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

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

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

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

12 April, 1953.

Professor George A. Petrides,
Division of Conservation,
Dept. of Fisheries and Wildlife,
Michigan State College,
East Lansing, Michigan.

Dear Professor Petrides:

Your letter of 7 April is here and I am much interested to know that you are about to publish on the Trees and Shrubs of Northeastern America. We need much more of that sort of publication which enables the non-taxonomic workers to recog- these entities as they are found in nature.

For a long time, I have been emphasizing that it is the vegetative organs of our trrees and shrubs which people see throughout the year, or the growing season, rather than the sexual organs. So far as I know, only the pussy willows get their common names from the floral aspects of the plant.

As you may ahve noted, I use double keys, first based on vegetative characters and second based on floral (and vegetative) characters. I gave such a key to the willows of California to a group of teachers (grade and high school) who planned to spend their summer vacation in the Sierras. They were not botanists, but they came back with every willow they saw, correctly named, and some named as to varieties, also

I will be very glad to be of help in this matter in any way that I can. I have written the treatment of the willows of Northeastern U.S. and adjacent Canada for the new edition of Britton and Brown, Illustrated Flora. It should be on the market now now but I am not sure that it is out. The first volume was printed long ago and the second seceral months ago, but I understand none were to be sold until the whole set (3 vols.) was in print. If this has reached the College Library, you may wish to check against my treatment before sending me your manuscript. Other wise, send it along when convenint to you.

There are some tragic inconsistencies in the new Gray's Manual. All his life, Fernald made new species by the hundreds, including some in willows. Yet in this edition, which he created to inform eastern students for the next half-century, he rejected two of our best-known, and longest-known, species: Salix petiolaris J.E.Smith and S. tristis Aiton.

He previously had declared that S. petiolaris, described from plants growing in England, was really a British plant. That controversy started 150 years ago and raged for some 25 years. By that time, all botanists in both America and Britain agreed that it had been introduced from America as a basket willow, was grown in parks and on estates, and had escaped in a few place where fragments from basket weaving had been thrown out. All this I had in print and in Fernald's hands before thethe Manual was printed.

To reduce S. tristis to varietal status under S. humilis does not make sense in view of his lifetime of species splitting, in Salix as well as other genuses. There are other troubles in his treatment, also. For example, he states for each species, the other species with which it hybridizes. How did he know? He has published as new species several willows which were only hybrids, but refused to acknowledge that they were hybrids, even when proof was furnished.

I shall look forward to seeing you manuscript. Cordially yours,

Carleton R. Ball

(over)

MICHIGAN STATE COLLEGE
EAST LANSING

DIVISION OF CONSERVATION
DEPARTMENT OF FISHERIES AND WILDLIFE

April 7, 1953

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

Dear Dr. Ball:

I am under contract and I am preparing a manuscript to be published as a FIELD GUIDE TO TREES AND SHRUBS to be part of a series published by the Houghton Mifflin Company.

In connection with that work, which covers the Northeastern area as defined by Fernald, I am wondering whether to attempt specific identification of willows.

I am aware that you are an authority on this group and I am wondering whether you would consent to my forwarding you the portion of the manuscript that deals with the willows to obtain your impression as to whether the identification points which I have emphasized are those which in your opinion are most suitable for a field manual.

I would be very grateful for your advice in connection with this section, if you can find time to look it over for me.

Sincerely,

George A. Petrides
Associate Professor

GAP:cs

I have used Fernald's treatment as a basis.

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

13 May, 1953.

Professor George A. Petrides,
Division of Conservation,
Dept. of Fisheries & Wildlife,
Michigan State College,
East Lansing, Michigan.

Dear Professor Petrides:

I have received your letter of May 5, and have read your supposedly popular treatment of the willows, for a forth-coming book. I must say frankly that I am both greatly surprised and greatly disappointed. The reasons for these feelings are set forth below, with equal frankness, which I trust you will forgive.

1. You say that "my treatment is an attempt to express botanical information in everyday language. I hope that I have not over-done this." I am certain that you have so greatly overdone it that practically no one will be able to recognize the willows listed. Most of the language used to indicate the differences between willows, or the characters of any one willow, is so indefinite that it is not at all "everyday" language. Let us consider facts and people. Anyone enough interested in plants to attempt to determine them, especially the willows, will already know, or will wish to know, and will take great pride in learning, the simple botanical terms which describe plant organs and their characters. (same and) For those who do not already know them, a simple glossary will provide the knowledge.

