this should be directed to Prof. A.B.Massey of this office.

Verytruly yours,

C.O. Handley

C.O.Handley, Leader
Virginia Cooperative Wildlife
Research Unit.

(See over)

February 17, 1944

Professor A. B. Massey,
Dept. Botany, V.P.I.,
Blacksburg, Virginia.

Dear Professor Massey:

Long, long ago, I received the letter written by C.O.Handley, Leader of the Cooperative Wildlife Unit, asking if I would undertake to prepare the material on Salix for a publication on economic resources. He sent the records of species and vars. by counties.

I have had no time to work on Salix for a month but now am getting nack to my first love and will be very glad to prepare the manuscript and to add such county records as I can.

This should not be a very long job and I hope to finish it promptly. The descriptioms and keys for all except some introduced species have been prepared for use in other connections.

Cordially yours,

Carleton R. Ball
Collaborator

3-25-99.

AWARDED 1ST PRIZE,
DESIGN FOR
WEST OAKLAND PARK.

EXSICCATÆ OF THE
"FLORA OF THE SEQUOIA GIGANTEA REGION."
"THE ORCHID HYBRIDS."

GEO. HANSEN
LANDSCAPE ARCHITECT
SCENIC TRACT
BERKELEY, CALIFORNIA

March 21st. /99.

Mr. Carlton F. Ball .

Dear Sir ,

Respecting your inquiry about Salices, would say that I am not longer collecting for the last two years, and will not again till about 3 years hence (and then only to finish the circuit I started on) I intended that as a thorough work while I was engaged in work which did not entirely absorb my time . But I have now made the last move of my life, and spend every moment in trying to perfect my landscape abilites as well as recording orchid - hybrids etc.

As to specimens on hand, they are almost exhausted . I have but few now any would say most all the set I noted sir, scraps, are in the Mo. Bot. Gardens, bought through kindness of Prof. Trelease . The few I could send as duplicates I would exchange for Carices of kinds as you could collect or have on hand. This I only do for a friend in Germany.

Sorry, I cannot do any better. There are so many ways a man could be helpfull if he only could divide himself in atoms and work the same !

If you see the value of my plants in St. Louis , could you not recommend them to Harvard , Cornell or New York ?

Truly yours

Geo. Hansen

Designer of...

SURROUNDINGS OF DEPOTS AT BURLINGAME AND AT BERKELEY
PROPOSED ZOOLOGICAL PARK, MISSION, SAN FRANCISCO, 153 ACRES
GROUNDS OF "WELTEVREDEN," RESIDENCE OF MRS. MARY MOODY, BERKELEY
U. S. FOOTHILL AGR. EXP. STATION, JACKSON, CAL. 34 ACRES
SURROUNDINGS OF RESIDENCE U. S. SOUTH. CAL. AGR. EXP. STATION, POMONA
WEST OAKLAND PARK, 14 ACRES, AWARDED FIRST PRIZE

Author of...

"THE ORCHID HYBRIDS"
"WHERE THE BIG TREES GROW"

Distributor of...

EXSICCATÆ OF THE
"FLORA OF THE SEQUOIA GIGANTEA REGION"
1500 NUMBERS
REPRESENTED IN
E HERBARIA AT
ST. PETERSBURGH
JURJEW
(DORPAT)
BERLIN
WEIMAR
DRESDEN
BRESLAU
VIENNA
BUDAPEST
EDINBURGH
KEW
BRITISH MUSEUM
LEIDEN
PARIS
CHAMBESY
GENEVE
GENOVA
BOSTON
WASHINGTON
ST. LOUIS
STANFORD
SAN FRANCISCO

GEO. HANSEN
LANDSCAPE ARCHITECT
SCENIC TRACT
BERKELEY, CALIFORNIA

July 31st. /99.

Dear Sir ,

I thank ya for pamphlet about the willows. I feel pleased to note that you made use of some of the material I have been distributing . Please, if you again write about any of my numbers, give me an opportunity of furnishing such specific information I may be possed of . I allude to distribution, altitudes etc.

With best wishes , faithfully yours

Geo. Hansen

April 6, 1942.

Dr. Henry P. Hansen,
Department of Botany,
Oregon State College,
Corvallis, Oregon.

Dear Dr. Hansen:

I have just received the March issue of the American Jounral of Botany and have scanned with much interest your paper on "The Influence of Volcanic Eruptions Upon Post-Pleistocene Forest Succession in Central Oregon. This primarily because of my interest in the willows.

May I venture a suggestion regarding the construction of tables based on your Table 1 on page 215. The table title reads "Percentages of fossil pollen." An examination of the table itself, however, reveals that exactly one-half of the table is composed of percentages and the other half of actual numbers of pollen grains. I believe it would have been helpful to readers if the table title had called attention to this fact. Mechanically the table could have been separated into an upper half containing percentages and a lower half containing actual numbers through the insertion of a horizontal line at that point. The separation would have been even more clear if the columns had been totalled at the end of the percentage figures and the horizontal line inserted below those totals.

It is interesting and I believe normal that the relatively rare Salix pollen was found through the profile.

Cordially yours,

Carleton R. Ball,
Executive Secretary

Morphology

September 17, 1942

Mr. Frederick J. Haskin:
The Evening Star Information Bureau,
11th and Penn. Ave., City.

Dear Mr. Haskin:

I have read with much interest your reply to F.K.I. as to the "smallest tree", in a recent issue of the Star. It is only partly correct.

In the first place, what you refer to as a "variety" of willow really is a species. To illustrate, there is one species of carrot, or corn, or garden pea, but many "varieties" (variations) of each. To teach people that each differnt kind of a wild plant, as grass, or willow, or oak, or buttercup, is a "variety" is confuding because these are very different from the varieties of cultivated plants with which they are familiar.

In the second place, the dwarf willows of the New England mountains are quite different from the species in the western mountains.

