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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.

Address:

Extension Service, U. S. Dept. Agric.

December 8, 1938

Dr. H. A. Gleason,
Asst. Director, N.Y. Bot. Garden,
Bronx Park, Fordham Br. P. O.,
New York City, N.Y.

Dear Dr. Gleason:

Your letter January 3 was promptly received. I appreciate the opportunity to prepare the Salicaceae for the North American Flora.

This I would much like to do. Dr. Merrill had asked me at an earlier date. However, I cannot attempt it this year because I have one long writing job ahead. Two of my three volumes from the University of California Press have just appeared but I have not yet completed the manuscript for the third, which covers the Administrative Relationships in Natural Resources. This job will require most if not all of the year, as it must be done in addition to my duties as coordinator.

It is true, of course, that more revision is needed before the willows can be described for the N.A. Flora. This revision goes forward slowly but steadily each year so that the work for the Flora is progressing, at least. Several problems remain, however, and I have had little time this last year because of the Congressional investigation.

Separately I am sending one or two papers which have appeared since I last distributed. These are for the Garden Library. If you care for personal copies I will be glad to send them to you. If there are others on the Garden staff now who will use them, I will be glad to send. I sent regularly to Dr. Rydberg while he lived.

Cordially Yours,

Carleton R. Ball
Executive Secretary

*New Vars + Comb. sent 1/9/39
(So willows had been sent in Mar)*

THE NEW YORK BOTANICAL GARDEN

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January 3, 1939

Dr. C. R. Ball
Room 5416
Department of Agriculture
Washington, D. C.

Dear Dr. Ball:

You doubtless remember that I spoke to you in Richmond about writing up the manuscript for the family Calicaceae in North American Flora. I now wish to repeat this request in a more formal way, and I trust that you will be able to make a favorable reply, after due consideration. The form of treatment can best be seen by consulting any recent issue of the Flora in the botanical libraries at Washington. You will see that it needs a family description, a key to the genera, a description of each genus with its synonyms, keys to the species, a rather full statement of the synonymy under each species, a comprehensive description, and the usual notes on type locality, distribution and illustrations. The length of the description of any species is left entirely to the author and our only real requirement is an adherence to the International Rules of Nomenclature.

In the event of your acceptance of the responsibility, we should not attempt to set any time limit for the completion of your work. On the other hand, we shall probably be able to publish it as soon as we can complete the necessary editorial work upon it.

Very truly yours,

H. A. Gleason

H. A. Gleason
Assistant Director

HAG:SL

(over)

New York Botanical Garden
Fordham P. O. Station,
New York, N. Y.
Aug. 2, 1942

Dear Doctor Ball:

I am writing this from my home, which accounts for the lack of an official letterhead.

As you may have heard, we are busy preparing a new issue of Britton and Brown's Illustrated Flora - an issue so new that it is being completely re-written and re-illustrated. The question now before us and the cause of this letter is whether you might be induced to contribute the small chapter on Salix. This would involve a generic description, keys to the species, a description of each, and directions to the artist as to the parts to be illustrated for each species.

We follow the International Code for names; we freely admit varieties and forms but wish to avoid a multiplicity of them unless they are clear and well marked.

The text for each species is expected to average 10 ordinary typewritten lines per species, in description, followed by habitat range and current synonymy. The area covered takes in the northeastern states to and including Virginia, Kentucky, Missouri, Iowa, and Minnesota; west or north of the St. Lawrence river to latitude 48; all of Canada proper south of the St. Lawrence, including Cape Breton and Prince Edward, but excluding Anticosti and Newfoundland. We would reserve the right to alter your text as to style to bring it into harmony with the rest, but would accept your interpretation of species and varieties.

Lastly, I remember the embarrassment I suffered when a barber told me never to offer him a tip, because he was the boss barber, but nevertheless, we are expecting to pay for the service. We don't know how much it is worth, financially speaking, but trust that you will name a reasonable figure.

Kindly let me hear from you at your convenience.

Very truly yours,

H. A. Gleason
Assistant Director

August 4, 1942

Dr. H. A. Gleason,
Assistant Director,
New York Botanical Garden,
Fordham P. O. Station,
New York, New York.

Dear Dr. Gleason:

Your personal letter of August 2 was received this morning and I am replying immediately in order to set certain considerations before you.

1. I will be delighted to undertake the treatment of *Salix* for the new Illustrated Flora of the regions specified provided time and dates permit.

2. I am much more interested in the opportunity for an effective treatment of the genus in this large area than I am in the matter of remuneration. I have no knowledge of how such things are handled and would prefer that the Garden set its own figure. I will be glad, however, to discuss this matter with some of my botanical friends who may have done similar work.

3. If this manuscript is needed rather quickly, it probably will not be possible for me to undertake it. While my identification of willows for the Forest Service, Fish and Wildlife Service, Soil Conservation Service, and federal and State institutions, has always been regarded as an official activity, the whole thing is a sideline with me and has to be subordinated to my regular activities. I am retiring from government service, however, in June, 1943, and expect then to undertake a monograph of American *Salices*. For several years I have arranged with local collectors in many critical areas to help determine distribution of species so that I would be ready for effective monographing when time permitted. Please let me know when you would expect to need the manuscript.

I would be quite willing to follow the form of treatment which you have outlined. To indicate illustrative material would be the most difficult part. It is my personal observation that the illustrations in manuals oftentimes hinder as much as they help. They are necessarily small in size and, therefore, restricted as to what they can show. When it comes to matters like the relative lengths of pedicels, styles, etc., in the fruits of willows, artists do not seem to grasp the relative meaning of measurements in millimeters.

4. I do not have a copy of Britton and Brown's Flora before me as I write and so do not visualize the way in which keys to species were inserted. Is it expected that the new edition will follow the same plan? More and more I am keying species and varieties primarily by vegetative characters because these are present throughout half or more of the year whereas flowers and fruit are temporary. For this reason and also because I wish to interest amateurs, I have emphasized more and more the vegetative characters. Would this be agreeable to you?

Thanking you for offering me this opportunity, I am

Cordially yours,

Carlston R. Ball,
Executive Secretary

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DIRECTOR
WILLIAM J. ROBBINS

August 6, 1942

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

Dear Dr. Ball:

We greatly appreciate your willingness to cooperate with us along the lines suggested in the letters which have already passed between us.

You can readily understand that this work requires very much time. It seems to us that June 1st of next year will be entirely appropriate for starting your work. Since you will have retired by that time you can probably spend more of your time at it than at present, and can probably finish it within two or three months after its inception. In fact, it would be entirely acceptable to us if the manuscript were sent in at any time during the year 1943.

Experience with the sales of the first edition of Britton and Brown show that it was very widely used by amateur botanists. No doubt the new issue will be also. For that reason we are especially anxious to have the keys so written that they will be of the greatest use to the widest circle of readers. We do not hesitate to include two or even three keys to the same group of plants if it is necessary.

That the book will be more serviceable thereby, it seems to me certain, especially in the case of the willows. The professional botanist will be interested in a technical key but the amateur botanist will also much appreciate a key based upon leaf characters alone. I hope you will find it possible to ~~find~~ ^{provide} two keys for this supposedly difficult group.

In the first edition of the Britton and Brown, a picture about two by three inches stood by the side of each description. In the new issue we shall adopt a different style. At the top of the page will be one plate illustrating those species which are described at the bottom of the page. Since we have the manuscript before we make the pictures, we can estimate accurately the space needed for the text and that tells us how much remaining space is available for the pictures.

We plan to average four species to a page and that ordinarily makes available at the top of the page, space six inches wide and four to five and a half inches high. If descriptions are necessarily long or if pictures are necessarily detailed, we can ~~add~~ ^{divide} the relative amount of space for each as is needed.

We have an excellent artist at work on these plants who has had ample botanical training and can certainly illustrate any point about the willow flower or fruit which you recommend for illustrations.

I am having a photograph made of one of the finished ~~plants~~ ^{plates} and will send you a print of it as soon as I have it, which will illustrate the style adopted for the grasses. Obviously it must be modified to illustrate the desired features of the willow.

Finally, as to the honorarium, I shall talk this over with our director and write you again in a short time.

Let me again express my thanks and appreciation of your willingness to help out. I probably could not begin to do this task as well personally, and it would obviously take me a much longer time; besides, your name attached to this section will convey an authority, which I could not hope to give to it myself.

Very truly yours,

H. A. Gleason
H. A. Gleason
Asst. Director

HAG:mp

August 8, 1942

Dr. H. A. Gleason, Assistant Director,
New York Botanical Garden,
Bronx Park, Fordham Branch P. O.,
New York, New York.

Dear Dr. Gleason:

Your full letter of August 6 is here and I am glad to have these explanations of plan and procedure. They look very satisfactory to me and I will proceed accordingly.

I will be glad to prepare two separate keys, one based primarily on vegetative characters, the other primarily on floral characters. My experience is that many professional botanists welcome keys based on vegetative characters because such keys enable them to become acquainted with the species in the field at any time during the growing season. If this procedure had been started long ago I think many of the statements that the willows constitute an extremely difficult genus never would have been written.

I am glad that you are prepared to have accurate drawings made and will do my best to help the artist accomplish that result.

Please do not hurry or worry about settling the matter of the honorarium. I am much more concerned with whether there will be typewriters and paper next year or the year after.

Cordially yours,

Carleton R. Ball,
Executive Secretary

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May 24, 1943

Dr. Carlton R. Ball
United States Department of Agriculture
Washington, D. C.

Dear Doctor Ball:

You will probably recall the correspondence which we had last fall in regard to the preparation of the genus Salix for the new illustrated Flora. I was delighted to learn that you were willing to undertake it after your retirement, which, as I remember, was to be early in June.

Now may I take up the matter again?

With the whole story of Salix so clearly in your mind after your many years of study of it, it will probably not be a long or a difficult or an unpleasant task. We, on our part, will be glad to make any arrangements which may facilitate the work for you. In particular, if you would care to do the work in our herbarium, we should be glad to assign you one of our Garden "scholarships" while you are here. Or if you prefer to remain in Washington, we shall be glad to forward to you any or all of our herbarium material. Since your own plans may make either of these places inconvenient or impossible, we are and will be anxious to meet your convenience in any other way and to the best of our ability.

Very truly yours,

H. A. Gleason

H. A. Gleason
Assistant Director

HAG:mp

Scholarship

(See over)

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JOSEPH R. SWAIN

June 2, 1943

Dr. H. A. Gleason, Asst. Director
NY. Botanical Garden, New York 58, N.Y.

Dear Doctor Gleason:

It was good of you to write me again regarding the preparation of *Salix* for the Illustrated Flora.

Here is the line-up. I retire on June 30. I have blocked out and have in various stages of completion, the following:

1. My 3rd. vol. for Univ. California, covering natural resources.
It is about one-third done.
2. Monograph of American Salices. As you know, I have determined enormous quantities of specimens for Federal and State, as well as private agencies in the U.S., Canada, Mexico, and Central and So. Amer. have described the novelties thro the years and have accumulated some 18,000 sheets in my own herbarium, but have not had time to do a real monograph.
3. History of American Agriculture, about one third done.
4. How to write technical manuscripts. practically done.

I would expect to do the willows for the Illustrated Flora in connection with the monographing. As I feel better if working on two different lines at the same time, I expect to carry Nos 1 and 2 together, so the monographing will begin soon. It probably will take two years to complete. I would expect to visit bot N.Y. Bot. Garden and Gray Herbarium during the period, if travel conditions permit. Probably more than one visit will be desirable before the work is completed.

As I will be on retirement annuity, any type of "scholarship" would be of interest but if it required continuous residence until the job was completed, I doubt if I could avail myself of it. If there are certain kinds of valuable material which the Garden does not allow to sent out to specialists, that I would have to study at the Garden. Some other materials I may wish to have sent here. I will take these matters up as the work gets going.

Cordially yours,

Carleton R. Ball
Executive Secretary

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DIRECTOR
WILLIAM J. ROBBINS

November 22, 1943

Dr. Carleton R. Ball
Extension Service
Department of Agriculture
Washington, D. C.

Dear Doctor Ball:

I have before me your letter of November 20, addressed to Doctor Robbins. There are many questions in it to which I had better reply personally, since I am also busily at work on the Illustrated Flora. We greatly appreciate your desire and willingness to have your own contribution conform with the general style of the whole.

I fully agree with your plan for handling "supplementary" species. Under this head are usually to be included only introduced forms, especially those which are purely chance waifs, like many ballast plants, and those which, while actually escaped into the wild, are doubtfully fully established. In *Salix*, you will naturally use your own good judgment whether a species is a bona fide member of our flora or not. If it is, it should be given regular treatment; if it is not, it should either be omitted completely or else included in an additional paragraph under the species to which it would be referred in following your key. I presume that *Salix pentandra*, traced down through your key, would be erroneously referred to *S. serissima*. Your mention of it under this species, with the distinctive characters briefly indicated, is just right.

I assume that you accept *S. lucida angustifolia* and *S. lucida intonsa* as legitimate varieties worthy of inclusion. You have, then, handled them just as we would want them handled. On the contrary, in the flux of recently described varieties and forms, many, in my opinion, have no taxonomic value whatever. Such minor categories may be omitted completely, but, if they have appeared in recent literature, or have been taken up in such responsible works as Deam's Flora of Indiana or Palmer & Steyermark's Flora of Missouri, I may merely mention them, not in a separate paragraph, but in the same paragraph with that giving the geographical distribution. For example, if *S. lucida* var. *angustifolia* were so considered and treated, I should have stated:

***** to Roanoke Co., Va. Plants with shorter, narrowly lanceolate leaves occurring in the northern part of the range have been segregated as var. *angustifolia* Andersson.