2. You use certain names, as stipules, throughout. Why not use others, as petioles, aments (or catkins), peduncles, etc. You use some adjectives, as oval, and "oval-shaped" (oval is a shape), and oblong, so why not use linear, lanceolate (not "canoe-shaped"), oblanceolate, oval (not "football-shaped"), ovate (not "egg-shaped") and combinations of these, so that readers may get a real mental picture of the leaf shape so that they can recognize it when seen on the plant. Your language gives them no picture of shape, whatever. And they want one.

For stems you have used the terms erect, "sprawling", and creeping, I think. I would not know wheather sprawling meant depressed, or prostrate, and if the latter, whether running or creeping. why not say what? In referring to stipules, you frequently use the word "obvious". Is that everyday language? Do the readers know whether it means small or large, frequently, commonly, or always present? All botanists use the terms for degrees and kinds of hairiness very loosely. Yours probably will do for popular use, although I would qualify as thinly and densely when desirable. But certainly the users will want glabrous and glabrate, often preceded by "becoming". As to colors, much care is needed. Green may be green or pale green, and the latter needs caution, as it may appear glaucescent under certain lighting, and may merge into glaucescence, as in S. interior. The leaves of some species becaome glaucescent or glaucous in infancy, other not until near full-size. Why not give them these terms, and also pruinose for one with the bluish powdery.

3. The information under each species is not in natural order. You start out properly with the plant, but its height is at the very end in another paragraph. Why? As noted above, the leafs are not recognizably described, but their length is given separately, far away, and the width, which makes the picture complete, is not given at all. Why, in both cases? The time of flowering is placed far remote from the description of the plant. Why not say: "Aments appearing before (or just before and with, or with, or after) the leafs?, then give the dates?

I strongly urge a brief real description of plant, of twigs, of leafs, with colors and hairiness, and relative appearance of the aments, which helps greatly in identification when the plant is seen in spring. All writing is for the reader. Let's give him a break.

(over)

MICHIGAN STATE COLLEGE
EAST LANSING

DIVISION OF CONSERVATION
DEPARTMENT OF FISHERIES AND WILDLIFE

May 5, 1953

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

Dear Mr. Ball:

I enclose herewith the portion of my manuscript which comprises the willows, with the exception of the creeping forms which I have discussed elsewhere. I would very much indeed appreciate your looking over this section. I regret that the plate which accompanies it is not now in my hands, but it is largely a series of outline drawings of the leaves alone. For the willows, I did not attempt to give winter characteristics.

You will note that my treatment is an attempt to express botanical information in everyday language wherever possible. I hope that I have not over-done this. Also I have divided these plants into four principal groups which I have marked by paper clips in the manuscript. Perhaps I should reshuffle these several sub-sections, particularly placing the second one first so that all of the willows with toothed leaves come together. This would involve some rearrangement on the plate, but I can take care of that later. In view of my lack of floral characteristics, I hope that you can follow this manuscript sufficiently well to provide a basis for criticism.

I think that I mentioned to you in my recent letter that this chapter is a portion of the manuscript that eventually is scheduled for publication by the Houghton-Mifflin Company as a companion to R. T. Peterson's FIELD GUIDE TO THE BIRDS and others of that series. As a field guide, we did not feel that it was desirable to stress floral characteristics but would appreciate your advice on this point and also on the point of the possibility of including points for winter identification.

I am very grateful for your offer of help in this difficult group and hope that you will be able to find time to look over my manuscript for me.

Sincerely,

George A. Petrides
Associate Professor

GAP:cs
Enc.

This is a carbon Mark it up at will!

G.A. Petrides

4. One of the chief weaknesses of your treatment is the wide use of the term "toothed". In the first place, there are but few species of Salix which do not have projections of some kind and quantity on the margins of the leafs. In many of these species such projections are either very few or only occasionally occur, and we describe them as entire, without or with a qualifying "subentire", "nearly entire", or "occasionally witha few denticulations", etc.

