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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.

Montreal, Jan. 9th 1939.

Dear Dr. Ball,

Thank you many times for your identifications of my Labrador willows, I never thought that they could have been so interesting. Thank you also for your reprints that arrived in due time. Again, thank you.

As for next summer plans, I intend to travel from Belle Isle Straits, up to Cap Chidley, with many stops, go around Ungava Bay, if possible, the south coast of Hudson Straits, and all the eastern coast of Hudson and James Bay to Moosonee, Ontario, stopping as much as possible and collecting specimens of all kinds. As you can see, it will be possible I hope to bring back many willows and other plants. Any suggestion regarding the work to be done or special spots where we should stop would be very welcome.

I am taking the liberty of inclosing a specimen of Alder, collected at Cape North, Labrador, carrying on the leaves a parasite of some kind, fungus or rust, I suppose; as you are close to the official services of the Agricultural department, would ^{you} be kind enough as to send it to the right place for identification, thank you, the dept. can keep the specimen if they want to. Sick plants are very scarce on the Labrador coast, this is due I suppose to the severe winter.

Yours very sincerely,

G. S. Gardner.

G. Gardner.

(See over)

4541 Pontiac St.,
Montreal, Canada.

Address:

Extension Service, U. S. Dept. Agric.

January 21, 1939

Dr. G. Gardner,
4541 Pontiac Street,
Montreal, P.Q., Canada

Dear Dr. Gardner:

From your letter of January 9, it is evident that you are planning a most promising and important collecting trip for the summer of 1939.

The whole Canadian Eastern Arctic is yet imperfectly explored botanically. Dr. Mälte, of the Canad. Natl. Museum, spent the last three summers of his life in the Hudson Bay area. As he died during the third summer, and as his successor, A.E. Forsild, is sending the willow material to Dr. Floderus in Sweden for determination, I know little about his collections. Unfortunately, Dr. Floderus has an obsession that all willows are hybrids and he refuses to recognize many of the good species occurring in the area.

A collector who has done some good work on the west side of James Bay and on the islands in it, is M. Prof. Margaret T. Doult, Dept. of Botany, Pennsylvania College for Women, Pittsburgh, Pa., U.S.A. I am sure that she would be glad to give you information on localities and conditions there.

If other suggestions occur to me I will be glad to write you later about them. Just now I am exceedingly pressed and about to leave on a field trip.

With best wishes for the new year, I am

Cordially Yours,

Carleton R. Hall
Executive Secretary

Montreal, Nov. 4th 1939.

Dr. C.R. Ball,
Washington, U.S.A.

Dear Dr. Ball,

I sent you to-day by parcel post the willows collected this year on the Labrador Coast and Hudson Bay and James Bay coasts. As Dr. O'Neill probably explained it to you, some of my willows have been damaged by water and are rather poor specimens, I think however, that you can determine them the same. The damaged specimens are mostly in ~~white~~ ^{light} papers, the good ones in sink papers. As usual these specimens are yours. I regret that some are in a ~~bad~~ ^{bad} ~~shape~~, but it was impossible to do otherwise. I understand that Dr. O'Neill will send you his willows right now, thus the identifications being simplified as his and my specimens are the same species.

Thanking again for your wonderful help, I remain,

Yours very truly,

G. Gardner.

G. Gardner.

Dr. G. Gardner,
4541 Pontiac St.,
Montreal, Canada.

4-XI-29
from G. Gardner

It is quite possible that may be a few errors in the numbers and those marked on this list, perhaps will not be exactly the same as those marked on the plants. In returning me the identifications please follow the numbers marked on the plants. I could not **check** the numbers because the person who was helping me packed the plants before I could see them. I marked on the list of the numbers, those that are possible mistakes, but in any case if there are such mistakes, it will be easy to correct them as I have the doubles here of all the willows sent to you. Thank you.

G.G.

Excuse the poor typing of the last...
S.

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November 10, 1939

Dr. G. Gardner,
4541 Pontiac Street,
Montreal, Canada.

Dear Dr. Gardner:

Your letter of November 4 and accompanying list of specimens collected on both Labrador Coasts arrived promptly. The package of plants came in a day or two later.