✓ We are omitting the reference to the number of the figure, since the illustration, plainly labeled, will appear at the top of the page above the description. We also omit the citation of literary references, as I have marked on the two sheets which you sent us as samples.

✓ You state in your letter "Most manual users are trained workers and most amateurs like to get the vocabulary of their hobby." That is absolutely right. I should certainly not use half-moon-shaped; I much prefer reniform to kidney-shaped. When special terms appear in one family or genus, such as perigynium in *Carex*, lip in orchids, chaff in composites, I try to bring these terms into the preliminary description of that family or genus and there explain briefly their special use or application. For example, I quote from my text on the orchids: "Petals 3, *** of which the lateral are similar and conspicuously different **** from the third *** known as the lip."

✓ We are using the metric system exclusively for all measurements.

✓ Synonyms, if stated at all, are put in the same paragraph with the geographical distribution and habitat. Only those synonyms are stated which appear in four current manuals, Gray 7th ed.; Britton and Brown 2nd ed.; Small, Manual of the Southeastern Flora; Rydberg, Flora of the Pacific and Mexico. This enables the student to correlate the treatment in these four widely consulted books. These names are enclosed by square brackets and the authors are not stated. For example, under *Cypripedium acaule*:

In a variety of acid soils ***** to S. C. and Ala. [*Fissipes acaulis*, B. & B., Small, Rydb.]

✓ In most species the statement of range follows the sequence mentioned in your letter, beginning at the northeast, stating the northern boundary, and then the southern boundary from east to west. This order is not compulsory; there may be species in which it is easier or more illustrative to use a different sequence. Example from *Cypripedium acaule*: Nf. and Que. to Alta., s. to N. J. and n. Ind. and along the mountains and coastal plain to S. C. and Ala.

✓ As to abbreviations in stating the range, we use the standard ones for the states and the Canadian provinces. The latter are made to include Labrador, and run: Nf., N. S., N. B., Lab., Que., Ont., Man., Sask., Alta., B. C. All other countries or provinces, if used at all, are written out. For parts of a region, we use n., e., w., s., nw., ne., se., sw. I do not know that I have ever used "central," but I should prefer to write it out.

Dr. Carlton R. Ball
Department of Agriculture
Washington, D. C.

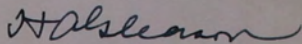
The New York Botanical Garden
Bronx Park
New York 58, N. Y.

-3-

In the matter of illustrations, again I agree with you fully. A spray of willow leaves or a catkin full of capsules seems to me to be generally useless. We should have a few such illustrations, of course, just to show general appearance, but we should select always a few diagnostic features and draw them properly on a sufficiently large scale to be really useful. I have not tried to illustrate features invisible under a 10x lens; most plant identifiers use only a hand-lens. I often mention these smaller characters but omit them from the drawings.

May I assure you that we not only value your cooperation with this difficult genus, but especially appreciate your thoughtfulness and discrimination in the matters discussed in your letter.

Very truly yours,



H. A. Gleason
Assistant Director

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HAG:CK

extra

November 26, 1943

Dr. H. A. Gleason, Asst. Dir.,
N. Y. Botanical Garden, Bronx Park,
Fordham Br., P.O.), New York, N.Y.

Dear Dr. Gleason:

Many thanks for your memorandum to Dr. Robbins, replying to my queries, and for your letter of Nov. 22 to me. There is more good common sense in the two documents than one usually meets in a year.

I had not considered that holding the northern border at 48° N. would exclude many arctic species, as compared with 49°. I can well appreciate the inclusion of the Gaspé peninsula. The reduction of area probably will permit reservation of decision on some of Pernald's species until work on my monograph and the N.A. Flora forces it. Type specimens and travel probably will be available then.

I think that your explanations will permit me to proceed with the material for the new B. & B. but if other questions arise I will write. You spoke of returning the two rough-draft pages I sent, but they were not inclosed.

In your discussion of varieties you touch a tender point, especially with the present trend toward subspecies. I have made several varieties, based mostly on consistent variations in leaf shape. Andersson had vars. *angustifolia* and *latifolia* in many species but his were established when material was scanty. With abundant material, complete gradation occurs.

The taxonomic value of hairiness bothers me most. I have established some varieties on hairiness or glabrousness. Most willows have hairs on the vegetative organs as they unfold in spring, especially on the leaves. Some normally glabrous species have a more or less hairy counterpart, with about the same range. These have been recognized as vars., as in *S. lasiandra* var. *lanceifolia*, *S. laevigata* var. *araguipa*, *S. ~~laevigata~~ melanopsis* var. *Belanderiana*, etc. Two of these, however, were described as distinct species based on other characters. Later, pubescence was found to be the only consistent difference, and reduction to varietal status followed.

Hairiness of vegetative organ in *Salix* affects budscales, petioles, twigs, midribs, and blades, in about that order of frequency. The degree of hairiness varies from plant to plant. It also becomes less with the advance of the season, partly because because the expansion of organ area thins the hairs and partly because some hairs drop off. This is especially true of leaf hairs.

The problem is complicated further by the fact that many *Salix* species shed the epidermis of the 1-year and 2-year twigs in spring. In forms with normally hairy twigs, the new epidermis is glabrous. Remnants of the old pubescence usually can be found against budscales or side-sheets, and the new petioles will show it., and also the new buds when they develop. Just when the new epidermis gets its hair crop I do not know. Glabrous species, defoliated by insects in summer, usually produce a densely-hairy second crop of leaves.

Will be glad to have your reactions, especially with regard to woody species.

Cordially yours.

Carleton R. Ball
Collaborator

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December 1, 1943

Dear Doctor Ball:

read
I am sorry that I forgot to return those two trial descriptions. Here they are. And I appreciate the compliment about common sense.

The question of varieties and other subspecific categories is a "tender spot" with many botanists. The discussions which have recently appeared in print confirm me in the belief that no one knows just what a variety, form, or subspecies is. I have not stated this quite correctly: no one knows the difference between a subspecies and a variety, or between a variety and a form. Some look to ancient botanical history for a precedent which may be followed and apparently precedents exist for every sort of an interpretation. Others try to formulate yard-sticks for practical use, some of which look mighty fine on paper, but all of which are often very hard to use. And the nomenclature offers still further difficulties.

Of course I, the great I AM, and you, the great YOU ARE, understand the matter thoroughly. It is only the other botanists; the illiterate THEY, that fail to grasp the problem and solve it.

Some points, nevertheless, still hold in all the argument and foginess. The species is still the fundamental unit in plant classification. Whether we regard the species as a definite concrete population of individuals, or as merely a mental concept illustrated by individuals, the results are remarkably uniform. Then a variety, subspecies, or form is merely a part of that population of individuals. Why do we segregate that part for special attention? Because it is so different from the rest of the population that we think IT NEEDS A NAME. If we do not think so, we pay no attention to it.

Now, if I may paraphrase a clause in the Declaration of Independence: We hold these truths to be self-evident: that all plants are endowed by their Creator with certain inalienable rights, that among these are life, reproduction, and the right to vary. No two individuals are precisely alike. The more herbarium material we have before us, the wider our field experience with plants, the longer and the more patiently we have studied them, the more familiar we become with these variations and the more important they seem to us as specialists. And yet the great majority of them are merely phases in the general fluctuating variability of the population.

Our conscience must be our guide in deciding whether we shall give names to any of these variations or not. As I wrote you before,

my system is to ask myself whether or not the naming of one or more of these phases will actually be useful to the ordinary botanist. The handful of specialists on *Salix* or on *Melastomes* (my hobby) can be neglected in a general manual.

Let me illustrate by a hypothetical example. A certain species has leaves which are either linear or ovate. It happens that in the lowlands of the Mississippi Valley they are always linear; in the lowlands along the Atlantic they are always ovate. Jones, of Indianapolis, reads this statement in the manual; he searches vainly for a plant with ovate leaves. Smith, of Norfolk, has the opposite experience. Both tend to doubt the validity of the statement that two shapes of leaves exist. But if we introduce a variety ovata, Ohio and Kentucky to Iowa, and a variety linearis, New Jersey to North Carolina, both are satisfied. What is more, when Jones and Smith get together and talk over their experiences, they have short and convenient terms to describe the manifestations of this species in their separate localities.

In general, I recognize and include varieties under three circumstances only. (1) when two parts of a species with distinguishing morphological characters are isolated geographically; (2) when they are isolated ecologically, each in a different habitat; (3) when, without such isolation, they are not connected by any known intermediate forms. The discussion of fluctuating pubescence on *Salix* in your last letter indicates that these phases may occur even on the same individual at different seasons or in different years. In my humble opinion, such phases do not need any name, but they do need a descriptive statement, such as you gave me in the letter, which will indicate the facts to the student and deter him from any desire to name varieties or forms himself on this basis.

I am writing to you as if you were a rank amateur in the field of taxonomy. Please forgive me for that; I know better and am merely trying to present my own logic to you, for you to follow or to reject as you see fit. The treatment which you give to *Salix* will be accepted by us, whether it agrees with my taxonomic philosophy or not. Possibly my ideas are radical, either in the ordinary sense of the word radical or radical because they are ultra-conservative.

Sincerely yours,

H. A. Gleason

H. A. Gleason

February 28, 1944

Dear Dr. Gleason:

I need some help. In checking the actual ranges of eastern willow species, I find the article by Small and Vail, Mem. Torr. Bot. Club 4:93-202, 1893-94, recording (p. 114) the finding of *S. candida* on the "Summit of White Rock Mtn., alt 4400 ft. A remarkable southern extension of the range of this northern willow".

It is extremely improbable that this species of the extreme northern glacial bogs should occur high on a mountain in SW Va. (Smyth CO.). It has never been found south of extreme northern Pa. and Ohio. Other northeastern species like *S. lucida*, *S. cordata*, etc., do follow down the Alleghanies or Blue Ridge to SW. Va. but they occupy the same habitats as in the north. There are no cold glacial bogs down there.

I suspect that the plant is *S. tristis* or a depauperate or undeveloped plant of *S. humilis*. Will you have some one look it up? I am sure that some one there can tell whether or not it really is *candida* but if in doubt, please send it down to me. The collections were made in 1892. If I had known of this report I would have looked it up myself when in New York, during the years.

Cordially yours,

P. S. It may be still under
S. candida, or under *tristis* or
S. humilis.

Carleton R. Ball
Collaborator

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N.B. The U.S. Natl. Herb. has specimens of *S. Candida*, as follows:

OHIO:

Stark Co. Hartville

Erie Co.: Castalia

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TREASURER
ARTHUR M. ANDERSON

March 2, 1944

Dr. Carleton R. Ball
United States Department of Agriculture
Extension Service
Washington, D. C.

Dear Dr. Ball:

We had no trouble in finding the plant that you wanted to see. I have personally known *Salix candida* for many years, and do not see how this plant could possibly be called that species. Nevertheless, I do not want to say what it really is and I am, accordingly, asking Mr. Wittrock to send it to you for examination.

Very truly yours,

H. A. Gleason

H. A. Gleason
Assistant Director

HAG:CK

March 6, 1944

Dr. H. A. Gleason,
N.Y. Bot. Garden, Bronx Park,
Fordham Branch P.O., New York 58.

Dear Dr. Gleason:

Many thanks for your prompt courtesy with the Va. willow, which I got this morning. It is *Salix humilis* Marshall, as I partly suspected, and definitely removes *S. candida* from the Va. flora. Am returning the specimen to Mr. Wittrock.

Cordially yours,

Carleton R. Ball
Collaborator.

Digitized by Hunt Institute for Botanical Documentation

packet marked 3/7/44

August 12, 1944

Dr. H. A. Gleason, Asst. Dir.,
N.Y. Botanical Garden,
Bronx Park (Fordham Br. Station)
New York 58, N.Y.

Dear Dr. Gleason:

Since our correspondence regarding the manuscript on willows for the new edition of the Illustrated Flora, several months ago, you doubtless think that I have about completed my task. Truthfully, I haven't. I have been asked to help out the Dept. in various war activities where my experience could be useful. This I have been glad to do, but it has left little time or energy for other work.

Recently I got back on the willow job and expect to continue at fair speed, as I doubt if there will be many more interruptions. The taxonomy and utilization of the willows of Virginia was a prior claim and has been finished. The nine native species, and part of the seven introduced species will be included fully in the Illus. Fl. so that much of the work is done.

Tell me frankly where you are at on the completion of the volume containing Salix. I'll bust a hamstring, if necessary, to meet a ~~deadline~~ deadline.

This hot and dry summer has not helped speed up head work, I find.

Cordially yours,

Carleton R. Bell
Collaborator

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ARTHUR M. ANDERSON

September 12, 1944

Dr. Carleton R. Ball
U. S. Department of Agriculture
Extension Service
Washington 25, D. C.

Dear Dr. Ball:

When I returned from my vacation, I found your letter of August 12 waiting for me. If I had postponed my departure a single day longer, I should have received it nearly a month earlier. I am glad to know that you will be able to speed up the work on the willows for the Illustrated Flora. They will, naturally, go into Volume I of the three volumes, and the manuscript for this volume is now almost completed. We have left space in the proper place where your text and figures can be inserted. I am myself working far beyond this point at present and am about to finish up the Rose family for which Palmer was good enough to contribute on the hawthornes. I certainly appreciate the collaboration of such men as you and Palmer, without which the final production would not only be greatly delayed but would also suffer in its quality.