In the second place, there are several quite different sizes, shapes, and distributions (distances) in these series of projections which you call "teeth". Some are properly termed denticulate or dentate, other serrulate or serrate; some some are "closely", others less so, and some "remotely and irregularly", as is characteristic of S. interior. Most of the willows with undulate (your "wavy") margins, asle have some projections, as S. Bebbiana, S. caprea, S. humilis, etc.

All of these variations in the size, character, and closeness of marginal projections, can be described in words, as noted, and shown in figures. Their fairly accurate use in description, in connection with shape terms, is essential to the recognition of species. Your keys fail to make any such distinctions, and, as a result, theyn often separate widely the most closely related species

5. In your April letter, you said that you had used the new Gray Manual as a basis. In my reply, I pointed out some grave errors and inconsistencies therein, which confuse and mislead the user. For example, discarding S. petiolaris on false assertions, fully shown to be false; reduction of S. tristis to varietal status under S. humilis, after a lifetime of species splitting and aginst the judgment of all the botanists in America. In addition, he included S. hebecarpa as a pseecies, altho I have shown it to be a hybrid, and Fernald himself later admiytted that the capsules are glabrous, in spite of his name, hebecarpa, and his original description. I think that some of his other species have no standing, but am not waiting to go thro the records before writing this letter.

6. If you are prepared to revise your treatment along the general line of the suggestions made above, I will go carefully thro the entire list and make any suggestions which seem necessary or desirablr. If you do not wish to do so, I will return the manuscript on receipt of your reply.

Cordially yours,

P.S. Some 34 of your 45 species are covered in my treatment of Salix in the New Illustrated Flora, now out.

Carleton R. Ball

Mss. on Willows of the Northeast, by Geo. A. Petrides, Mich. State College, 1953

(Probably based on Gary Manual, ed. 8).

© G.A. Petrides 13-V-53

Leaves Toothed, gray-hairy, at least beneath.

3. Salix Bebbiana Sarg. Bebb's Willow.
4. S. Caprea L. Goat Willow.
5. S. syrticola Fern. Sand-dune Willow.
6. S. cinerea L European Gray W.
7. S. paraleuca Fern. Northern Gray W.
8. Leaves not toothed:
8. S. humilis Marsh. Prairie Willow.
9. S. laurentiana Fern. Laurentian W.
10. S. candida Fluegge Hoary Willow.
11. S. humilis Marsh., var. microphylla (And.) Fern. Dwarf Prairie W.
12. S. brachycarpa Nutt. Canada Willow.
13. S. argyrocarpa And. Silverseed W.
14. S. cordifolia Ph. Ungava W.
15. S. viminalis L. Osier Willow.
16. S. pellita Anderss. Ontario W.
17. S. planifolia Pursh. Flat-leaved W.
18. S. pedunculata Fern. } Newfoundland
S. amoena Fern. }
S. ancorifera Fern. } Willows.
19. S. calcicola Fern. Limestone W
20. S. chlorolepis Fern. Mt. Albert W.
21. S. pedicellaris Ph. Bog Willow
22. S. hebecarpa Fern. Spreading Bog. W.

Leaves toothed, Mostly hairless, Green on both sides.

23. S. interior Rowlee. Sandbar W.
24. S. fragilis L. Crack Willow. (distinctly glaucous beneath)
25. S. nigra Marsh. Black Willow.
26. S. lucida Muhl. Shining Willow.
27. S. pentandra L. Bay-leafed W.
28. S. cordata Michx. Heart-shaped W.
29. S. rigida Muhl. Southern Heart-shaped W. (leafs glaucescent-glaucous beneath)
30. S. pyrifolia Anderss. Balsam W.
31. S. myrtillifolia Anderss. Blunt-leaved W.
32. S. obtusata Fern. Quebec Blunt-leaved W.

Leaves toothed, whitened or white woolly beneath.