On opening the package I found that quite a number of the plants were rather badly broken. This seems to have been caused by the fact that no cardboard was used to give the package stiffness. This allowed the plants to slide in the papers when the package was stood on one end or the other and as the plants slid to the ends of the papers leaves and aments were broken off by the jarring in transit and handling. However, I think that practically all of them will be identifiable.

I note your comment on possible mix-up of numbers between the list you sent and the sheets in the package. I note your instructions to follow the numbers as they appear on the plant sheets and this I will do. I already have discovered some numbers that were not contained in your list. I have found also that some of the numbers which you have marked with a capital X in your list do not have the X on the sheets containing the specimens.

I have not yet received Prof. O'Neill's material but am writing him today that yours has arrived and I will be glad to handle the two lots together if convenient for him.

I may not be able to report on the identifications for some little time because next week will be devoted to national meetings and the two weeks thereafter I shall be out of town.

Cordially yours,

Carleton R. Ball,
Executive Secretary

Montreal, Nov. 15th 1939.

Dr. C.R. Ball,
Washington, U.S.A.

Dear Dr. Ball,

Thank you very much for your kind letter of Nov. 10th. I am more than sorry to learn that quite a number of my willows arrived broken, I thought that the packing was sufficient. The only thing to do is to let me know what are the numbers too badly broken to be identified and I will send you duplicates to replace them. There is no immediate hurry regarding the identifications, take all the time that is necessary to do it.

Once again, thank you for your wonderful help,

Yours very truly,

G. Gardner

G. Gardner.

November 18, 1939

Dr. G. Gardner,
4541 Pontiac Street,
Montreal, Canada.

Dear Dr. Gardner:

Your letter of November 15 is received and I thank you for the offer to send duplicates of any badly broken specimens. I think that all of those received are in shape for identification but will keep your offer in mind when I get around to work on them after my return on or about December first.

Cordially yours,

Carleton R. Ball,
Executive Secretary

January 13, 1940.

Dr. G. Gardner,
4541 Pontiac Street,
Montreal, P.Q., Canada.

Dear Dr. Gardner:

Some weeks ago I received the package containing your Labrador collections of 1939 and I think I acknowledged its receipt although I cannot find the letter at this moment.

At the same time I received similar collections from the Catholic University of America. I am now engaged in determining this material and find that your specimens carry only the numbers but have no indication of localities.

If you can send me a list of the localities and the inclusive numbers collected in each one it will help me very much in understanding the distribution of the species and in checking your collections with those made by Prof. O'Neill and Father Dutilly at the same stopping points. I will not need the latitudes and longitudes with these collecting points because I already have a list of these furnished by Prof. O'Neill. I hope to have the entire collection named before I leave here for a field trip toward the end of this month.

Already I have found one specimen which I cannot immediately determine. It is your No. 180 and I would like to know as soon as possible where it was collected. It seems to be related to the cordifolia complex but has obovate leaves and the young capsules have practically sessile stigmas. A salix obovata was described briefly by Pursh from a single collection. No one has ever determined just what his plant may be and the description is so scanty that it may never be possible to do so. In leaf characteristics at least your plant comes close to his description.

Thanking you in advance for the list of localities with numbers collected in each, I am

Cordially yours,

Carleton R. Ball,
Executive Secretary

Jan. 16th. 40.

Dear Dr. Ball.

Thank you for your
letter of Jan. 13. I will send a com-
plete list of the willows to-morrow
but in order to facilitate the iden-
tification of no. 185, it was collected
at Sessler's Hut. Aug 2nd Labrador
with best thanks,

Yours very truly,
F. Gardner.

Gardner G

Montreal, Jan. 31st 1940.

Dr. C.R. Ball,
Washington, U.S.A.

Dear Dr. Ball,

Thank you for your last letters and please excuse ^{me} for not answering sooner but I have been simply over-worked by all sorts of things and I cannot say more than thank you for your most wonderful work in the identification of the willows collected north this year. You certainly deserve our sincere thanks for the help you have been in naming all these willows and when I have the opportunity to go to Washington I will take the liberty of going to your office to present you personally my thanks.