Very truly yours,

H. A. Gleason

H. A. Gleason
Assistant Director

HAG:CK

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November 25, 1946

Dr. Carleton R. Ball
U. S. Department of Agriculture
Extension Service
Washington 25, D.C.

Dear Doctor Ball:

May I again inquire if you have made any progress on the genus *Salix* for the new Illustrated Flora? It is now about three years since you undertook to handle it for us, and we are very anxious to receive your manuscript. That will enable us to get the illustrations made and then proceed with the printing and engraving of the first volume.

With best regards, I am

Very truly yours,

H. A. Gleason

H. A. Gleason

3814 Jocelyn St., N.W.,
Washington 15, D.C.
April 5, 1947

Dr. H. A. Gleason,
N.Y. Botanical Garden,
Bronx Park, Fordham Br. P.O.,
New York, N.Y.

Dear Dr. Gleason:

Your letter of Nov. 25, 1946, more than four months ago, is under my eye. I have no real excuse, the several reasons, for the long delay. This winter has been about the worst in Washington's recent history. As a result I have acquired two accidents. One put my left arm in a cast for a month, the next bruised both knees severely and impeded progress in all directions for weeks. Then our city has had a two-months epidemic of a new type of flu. I got off with a light dose but my family and my daughter's family here have had a harder time.

On April 1 I got back to the willows in earnest. Since then I have determined accumulated collections and returned them. These added *S. brachycarpa* var. *Samsoni* Ball to the flores of Greenland and Iceland, and two varieties of the Eastern Canadian Arctic to the alpine flora of Colorado at 11000 feet and above. I have also asked the Nat. Herb. of Canada for the material which will settle the status of Schneider's *S. fullertanensis*, I hope. All this took 25-30 letters in the four days.

Now I am getting the manuscripts under way and checking to see just where I can fit on Alaska willows for Anderson, Idaho willows for Davis, and North American willows for you. I did take time out to try to straighten out two of Dr. Fernald's worst breaks, including his flat rejection of our *S. petiolaris* as a "British" willow, and the substitution of a name of his own. In this he defies the conclusions of all American and British botanists for the last 125 years, ~~we~~ without giving any real evidence. I cannot change the new issue of Gray's Manual, but can start the backfire before it appears.

✓ Separately I send you a few recent reprints. I hope the one on "More plant study: Fewer plant names" is of interest. I can sit down and name 500 "species" of willows tomorrow which will be just as good as those in *Crataegus* or *Rubus*. One of my correspondents, who collected widely for Bailey, thought he would try out "more plant study" in *Rubus*. He went to a single *Rubus* patch which he had watched develop for many years. He collected from it throughout the season, from early spring until late autumn, and from the older growth in the center clear out to the new shoots at the margin. He sent it to Dr. Bailey, telling him that it was from a single plant. Bailey was unable to name it (because it represented several of his "species"). I note that he has 14 more new species from Kalamazoo Co., Mich., in Penes new Flora of K. County. There are more than 3000 counties in the United States. The going ought to be very good.

Cordially yours,

Carleton R. Ball

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DIRECTOR
WILLIAM J. ROBBINS

April 9, 1947

Dear Doctor Ball:

I was indeed delighted to get your letter on Monday morning and to learn thereby that the work on the Illustrated Flora will now go on. We are hoping to get volume one off to press by the end of the year, and as you remember from the old Britton & Brown, the willows are included in that volume. It will take some time to get the illustrations drawn, so that we will greatly appreciate having your contribution at the earliest possible date.

Your reprints have not yet arrived, but I well know your views of nomenclature with which I fully agree. I have no use for these experts who search for plausible pretexts for changing the name of well known plants.

I notice that Britton & Brown included 39 species, with incidental mention of 5 others, pentandra, wheeleri, subsericea, fuscescens, calcicola, which, if admitted, would make 44. But one of theirs (exigua) is apparently western, and 8 others are apparently too far north for our range, so far as I know. These are reticulata, vestita, barclayi, arctica, waghornei, desertorum, glauca, and angulorum. That would leave 35. Of course I do not know how many of these you may wish to subdivide or to submerge.

I am going to Washington tonight for the annual meeting of the Research Council. I expect to be at the National Herbarium all day Friday. If you should wish to talk matters over with me, you can reach me there by calling Killip.

Sincerely yours,

H. A. Gleason

H. A. Gleason

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WILLIAM J. ROBBINS

April 14, 1947

Dear Doctor Ball:

I was disappointed that I had no opportunity to see you during my three days in Washington last week. I was unexpectedly sent on Friday to the organization meeting of the proposed American Institute of Biological Sciences, and could do no more than see Mr. Killip briefly and ask him to tell you what had happened to me, in case you called up during the day.

Thanks for your reprints which I found here this morning.

And if there is any information that I can give you in preparation of your manuscript on willows for the Illustrated Flora, don't hesitate to ask for it.

Very truly yours,

H. A. Gleason
H. A. Gleason

(See over)

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

April 26, 1947

Dr. H.A. Gleason,
N. Y. Botanical Garden,
Bronx Park, Fordham Br. P.O.,
New York, N.Y.

Dear Dr. Gleason:

I have your letters of April 9 and 14. I was sorry that I could not have seen you during your recent visit but was unable to get down town at that time. We were just finishing off our stretch of flu, in both families, and I was ending up my accident troubles.

I inclose a write-up of the first 12 species for the *Illus. Flora*. Each is on a separate page, for convenience in writing, studying, and revising if necessary. These were written to tell what it seems desirable for a worker to know rather than to fit a particular space. That does not mean that they cannot be shortened here and there, if needed.

Please examine these at your convenience and make all needed suggestions. One of my expressions you may wonder about. I often say "3-8 or 12 cm. long". In such cases, the "3-8" is the normal range and the "or 12" indicates the extreme found on vigorous shoots. The final figure is not large enough for the actual extreme but for what the average collector will find. This expression takes more space but gives a much better idea of what nature provides. Workers seem to find it helpful.

Of the species mentioned in your letter of April 9, *S. pentandra* merely gets an honorable mention and *S. wheeleri* gets 4 lines as a variety of *S. interior*. I have numbered the widely introduced and escaped species, as Nos. 3, 4, and 5, but not those briefly mentioned (supplementary species), as *S. pentandra*. Is that proper?

Some of the others you thought might lose out, will probably get in by way of the Gaspé Peninsula, but I am taking them up in botanical order, so don't know yet.

I am not sure of the nomenclatorial rules (international code), so need some help. I usually consult Dayton of Forest Service, or Blake, Ewen, or McVough (now gone) of Plant Industry.

Here is one problem: the proper name for No. 12, *S. balsamifera*. In the Fl. Bor.-Am. 2:149. 1838, Hooker published, under *S. cordata*, a new variety, as follows:

"*S. balsamifera*: foliis rigidioribus subtus magis glaucis. *S. balsamifera* Barratt mst. - *S. cordata* Rich. App. p. 37."

Here are the questions. A variety *balsamifera* is validly published here. Would it be cited as var. *balsamifera* Hooker, or var. *balsamifera* (Barratt) Hooker? *S. balsamifera* Barratt, as published here, is not a nomen nudum but a synonym. Does it have any specific standing, under either code? If so, should it be *S. b.* Barratt, or *S. b.* (Hooker) Barratt.

S. balsamifera, if legal, is the earliest and most appropriate name for this species. If not valid, *S. pyrifolia* Andersson, Monog. Sal. 162. 1867, must be taken up. Barratt never published his species, and no one else did before Andersson's name was published, based on the same types (Drummond, Richardson). B. & B., Gray, & Rydberg use *S. balsamifera* but the 2 N.Y.s use "(Hooker) Barratt", while Gray says "Barratt?". Please give me the final decision. Schneider adopted Andersson's name.

Will this portion of the mss. enable you to start the artists on the drawings, or were you expecting me to come up and help on that? I may have to come to N.Y. and Boston later, anyway, but have no desire to select material for drawing if I can escape it. Have more writing than I can get done.

Cordially yours,

P.S. The first 6 pages are reserved for keys.

Carleton R. Ball

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May 14, 1947

Dear Doctor Ball:

I have carefully looked over the descriptions of the first dozen willows for the Illustrated Flora and am well satisfied with them. They are about the right length and the wording is clear and concise. They certainly fill the bill. The geographic distribution is given in greater detail than necessary for parts of the range outside the area covered by our Flora; for the parts within our area you have stated it admirably. As an example of what I mean, I refer to that of *S. lucida*. I shall probably abbreviate it as follows; Nf. and Lab. to Sask., s. to Del., n. Ia., and N. D. with outlying stations in Roanoke Co., Va. and Neb.

This includes every detail stated by you for the Flora Range, and merely abbreviates those outside the range. I trust this will be satisfactory to you.

Your numbering of the commonly escaped species (e.g. *alba*) and the mere incidental mention of *S. pentandra* is exactly the way I do it myself.

In regard to *S. balsamifera*, the variety *balsamifera* is validly published by Hooker, as mentioned by you. The species *balsamifera* Barratt is not published at all at this place. Casual mention of a name, or citation as a synonym does not constitute publication (Articles 37 and 40 of the Rules). The variety should be cited as var. *balsamifera* Hooker, since Barratt's species is unpublished, and has no nomenclatural standing whatever up to this point. It may have received specific standing later however by being properly published by another author. Do you know whether, between Hooker in 1838 and Andersson in 1867, the plant was ever called *S. balsamifera*? and at the same place accompanied by a description, or by a reference to Hooker's variety. If so, it was published as a species then and there. If this publication was accompanied by a reference to Hooker's variety, it would

(See over)

Dr. H. A. Gleason,
N.Y. Botanical Garden,
Bronx Park (Fordham Br. P.O.),
New York 38, N.Y.

3814 Jocelyn St., N.E.,
Washington 15, D.C.
June 24, 1947

Dear Dr. Gleason:

Your letter of May 14 was promptly received and I appreciate your full discussion of some of the questions I asked. I will follow your plan for citing ranges as closely as I can and you will make any needed changes.

Probably *S. balsamifera* must go and *S. pyrifolia* Anderss. be used, altho I have not looked further into the matter. Schneider usually dug into all of the literature of synonymy.

Recently I have been studying/ types, isotypes, and other material of some of Dr. Fernald's species as a basis for illus. Flora treatment. Several of the lesser-known ones occur in the Caspe Peninsula.

S. laurentiana comes out a hybrid of *S. glaucophylloides* var. *albovestita* (Ball) Fern. with some member of Section *Glaucæ* (*S. desertorum*, *S. brachycarpa*, etc.) which could give it the yellow scales. At least 5 collection by Fernald et al., distributed by him as *S. laurentiana* are definitely ~~*S. glaucophylloides*~~ *S. glaucophylloides* var. *albovestita*, and two of them have its glabrous capsules.

S. paraleuca and *S. stenocarpa* are very similar hybrids, probably of *S. humilis* in both cases. For *S. paraleuca* the other parent was *S. planifolia* or a relative. For *S. stenocarpa* the other parent may have been *S. cordifolia* or others of the Section *Glaucæ*.

Most of the other doubtful ones occur only in Newfoundland and so do not enter into the Ill. Fl. troubles. They look more like true species, of the "relict" type.

I have studied Schneider's three new Canadian species (*S. anamesa*, *S. fullertonensis*, and *S. hudsonensis*). *S. anamesa* is *S. cordifolia* var. *callicarpa*, as previously decided by Fernald. *S. fullertonensis* is a valid trailing species related to *S. brachycarpa*. *S. hudsonensis* is *S. anglorum* and partly its var. *antiplatea*. While they are not yet from the Ill. Fl. range, its good to have them settled.

Now I shall continue preparation of manuscript for the Illus. Flora.

As to drawings, the most important thing is that any floral organs illustrated be correct as to relative proportions with any one species, and on the same scale for all species. Most such illustrations are worse than useless, because, for example, where scales are said to be 2 mm. long, pedicels 0.5 mm. long, styles 3 mm. long, and stigmas 1 mm. long, the drawing will show them all of the same length. If one capsule is said to be 5 mm. long and another 7-8, and a third 9-10 mm. long, they may be of exactly the same length in the drawings.

In the same way, I believe that leaves should be shown to one scale only. This may mean cutting long leaves crosswise in the middle and placing the two halves side by side. If the description of one is linear-lanceolate, another lanceolate, and a third ovate, and a fourth obovate, that is the way they should look. Now, that means that the average leaf must be chosen, because, as I discussed in "More Plant Study: Fewer Plant Names", there are three general sizes and shapes of leaves on each species, and sometimes many more than three sizes. The median should be had.

Cordially yours,

Carleton R. Ball

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be cited as *S. balsamifera* (Hooker) Jones, or whatever the man's name was. It might have been published as *S. balsamifera* Barratt, which we can interpret as a publication of the species by Jones for Barratt. Lastly it may be intelligibly described as this species without any citation whatever, in which case we would cite it as *S. balsamifera* Jones. Then, if we were discussing the matter at any length, we could say "based by implication but not technically on var. *balsamifera* Hook."

I can not well answer your question about the drawings. I should like to get some advice from you on what kind of drawing are needed - mature leaves of course, but how about catkins, either male or female or both, or capsules, or individual flowers magnified, etc. Maybe you could suggest for each species just what features should be illustrated. Probably there would be groups of species which would need precisely the same set of drawings.

I sent you yesterday a little publication which ⁰shows some of my feelings on the matter of nomenclature.