33. S. purpurea L. Basket Willow.
34. S. discolor Muhl. Pussy Willow.
35. S. amygdaloides Anderss. Peach-leaved W.
36. S. caroliniana Michx. Ward's Willow.
37. S. babylonica L. Weeping Willow.
38. S. eriocephala Michx. Missouri Willow. (S. cordata Muhl., var. vestita Anderss. (S. missouriensis Bebb.
39. S. sericea L. Silky Willow.
40. S. vestita Pursh. Round-leaved W.
41. S. coactilis Fern. Felted Willow.
42. S. cryptodonta Fern. Woolly Willow. (Why not "Hidden-tooth W."?)
43. S. alba L White Willow.
44. S. gracilis Anderss. Meadow Willow. (is S. petiolaris J.E. Smith)
45. S. glaucophylloides Fern. Broadleaf W.
46. S. lutea Nutt. Yellow Willow.
47. S. serissima (Bailey) Fern. Autumn Willow.

(numbers probably refer to keys)

from B. A. Petrides

MICHIGAN STATE COLLEGE
EAST LANSING

May 25, 1953

DIVISION OF CONSERVATION
DEPARTMENT OF FISHERIES AND WILDLIFE

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

Dear Dr. Ball:

I am very grateful for your crisp and forthright letter of May 13. As I suspected, my treatment of the willows is inadequate.

I very much appreciate your advice as to methods for reaching the reader. What I have to say now is not intended as a rebuttal but as a statement of the situation as I see it in the hope that we can reach a common ground of understanding.

You state "anyone enough interested in plants to attempt to determine them" will be willing to learn technical terms, or words to that effect. Perhaps this is correct, but my experience in working with amatuers while with the National Park Service and similar organizations indicated that this is true for only some individuals and that others are looking for an easier way of identifying plants. Perhaps there is no easier way, and this certainly could be true for the willows. When after you look in the glossary and find that ovate means egg-shaped and that cordate means heart-shaped, one wonders why those terms could not be used in the first place rather than the more obscure ones, and since you use words like egg-shaped and heart-shaped, Why then not go a step further and use canoe-shaped and football-shaped and others which may give the average reader an understandable picture of the leaf shape. I realize that these objects are three dimensional whereas the leaves are largely two dimensional, but the objection is not overcome when we use ovate to mean egg-shaped, again conveying a three dimensional interpretation. Additionally, there is some confusion in botanical definitions. For example, you state that if a plant is prostrate you would wish to know whether it was running or creeping. When you look in the glossary of Fernald you find that a creeping plant is one which is "running along . . .".

All this does not mean that botanical terms are harmful or useless or anything of that sort. I am merely trying to simplify the terms in the hope that we can get the reader interested so that eventually they will be willing to work up from a popular manual so that they can use Britton and Brown and Fernald and will be interested in doing so. There are certain terms such as stipules, catkins, bundle scars etc. for which there are no ready terms which convey any better impression than do those terms. I know of nothing else to do but to use them but I do not see that this makes it necessary to use every technical term.

Break up my long letters Mr.

I well recognize the validity of some of your criticisms, and I will attempt to correct them. Your criticism of my use of the words obvious and oval-shaped are perfectly proper and I appreciate your helpfulness.

The order of the information given is that suggested by the publisher. Perhaps it should be altered and I will call your comments to their attention.

The above is merely to indicate some of the problems as they appear to me. Undoubtedly, however, the more striking the differences between species, the more generalized the description can become. In attempting to deal with the willows, therefore, it may well be that it will be necessary to go into considerably more detail than with other groups and perhaps use technical terms that are unnecessary elsewhere. I would very much like to have the benefit of your advice with this group. In consequence, I am willing to adopt a style for the group which you feel may be necessary but would like, as much as possible, to have the section in keeping with the rest of the volume. Certainly there would be no objection to more detailed information concerning the appearance of the aments (or catkins, which I believe is a more widely recognized term among amateurs) nor would there be any objection to more precise statements concerning the degree of denticulation.

I sent you the portion of my manuscript as it was without consideration of your treatment of the group. I would certainly have no objection, for a group as difficult as this one, to adopting the opinion of a highly recognized specialist.

I have tried to see a copy of the new Illustrated Flora but have been unsuccessful to date.