In the third place, there is not one tiny willow but many species. There are between 15 and 20 species in northern North America and many more in Europe and Asia, perhaps 50m to 75 species altogether. They occur on all mountains in northern latitudes and are abundant on the lowlands in the Arctic. Al are prostrate and some of them are creeping, that is, they root like a strawberry plant as they creep.

Unfortunately, there are notoriety seekers and fakers among botanists as well as in other groups. The man who published the statement that his Wyoming willow was the smallest in the world undoubtedly knew better. He was naming it for a wealthy patron and apparently wanted to say something spectacular which would please his non-botanical patron. Other s who did not know have repeated the story.

Years ago, when I was in the plant work of the Department, I used to enjoy frequent calls from your writers. If any of them want to drip in I will be glad to show them a lot of the tiny willows (Rm. 5897, South Bldg.)

Wordially Yours,

Carleton R. Ball
Executive Secretary

3814 Jocelyn St., N.W.,
Washington 15, D.C.

Prof. James Hatter, Dept. Zoology,
University of British Columbia,
Vancouver, B. C., Canada.

2 Mrch, 1949.

Dear Professor Hatter:

Your letter of 7 Feby. came promptly but the packet arrived only about 6 days ago. I have studied these collcetions with much interest and inclose a copy of my determinations and comments. Further discussion of some is added herein.

For purposes of ready reference, I have attached numbers (in parentheses) to all except the 6 May specimens from Quesnel which you had numbered. They are numbered in 3 groups: those from Anakeim Lake, Kleena Kleene, and Tatla Lake; those from Pontchesakut; and those from Quesnel and vicinity, including Riske Creek. If you ever give permanent numbers to these specimens, I would like to have a list of them.

Salix prolixa Andersson (Quesnel Airport, No. (7)), is an exceedingly important find. Most botanists have discarded this species and we need much more material before final kudhment can be made. I have a specimen collected by McCabe near Kinbasket, and Eastham 9029 from Kootenay Lake, Kaslo, I have seen. Your specimen has young leafs and frosted aments but the very short styles seem to be normal and not a frost effect. If you can locate this plant and collect from it again, especially at different times in the season, it will be exceedingly important. We need mature leafs, uninjured fruit, and staminate material. I shall go through material which has been assigned to S. Farrae Ball and S. mackenziana (Hooker) Barratt before I will feel that I know much.

Salix myrtillifolia Anderson, var. brachypoda Fernald was named from East Canada material and was known only from Newfoundland and the Gaspe Penin. of Quebec. There it has short but broad, cordate-based, leafs. More recently it has been found once on Hudson Bay. In 1940, McCabe collected his 7570 and 7574 some 25 miles north of Ft. St. James, B.C. I have these recorded as being in my herberium but they were not there when I check and it may be that I have redetermined them and not annotated the original list. I will look further into this matter. Your speciemn from Blackwater Rd. (No. 15) has very tiny (young) leafs but it has all the other characters of this variety, principally the glaucous under surface of the leafs. Here again the collection of more material at different times in the year is urgently needed.

Salix discolor Muhl. var. prinoides (Pursh) Andersson, your No. 6 from Quesnel, occurs in the Rocky Mts. and eastward. In B.C., Brinkman 5505 was collected at Kelowna Flats in 1943. McCabe collected 13 speciemns in 1934-35 in the vicinity of Clinton, Kamloops, Blackpool, Paul Lake, and Clearwater. These I then determined as the species and forgot about them when I checked the variety in my herbarium yesterday. I suspect they will all prove to be var. prinoides. Will look them up promptly. A fragment from Vancouver Id., received recently thro Hardy almost surely is this variety. If you could refind your plant and get foligge it would be helpful.

Your collections were not more than enough for two sheets so I have not taken a set. I have kept one twig of S. prolixa for further study and comparison at leisure. Have also taken mere fragments of a few others.

I will pack your speciemns and remail them at once. To them I have added a few duplicates I had, including one with winter twihs of S. discolor var. prinoides from Montana.

The plants listed here as S. desertorum is what I have called, tentatively, S. ? "glaucops complex" Andersson. Several other species occur rather commonly in the area you covered and may turn up in later collections.

Will report later on those rare species.

Cordially yours,

Carleton R. Ball

3814 Jocelyn St., N.W.,
Washington 15, D.C.

Mr. James Hatter, Wildlife Biologist,
Dept. of Zoology,
State College of Washington,
Pullman, Washington.

December 10, 1947

Dear Mr. Hatter:

Your letter of December 1, and the packet of willows, were received successively. I have studied them carefully and inclose a list of the determinations. For my own information, I have included your full data and some brief notes of my own.

The packet of specimens was returned by franked mail yesterday.

I am sorry that I have not completed my study of the complex which is represented by Salix desertorum Richardson, S. glauca Linn. and its varieties, S. glaucops Andersson, S. pseudolapponum von Seemen, S. Seemannii Rydberg, S. Wyomingensis Rydberg, etc. etc. Outside of Salix glauca, which your specimens do not represent, S. desertorum Richardson is the oldest species and I think that your specimens all are referable to it. When I clear up the mess, I will let you know my decision.

The other identifications are satisfactory, except for the unusual height assigned to S. myrtillifolia Andersson, No.6. It usually is a low shrub from 1-3 or 4 feet high. The tall shrub would be S. pseudocordata Rydberg (Andersson) rydberg but yours has all of the other characters of S. myrtillifolia. I wish you would look up your field notes on that height record and let me know what you find.