Sincerely yours,

H. A. Gleason

H. A. Gleason

3814 Jocelyn St., N.W.
Washington 18, D.C.

August 7, 1947

Dr. H. A. Gleason,
New York Botanical Garden,
Bronx Park (Fordham Br. Station),
New York, N.Y.

Dear Dr. Gleason:

Herewith I send you the mss. for 8 more willow species for *Illus. Flora* (Nos. 13-20, pp. 19-26). I am leaving soon on 2-weeks vacation and want you to have them if I get eaten up by a grizzly bear, or mosquitoes. You will think that this is not a large installment, and I will agree.

Since I wrote you last I have done all the spade work on two big jobs that are basic to completing a creditable treatment of the willows for *Illus. Flora*.

Job 1 was to determine which of Fernald's and Schneider's new species from the east central part of No. Am. really represented new species and so had to be dealt with, especially and immediately if they came within the *Illus. Fl.* range. I have found that several are not species but mostly hybrids and may be disregarded for manual purposes. Others are conspecific with species named earlier and so go out.

Job 2 was to determine the actual distribution ranges of the species involved. That was real job, for it involved going laboriously through the voluminous lists of specimens for every collector and institution in most of the United States and Canada. It was necessary to list all included species (under consideration) in a single go-through, to save time and handling. It's done now, the not all typed yet, as I do that as I work up the species.

When I find a leading authority stating that a certain species, confined to the area east of Hudson Bay, ranges from Labrador to Alaska, I feel that our students should have more accuracy.

While on vacation, I will work on the duplicate keys, as the first draft does not require herbarium or library material, but a lot of head work thro trial and error.

When I get back, I have to settle the *S.-desertorum-glaucha-glaucops* mess and the rest is fairly plain sailing. Just now I am working on *S. anglicum* and vars. but cannot finish before leaving.

Cordially Yours,

Carleton R. Ball

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August 11, 1947

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

Dear Dr. Ball:

Your manuscript arrived this morning and please accept my sincere thanks for it. I have not yet taken the time to inspect it but feel sure that it will be in the same satisfactory condition as that which you previously sent.

I hope that you will have a pleasant time on your vacation and that you will make every effort to avoid those grizzly bears.

Very truly yours,

H. A. Gleason

HAG/FMcA

H. A. Gleason
Assistant Director

Dr. H. A. Gleason,
New York Botanical Garden,
Bronx Park, Fordham Br. P.O.,
New York, N. Y.

3614 Jocelyn St., N.W.,
Washington 15, D.C.

June 24, 1948

Dear Dr. Gleason:

I have spent about two months at hard labor, trying to straighten out *S. angustum* Chauss., the three varieties Schneider added to it (all from Casse^{sen}, Que.), *S. petrophila* Rydberg, and its supposed variety, *caespitosa* (Kenn.) Schn. The job is done and the manuscript mailed yesterday (but may get rejected).

That clears up so much for the Illus. Flora. I now expect to get ahead with the remainder of the manuscript rather rapidly (and its about time). There are still a few problems but I think that they will work out.

Separately I am sending two packets of reprints. On them I have indicated in pencil which are for you, which for the Garden Library and Herbarium, and some for Mrs. Camp, Maguire, and Moldenke. The numbers sent each are not the same because previous mailings were on different dates. I assumed that only the one on *S. petiolaris* would be mounted on herbarium sheet. If any others are wanted for that purpose, I'll be glad to send them. Hope routing these to the recipients will not burden you too much.

Was 75 last June 12, and recived as a present a good case of shingles. Luckily, the weather was cool and prompt application of calomine allayed the inflammation "ray pronto".

Cordially yours,

Carleton R. Ball

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March 25, 1949

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

Dear Dr. Ball:

I am leaving tomorrow for Ithaca where I expect to spend several weeks working on the blueberries in Baileys Herbarium. Needless to say, I do not relish the task.

This is the last bit of manuscript which I have to write for the new Illustrated Flora. Everything else is complete and a good part of it has been edited. Beside the blueberries the only thing lacking is the willows. Can't you arrange to get that manuscript to us fairly soon? We could then proceed with the printing of Volume 1.

With very best regards, I am,

Very truly yours,

H. A. Gleason

HAG:JD

H. A. Gleason

(over)

Dr. H. A. Gleason,
N.Y. Botanical Garden,
Bronx Park, Fordham Br. P.O.,
New York 56, N.Y.

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

6 April, 1949

Dear Dr. Gleason:

Your letter of March 25 was promptly received but reply has been delayed until I could complete another manuscript and send it off. That was done yesterday. It contains a critical study of two of Fernald's species, *S. hebecarpa* and *S. simulans*, both of which I find to be hybrids of *S. pedicellaris* var. *hypoglauca* with some other species, probably *S. anglorum* or varieties, or *S. arctophila*, both of Sect. *Ovalifoliae*. Have sent the paper to Dr. Fernald for Rhodora but am not too certain of acceptance.

Today I sat me down to get a new start of the *Illus. Flora* mss. Wrote up *S. anglorum* Chamisso and its three varieties. The species does not quite get into the *Flora* range but it need a full description in order to make it known to our eastern botanists and also as a background for the varieties. Schneider, who described the three varieties, gave no description of the species and it never has been really described.

This *Illus. Flora* mss. now has the right of way against all comers. I do not think that I will need to spend much time on other of Fernald's species, but may get fooled. Evidently he knows little of the laws of inheritance or he would not keep on naming all hybrids as new species.

I sympathize with you in your attack of *Rubus*. I doubt if the mess can be cleaned up easily or completely, and more than *Crataegus*.

Cordially yours,

Carleton R. Ball

P.S. My manuscript on what is the matter with taxonomy has been rejected. (By Bot. Gaz.). Have not decided where to send next. If you have any suggestions, I will greatly appreciate them.

My lengthy mss. on *S. anglorum*, its vars., *S. petrophila* Rydb., and *S. caespitosa* Kennedy, was submitted to Am. Midland Nat. and accepted. Therein I have cited all available specimens, so that herbariums can straighten out their collections.

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May 11, 1949

Dr. Carleton R. Ball
3814 J. celyn St., N.W.
Washington 15, D.C.

Dear Dr. Ball:

Here I am back from a fight with the blackberries at Ithaca. As might be expected I came back with numerous scratches but am still alive at least. I hope I have succeeded in making a disposal of them which will prove to be satisfactory to a majority of the botanists.

Of course I am delighted to know that I may look forward to receiving the rest of your manuscript on Willows at an early date. Don't hesitate to let me know if there is anything which I can do to expedite the matter. After the manuscript has been received I shall have to get the drawings made and I shall certainly need your valuable advice in picking out specimens for our artist.

Very truly yours,

H. A. Gleason

HAG:JD

H. A. Gleason

(over)

Dr. H. A. Gleason,
Herbarium, N.Y. Botanical Garden,
Bronx Park (Fordham Br. P.O., New York 58.

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

27 June, 1949

Dear Dr. Gleason:

Your letter of May 11 was received (believe it or not) and I am glad your wrestling with *Rubus* is somewhat over, despite scratches. I note your hope that your disposition of them will prove satisfactory to botanists. I wonder what proportion that implies as resting in the waste-basket?

You probably feel as sorry about me as I do about myself. At any rate, I feel that the end is in sight. Whether it is the end of the willow manuscript, or of me, or of both of us, I am not certain at this moment. I have 37 species written up, in final or extensive rough draft, from which I boil down for manual use. There are 3 more to do, with the possibility of from 2-4 more when studied.

So many new species have been published from our I.P. area, or areas not far removed. Many have been based on a single collection, which usually is an extreme form or it would not have attracted attention. Then, when the author collects it in other areas he does not recognize it, because not so extreme, or younger, or older, and keeps on distributing it under the previous specific name. I have to do about 50 times as much work to determine the actual characters and range of his species as he ever did.

Many of the single-collection species turn out to be hybrids, as might be expected, but you have to do all the work that proves it. I had supposed that Fernald gave ~~such~~ specific names to such one-collection hybrids because he had no concept of genetic laws, but I have just read one of his old papers in which he states that no two plants of the same 2-species hybrid would necessarily look alike. Yet in all the years since he has continued to name them whenever collected.

Then there is the genius who gives the length of the capsules in mm. and never tells you that the measurements include the pedicel and style in some cases and just the capsule without appendages in other cases. So you spend weary days trying to find specimens that match the first-mentioned description. *S. pedunculata* Fern. is an excellent illustration of most of these points.

Then there is the joyous habit of basing a new species on pistillate collection, and never bothering to hunt thro the specimens under other names to find and segregate the corresponding staminate material, always harder to separate. Sometimes the bland statement is made that the seminate plant has not been found. Anyway, I have found some of them.

You don't have to read all this but I had to write it to get it off my chest, so that I can rise up and dig in to the dirty work some more. Am trying to have all decisions on included species made by June 30. Have had a 76th birthday anniversary, a 45th wedding anniversary, and a lot of special meetings in May and June which have slowed me down. I don't have to celebrate the 4th of July.

It won't be long now (I hope).

Cordially yours,

Carleton R. Ball

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July 7, 1949

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

Dear Dr. Ball:

Thanks for your letter of June 27th. I know just how you feel about the desirability or even necessity of getting something off your chest. And, I realize that you have special reason in your work on the willows. I have had similar experiences. The gentleman who has caused you the most trouble has done some extraordinarily good work in taxonomy and also some extraordinarily poor work. All of his conclusions are expressed in such forceful words that one is easily convinced of their accuracy. But I, like you, have learned that everything must be investigated.

Anyway, you are approaching the end of your work on the willows and I shall be glad to see your manuscript arrive. As to my work on blackberries, you may be interested to note that the number of species in the range of the Illustrated Flora, published and un-published, as recognized by Bailey in his great herbarium, is well over four hundred. I have reduced them to thirteen.

I think the proper thing for me to do is end this letter abruptly after this last sentence.

Very truly yours,

H. A. Gleason

HAG:JD

H. A. Gleason

(over)

Dr. H. A. Gleason,
Herbarium, N.Y. Botanical Garden,
Bronx Park, New York 58, N.Y.

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

11 July, 1949.

Dear Dr. Gleason:

Replying to your letter of July 7, I am glad to report that the *Salix* descriptions are finished. The mass. contains 40 numbered species, 3 supplementary species, and some 28 varieties (in 17 species).

I have sent you the descriptions of 20 species previously. I inclose descriptions the other 20. Because *S. chlorolepis* Fern. proved to belong to Section *Retusae* instead of Section *Caucasae*, where Fernald placed it, it gets moved forward and becomes No. 20. *S. arctophila*, the last species previously sent you, becomes No. 21.

* Because of this one change in order, what I inclose includes Nos. 20 and 22-40, on pages 26, and 28-48. Please take the sheet for *S. arctophila*, the former No. 20 and page 26, and change them to No. 21 and page 27.

The sheets for Nos. 1-19, *S. lucida* to *S. uva-ursi*, on pages 7-25, please return to me. On my carbon copies, I note a few changes on many of them and suspect that most of them were made after the ribbon copies were sent to you. I will check them, rewrite where necessary, and return them at once.

In the mean time, I am driving at the keys, both vegetative and floral, and will forward as soon as finished.

In looking at the finished mass., I suspect that the individual treatments are fuller than for most of the included plants. Most botanists never have come to know the willows and I believe that this fact results from incomplete descriptions and mostly floral keys. Also there has been reluctance to really understand the sections, on the part of manual authors. From the accurate use of my former keyings and descriptions by both professional and amateur botanists, I feel sure that the willows can become known.

If you feel, however, that so much space cannot be spared for them, please be very frank about it and I will reduce them, or you may. Some previous manuals have contained many more species than occurred in the general area, including such and papers arctic forms as *S. arctica*, *S. fuscescens*, *S. Barclayi*, *S. desertorum*, *S. glauca*, and others, that the effect has been confusing. These are left out, together with the many hybrids named as new species. By the way, you will note that I am somewhat doubtful if *S. chlorolepis* (No. 20) is a real species, but have given it the benefit of the doubt.

I note with interest that from some 400 species of *Rubus*, only 13 survive. No wonder you stooped short after writing that. I hear unofficially that the new Gray will contain some 200 or more species of *Crataegus* but that the new in *Rubus* are more "apocryphic" entities.

Anyway, I see that N.Y. and N.E. had one rain. Congrats. And now to a frontal attack on my "key" problem.

Cordially yours,

Carleton R. Ball

* P.S. Please return *S. arctophila* (old No. 20) also, for I have a synonym to add.

Dr. H. A. Gleason,
N.Y. Botanical Garden,
Bronx Park (Fordham Br. P.O.),
New York 58, N.Y.

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

1 July, 1949

Dear Dr. Gleason:

To report further: June 30 (the deadline) has come and went. I have 40 species of *Salix* described, a few still in rough draft. Possibly one more species (*S. desertorum*) will be added, but this will be determined very soon.

and many
vars. Twenty species considered for inclusion have been ruled out for various reasons, as noted below.

Three introduced species apparently do not escape frequently enough to justify inclusion. These are *S. incana* Schrank (*S. Eleagnos*), a basket willow, and *S. caprea* and *S. cinerea* L., our two florists willows.

One relatively new species, *S. obtusata* Fernald, proves to represent his *S. myrtillofolia* Andersson, var. *brachypoda* Fernald.

Five of Fernald's recent species were originally described from Newfoundland collections and do not seem to have been found elsewhere, except that one occurs in adjacent Labrador. Two of them, *S. jejunata* Fernald and *S. leirolepis*, belong to Section *Reticulatae* and three, *S. amoena* Fernald, *S. ancozrifera* Fernald, and *S. Wiegandii* Fernald, apparently are related to the Sect. *Discolores*. Three (*leirolepis*, *amoena*, and *ancozrifera*) were based on a single collection each. It is quite probable that some of these species really are hybrids, as those discussed below.