I am noting the changes in numbers as mentioned in your letter of Jan. 29th. Would you be kind enough as to tell me where the articles or reports on the Willows collected by Mrs. Douth from James Bay and the Macmillan Expedition of 1934 and 1937 ^{have been published.} Again thank you for your wonderful help and if there is anything I can do here, please let me know and I will do my best for you.

Yours very sincerely,

G. Gardner.
G. Gardner.

February 21, 1940.

Dr. G. Gardner,
4541 Pontiac Street,
Montreal, Canada.

Dear Dr. Gardner:

In further reference to your letter of January 31, acknowledged by my secretary on February 7, I regret to say that I can find no record of the publication of botanical results either by Mrs. Doult or by members of the MacMillan expeditions.

If you wish to write to Mrs. Doult, the address will be Mrs. Margaret T. Doult, Department of Botany, Carnegie Institute of Technology, Pittsburgh, Pennsylvania, USA.

There seem to have been two or more independent botanical collectors with the MacMillan ~~eastern~~ Arctic expeditions of 1934 and 1937. Last fall I received the willows collected by Dr. David Potter of Brown University and his assistant in both years. From the fact that these had not yet been named I would assume that no publication could have been made previous to this time.

In some willows recently received for identification from the Catholic University of America and from the University of Pennsylvania, were collections made on the MacMillan Arctic Expedition of 1937 by E. Perot Walker. I assume that these probably were collected at about the same places as those obtained by Dr. Potter but have not checked the two lists together to make sure. Another interesting discovery is that most of the Salix numbers received from the Catholic University are not among those received from the University of Pennsylvania, and vice versa. From this I would guess that duplicates of some numbers were sent to one institution and duplicates of other numbers to another institution, and so on. Walker numbers were not among the specimens received from Dr. Potter and apparently he does not have ~~as~~ many. I can find no reference to any publication by Walker.

2 11-40
C Gardner

- 2 -

There is a brief paper on a few plants of the 1939 expedition which may interest you. It is "Nicholas Polunin. Notes on Some Plants Collected in the Canadian Eastern Arctic by Dr. Potter in 1937. Rhodora, 41:37-42. February, 1939." This is the only reference which I am able to find.

If you come to Washington at any time I will be delighted to see you.

Cordially yours,

Carleton R. Ball,
Executive Secretary

Montreal. Oct. 19. 1940

Dear Dr. Ball.

Please excuse me
for not writing sooner to thank you
for your so kind reception and
for helping me last August to get
some information on the trees. once
more thank you.

As for willows, would
you be interested in the Willows of the
Montreal district, for as I travel
around Montreal often I could
collect some for you next spring,
please let me know and it would be
a pleasure for me to do it.

With sincere thanks.

Yours very truly,
E. Gardner.

Quebec

November 4, 1940.

Dr. G. Gardner,
4541 Pontiac Street,
Montreal, Canada.

Dear Dr. Gardner:

Your letter of October 19 has been waiting reply until I could think over the situation with regard to Montreal willows. It is very kind of you to offer to collect in that area but you need not do this merely to get material for me. If you feel that a few sets from Montreal sent to the larger herbariums of the country would be worth while, I will be very glad to determine the collections for you.

I have a feeling that the willows of the river bottoms and adjacent low benchlands in the Montreal area are not fully known. As you know, there has been extensive collecting around Ottawa. Likewise, there has been extensive collecting around Quebec and down the St. Lawrence River from Quebec to its mouth. The Montreal area seems to be much less fully represented than Ottawa or Quebec and eastward.

It is probable that the new edition of Gray's Manual of Botany, which is about to appear, will give us up-to-date knowledge of the distribution of many species in that area. Some southern species like *S. nigra*, *S. amygdaloides*, *S. interior* (*longifolia*), *S. petiolaris*, *S. sericea*, *S. subsericea*, *S. humilis*, *S. discolor*, and *S. tristis* apparently reach their northern limits in that area and their exact distribution is not fully known.