I am "prepared to revise (my) treatment along the general line of the suggestions" which you made in your letter but I would appreciate your consideration of my viewpoint concerning at least some of the technical terms. I hope to make these as understandable as possible without the use of a glossary even though a glossary will be provided for the terms that must be used. In view of your thoughtful comments, however, I am going to make a definite attempt to consult a number of botanists to determine whether I am entirely off base with regard to the simplified (?) terminology which I am attempting to employ. If everyone agrees with you, perhaps I will have to give up my thought of a reduction in botanical terminology. Would it be possible in the meantime, however, to secure your help on this group with the compromise that the more technical terminology will be used except ~~where those terms can be explained in the text (even if it requires the use of a few additional words) where it is possible and convenient to do so, but that the more technical terms will be used~~ where there is an adequate simple substitution possible. You recognize, of course, that the attempt is made to primarily provide vegetative identification characteristics, ~~also~~ but supplementary floral data is all to the good.

I am sorry that I have disappointed you and hope that you will still find it possible to help me. If you do provide a vegetative key in the new Britton and Brown, however, perhaps I could work from that to revise my data.

Sincerely,

George A. Petrides
Associate Professor

GAP:cs

MICHIGAN STATE COLLEGE
EAST LANSING

DIVISION OF CONSERVATION
DEPARTMENT OF FISHERIES AND WILDLIFE

September 2, 1953

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

Dear Dr. Ball:

You will recall that sometime ago I sent you a portion of a manuscript which dealt with the willows of the Northeastern U.S. and Eastern Canada. You were very kind in presenting your viewpoints on the inadequacies of the text. I replied to your criticisms but did not hear further from you.

I am about to leave for a years work in Kenya, British East Africa, on a Fulbright grant, and I am wondering whetherI should provide you with an overseas address if you should wish to get in touch with me.

I will be leaving for New York on September 15th and will be moving around considerably until I reach Kenya on about November 1. At that time I will be with the Royal National Parks of Kenya at Nairobi, Kenya, British East Africa.

I would be very happy to hear from you at your convenience.

Sincerely,

George A. Petrides
Associate Professor

GAP:cs

(over)

(See o

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

Professor George A. Petrides,
Division of Conservation,
Dept. of Fisheries and Wildlife,
Michigan State College, East Lansing, Mich.

9 September, 1953

Dear Professor Petrides:

I have read of persons supposed to be "crazy with the heat" but never before have I realized that I am one of them.

When your letter of Sept. 2 arrived, I could not get the trail at first. Then it occurred to me that I had mistaken it for a paper by another author. I had a treatment of the western willows by Mrs. Virginia Bailey, of Detroit. In some way, your paper became separated from the correspondence and placed in the same large envelope with her paper. When I started to work on hers and found two of them, I foolishly supposed they were both from her.

I worked over yours first and wrote her two letters about it, on Aug. 27 and 28. She was returning from a western trip and so did not get the letters promptly. Now I have the two letters I wrote her and am sending them on to you without taking time to rewrite them.

I hope that you will pardon these foolish errors, and this long delay. The weather really did get me this summer.

I am much interested in your going to Kenya. It will be a wonderful experience and probably equally helpful to both you and them.

I certainly hope that you can finish this willow manuscript before you have to statrt. If you do not, it certainly will be my fault.

Cordially yours,

Carleton R. Ball

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

13 Septrmber, 1953.

Prof. George A. Petrides,
Dept. Fisheries and Wildlife,
Michigan State College,
East Lansing, Michigan.

Dear Professor Petrides:

Today, Sunday, I just got a message from Mrs. Bailey, inclosing your telegram to ger asking for return of the manuscript on willows.

She has not had it, and evidently I forgot to return it when I wrote you on Sept. 9. Very sorry for this omossiomand also that you did not wire me instead of Mrs. Bailey.

Being Sunday, post offices are closed and I cannot get insurance on it but am mailing ib today so as to get it started on its way. Trust that it arrived before you leave.

Sincerely yours,

Carleton R. Ball

MICHIGAN STATE COLLEGE
EAST LANSING

DIVISION OF CONSERVATION
DEPARTMENT OF FISHERIES AND WILDLIFE

September 17, 1953

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

Dear Mr. Ball:

I very much appreciate your help with the willows. I have not yet had time to look over the portion of the manuscript which you returned to me, but I am keeping these with your letters to work on on shipboard. I am very glad that you put this information in the mail at the time that you did since I am just about to leave and they arrived just in time.

Again, with many many thanks.

Sincerely,

George A. Petrides (5)

George A. Petrides
Associate Professor

GAP:cs