Six of Fernald's recently published species have been studied with great care, because published from the Illus. Fl. area, and it is concluded that all are hybrids. These species are as follows. *S. hebecarpa* Fernald (Gaspé) and *S. similans* Fernald (Saguenay Co., Que.) are hybrids of *S. pedicellaris* Ph., var. *hypoglauca* Fernald and Dr. Fernald has accepted a manuscript discussing them. *S. similans* was based on a single collection. *S. laurentiana* Fernald was based on 2 collections from Gaspé and is a hybrid of *S. glaucophylloides* Fern., var. *albovestita* (Ball) Fernald with some other species. Several specimens he later distributed were merely the var. *albovestita* with its characteristic glaucous capsules. Two of his species (*S. paraleuca* and *S. stencarpa*, were based on a single collection of each from Gaspé Penin. and neither has been collected since. They are held to be hybrids of *S. planifolia* with some other species. Fernald admitted to Schneider that the two really were one and the same. *S. peasei* was from the White Mts. of N.H., and was later admitted to be a hybrid of *S. uva-ursi* Ph. X *S. herbacea* L.

Five recognized species occurring to the north and far west have been listed by Fernald as occurring within our range for Illus. Flora but really are cases of mistaken identity. *S. Barclayi* Andersson really was *S. glaucophylloides* Fernald. *S. arctica* Pallas presumably was either *S. anglorum* Chamisso or *S. arctophila* Kill. *S. fuscescens* Andersson was partly the hybrid he later called *S. hebecarpa* and partly *S. anglorum* vars. *S. glauca* L. (See *chlorolepis* paper) was either *S. desertorum*, if that proves to be present, or one of the vars. of *S. cordifolia* Pursh. *S. pseudomyrsinites* was really *S. myrtillofolia* Andersson.

It has taken as much or more work to study and dispose of these 20 "species" as it has to describe the retained 40 species and it wasn't as much fun.

Now I get to work on the vegetative and floral keys, while completing the descriptions still in rough draft.

Very truly,

P.S. This lengthy summary was for

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July 14, 1949

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

Dear Dr. Ball:

Your letter of July 11th was at the office when I arrived this morning. I thank you sincerely for the manuscript of the remaining species. I have already changed your original 20 to number 21 as suggested by you and I am returning herewith your manuscript of numbers 1 to 19.

No, the length of your treatment is not too great. I have found that the space needed for adequate treatment of a plant is quite variable, depending largely on the number of parts which need discussion. It has run its maximum in the Composites and in Panicum and both of these will average longer than your descriptions.

Just as a matter of further gossip, I may say that the genus Crataegus was written for me by E.J. Palmer who had barely more than one hundred species but with incidental mention of almost as many more about which he was still in doubt. Later Palmer wrote and asked me if it would be unethical for him to accept Fernald's invitation to prepare the same genus for Fernald's book. I told him to go to it since that would insure that at least one genus would have essentially similar treatment in the two books and I think also that accounts for the figure of 200 which you reported in your letter.

As you probably have read in the pages of Rhodora, Fernald has referred to Bailey's species of Rubus as mere apomictic clones, but Camp found out during his recent visit at Harvard that Fernald will have more than 200 species of Rubus in his book.

Yes, we have had a little rain here. At my home in Connecticut we had 41 days without a drop. I used the hose freely and brought most of my garden through in fairly good shape although I certainly lost many plants.

Very truly yours,

H. A. Gleason

H. A. Gleason
Head Curator

(See over)

HAG:JD

Digitized

mentation

*All corrected or retyped
and ready to return*

Dr. H. A. Gleason,
N.Y. Botanical Garden,
Bront Park (Fordham Br. P.O.),
New York 58, N.Y.

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

16 July, 1949.

Dear Dr. Gleason:

Your letter of July 15, and the ribbon copies of Nos. 1-19 and 21 (pp. 7-25 and 27), came promptly and safely and I thank you for getting them here so quickly. I was already working on the needed additions and revisions.

I have now completed the job and am mailing the revised manuscript back to you. Several of the sheets have been rewritten. I find that I had used lighter paper for the work done first and am sorry that you will have two weights of paper in the bunch.

I have had ~~two~~ changes in the order of Nos. 1-20. *S. vestita*, formerly No. 17 has been transferred to become No. 20, which brings it with the other hairy-capsuled species. *S. chlorolepis*, which was No. 20, is moved back to No. 17 where *S. vestita* was. Further study of *S. chlorolepis*, and the realization that it is an erect shrub of more than 1 m. in height, and ~~same~~ place it just after *S. pedicellaris*, which probably was one of the parents and gave it the height, the other being prostrate, presumably.

However, these are my worries, and I am just putting the changes and reasons on record, for my own information. However, I will have to ask you to change the sheet of *S. chlorolepis*, which I sent you with the last half of the mss., from No. 20 and page 27, to No. 17 and page 23. Sorry to make you this trouble.

Have been working steadily on both keys, and have a lot of them in rough draft but not ready to send yet. Probably will send you the complete rough draft for storage, which I complete its revision.

I was much interested in your comments on *Crataegus* and *Rubus* in the new editions of Ill. Fl. and Gray. Glad I don't have to work with either. The man who told me about it probably had seen Dr. Camp recently.

I have no idea what Dr. Fernald will do with my suggestions about *Salix*. When I sent him the reprint of my proof that *S. petiolaris* is American, not British, I asked him, for the sake of American botanists, to retain it in the new Gray. He did not reply. I have told him also of my conclusions about the relations of *S. pellita* and *S. argyrocarpa*, which he puts in different sections. I have discussed with him my reasons for believing that several of his species are hybrids, and he has accepted one of the papers for *Rhodora*. But that does not prove that he has accepted my views on them.

It is possible that I may be driving to New England near the first of August. If so, I would stop at N.Y. and select the illustrative material, if you are to be there at that period. I would also study some of the herbarium material there and then go on to the Gray and Arnold Arb. herbariums.

I think that you mentioned in a letter long ago, that you had some available fund which might help me make the N.Y. sojourn and study. If so, it will be welcome. If not, I'll come anyway.

One thing is sure, I have 40 species done for my monograph. I have much fuller descriptions and discussion written than I have used for the Illus. Flora. In the work I have done on the Nevada and Idaho write-ups, and especially on the Alaska manuscript, I have 30 or 40 more pretty well done, including some revisions of status of species and varieties.

Cordially yours,

Carleton R. Ball

Dr. H. A. Gleason, Herbarium,
N. Y. Botanical Garden,
Bronx Park (Fordham Br. P.O.),
New York 58, N.Y.

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

26 July, 1949

Dear Dr. Gleason:

This is the beginning of the end of the *Illus. Flora* mss. I send you herewith the following items.

1. Characters of the genus *Salix* (mss. p. 1);
2. Keys (combined), based primarily on vegetal characters and secondarily on floral characters. (mss. pages 2-6);
3. A key based primarily on floral characters (4 pages);
4. A discussion of some of the principles applying to keys (1 page);
5. A list of minor corrections to be made in the descriptions already sent (1 p.)

The key based primarily on vegetal and secondarily on floral characters (mss. pp. 2-6) is only a second draft, and I am revising it. The first draft was "rough" and not always complete or accurate. This second draft is both, so far as I know. Presumably, however, it is too long, because too many characters are given for ~~much~~ many of the species. My revision is seeking to shorten it. But I want you to have this draft there with the mss. in case the bears should turn up.

The key based primarily on floral characters is something to be thought over. I wrote it first because I believe in it least. I felt then that we should have a floral key also, to help those who have precocious-flowering specimens (without leaves) in hand, or those with coetaneous-flowering species with leaves in the juvenile stages. Maybe we should, but I am not sure.

For these reasons, I will study the two keys carefully and try to determine just what each would do, and how much need there is for both. Of course, a floral key, if included, might be restricted to the precocious flowering species.

I am sorry to bother you with the corrections for the descriptions. I have not yet typed the list, but I think it is short.

Cordially yours,

Carleton R. Ball

5

Some Corrections Required in *Salix* Descriptions (Illus. Flora)

19. *S. uva-ursi*. (p. 25): Under pedicels, change "04" to 0.4.
21. *S. arctophila* (p. 27): In line 9, after "6.5-8 mm. long," insert
"thinly silky-pubescent".
- 22 c. *S. anglorum*, var. *antiplasta* (p. 29): at end of paragraph, insert, in brackets,
(*S. anglorum*, Rydb.)
- 23 a. *S. brachycarpa* var. *antimima* (p. 30): In lines 5 and 6, changes parentheses to
brackets, inclosing (*S. desertorum* etc).
28. *S. pellita* (p. 36): In line 8, after "coetaneous", insert "2-5 cm. long,"
37. *S. humilis* (p. 45): In line 6, after "arabens", insert "precocious,"
39. *S. Bebbiana* (p. 47): In line 7, after "peduncles", insert "0.5-2 cm. long;"

Dr. H. A. Gleason,
N.Y. Botanical Garden, Bronx Park,
New York 58, N.Y.

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

30 July, 1949.

Dear Dr. Gleason:

Herewith is The discussion of the Genus *Salix* (ms., page 1) and a 3rd draft of the combined vegetal-floral keys (ms., pages 2-6. For good measure I send one other sheet which contains a write-up of Family Salicaceae, brief key to separate *Populus* and *Salix*, and description of the genus *Populus*. I was not asked for these but if you have any use for them, you are welcome.

The combined vegetal-floral keys have been completely reviewed and rewritten, since I sent you the second draft. I have checked and double-checked to make sure that they are accurate.

I have shortened them somewhat in revising them, leaving out less essential contrasts; also restricting more items to the major divisions. As they stand now, I believe that students will be able really to know willows like they get to know other groups of plants. These are the same type of keys I made for a group of amateur botanists (school teachers) in California. With them, they went out and named all the species of *Salix* they found, and got most of the varieties also.

If you cannot afford to give that much space to the keys, I can shorten them still further by depending on fewer items of contrast. Please be very frank about what you want me to do. It's your book.

In my last letter, I sent you also a 4-page key based primarily on floral characters. I have not studied it since but I have the feeling that it will not be needed if the vegetal-floral key is published about as this 3rd draft presents it. I will study the floral key during the coming week and determine if there is need for any part of it, as the sections covering precocious-flowering species, for example.

^W have had a long hot spell, and dry, breaking all records for Washington. It seems to be breaking, however, as a cool breeze sprang up and a light rain started about half an hour ago (8 p.m.). I hope that you have been having a real vacation and that things will be bearable when you get back.

Cordially yours,

P.S. I am sending separately some recent reprints for you, Maguire, Moldenke, and the Garden Library, bringing each up to date. If other there should have the paper on willow used, let me know.

Carleton R. Ball

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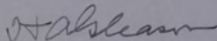
August 9, 1949

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

Dear Dr. Ball:

I was away all last week but when I returned this morning I found your letter of July 30th, with manuscript, waiting for me. Without taking time to check over the whole thing, it seems to me that this manuscript is now complete and I am proceeding at once to do what little editing it may need to get it into the standard form used by us and to get it typed in triplicate. That does not mean that further corrections can not be added. If my supposition is correct, the only thing remaining to be done here is to have the material selected for drawing, to confer with you on the nature of the drawings to be made for each species and then to get the plates executed by our artist. I have noted with great satisfaction how closely you have followed our standard form, and I can see that my task of editing is going to be very simple. I have not yet learned whether we can contribute toward your expenses in picking out this material but I shall find this out at my first opportunity and let you know accordingly.

Very truly yours,



H. A. Gleason
Head Curator

HAG:JD

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November 3, 1949

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

Dear Mr. Ball:

Your letter of October 28th to Dr. Rickett has been referred to me. Thank you for lending us those specimens of *Salix* to use for illustrations in the new Illustrated Flora. As soon as the artist is finished with them they will be returned to you through Mr. MacKeever's shipping office.

Your letter states that staminate material is lacking for *Salix babylonica*, *S. calcicola*, *S. argyrocarpa*, *S. viminalis*, and pistillate aments for *S. purpurea*. I am having Mr. MacKeever send you 9 or 10 sheets from our herbarium of the last four of these species. Will you please check them to see if they are correctly named and if you think we may use them for the aments which your material lacks?

Your letter says that you have staminate material of *S. babylonica* in your own herbarium. Will you please send this to me, then, when you return the sheets I am sending you? Then we should have all that we need for the artist to begin his work.

With kindest regards and all best wishes, I beg to remain,

very sincerely yours,

Harold N. Moldenke

Harold N. Moldenke,

Curator & Administrator of the Herbarium

Dr. H. N. Moldenke,
New York Botanical Garden,
Bronx Park, New York 58, N.Y.

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

11 November, 1949

Dear Dr. Moldenke :

Your letter of Nov. 3 came promptly and the packet of willows, containing specimens of *S. argyrocarpa*, *S. calcicola*, *S. purpurea*, and *S. viminalis*, came later.

I have indicated by a pencilled X on the sheets, those aments which contain material suitable for illustrative purposes (usually more than one ament and sometimes more than one sheet of a species). On the aments of *S. viminalis* (pistillate) you will note that ovaries and fully grown capsules occur in the same ament but the capsules will be readily recognized because of larger size and gray color.

To these sheets I have added one sheet of staminate *S. babylonica* from my herbarium, with suitable aments similarly marked.