Likewise, there are several species having a more or less local distribution in the Great Lakes and St. Lawrence area, the East-West distribution of which is not well known. *S. adenophylla* (*S. syrticola*), for example, occurs rather commonly around the western Great Lakes and has been found sparingly in the lower Hudson Bay area. It may be looked for on sand dunes or sandy beaches.

- 2 -

S. pellita Andersson occurs from Lake Superior eastward but only sparingly. I do not know if it occurs in the Montreal area although it is found farther east.

The distribution of *S. glaucophylloides* Fernald is far from well known. It should be found along the St. Lawrence and perhaps the Ottawa in the Montreal area.

From the lower reaches of the St. Lawrence, Prof. Fernald has described his *S. laurentiana* and two new varieties of *S. Bebbiana*, namely, *capreifolia* and *luxurians*. How far up the St. Lawrence these penetrate we do not yet know.

S. coactilis Fernald, a large leaved relative of *S. sericea* Marshall, is known from northern Maine. There seems no reason why it should not occur in your area but it has not yet been turned in so far as I know.

S. lucida has a narrow leaved variety *angustifolia* which occurs sparingly in that general area but the limits of distribution for it are not well known.

S. cordata likewise is very variable in that northern area. It has a narrow leaved variety *angustata* and I have seen a few sterile collections of a fairly hirsute form from James Bay and southward. I am hoping that someone will find it in flower and fruit.

The common form of *S. pedicellaris* is the variety *hypoglauca* Fernald with the leaves whitened beneath. It occurs from ocean to ocean. The species has leaves green beneath and is known chiefly from the Adirondack Mountains of northeastern New York. Whether it penetrates northward from those mountains we do not really know.

Every time that a collector undertakes intensive search in his local area he almost certainly turns up something not previously known. That holds for the long settled eastern areas just as much as for the more thinly settled and primitive western areas. A Utah collector has just turned up two species of willows not previously known from his State. Two species have just been added to the flora of California in an area which has been botanized for fifty years.

You will know better than I whether these suggestions have real merit.

Cordially yours,

Carleton R. Ball,
Executive Secretary

December 6, 1940

Dr. G. Gardner,
4541 Pontiac Street,
Montreal, Quebec, Canada.

Dear Dr. Gardner:

Your letter of November 30 and accompanying packet containing six willow specimens were promptly received and I greatly appreciate your courtesy.

Of the four specimens of *S. calcicola* which you returned for inspection, three are pistillate and one, No. 671, is staminate and matches the material which I have. Many thanks for this help. I had recorded at the time that the fragment probably fell out of the six hundreds. I am exceedingly glad to have this matter settled because staminate specimens of *S. calcicola* are very rare in our herbariums.

The two additional willows not sent previously are identified as follows:

495 *S. arctophila* Ckll.
1190 *S. cordifolia typica* Fernald *calcicola*

I am glad to have the information that three other missing numbers, namely 379, 493, and 497, were not willows and I am so recording on my list.

I am sorry that I neglected to give you the identification of No. 180 from Settler's Hut. It is *S. cordifolia macounii* (Rydb.) Schneider.

I am very much disturbed by the record on the sheet of notes to the effect that no specimens of *S. calcicola* Nos. 670 and 962 remain in your collection. It seems to me that a full set of specimens representing all numbers should be in the herbarium of the collector. I did not understand from your letter when this material was sent that any of the specimens were unicates (that is, without duplicates). If you will let me know what numbers you do not have I will be glad to return to you the specimens of those numbers which you sent me for identification.

- 2 -

Of course it may be that you collected willows more extensively than other kinds of plants in order to give me an opportunity to study the variation and to learn more accurately their geographic distribution. If, therefore, some of these were collected especially for me and not with the intention of adding them to your herbarium, I will be glad to keep them. Please feel perfectly free, however, to ask me for all of those which you do not have and would like to have me return to you.

I will hold this package of six specimens until I hear from you and then return all the material together.

I am glad to know that you are planning to collect around Montreal and I am sure that some interesting things will turn up. A private collector, August J. Breitung of McKague, Saskatchewan, collected this summer in the east central part of the Province near the Manitoba line. This area, like central Manitoba, is almost unknown botanically. He collected onespecimen of *S. amygdaloides* and two of *S. cordata*, both much farther north than any previous collections and probably representing about their northern limits. Your collections around Montreal should help us bridge some of the gaps in our knowledge of northern distribution.