Your records of moose browsing on these species agree with my general knowledge. Members of the Section Cordatae (Ss. S. lutea, S. mackenziana, S. myrtillifolia, S. rigida Muhl. (S. cordata Muhl.),etc. are commonly browsed by most classes of domestic animals as well as wild game animals. The members of the closely related Section Commutatae (S. Barclayi, S. commutata, S. cordata Michx. (not Muhl.), S. glaucophylloides, S. monticola, S. pseudomonticola) probably come second in use by both groups of browsers. In Alaska, moose and other animals commonly browse S. pulchra and its varieties, a species related to S. planifolia and varieties of most of Canada and of o our western mountains.

Section Glaucae, which includes S. glauca, S. brachycarpa, the S. glaucops complex, and some others is browsed rather selectively by some animals and not at all by others. The glaucops complex apparently is little browsed anywhere. In Alaska and the adjacent aretic, S. glauca varieties are browsed in winter by reindeer and caribou as they paw their food out from under snow. There, as you know, the summer is often so short that the abscission layer does not get formed at the base of the petioles and so the leaves and old catkins often or usually remain attached throughout the winter and so furnish a lot of food for browsers.

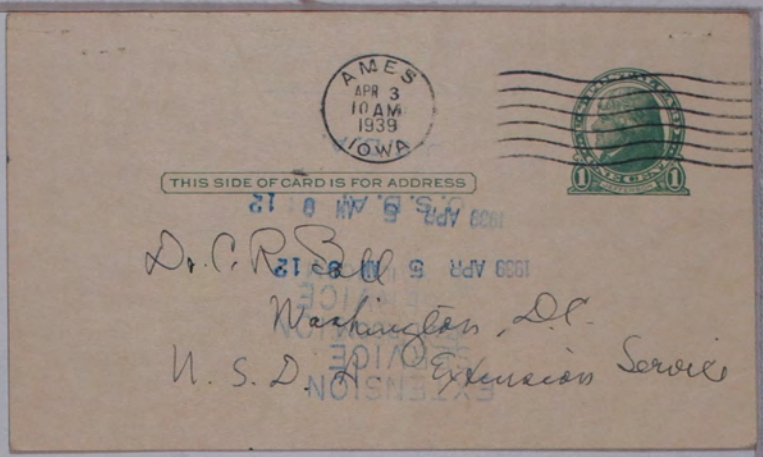
Some years ago I identified the willows in reindeer paunches for our former Bu. of Biological Survey and gave them a list of the species and relative abundance of the leaves of each. They were 8 species, as I recall (not all in any one animal.).

Please dont atke these onservations for statistics, as they are general memories and observations, without going to any records. I do know the facts regarding Sections Cordatae and Commutatae, by extensive observation in the western U.S. and those about S. pulchra from Palmer's work in Alaska on moose browse. If you wish me to look further into what I have on browse use of willows, I will do so, as time permits.

Olease feel free to send in willows at any time, from anywhere.

Cordially yours

Carleton R. Ball (retired)
Collaborator U.S.D.A.



BOTANY DEPARTMENT
IOWA STATE COLLEGE
AMES, IOWA.

Dear Dr. Ball:- I received your letter with the determinations for which I thank you. All seasons are well over season but it seems to me that now they are especially handsome and colorful.

There is one No. not listed No. 6072 on the northwest corner of the Welch Ave. - Bridge

Apr. 1. 1937 Sincerely - Ada Hayden

and 9.

June 7, 1937

Dr. C. R. Ball
Dept. of Agriculture
Washington DC

Dear Dr. Ball: — About two weeks ago a package of willows was forwarded to you (as gift) for verification or identification. I was leaving on a field trip and did not write at the time because you had told me to send them.

No! Do you think it advisable to place the staminate and pistillate stage of a species on a single sheet or do you think a description should be given of the two ~~sheets~~ secured separately under two number - separate numbers

Since writing you, Charlotte Kurz has passed away. She died on May 24. after a hard cold. It was a long period of illness since the middle of July. The interment was in DesMoines. Her sister Mrs. Hugh Mackie has been here since last August. She will remain until about June 15.

I wish to thank you for the separates which came some weeks ago.

Sincerely
Ada Hayden

Ames, June 7, 1937.

from A. Hayden

March 2, 1949

Dear Dr. Ball: —
For some time I have been intending to write you. My chief theme at present is this:
At the present time practically all of our prairie has been destroyed. The nearest is about 10 miles west of here — only a strip between the C. & N. W. R. R. track & Hwy. 30. There remains, however a hill in what has been for 30 or more years the college cow pasture north of Squaw Creek and northeast of the College Campus. It is college property.
It occurred to me could we get it set aside on some basis or other? It comprises perhaps ten acres. There are still many prairie plants and grasses there and for a year or two the hill top has been fenced off. The plants have during this time recovered rapidly.
It is the one place that systematic botanists can get to conveniently

in a short time to illustrate such flora. The same is true for Ecologists.

I am at present on a College Memorial Committee of which Mr. Edw. Wentworth appointed. Hedman Knapp is Chairman. This Committee is concerned with campus memorials such as the stones which Dr. Pammel dedicated, plaques etc.

My suggestion is this. Could you or would you consider approaching Mr. Wentworth by letter and proposing that such a tract - this tract in fact be set aside by the college for a prairie memorial. It was a prairie city on which the College was established. Possibly a memorial to Pioneer botanist Bessey or even an alumnus if you think of someone. However. Bessey is remembered as the first real botanist of Iowa State and I think Bessey Prairie would sound all right.

I think this should be your idea if you propose it.

We have 150 students in systematic botany in a year and nowhere to go.

you may or may not know that the College has planned up our herbaceous garden. established at considerable cost and loss of time and has established a garden of Plant introduction.

The text books are not written for plants of Asia, Siam and Sumatra however.

I think this idea if advanced should be essentially of sentimental nature. There is no memorial to Percy that I know of.

My name should not be mentioned if you do undertake this.

Dean Tidd is Ch. of the College Conservation Com. He lectures this year. Dr. George McNeer (Botany) is a member of the Committee.

Under separate cover, I am sending some Reprints on Conservation of prairie.