It was my original understanding from Dr. Gleason that only an average leaf and one fully grown capsule with pedicel, style, and stigmas (and perhaps scale) were to be illustrated. Hence Dr. Rickett's request for staminate material came as a complete surprise, but I was glad to help select it, if it is to be used.

The material is repacked for shipment, including my sheet, but as this is a national holiday and P.O.s are closed, I suppose it will not get mailed until tomorrow.

Just now I am up to my ears in Alaskan material from the little-known Brooks Range and north to the Arctic Ocean, sent by the Univ. of Minn. and that of Mich. These greatly increase my knowledge of distribution of species, which is very useful before my manuscript is completed.

With all good wishes, I am

Cordially yours,

Carleton R. Ball

P.S. Signed receipt for herbarium material inclosed.

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WILLIAM J. ROBBINS

September 6, 1950

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

Dear Mr. Ball:

Today I have asked Mr. MacKeever to return 56 more of your willow specimens to you. These are from the material you let us have on loan for the artist to use in making illustrations for Gleason's manual.

In the same parcel I am sending you on loan a mounted sheet of Camp 122. Would you please identify this for us and return it to us at your convenience?

With kindest regards and all best wishes, I beg to remain,

very sincerely yours,

Harold N. Moldenke

Harold N. Moldenke
Curator & Administrator of the Herbarium

3814 Jocelyn St., N.W.

Washington 15, D.C.

Dear Dr. Moldenke:

28 Sept., 1950.

Just picked up your letter of 6 Sept., at the Dept. of Agriculture, where I had not gone for 2 or 3 weeks, because of continued rain and clouds which made herbarium study difficult.

Many thanks for the return of the remainder of specimens taken out for use in making illustrations. As I was on my way to a funeral, I left package there and so did not determine the mounted Camp 122. Will do so soon and will try to finish the old loan of *Salix desertorum* and return all to you.

The new Gray has 17.5 pp. of willow keys and 14.5 pp of willow text. Something new!

Cordially yours,

Carleton R. Ball

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October 10, 1949

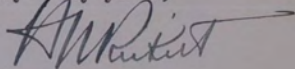
Dr. Carleton R. Ball
c/o Dr. E.P. Killip
Smithsonian Institution
Washington 25, D.C.

Dear Dr. Ball:

Having recently had thrust upon me responsibility for the publication of Gleason's new Illustrated Flora, I am anxious to complete the illustrations as rapidly as possible. You were good enough to contribute the text on *Salix* but as yet we have no figures to illustrate your treatment. Would it be possible for me to visit you in Washington and select with you a series of representative specimens which could be used by our artists? If you think such a plan feasible I should be glad to arrange a day and an hour at your convenience in the near future.

With best regards,

Very truly yours,



H. W. Rickett

EWR:md

Spent Wednesday Oct. 26 at Herb. work room, after telephone agreement

Dr. H. W. Rickett,
New York Botanical Garden,
New York 58, N.Y.

3914 Jocelyn St., N.W.,
Washington 15, D.C.

23 October, 1949

Dear Dr. Rickett:

According to the notes we made on Wednesday, you still need the following material for illustrating the willows in *Illus. Flora*:

<i>Salix babylonica</i>	staminate aments
<i>Salix calcicola</i>	staminate aments
<i>Salix argyrocarpa</i>	staminate aments
<i>Salix viminalis</i>	staminate aments
<i>Salix purpurea</i>	better pistillate aments, with ripe capsules

I have looked through all my additional material of these species at home and find that I have only the needed staminate aments of *S. babylonica*.

If you cannot find all of this needed material conveniently in the collections of the Garden, I will try to find what still is needed, by looking thro the material at the U.S. Natl. Herb. and U.S. Dept. Agric. (National Arboretum specimens) collections at Beltsville. I suspect, however, that you may be able to find them all right there at home. It will be easy to select the staminate specimens and not too difficult to get the pistillate aments of *S. purpurea* in suitable stage.
recognize

Now I will measure the capsules on *S. pyrifolia* and then write Dr. Gleason as to that possible change in the manuscript, as well as to the leaf lengths on page 36, apparently given in mm. instead of cm.

Hope you got home safely with all your burdens,

Cordially yours,

Carlton R. Ball

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*These penciled
notes also in
letter Nov. 4*

October 31, 1949

- ✓ p. 38, l. 2 narrowly, not narrowly
✓ 40, l. 2 dark, not dark
✓ 43, l. 3 semi-grate, not semi-grate; l. 4, comma elap-
✓ 47, was luxurians. l. 10, comma after lanceolati; l. 11, stigmae hunc, d.
l. 1, delete period after 10

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

Dear Dr. Ball:

Thank you for your letter. I will search our herbarium here for the needed material. In any case, as you pointed out, the staminate material is not too important for illustration. We shall look forward to receiving your revised measurements. Perhaps if you wrote me instead of Dr. Gleason it would be better since he is at the Garden infrequently.

I reached home safely with the package of specimens in good condition, and am certainly greatly obliged to you for your help.

With best regards,

Very truly yours,

H. W. Rickett

HWR:md

- p. 17 ✓ chose myrt desc
p. 18 ✓ chose pyref. capsule length; l. 12, before divided insert ^{see} _{the}
p. 21, line 7 precocious, not precosious
✓ 27 line 8 should read
✓ 31 "after lanceolati" insert "in branchlets"; line 8, with, not with
✓ 36. like 4. 3-5 mm high, not mm l. 13 cm long, not mm

Dr. H. W. Rickett,
New York Botanical Garden,
Bronx Park, New York 58, N.Y.

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

4 November, 1949

Dear Dr. Rickett:

Your letter of 31 Oct. came promptly and I am glad to know that you and the specimens got home safely. As we found what appeared to be an error in measurements in my carbon of the *Illus. Fl. mss.*, I thought I would better go thro it carefully before writing you. I have just done so, and have found numerous small errors and omissions. I feel humiliated, not to say discomfited, and also apologetic.

Here is a list of the needed changes, and if there is any charge for making the needed insertions, I will be glad to pay it. The ~~pages~~ lines referred to are the text lines, neglecting the titles or headings (species).

Page 1, line 10. Insert a comma after "slender".

Page 2, ~~line~~, in key to *S. lucida*, change "acuminate" to long-acuminate.
in key to *S. babylonica*, "broader" occurs twice; delete once.

Page 3, in key to *S. myrtillifolia*, insert "pale" before green.

Key F-2. Indent it farther, to agree with F-1.

Key H-1, for *S. "glaucophylla"*, change to "glaucophyloides".

Key H-2 for *S. cordata*. Transfer phrase "to 4 cm." to follow "ovate";
then delete the semi-colon, and change period after "ovate"
to a comma.

Page 4, Key E-1. for *Myrtillifoliae*. After "leaves" insert "entire or".

Page 5, Key C-1, for *S. vestita*. Insert a period after "cm".

Page 6, Key E-2. Insert a comma between "Rostratae" and "Tulvae".

Page 7, In text of var. *angustifolia*, correct spelling of "northern".

Page 10, line 9. Delete the comma after "peduncles".

Page 11, line 4. Change phrase "1-2 or cm." to read "1-1.5 or 2 cm."

line 7. Delete the "t" from "despt".

Page 17, line 1. Change "dh" to "dm." (I may rewrite desc. of *S. myrtillifolia*).

Page 18, line 11. Capsule length: ~~will correct in next letter~~. Change to "6-8 mm."

line 12. Before "divided", insert "sometimes".

from "7-9 mm."

Page 19, line 4. Change "apex" to "apex".

~~then~~ last line under var. *albvestita*, delete the period after "Gaspe"

Page 20, line 3. Change "subreniform" to subreniform.

Page 21, line 7. Change "precocious" to precocious.

Page 27, line 7. After "laxish", change semi-colon to a comma; then
transfer "erect on leafy peduncles 1-4 cm. long" to follow laxish;
change comma now after "long" to a semi-colon.

Page 28, line 1. Insert "h" in "branclets".

line 7, Correct the spelling of with, now "iwth".

At end of treatment, add [*S. arctica*, B. & B.], if not there.

Page 29, c. var. *antiplasta* Schneider. At end of treatment is [*S. anglorum*, Rydb.]
in brackets. After "anglorum," ~~not~~ insert "B. & B., by desc. & ~~fig.~~"
fig.;" This semi-colon is followed by Rydb.], already there.

Page 31, line 3. after lanceolate insert "or"

Page 33, line 9. Insert a period between 0 and 7 in "07".

Page 36, line 1. Change "mm." to "m.";

line 4. After 13, change "mm." to "cm."

line 11. After "notched" insert "or rarely cleft."

Change the period after "notched" to a comma.

Page 38, line 3. Change the "e" in narrowly to w, making narrowly.

- Page 40, line 2. Change "drak" to "dark".
- Page 43, line 2. Change "semi-vate" to "semi-ovate".
line 3. Insert comma after "elliptic-lanceolate"
line 9. Insert comma after "lanceolate"
line 10. The word "stigma" is repeated; delete one.
- Page 44. In "a. var. latifolia" (line 2), insert "sometimes" before "pubescent"
In "S. caprea L." (line 2), underscore "S. discolor" for italics.
- Page 46, line 1. Change "m." to "n."
- Page 47, line 11. Change "nfla." to "nf."
- In "b. var. luxurians (line 1), delete the period after "lo"
- Page 48, line 2. Indicate more space between "mostly" and "linear-"

Some of the changes requested probably have been made in the ribbon copy of the manuscript which you have, but were not made, or at least not clearly, in the carbon copy which I have. A few of the insertions are caused by changes I have made since the manuscript was sent to Dr. Gleason, and result from additional study of material.

If you do not wish to undertake making these changes there, please send me either the 27 pages on which changes are asked, or the entire manuscript, as you prefer. Most of them are very small and simple and will not take much time.

Again, sorry to have made extra work and am willing to pay the costs of making the changes.

Cordially yours,

Carleton R. Ball

P.S. In many cases, for the sake of emphasis, I have used quotation marks on words misspelled and to be corrected; on words to be differently punctuated; on words to be inserted, and on the words they follow or precede. This has not been done uniformly, however. Of course, it will be understood that none of the insertions will be placed in quotation marks in the manuscript.

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Nov. 14, 1949

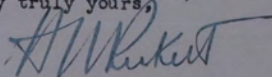
Dr. Carleton R. Ball
3814 Joselyn St. N.W.
Washington 15, D.C.

Dear Dr. Ball:

I am afraid I did not acknowledge the receipt of your list of corrections. It arrived safely. I have the original manuscript before me and can insert these corrections with very little trouble. I am sure everything will be quite clear.

With best regards,

Very truly yours,



H. W. Rickett

HWR:md

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November 18, 1949

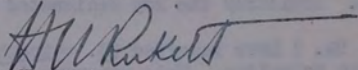
Dr. Carleton R. Ball.
3814 Joselyn St. N.W.,
Washington 15, D.C.

Dear Dr. Ball:

I hate to make additional trouble for you, but when I attempted to enter the corrections which you sent, I encountered trouble myself. I could not find your original copy, but only the copy which has been typed out by the herbarium stenographer in triplicate to be uniform in make-up with the rest of the manuscript. This, of course, does not have the same pages and lines as your copy and I cannot always find the exact spot in which you have indicated a correction. I did a few of them and then realized that I was running a healthy chance of introducing new errors instead of correcting the old ones. Accordingly, I return herewith the copy to be corrected with your list of corrections. I have checked some of the latter to indicate that they are entered in the copy, but I would like you to recheck them to make sure that they are in the right place.

It is too bad to wish this extra work on you, but I see no way out of it. I hope you can make these corrections and return the manuscript to me without too much delay.

Very truly yours,


H. W. Rickett

HWR:md
encl.

Dr. H. W. Rickett,
New York Botanical Garden,
Bronx Park, New York 58, N.Y.

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

21 November, 1949

Dear Dr. Rickett:

Your letter of 18 Nov. and the ribbon copy of my rewritten manuscript came this morning. No apologies needed for trouble caused me, for many of the changes were required because I evidently did not correct my original copy before mailing it. So what I have done today was really my job.

I have gone thru the whole series of suggested corrections, and believe that all are satisfactorily accounted for. I return the list. In the margin before each suggested change or correction I have inserted, in ink, one of 3 symbols. To enable you to make ready reference to them in your ms., I have numbered its pages in pencil, after k-8, and have entered the page number in pencil on the list margin before the symbol.

The ~~symbol~~ symbol appearing most frequently is an X, which means that the correction or change already had been made, either by you or in the retyping of the manuscript.

The symbol of second frequency is a v, which means that I have made the change, on the page of your ms. indicated in the margin.

The third symbol, used 4 times is the —, which signifies that some change made in editing the ms. before retyping rendered the change unnecessary.

I have not proof-read this new typing against my carbon copy of the original, as I assume that that had been done when it was rewritten.

A few minor items are called to your editorial attention, as follows:

Page k-4. The three successive designated keys are lettered ~~xxxxxx~~ a, c, and d. Obviously, they should be lettered a, b, and c, instead.

Page k-5. The one designated key is d, but obviously should be c, as above. These then would match the indentation of c on page k-1.

Page k-6. The key designated c should be b, to agree with the change asked on page k-1. Similarly the key designated e should be d.

p. 24. I have inserted (*S. retrophila* Rydb.) as a synonym after the name: var. *antiplasta* Schneider. This synonymy is discussed in a paper now in press and its insertion will help readers. It is indicated in my carbon and probably was in my ribbon copy. If you don't want it in, delete it.