Many thanks for the information regarding Bulletin 92 of the National Museum of Canada. I am writing to my friend Dr. R. M. Anderson for a copy.

Awaiting your pleasure, I am

Cordially yours,

Carleton R. Ball,
Executive Secretary

Montreal, Jan. 23rd 1941.

Dr. C.R. Ball,
Extension Service,
U.S. Dept. of Agriculture,
Washington, U.S.A.

Dear Dr. Ball,

I am really ashamed of myself for not replying sooner to your letter of Dec. 31st. I had the flu at the end of December and though it was a mild attack, it has left me tired or lazy. I had to let a few things go behind for a little while. As things have improved, I am trying now to catch up on my work.

I have received in perfect order the willows you returned me as well as the Taxonomic Index that has interested me very much, please let me when I should return them. Thank you.

I have noted the change on the determination of willow no. 1190 and may I add that as your determinations are usually so accurate, that this slight mistake will not change, but on the contrary improve if possible, the high opinion I have of your knowledge about so many things and particularly about the willows.

I am taking the liberty of inclosing a few notes on the growth of the trees in the north and would ask you, to be kind enough as to look them up and give me frankly your opinion about them.

With best thanks,

Yours very sincerely,

G. Gardner
G. Gardner.

January 28, 1941

Dr. G. Gardner,
4541 Pontiac Street,
Montreal, Canada.

Dear Dr. Gardner:

Your letter of January 23 is here and I am glad indeed that you are recovering from the attack of the flu. It certainly is an enervating experience and I well know how disinclined for hard work it leaves a person.

You need not return the copies of the taxonomic index. They were sent you "for keeps" as I shall have no further need for them. I have taken the liberty of paying for a subscription to the taxonomic index in your name so that you will receive the issues at monthly intervals. This will have the effect of making you a member of the American Society of Plant Taxonomists for the next two years. I am very glad to do this as a small return for the great help you have been to me in the matter of Arctic willows.

I have read with much interest your notes on the relation of climate and vegetation in the Arctic and have ventured to add a few comments or suggestions at various points. I also took the liberty of submitting it to Dr. H. L. Shantz, wellknown ecologist with whom I had made a survey of ecologic relationships in the Great Plains area of this country and western Canada. He has inserted three notes in addition to mine. You can recognize his comments because they are circled with pencil marks.

Trusting that these suggestions will be of some help to you and that you are purposing to publish your comments, I am

Cordially yours,

Carleton R. Ball,
Executive Secretary

4051 Pontiac St.
Montreal, Feb. 3rd 1941.

↑ P.Q., Can.

Dr. C.R. Ball,
U.S. Dept. of Agriculture,
Washington, U.S.A.

Dear Dr. Ball,

I have received last week the third volume of the Taxonomic Index and also the receipt of the Taxonomic Society. I do not know honestly how to thank you for your kindness in identifying first all my willows and after that the nice gift of the 3 volumes of the Index and now the membership in the Society, I will have in the spring to find for you at least a dozen of new willows, otherwise I will be ashamed of myself after all you did for me.

I thank you also very much indeed for your interest in my notes on the Arctic vegetation and please tell Dr. H.L. Shantz my best thanks for his own remarks and as soon as I received these notes I will study them carefully. As you have been so kind as to take interest as well as Dr. Shantz in my notes, I might later on, send you another paper on the ecology of the districts I have been visiting during the past years and after reading it, please let me know frankly what you think of it. I would appreciate also the opinion of your friend Dr. Shantz. Thank you.

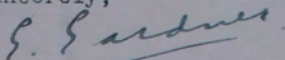
If there is something I can do for you, please be at liberty to call on me. I regret that the actual regulations on the exchange prevent me from going to U.S., for it would be a great pleasure for me to be in Washington to discuss all sorts

scientific problems with you.

My health is back to normal or about and with our beautiful and bright days of winter when I have a chance, I go out in the open as much as I can and I hope that next week end I will go in the Laurentians for a day or so for a little skiing.