Yours) Sincerely Ada Hayden

The State Commission has
thus far purchased two areas
200 A in Harvard Co. a fine
virgin eastern meadow and
160 acres in Pocahontas Co
.

Do you have anything new
on the private life of Mr Williams?
Around the lakes at Rothrock
this summer telephone gangs,
and weed commissioners
had reduced the beautiful
luxuriant and abundant
willows to a sad state
of blackened leaves & stems.

Please remember me to
Mrs. Ball.

February 24, 1940.

Mr. James O. Hazard,
State Forester,
Department of Conservation,
Nashville, Tennessee.

Dear Mr. Hazard:

In consulting the last edition of the little bulletin by Maddox entitled "Common Forest Trees of Tennessee," I was interested to note on page 20 the statement rgarding other kinds of willows "not easily distinguished".

After having determined many thousands of willow wpecimens in the last forty odd years, I have come to the conclusion that the willows are not difficult to distinguish even by vegetative characters alone and that the species occurring in temperate America can be determined by amateurs if given a good key.

I am sending under separate cover two copies of my little publication on southern willows in which you will find such a key and trust that these may be of interest to you and your associates.

If you have willows in your forestry herbarium which you would like to have named, I will be glad to check the determinations for you at any time you may wish to send them.

I am engaged in making a spot map of the distribution of southern willows by counties and States and am glad to see all available southern material in order that the maps may be reasonably complete.

Cordially yours,

Carleton R. Ball,
Executive Secretary

STATE OF TENNESSEE

Department of Conservation

J. CHARLES POE
COMMISSIONER

DIVISION OF FORESTRY
J. O. HAZARD, STATE FORESTER

••DIVISIONS••
FORESTRY • GEOLOGY • GAME AND FISH • STATE PARKS
STATE INFORMATION • HOTEL AND RESTAURANT INSPECTION

Nashville

February 26, 1940

Mr. Carleton R. Ball
% Extension Service
U. S. Department of Agriculture
Washington, D. C.

Dear Mr. Ball:

Thank you very much for your letter of February 24.

Our Division has never had an opportunity to carry on research work in Dendrology in this State. Unfortunately we have to be concerned with such practical matters as fire control, reforestation, State Forest management, CCC direction, etc. I am glad to know that you have developed a key on southern willows and very much appreciate your sending me copies as mentioned in your letter. I will place one of these copies in the hands of our West Tennessee District Forester and ask him to check as he has an opportunity the species which come to his attention. If he finds any that he cannot readily identify, I will ask him to send species to you for your determination.

Willow is an extremely important species in the lowlands of the Mississippi and its tributaries throughout the South, and we should do everything possible to identify and determine the qualifications of the better species.

Very sincerely yours

J. O. HAZARD
State Forester

A. A. Heller,
411 W. Walnut street,
Lancaster, Pa.

12-22-98 Dec. 16, 1898.

Mr. C. R. Ball,

Dear Sir:

Your card in regard to Salix was received some time ago. Outside of my herbarium material, I do not now have any specimens of Salix on hand. When I again go collecting in this county, I shall take special pains to obtain complete specimens of willows.

My wife and I start for Porto Rico next week in the interest of the New York Botanical Garden.

Very truly,

A. A. Heller

March 20, 1923.

Mr. A. A. Heller,
Chico, California.

Dear Mr. Heller:

I am especially interested in obtaining good specimens of some of the rarer California willows, as for instance, S. Jepsoni Schneider and S. delnortensis Schneider, but can use good specimens of all species.

Perhaps you will be willing to make an extra set of the Salices you collect for your regular annual distributions, and sell them to me separately. If so, I will be glad to know at what price per specimen you can furnish this material.

In this connection, I might mention that the Siskiyou Mountain region of northern California and southern Oregon seems to be a meeting place for northern and southern species and some forms occurring in that general region seem likely to prove new when sufficient material is at hand.

I have also received recently what appears to be a new variety from the San Bernadino Mountains. If you are collecting in either of these areas during the present season, I will be glad to write you further about the willow species, if you desire, or give to you the type localities for other California species.

Very sincerely yours,

C. R. Ball.

CRB:SS

Botany Dept

CARNEGIE MUSEUM
DEPARTMENT OF
THE CARNEGIE INSTITUTE
PITTSBURGH 13, PENNSYLVANIA, U.S.A.

July 14, 1955

Dr. Carleton R. Ball
3814 Jocelyn Street, N. W.
Washington 15, D. C.

Dear Dr. Ball:

As you will see by the enclosed invoice, we are sending the willows to you today. We have been accumulating them for sometime, with the hope that you would identify them. I trust that you will not be overwhelmed by the number.

When the specimens are ready to return, please send them express collect, or by parcel post and we will reimburse you.

Yours very truly,

L K Henry

L. K. Henry
Curator of Plants

P.S. Dr. Jennings has retired, but he still comes in every day. He referred your letter to me.

July 23, 1943

Dr. L. K. Henry,
Herbarium, Carnegie Museum,
Pittsburgh, Penna.

Dear Dr. Henry:

Your letter of July 13 and the carton of mounted willows (87 sheets) came safely. Ifinished the determinations yesterday, packed the carton, and called the Ry. Exp. Agency to come for it, to return express collect. I am not at my office today but it probably went out.

The most amazing specimen in the collection is S. longipes Wardii from Erie Co., Edge of Misery Bay. This should be completely out of the Ohio drainage. Please tell me just where Misery Bay is. Surely the most northern record.

The large series of S. glaucophylla var. albovestita Ball was most interesting. Some are parts of collections sent me previously and some are later collections I have never seen before.

Many thanks for your permission to take out desired duplicates. However, I would not do that in the case of mounted material. I clipped together a few pairs of actual duplicates, where not only the date and place but the material itself is identical.