P. 25. I have amplified the final citation (in line 2) under var. *antiplasta* from (*S. anglorum*, Rydb.) to read (*S. anglorum*, B. & B. (by desc. & fig.); Rydb.). If you do not feel that this sort of reference to B. & B. is justified, just delete it.

On page 18, in the citation of range of *S. glaucophylloides* var. *albovestita*, I had used the phrase "Gaspé Penin.". In the editing this evidently was changed to read "the Gaspé" and so stands in the copy I am returning. I never have seen the Gaspé Peninsula so designated and wonder if you want that to stand. Gaspé Peninsula is given in full under Nos. 18, 19, 20, 21, 24 (vars.), 27, 30, and 31. May be it was intended to be 4 on page 18.

I am wondering if designating all of the keys by letter would not safeguard the typewriter and proofreader, and also help the reader. Letters would not safeguard the

and letter herewith. Cordially yours, Carleton R. Ball

Dr. H. W. Rickett,
New York Botanical Garden,
Bronx Park, New York 58, N.Y.

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

31 January, 1950

Dear Dr. Rickett:

Extensive and critical collections made by Prof. August J. Breitang in Manitoba and Saskatchewan during 1949 have extended the known ranges of *Salix humilis* and *S. tristis*.

Here are the records, in case you wish to inset them, in your own language, in the manuscript of the Illustrated Flora.

No. 37. *S. humilis* Marshall. " - - - w. to west-cent. Sask., so. Man., &
and e. N.D.,

No. 38. *S. tristis* Aiton. Mass. w to west. cent. Sask. (rare), so. Man., &
e. N.D.,

Cordially yours,

Carleton R. Ball

Dr. H. W. Rickett,
New York Botanical Garden,
New York 58, N.Y.

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

11 June, 1952.

Dear Dr. Rickett:

Now I am in trouble. Old age and forgetfulness, I guess. Not long ago I realized that Andersson never had made the valid combination "*Salix rigida* Muhl., var. *vestita* Andersson, which is the proper designation for the former *Salix missouriensis* Bebb (*S. eriocephala* Michx., acc. to Fernald).

In 1867 (Monog. *Salicum*) Andersson made the combination "*S. cordata* Muhl., subsp. *rigida* (Muhl.) Andersson, var. *vestita* Andersson." In 1868 (D.C. Prodr.) all these entities were dropped one rank, thus: "*S. cordata* Muhl., var. *rigida* (Muhl.) Andersson, forma *vestita* Andersson.

When Fernald threw out *S. cordata* Muhl. because very briefly antedated by *S. cordata* Michx., he ~~was~~ properly took up the name *S. rigida* Muhl. and made some new combinations thereunder. But he recognized the var. *vestita* as a species, under the name *S. eriocephala* Michx.

When I wrote the *Salix* manuscript for *Illus. Flora*, I entered No. 10 as *Salix rigida* Muhl., and under that the variety *vestita* Andersson. As noted above, this combination seems never to have been made.

I understand that the new *Illus. Flora* is in press but do not know how far the type-setting has progressed. If it has not passed *Salix* (in printing), please change that entry for the variety to read: var. *vestita* (Andersson) Ball, n. comb."

If this ~~combination~~ portion already is in print, I will try to make the combination elsewhere quite promptly. The worst crime of all is that apparently I took that page out of my copy of the manuscript when I started studying Andersson's actual publications and forgot to put it back in. Now I cannot locate it.

Sorry to bother you about this.

Cordially yours,

Have been driven nearly wild by the labor of untangling
Hulten's treatment of Alaska-Yukon *Salices*.

Carleton R. Ball

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WILLIAM J. ROBBINS

June 12, 1952

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

Dear Dr. Ball:

I am afraid it is too late to make any changes in *Salix*. This genus is in volume 2 which is the first one we set up. It has now been electroplated and they are planning to print it any day now. I hope, therefore, that you will make the correction elsewhere in print. Our publication date is set for August 15 and there seems a pretty good chance that we shall meet it.

I am sorry that this name will appear wrongly credited in the *Flora* but I expect such errors are inevitable in any work of this size.

Sincerely yours,

H. W. Rickett
H. W. Rickett
Bibliographer

HWR:md

Dr. H.W. Rickett,
New York Botanical Garden,
Bronx Park, New York 58, N.Y.

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

15 October, 1952.

Dear Dr. Rickett:

On June 11 I wrote you explaining that I carelessly had not realized that the combination "*Salix rigida* Muhl., var. *vestita* Andersson" never had been validly published, but that I had referred to var. *vestita* Andersson, under *S. rigida*, my *Salix* species No. 10 in my manuscript.

You promptly wrote me that Vol. 2, in which *Salix* will appear, was soon to be printed and probably would be out in August. I have not yet seen notice of it, and as I am about to publish some new combinations, including that one, I wish to refer to this listing in Vol. 2.

Can you give me the title of the work, if it is changed from Britten and Brown, Illustrated Flora? And if it is now in page form, even if not issued, can you give me the number of the page on which my reference to this variety occurs, at the very end of "*Salix rigida* Muhl.?"

Also the number of the page on which my treatment of var. *brevifolia* occurs, under 13. *S. glaucophylloides* Fernald?

Sorry to both an over-worked man, but -

Cordially yours,

Carleton R. Ball

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WILLIAM J. ROBBINS

28 October 1952

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

Dear Doctor Ball:

It is true that appearance of Gleason's manual was scheduled for August 15; but it did not appear on that date.

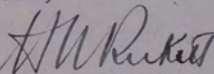
Volume 2 is printed, and volume 1 is at present in the press. Publication is delayed until all three volumes are ready. I cannot tell just how long it will take to finish volume 1 and to print volume 3; everything is done at our end, and it is up to the printer. We are hoping it will all be done by Christmas.

The official title is (believe it or not): "The New Britton and Brown Illustrated Flora of the Northeastern United States and Adjacent Canada." Our business office has never yet got it right, so disregard any other versions you might see on printed blurbs.

The author is H. A. Gleason: "Henry A. Gleason, Ph. D., Head Curator, The New York Botanical Garden, assisted by specialists in certain groups."

Your Salix rigida is treated on p. 10 of volume 2, and S. glaucophylloides on p. 12.

Sincerely yours,


H. W. Rickett
Bibliographer

r/

Cd made, excepted AB.

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October 27, 1943

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

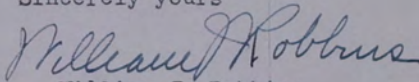
Dear Dr. Ball:

Dr. Gleason has advised me that you are preparing the material on *Salix* which is to be included in the revision of Britton and Brown's *Flora*. I am much pleased that you have consented to undertake this difficult genus, and I am writing to ask whether there is any way in which we could facilitate your work.

We have at the moment a very capable artist who could prepare the illustrations which accompany the text. Should you find it desirable to spend some time here at the Garden working on the text or supervising the work of the artist, we have some fellowships of minor character which might be used for your work. Perhaps you yourself have some suggestion you care to make.

With high regard,

Sincerely yours



William J. Robbins
Director

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WILLIAM J. ROBBINS

November 3, 1943

Dr. Carleton R. Ball
Collaborator, United States
Department of Agriculture
Extension Service
Washington, D. C.

Dear Dr. Ball:

I have your letter of October 29th.
We should be very glad indeed to have the herbarium specimens
of Salix which you are sending to us.

I note the many obligations which you already have. Our immediate interest is not in North American Flora, although we should be glad indeed to have the manuscript at any time you complete it, but in the revision of Salix for a new edition of Britton and Brown's Illustrated Flora of the Northern States and Canada. We are more interested in this manuscript than the one for North American Flora because the volume in which Salix appears is approaching completion.

I note that you are planning later to carry on your studies at New York, Cambridge, and Chicago.

With kind personal regards,

Yours very truly

William J. Robbins

William J. Robbins
Director

Dr. Wm. J. Robbins, Director,
N.Y. Botanical Garden,
Bronx Park (Fordham Br. P. O.),
New York, N.Y.

November 9, 1945

Dear Dr. Robbins:

I am tremendously interested that our manuals covering extensive areas shall have an adequate treatment of the willows, including all species and varieties occurring in the area, and their ranges accurately stated.

If you want me to help to bring the new ed. of the Illustrated Flora up to date along these lines, I'll do it.

I would need to know the boundaries of the area included, the style of treatment, if different from the first edition, and any other pertinent facts.

Exploration in Canada in the past several years has greatly extended the known ranges of several species and may have brought them into the manual limits.

In regard to species, I am a middle-reader, which means that I probably will not recognize all the species proposed either by Rydberg or by Fernald. On the other hand, I try to recognize obvious variations.

Cordially Yours,

Carleton R. Ball

Collaborator

Digitized by Hunt Institute for Botanical Documentation

THE NEW YORK BOTANICAL GARDEN

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TREASURER
ARTHUR M. ANDERSON

November 12, 1943.

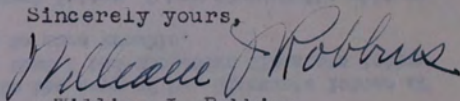
Dr. Carleton R. Ball, Collaborator
United States Department of Agriculture
Extension Service
Washington, D. C.

Dear Dr. Ball:

I have your note of November 9, and am much pleased that you will assist us in bringing the new edition of the Illustrated Flora up to date as far as the treatment of the willows is concerned. The limits of the territory covered, as well as some other items, are taken care of in the letter of August 2, 1942, which was written to you by Dr. Gleason. I am enclosing a copy of it since you might not have it at hand.

With kind personal regards

Sincerely yours,



William J. Robbins
Director

WJR/GF.

(See over)

November 15, 1943

Dr. William J. Robbins, Director,
N.Y. Botanical Garden, Bronx Park,
(Fordham Br. P.O.), New York, N.Y.

Dear Dr. Robbins:

Your letter of Nov. 12 is here, with the copy of Dr. Gleason's letter of August 2, 1942. I am exceedingly sorry that I had forgotten Gleason's letter at the moment of writing, and so put you to more trouble.

Saturday, before I received your recent letter, I ran through the willows in the 2nd edition, and wrote up some notes for my own information, as I have stated in the final paragraph. I inclose a copy, so that you may understand why the arrangement of species will be quite different.

The restriction of the western boundary from 102° W to the west line of Mo.-Ia.-Minn. will make the separation from the foothills flora complete. Establishing the northern boundary at 43° N. certainly will exclude Arctic wanderers, and also the eastern extension of such species as *S. arbusculoides* and *S. McCalliana*, mentioned in my inclosed notes. (above the St. Lawrence) It would have seemed more logical to have made it 49° N. all the way east to the St. Lawrence. Omitting Newfoundland probably will exclude some of the species of the unglaciated area.

The failure to include varieties gives beginners the idea that species are uniform. In *Salix* they certainly are not, and I suspect that it is true in other plastic groups.

I shall not wish to include "supplementary species", like the dozen named in my notes. Either a species goes in, or it doesn't.

My toughest problem will lie in determining the validity of several of the species proposed by Dr. Fernald, based mostly on a single collection. Some of them apparently have not been collected since. The type paratypes in the Natl. Herbarium are all removed for war storage and cannot be consulted now. However, these are my troubles, not yours.

Cordially yours,

Carleton R. Ball
Collaborator

Salix planiorgens sent 11/16
paper on *Salix*

NECESSARY CHANGES IN SALIX TREATMENT IN BRITTON & BROWN ILLUS. FLORA
Based on an inspection of Edition 2, 1913.

1. Changes in Sequence of Species. Numerous changes will be necessary in order to bring related species (members of the same Section) together. Examples follow;

S. lucida and *S. serissima* (Section *Lucidae*) are Nos. ~~EXE~~ 4 & 5 but *S. pentandra*, European species of same Section, follows No. 6, which belongs to Section *Fragiles*. *S. fragilis*, No. 6, and *S. alba*, No. 9, are exceedingly closely related members of Section *Fragiles*, but are separated by *S. exigua* and *S. interior* of Section *Longifoliae*. *S. cordata*, No. 13, and *S. myrtillifolia*, a supplementary species following No. 27, are both members of Section *Cordatae*, separated by 14 numbers. *S. glaucophylla*, No. 12, and *S. Barclayi*, No. 33, are the two members of Section *Commutatae* but are 20 numbers apart. *S. adenophylla*, No. 14, and *S. calcicola*, ~~MAX~~ supplementary species following No. 30, both are members of Section *Chrysanthae* but are 16 numbers apart.

S. pellita, No. 18, and *S. argyrocarpa*, No. 34, are the two most closely related species of Sect. *Argenteae* but are placed 15 numbers apart. *S. Bebbiana*, No. 21, and *S. obtusata*, No. 26, are the only members of Sect. *Rostratae*. *S. arctica*, No. 35, and *S. anglicorum*, No. 39, are members of Section *Ovalifoliae* but are separated by 3 members of Sect. *Glaucae*, of which a 4th member, *S. chlorolepis*, No. 30, is sandwiched between a member of Sect. *Roseae* and one of Sect. *Reticulatae*.

Of the 12 supplementary species (treated briefly without assigned numbers) inserted, four are presented under, and compared with, wholly unrelated species. These peculiar arrangements, so characteristic of Dr. Rydberg, are not wholly accidental because, in publishing new species, he often compared them directly only with distantly related species and not with those to which they were most similar. Such practices prevent students from becoming acquainted with this complex group.

2. Changes in Sequence of Sections. The complete sequence of Section must always remain a matter of personal opinion, of course. It is probable that a diagonal grammatic arrangement would be more in the form of a closed line than of a linear sequence. Nevertheless, there would be general agreement on the idea that closely related Sections should be near each other, rather than widely separated.

3. Delete Species not Occurring in the Area Covered. Assuming that the northern boundary is Lat. 52°⁰, where lies the tip of Newfoundland, it excludes *S. Barclayi*, No. 33; *S. arctica*, No. 35; *S. desertorum*, No. 37, and *S. glauca*, No. 38; and perhaps others. The range given in the Ill. Fl. for *S. arctica* shows that it is not in the accepted area. The repeated refusal to recognize the abundant, widely-distributed, and polymorphous *S. cordifolia* Pursh, is responsible for the inclusion of the names of such diverse species as *S. desertorum*, *S. glauca*, and *S. Waghornae*, as well as the supplementary species *S. callicarpaea* and *S. Macounii*. This refusal has been shared by the European messers, Floderus, Hulten, and Polunin, some of whom see nothing but hybrids in our arctic willows.

4. Add Missing Species and Varieties. Only careful study of known distribution, plus study of the validity of several species based on a single collection, will be necessary. Such species as *S. laurentiana*, *S. arctophila*, *S. cordifolia*, and *S. cryptodonta* must go in. Some of Fernald lesser-known new species may. Two northwestern species, *S. McCalliana* and *S. arbusculoides*, have been found at about Lat. 51°⁰ in the James Bay area during 1943.

Few varieties are given in the Illus. Flora. The number of recognizable varieties in the ~~Flora~~ area probably exceeds the number of species. Their inclusion may make the present arrangement of 3 species per page rather difficult. Delinestation of varieties helps the student greatly when dealing with complex groups.

5. Rigorous Check of Descriptions. No such check has been made, except in the case of some of the supplementary species, inserted without number and with exceedingly brief descriptions. Some of these are very misleading, as the following examples will show.

S. desertorum, No. 37, and the subjoined *S. brachycarpa* are compared but not one of the differences cited for the latter is true. No. 39, *S. anglorum*, is said to have leaves "blackening in drying". Instead, they are naturally a very dark green above and do not blacken further, but the subjoined *S. Macounii* is said to differ in have the leaves remain green in drying. It really belongs to a different Section, being a variety of *S. cordifolia*. The second subjoined species (under *S. anglorum*), *S. groenlandica* (*S. arctophila*) does not have smaller leaves and they do not darken in drying, it being similar to *S. anglorum* in this respect and differs by other characters. *S. arctica*, No. 35, and the subjoined *S. callicarpaea* (a variety of *S. cordifolia*) belong to two different Sections.

It is probably that an almost complete rewriting of descriptions will be necessary, if these samples represent the whole genus.

6. Illustrations that Illustrate. In most of the manuals with which I am familiar, the illustrations (line drawings) of woody plants often are very inaccurate and therefore very misleading. It is useless to go to the expense of preparing and giving page space to pictures that mislead rather than help. Separately, I send a copy of my recent paper showing why willows need extreme care when material for illustration is selected. Then, too, most artists are not specialists in the plants they draw and fail to get the distinctive features unless they are pointed out, species by species, as the work advances. Usually this is not done.

Especially bad in the *Illus. Flora* are the drawings of *S. (longipes)* *Wardii* (No. 3), *S. alba* (9), *S. purpurea* (15), *S. candida* (17), *S. pellita* (18), *S. Bebbiana* (21), *S. discolor* (22), *S. humilis* (23), *S. Barclayii* (33), and *S. anglorum* (39). The latter drawing does not remotely resemble the species. Apparently, from this series, the artist could not draw an oblanceolate leaf. Note that *S. pyrifolia* (11), *S. glaucophylla* (12), *S. Bebbiana* (21), and *S. Barclayii* (33) are drawn as if very much alike. Really they are not and those differences can be shown to a qualified artist.

I have made these notes primarily for my own information, either in actual rewriting of the genus for the new edition, or in discussing botanical practices in future publications.

Extra
Copy

B. & B. Illus. Flora, Ed. 3.

November 15, 1943

Dr. William J. Robbins, Director,
N.Y. Botanical Garden, Bronx Park,
(Fordham Br. P.O.), New York, N.Y.

Dear Dr. Robbins:

Your letter of Nov. 12 is here, with the copy of Dr. Gleason's letter of August 2, 1942. I am exceedingly sorry that I had forgotten Gleason's letter at the moment of writing, and so put you to more trouble.

Saturday, before I received your recent letter, I ran through the willows in the 2nd edition, and wrote of some notes for my own information, as I have stated in the final paragraph. I inclose a copy, so that you may understand why the arrangement of species will be quite different.

The restriction of the western boundary from 102° W to the west line of Mo.-Ia.-Minn. will make the separation from the foothills flora complete. Establishing the northern boundary at 48° N. certainly will exclude Arctic wanderers, and also the eastern extension of such species as *S. arbusculeoides* and *S. McCalliana*, mentioned in my inclosed notes. (above the St. Lawrence) It would have seemed more logical to have made it 49° N. all the way east to the St. Lawrence. Omitting Newfoundland probably will exclude some of the species of the unglaciated area.

The failure to include varieties gives beginners the idea that species are uniform. In *Salix* they certainly are not, and I suspect that it is true in other plastic groups.

I shall not wish to include "supplementary species", like the dozen named in my notes. Either a species goes in, or it doesn't.

My toughest problem will lie in determining the validity of several of the species proposed by Dr. Fernald, based mostly on a single collection. Some of them apparently have not been collected since. The ~~type~~ paratypes in the Natl. Herbarium are all removed for war storage and cannot be consulted now. However, these are my troubles, not yours.

Cordially yours,

Carleton R. Ball
Collaborator

paper on *Illus. pl. organ.* sent 11/16

THE NEW YORK BOTANICAL GARDEN

BRONX PARK (FORDHAM BRANCH P. O.)
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November 18, 1943

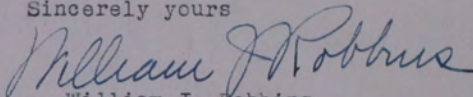
Dr. Carlton R. Ball
United States Department of Agriculture
Extension Service
Washington, D. C.

Dear Dr. Ball:

I was pleased to have your letter of November 15th, and Dr. Gleason has prepared a memorandum which I think takes care of the various items which you included on the two sheets accompanying your letter. Should the answers not be clear or other points have occurred to you, I hope you will not hesitate to write to us further.

With kind personal regards,

Sincerely yours



William J. Robbins
Director

Memorandum

The following notes are numbered to refer to similar numbers in Ball's letter:

1. The sequence of species should be altered as the author pleases, and can be completely changed as best fits his ideas.

2. The same applies to the sequence of sections of the genus.

3. Naturally the extra-limital species should be omitted. Britton and Brown included Labrador; we stop the new book at latitude 48 particularly to exclude these arctic plants. Of the typical woodland plants of our range, many extend north of our set limits, but scarcely a single species of their affinity is omitted because of using 48° as our northern boundary. Arctic plants extend southward to various distances and we have no desire to make this an arctic flora. Placing the northern boundary at 48 instead of 49 eliminates many of them. Exclusion of Newfoundland and Anticosti eliminates at least 200 more species. Neither of these islands is commonly visited by American collectors (except those of Harvard) and their flora is of little interest to any except specialists. We would gladly have excluded the Gaspé Mountains, with their several arctic species, except that the region is so easily accessible by automobile and has become so popular as a summer resort that its exclusion would impair the value of the book for numerous purchasers.

The change in the western boundary, as Ball mentions, cuts out all the far-western species of *Salix*.

In spite of the restriction of the area included, the new book will contain approximately 700 species more than B. & B. second edition. Size of the book affects its price, obviously, and the book must be prepared with its sales-value in mind.

4. Naturally there will be species to add as well as some to be subtracted.

The new edition follows a different format than the old, with the text across the bottom of the page and the illustrations across the top. The proportion devoted to each feature can vary as needed - much text, little illustrations, or little text and much illustrations. Or a full page can be devoted to text and the full page facing it to illustration. Exclusive of keys and generic or family descriptions, we hope to average four species per page. In some cases we have been able to get five or even six on a single page (such plants as Lemna, for example); in many instances we are not able to get four on a page. The number is naturally reduced by introducing varieties, but this is not offered as a reason for excluding varieties. On the contrary, varieties are welcomed so long as they, in the opinion of the author, are really valid and of service to the student.

5. All descriptions are being completely re-written. In my own work, covering now some 2000 species, all descriptions are based on firsthand observation only.

6. Our artists are instructed to draw certain selected features of the plant, from material which we provide them. They are not left to their own discretion in the matter. Illustrations may be extensive or limited, but in general include the diagnostic characters by which the species are separated, so far as these are subject to illustration. For example, a glaucous leaf can not be illustrated as such.

H. A. Gleason
Curator

Nov. 18, 1943

Salix lucida Muhl., Neue Schrift. Ges. Nat. Fr. Berlin, 4:239, pl. 6, f. 7. 1803.

A shrub or small tree to 20' High, with smoothish brown bark and glabrous, chestnut-brown shining twigs and bud scales. Leaves large, lanceolate to ovate-lanceolate, mostly long-acuminate, 2'-6' long, 1'-2' wide, up to 8' x 3', narrowed to rounded or cordate at base, sharply glandular-serrulate, glabrous, shining green above, paler green beneath, petioles stoutish, 5''-6'' long, ~~stipules~~ glandular above at outer end; stipules reniform to semi-lunate, 1''-3'' long. Anthers coctaneous, oblong or oval, stout, 1'-2' or more long, on short, lateral, leafy peduncles $\frac{1}{2}$ '- $\frac{3}{4}$ ' long; scales oblong or oval, obtuse, entire or crenate at apex, yellow, thinly pilose, deciduous; stamens 3-5 or more, filaments free, pubescent below; capsules lanceolate, 3''-4'' long, glabrous, brownish; pedicel $\frac{1}{2}$ '-1'' long; styles $\frac{1}{4}$ ' long, entire, stigmas short, thick.

In swamps and along streams and lakes, Newfoundland to east-central Sask., south to Delaware, north-central Ia., and no.-cent. No. Dak., with outlying stations at Weeping Water, Nebr. and south in the Appalachians to Roanoke Co., Va.

1a. S. lucida var. angustifolia Andersson has shorter, narrowly lanceolate leaves. It occurs sparingly in the northern part of the range of the species.

1b. S. lucida intensa Fernald has the lower surface of the leaves, and sometimes the twigs also, sparsely hairy. With the species but more abundant northward.

2. Salix serissima (Bailey) Fernald. Autumn Willow. Fig. --

S. lucida serissima Bailey, in Arthur, Bull. Geol. Surv. Minn. 3:19. 1887.

S. serissima (Bailey) Fernald, Rhodora 6:6. 1903.

A shrub 3° -12° high, with olive-brown, shining branches and yellowish-brown, glabrous, shining branchlets and bud scales; Leaves lanceolate to elliptic-lanceolate or oblong-lanceolate, narrowed to rounded at base, acute to short-acuminate at apex, finely glandular-serrulate, 2'-3' or 4' long, $\frac{1}{2}$ '-1' or $1\frac{1}{2}$ ' wide, green and shining above, subglaucescent beneath; petioles slender, glandular above at outer end, stipules none. Aments serotinous, short and stout, oblong to oblong-oval, the staminate $\frac{1}{2}$ '-3/4', the pistillate 1'-1 $\frac{1}{2}$ ' long and 3/4' wide in fruit, on lateral leafy branchlets 4'-16'' long; scales obovate, pale yellow, white-pilose, deciduous; stamens 3-5 or more, filaments free, thinly pilose; capsules narrowly conical, glabrous, 4''-6'' long, thick-walled, brown; styles 1/6'' long, stigmas very short, divided; pedicels stout, $\frac{1}{2}$ '-1' long.

In swamps and bogs from northern New Jersey to Newfoundland, west to ne. Ind., cent. Minn., ne.-cent. N.D., and Nw. Mont, and northward to ne. Alta., with discontinuous extension to the Black Hills of S.D., and Longs Peak in ne. Colo. June-Oct.

Salix pentandra L., the Bay-Leaved Willow, an introduced ornamental tree with ovate leaves, shining above and paler to glaucescent beneath, is a rare escape northward.

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DIRECTOR
WILLIAM J. ROBBINS

March 4, 1944

Dr. Carleton R. Ball
U.S. Department of Agriculture
Extension Service
Washington D.C.

Dear Dr. Ball:

We are mailing to you today one sheet selected by Dr. Gleason in response to your letter of Feb. 28. I believe that this sheet is the specimen that will help you to identify the plant referred to by Small & Vail in Mem. Torrey Bot. Club 4: 93-202. 1893-94.

Sincerely yours

G. L. Wittrock

G. L. Wittrock

Custodian of the Herbarium

March 6, 1944

Mr. George L. Wittrock,
Herbarium, N.Y. Bot. Garden,
Bronx Park, Fordham Br. P.O.,
New York 58, N.Y.

Dear Mr. Wittrock:

Many thanks for your prompt courtesy in mailing the willow specimen from Va. It proves to be *S. humilis* Marshall and definitely removes *S. candida* from the Va. flora. I have annotated both specimens on the sheet.

As noted on the returned copy of receipt, the packet had broken and folded in the middle but luckily no damage other than cracking of stems resulted. I am adding extra boards before returning it tomorrow.

Cordially yours,

Carleton R. Ball
Collaborator.

Digitized by Hunt Institute for Botanical Documentation

packet mailed 3/7/44

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