Of these, there are three mf pairs of which I would like one sheet, if you care to spare it. There were others, I think, in S. lucida and S. cordata. The three pairs are:

S. nigra Marshall. A depauperate form with very small leaves, from Erie Co.
S. glaucophylla var. brevifolia Bebb. Aug. 11, 1929. Presque Isle.
S. glaucophylla var. albovestita Ball. Aug. 23, 1935. Presque Isle.

What I would like most of all to have are two or three sheets from the type material. You may recall that the Museum collection was unique in having several sheets of both staminate and pistillate types. I send separately another copy of my paper (3 were sent after publication). On page 294 you will note the listed specimens. There were 8 sheets of the staminate type (May 8-9, 1906, Jennings); and 5 sheets of the pistillate type (Jennings, May 8-9, 1906, flowering. There were 6 sheets also of Jennings fruiting collection of June 2-3, 1908.

I retired on June 30, and have started work on my third Univ. Calif. volume, which covers cooperative activities in natural resources and on my monograph of Salix. My address at the Dept. remains unchanged and material for determination may be sent at any time.

Cordially yours,

Carleton R. Ball
Collaborator

dupl in file

CORNELL UNIVERSITY
NEW YORK STATE COLLEGE OF AGRICULTURE
ITHACA, N. Y.

GLENN W. HERRICK
EMERITUS

March 27, 1936.

My Dear Dr. Ball.-

Your frank and helpful criticism of the brief discussion of willows in the book on Shade-tree enemies received and read with great interest. This is the kind of criticism that one welcomes. Let me take it up by items.

1. "Branches slender and often brittle".

For some years I had a willow on my lawn until it stopped the sewer. Several times each year I had to rake the lawn of many small brittle branches after a wind blow. I pass a large willow on my neighbor's lawn four times a day. After every wind he takes up two or three large bundles of twigs. The large willows along my brook have lost hundreds of small branches in this last ice storm. Of course elms and soft maples have also suffered badly but in these cases the large limbs have broken. With willows the small, brittle branches have broken. I cant see my way clear to modify that sentence much.

2. "they hybridize among themselves so freely"

That statement occurred in what I thought was a dependable work. It was substantiated to a considerable extent by Wiegand and Eames "Flora of the Cayuga Basin". Under S.blanda, "hybrid of S.babylonica and S. fragilis." under S. alba, This willow hybridizes with S. fragilis, S. amygdaloides etc. Under S. cordata, "Occasional hybrids occur between S. cordata and S. sericea." Under S.sericea, "Hybridizes freely with S.cordata". In the light of your knowledge, however, I shall change that statement as follows;

"There are many species of willows and they hybridize among themselves occasionally. Only a specialist etc."

3# I was in doubt about the weeping willow and the Euphrates. I am glad you have laid that

ghost and I am sorry I did not consult Wiegand about it before hand. In the next edition you may be sure I shall correct it.

No I have not noticed the phenomenon of smaller more harry leaves after a defoliation by insects. This is interesting and worth watching when I have an opportunity.

With best wishes, I am, very cordially yours.

Glenn W. Herrick

You will note that I am not an expert typist. As an emeritus, however, I have to do my own.

I hope there are no glaring errors in the discussion of the poplars.

Program Planning Division

June 8, 1936

Professor Glenn W. Herrick,
Dept. Entomology, Cornell Univ.,
Ithaca, New York.

My dear Professor Herrick:

Your good letter of March 27 apparently has remained unanswered to this day. I greatly appreciated the spirit in which you received my somewhat captious suggestions.

I still am interested in the willows with brittle branches. As your work was concerned with shade trees, I suppose all stetements should be considered from that viewpoint. As I noted in my former letter there only four tree willows in Eastern America, two natives and two introduced. The natives are S. amygdaloides, the peach-leaf willow, and S. nigra, the black willow. The introduced species are the common crack willow, S. fragilis, and the white willow, S. alba.

The peach-leaf willow has pliant flexible twigs, and the black willow has more fragile twigs. Neither is used commonly for shade purposes, altho they are so used by livestock as they grow along streams.

The Crack willow was introduced abundantly in early colonial times, as the charcoal made from its branches was the basis of all our black gunpowder, which was used by our army until about the time of the Spanish-American War. It is found along brooks or in wet places on many farms in the eastern States, though not as often used as a street tree. Its twigs break off in every strom.

The white willow is less commonly planted but is more ornamental and therefore more commonly used around houses and in parks. Its twigs are less brittle but break of in high winds.

I would be interested to know just what the willows are along your brook and on your neighbors lawn. Would you be good enough to send me a little specimen from some of them? They can be sent fresh in an envelope or in a folded newspaper. If sent fresh, hold until about June 18, as I am to be away. If pressed for a few days before sending, they may be sent at any time. I suspect these may be the Crack Willow, so named for its brittle twigs, but would like to be sure.

Cordially Yours,

Carleton R. Ball

U.S. DEPT. OF AGRICULTURE

WASHINGTON? D.C.

Prof. Robt. W. Horner,

May 22. 19o7.

Waitsburg, Wash.,

Dear sir:-

In a recent conversation with prof. C. V. Piper, he mentioned you as one who might be able to help clear up some of the existiong confusion in western woillows. As you appreciate, there is much need of complete specimens- showing immature and mature material, flowers, fruit, young leaves and mature foliage, all from the same tree or shrub,. It is difficult for a traveling collector to visit a plant more than once in a season but not so hard for the man who can collect a few species near his home. Two visits are often sufficient.

I am nearing the end of a revision of the Cordatae and find a need of such material in several of the forms or species which are passing as cordata in the Northwest. Also in lutea Nutt., Mackenziana Barr., pseudomyrwinites And., monticola Bebb,etc. In the Pellitae, the same is true regarding S. bella and subcoerulea Piper and pellita And. Most of the species of the Longifoliae in the Northwest are not clearly differentiated by the present herbarium material. Much of it is too young or sterile. The fom forms paassing as S Nuttallii Sarg., need field study.,

If you are able to secure good material of any of the species mentioned I shall be very glad to have the privilege of seeing it at the close of the season. I shall be glad to determine any Salix material for you a t any time. Full credit will be given in pub lication. I take pleasure in sending my last p aper.

Very sincerely,

My dear Sir: Ans 6-19-07 5/29/07

Am sorry to say that I cannot help you on Salix, as my ~~wk~~ work here is closed and I am packing up to leave for some place unknown to me as yet.

Sincerely Yours
R. M. Horner
Waitsburg, Wash.

THE UNIVERSITY OF THE STATE OF NEW YORK
NEW YORK STATE MUSEUM
ALBANY 1

April 29, 1948

Mr. Carleton R. Ball,
3814 Jocelyn St., N.W.,
Washington 15, D. C.

Dear Mr. Ball:

Thanks for your letter of the 26th. In mass identifications inadvertencies are too common to call for any apologies, and noone seems to have noticed the mistake except that someone had pencilled a question mark on purpurea No. 11761. Perhaps Dr. McVaugh.

In regard to reprints I find that the only paper of yours in our Museum Library is one on the Genus Salix in Iowa. It certainly would be fine if we might have a set of available reprints, etc. Heretofore we have depended upon the botanical journals file in the State Library, which is quite complete of course, and happens to be in the same building as the State Museum. That will probably not always be the case as we hope to have a new Museum building sometime in the future, with a better library setup than we now have.

You have been so very generous with your time in the past by identifying willows for us that I hesitate to say that there are perhaps a hundred sheets at least as well as quite a few unmounted specimens that lack your annotations. Most of them are probably correctly named but quite a large number appear to require the attention of a specalist#. If at any time you feel that you have the time to go over them I shall be most happy to send them on to you, but I do not want to break into your more important investigations to any great extent.

Sincerely yours,

H. D. House

H. D. House
State Botanist

(See over

3814 Jocelyn St., N.W.,
Washington 15, D.C.

Dr. Homer D. House,
Div. of Botany, N.Y. State Museum,
Albany 1, N.Y.

May 1, 1948

Dear Dr. House:

Your letter of April 29 is here and appreciated.

Probably it will be best to send along the Salix material now. I am working up the genus for Dr. Gleason (Illus Flora) and as it covers your area so completely now is the time to discover extensions of range or anything else of interest.

As to separates, I probably would not have sent them to the Museum as such but I cannot understand how I did not send them to you, at least during the years when we w were working together, and thereafter. Will make up a set of those still available but I fear it will not contain a very large number because I try to keep them moving.

Cordially yours,

Carleton R. Ball

Just now I am struggling with the four new species Fernald and Taup have added to Section Rosae (S. pedicellaris, S. fuscescens, etc.)

November 25, 1929.

Dr. H. D. House,
State Botanist,
New York State Museum,
Albany, N.Y.

Dear Dr. House:

Your letter of November 7 and accompanying package of willows were received here just as I had left for a mid-western trip, including the meetings of the Association of Land-Grant Colleges. I am now returned and have had time to examine the material. I enclose herewith a list of the determinations, and am returning the specimens under separate cover. I have been glad to keep a portion of two or three of the specimens, in accordance with your permission.

I am sorry that I could not have been more specific on the identity of the two hybrids. If one looks at them merely from the point of view of the botanist, he might add the characters which could be assumed to represent various possible parents, and, by mathematics, arrive at those species which show the largest number of visible characters in the hybrid. The three troubles with this procedure are the personal equation, the fact that any one of several species might contribute a certain character, and, thirdly, a knowledge of the great diversity to be expected from hybridization, that the specimen in hand is a mere fraction of the total diversity and that the laws of heredity cannot have a mathematical expression unless you have total progenies present.

It was interesting to find Salix pedicellaris hypoglauca Fern. from New York. You will remember that much of your material has been the species with leaves green beneath, but this specimen, with its leaves white below, undoubtedly is the variety.

Dr. H. D. House. November 25, 1929.

The specimen of cordata with the purplish-black capsules is almost certainly the result of a late spring frost. You will note that an occasional ament has from few to many of the capsules normally green.

Thanking you for the opportunity of seeing this material, I am

Very sincerely yours,

Carleton R. Ball,
Principal Agronomist in Charge.

CRB;rl
Encl.

TELEPHONE SEDGWICK 3-3200

THE NEW YORK BOTANICAL GARDEN
BRONX PARK (FORDHAM BRANCH P. O.)
NEW YORK 58, N. Y.

March 18, 1948

Dear Dr. Ball:

The enclosed mimeographed sheet details a proposal to mark the grave of Erik Ekman in Santiago, Dominican Republic.

I want to add that this is not officially sponsored by the Amer. Society of Plant Taxonomists but that a majority of the members of the Council have agreed that it would be an excellent idea to have this plaque erected by interested members of the Society.

Would you care to join those of us interested in this project? Receipt of your contribution will be acknowledged.

Sincerely,

Richard A. Howard

Richard A. Howard

(See over)

3814 Jocelyn St., N.W.,
Washington 15, D.C.

April 8, 1948.

Dr. Richard A. Howard,
N.Y. Botanical Garden,
Fordham Branch P.O.,
Bronx Park, New York, N. Y.

Dear Dr. Howard:

Replying to your letter of March 23, I am glad to inclose a dollar to be used toward the memorial plaque for Ekman, as outlined in the informative circular letter.

Regret this delay, but am just catching up with back stuff after a siege of writing.

Cordially yours,

Carleton R. Ball

A Note on Eric Leonard Ekman

Last year I had the chance to retrace the path of the Swedish botanist, Erik Leonard Ekman, around the Dominican Republic. I was interested in visiting some of the localities where Ekman made extensive collections of plants from which Urban described so many new species.

During this trip I met many people who remembered Ekman and from them I learned many things about him. All agreed that Ekman was an enthusiastic, tireless field man. Surely trying to keep the schedule that Ekman must have followed, judging from his field notes, would have been a man-sized task, and one wonders how he was able to travel and collect as extensively as he did. Ekman was certainly the most outstanding collector of the Caribbean area and probably one of the greatest botanical collectors who ever lived.

Ekman spent 17 continuous years in Cuba and Hispaniola. He collected over 35,000 numbers of plants in the area, 19,000 from Cuba and 16,000 from Hispaniola. His specimens were sent to Urban for determination and the series of "Plantae Haitiensis et Domingensis Novae vel Rariores," consisting of all papers published by Urban in Arkiv fur Botanik, is based on these collections.

Ekman literally worked himself to death. He took few precautions in the field and reports in his notes that he had over 88 attacks of malaria lasting from a few days to several months. He travelled over all of Cuba and Hispaniola using very meager field equipment. He carried a press and a machete, a package of tea and sugar mixed, a few crackers and a pipe and tobacco. He drank from every stream and when necessary carried water in a section of bamboo, scorning those who carried canteens. He carried no extra clothing and frequently had to improvise shoes or other apparel for himself while in the field. Ekman set a tireless pace, according to those men who occasionally travelled with him, and took great delight in running others to the point of exhaustion. It is little wonder that these incautious actions cost him his life. After a cold wet January night without shelter high in the Dominican mountains, Ekman became ill and on January 15, 1931, he died from pneumonia complicated with another attack of malaria. Thus his field work ended at the age of 46.

Ekman was buried in the ground in the cemetery at Santiago, but through the action of friends his body was placed in a concrete vault in the "Tomb of the Teachers." This tomb was donated by one of the wealthy women in Santiago to be the resting place of teachers unable to afford a permanent tomb. The vault in which Ekman lies has a concrete face and in tiny, almost illegible, letters someone has written in the wet concrete in one corner, "E. L. Ekman, 1931." So one of the outstanding Caribbean botanists lies in an essentially unmarked grave.

I have proposed to the Dominican government that Ekman's grave be marked with a name plate and that a separate plaque be placed in his honor in a park in Santiago, Dominican Republic. The Dominican Government is willing to honor Ekman in this manner and will cooperate in the placing of the plaque.

I am writing to you to request a contribution of 1 dollar to help finance this plaque in Ekman's memory. The plaque will bear his name, date and place of birth and death, and a statement of his contribution to our knowledge of the Caribbean flora. It will also bear a statement "Contributed by members of the American Society of Plant Taxonomists."

3814 Jocelyn St., N.W.,
Washington 15, D.C.

Professor Thomas D. Howe,
Defiance College,
Defiance, Ohio.

21 March, 1953.

Dear Professor Howe:

I have your letter of 16 March and am glad that you are helping on the big job of a new Flora of Ohio.

Regarding your question as to duplicates, I would say that Professor Braun apparently put the emphasis on the wrong place. What I told her was that I hoped those sending in unmounted specimens for identification would state clearly, with each shipment, whether it was intended that any or all of them were to be retained by me, if I so desired. Not infrequently, I get such a shipment of unmounted material, identify the specimens, and ship them back to sender. Presently I get a letter saying that they were intended to be kept by me, and so are being sent back. That means the labor and expense of two extra mailings. That I was trying to avoid.

I identify mounted specimens, or unmounted specimens which are to be returned to sender, with just as much pleasure as I have in identifying unmounted specimens which I am to keep. This is true because I like to help others, and because I always learn something whenever I work over a lot of material. On the other hand, I am glad to have duplicates for my own Salix Herbarium (23,000 sheets now) because it helps in determining other perplexing material, such as juvenile, depauperate, or unusually vigorous (sprout) growth.

You probably have available my treatment of Salix in Deam's Shrubs of Indiana, where two sets of keys are given, one for foliage specimens. Most herbariums are sadly lacking in material with mature foliage (or full grown) because of the obsession that taxonomy depends on the sexual organs. I have reminded taxonomists that when an animal or person is lost we describe only the vegetative organ in advertising for its return, and merely mention the sex because they are dioecious.

The scientific value of specimens is greatly increased (for woody plants) if plants can be tagged and flowers, fruits, and leaves of various dimensions are collected from the same plants. I discussed the three successive twig formations on willows, and the three forms of leafs ordinarily found on each kind of twig, in a paper entitled: "Illustrating Plant Organs for Taxonomic Purposes." Castanea (Jour. So. Appal. Bot. Soc.) 8:67-71. 1943. My duplicates are exhausted, but I can loan you my copy if the journal is not available.

Send on your material at any time and I usually can give it prompt attention and return. As noted, duplicates will be welcome, but only when you have enough so that other institutions which should have them can be supplied.

Some species may reach the southern extreme of their range in your area. Salix serissima occurs in Indiana in Steuben and Lagrange counties, just west of you. You may have Salix pedicellaris and S. glaucophylloides (S. glaucophylla Bebb).

P.S. The New Britton and Brown Illustrated Flora has my up-to-date treatment of Salix, with both kinds of keys.

Cordially yours,

Carleton R. Ball

DEFIANCE COLLEGE
DEFIANCE, OHIO

March 16, 1953

Dr. Carleton R. Ball
3814 Jocelyn Street, N.W.
Washington 15, D.C.

Dear Dr. Ball:

I have received the announcement that Specimens of Salix were to be sent to you for determination for the Ohio Flora. The last sentence of the paragraph reads: "If you have unmounted duplicates which you wish to give to Dr. Ball, please state that fact." I have duplicates of most of the species I collected, and since they were all collected last year I can get more specimens this year from the same trees, so I can send any you wish. Please let me know whether you want the unmounted specimens sent now with the mounted ones, or whether you will let me know later which ones you want.

Sincerely yours,

Thomas D. Howe

(See over)

2-27-99

Willamette Oregon
Feb 21, 1899

Mr C. V. Dall.

Dear Sir

your letter of of the 13 inst. offering to elaborate the Willows for my "Flora" is at hand. In reply will say that I will be very glad to have you do them for me and I will give you full credit for it in the right place. As soon as I can do so I will send you a set of my Western Willows as there are some among them that the late M.S. Bebb could not name for me, perhaps they are undescribed.

I will be much pleased to have you send me any of your papers.

Yours sincerely
Thos. Howell Willamette Oregon.

3-23-99

Willamette Oregon

Mar 5/1889

Mr C. R. Ball

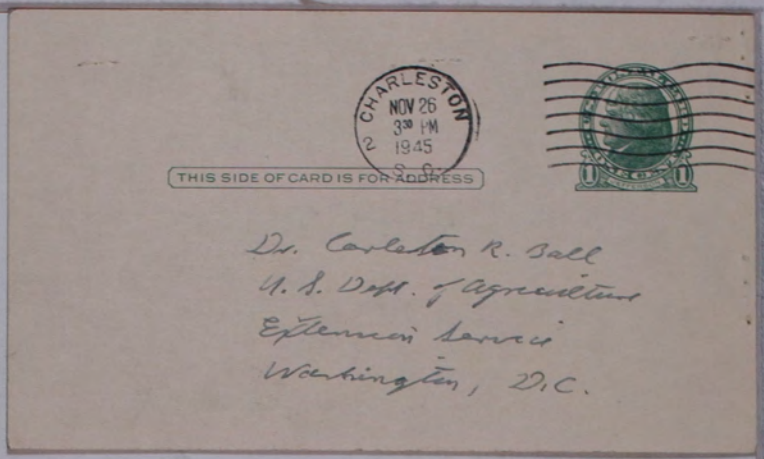
Dear Sir

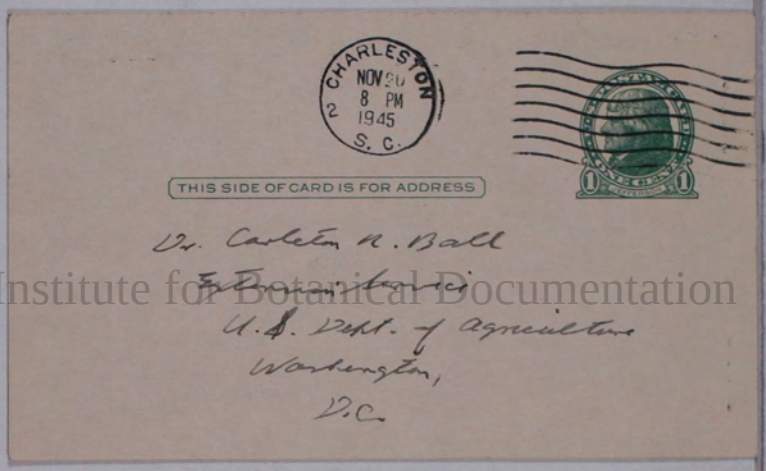
In answer to your letter of Feb. 27 will say that the part of my Flora that will contain the Salicaceæ will not be likely to be published befor the end of the year; so you will have plenty of time to work them up

As soon as I can find time to select and pack them I will send you a set of my western willows

Yours Sincerely

Thos. Howell





College of Charleston
Charleston, S.C.
Nov. 26, 1945

Dear Dr. Ball:

~~All~~ specimens may be kept if they are of any value to you, including the mounted ones.

The great majority of willows here show glaucousness or pubescence and are brittle-jointed.

Sincerely yours,
Kenneth W. Hunt

College of Charleston
Charleston, S.C.
Nov. 20, 1945

Dear Dr. Ball,

I have sent the willows, all of which you may keep. You are most kind to be interested in identifying them for me.

Thank you very much for your reprints. I should also be glad to have the records of the willows you collected from hereabouts.

Sincerely yours,
Kenneth W Hunt

from F. Hyland

UNIVERSITY OF MAINE
ORONO, MAINE

BOTANY AND ENTOMOLOGY
COBURN HALL

May 4, 1939

Dr. Carleton R. Ball,
Chief Agriculturist,
Planning Division, Agricultural Admustment Administration,
United States Department of Agriculture,
Washington, D. C.

Dear Dr. Ball:

During the past six years I have been making field studies on the occurrence and distribution of woody plants in Maine. During this time I have collected all the specimens of Salix I ran across which appeared to be "off form" or possibly hybrids. A few years ago Dr. Steinmetz sent you approximately 100 specimens which had been collected during the first part of the survey. These specimens you verified or named for us and have been very useful to check on. Since sending the first shipment I have collected approximately 75 more which need the attention of a specialist.

I have at last finished my field work and this summer plan to finish checking literature citations and get all the material into manuscript form; consequently I am writing to ask if it will be possible for you to identify my collection for me sometime before mid-summer.

In most cases it was impossible, at the time of collection, to secure fruit and winter buds; in other cases the trees were too young to bear fruits, consequently I have only the leafy twigs. There are several rather small-leaved forms with permanent brown pubescence that do not fit any descriptions well. I am always at a loss to know whether to refer them to Salix petiolaris var. or to call them S. subsericea. This is an abundant type in central Maine but is wholly absent from Aroostook County. I have also a few interesting variations of S. pellita and at least one possible hybrid of it. Any of this material which you would like for your herbarium I will be glad to furnish you.

4-V-39

page 2.

I will be greatly obliged if you will let me know at an early date whether you can find time in your busy schedule to go over these specimens for me.

Sincerely yours,

F. Hyland

Assistant Professor of Botany