Once more thanks for everything and I remain,

Yours sincerely,

A handwritten signature in dark ink, appearing to read 'G. Gardner', written in a cursive style.

G. Gardner.

February 6, 1941.

Dr. G. Gardner,
4541 Pontiac Street,
Montreal, P.Q., Canada.

Dear Dr. Gardner:

Your letter of February 3 is just received. I am not quite sure from your letter but that you may be expecting Dr. Shantz's notes on your paper to be sent to you separately. As a matter of fact, they were written in pencil on your paper along with my own notes, so that there are no more suggestions coming on that particular paper.

If and when you wish to send any other material for reading and suggestions, I will be glad to do my best with it.

Please be assured that I still am under obligation to you for providing a splendid collection of the willows of the eastern Arctic. Without this material so widely and intensively collected, I would have been poorly prepared for the monograph on which I hope to engage presently.

Cordially yours,

Carleton R. Ball,
Executive Secretary.

CRB/rmi

4541 Pontiac St
Montreal, Feb. 16th 1941.

Dr. C.R. Ball,
Dept. of Agriculture,
Washington, U.S.A.

Dear Dr. Ball,

Thank you for your very kind letter of Feb. 6th. I appreciate very much the help you are giving me in reading the paper I sent you, once again thank you. I will certainly take advantage later to send you a longer paper on the vegetation of the Labrador etc... and I will be most grateful if you would read it and send me your suggestions.

As for the paper I sent you on the growth of the trees, I was under the impression I would receive it directly from Dr. Shantz, that is the reason why I was asking you about it, for I have not received it. It got probably lost in the mail. Thus I am enclosing a new copy and would you, if it not too much trouble rewrite the remarks of Dr. Shantz and yours on it. I am sorry to trouble you to that extent and I hope it will not be too much work. Once again, many thanks for your wonderful help.

Sincerely yours,

G. Gardner
G. Gardner.

Notes on the various factors affecting the
growth of the vegetation, particularly trees,
in the sub-arctic and the arctic.

Seasons are very short and though temperatures can be rather high during day time, as soon as night falls, temperature falls rapidly.

Spring is usually late, fall early and summer short.

Land is further chilled in spring and early summer along the coast by the presence of floating ice descending from the northern regions.

Snow is very abundant and begins falling early in the fall and melts late in the spring, especially in the interior; in places, even lasting through whole summer.

Water is always abundant in the soil and sub-soil.

Drainage is slow because of the plants that cover the soil and because of the uneven surface of the country. The subsoil remains frozen about all the year round and very often is made of solid rock or of soil that do not absorb water.

Soil never thaws out completely, or takes a long time to do so.

Soil is nearly everywhere covered by mosses and lichens. These slow up the thawing of the soil.

2.

Roots cannot descend very deep because soil is either frozen or too cold below level of a few feet.

Wind is very common and blows mostly from N., N.E., and N.W. and is usually cold.

The dominant winds affect the growth of the trees. It is possible to see ~~this~~ on the sections we studied.

The over abundance of moisture and the insufficient aeration of the soil prevent the nitrifying bacteria from accomplishing their normal function in the soil and due also to unfavourable ~~XXXXXXXXXXXXXXXXXXXX~~ climatic conditions, growth is much slower and smaller than in districts where none of these conditions are met with.

February 19, 1941

Dr. G. Gardner,
4541 Pontiac Street,
Montreal, Quebec, Canada.

Dear Dr. Gardner:

Your letter of February 16 is just received and I regret most deeply my failure to return your two-page discussion on which my comments and those of Dr. Shantz had been written. I am enclosing it herewith and trust that you have not been too greatly handicapped by this delay.

Cordially yours,

Carleton R. Ball,
Executive Secretary

January 16, 1942

Dr. G. Gardner,
4541 Pontiac Street,
Montreal, Quebec, Canada.

Dear Dr. Gardner:

Your letter of January 5 and the accompanying package of willows both have been safely received. A list of my determinations is enclosed.

While only a few species are represented, the collection is of interest because of the diversity of the appearance of the specimens in some of the most abundant species, such as *S. Bebbiana* and *S. humilis*. You will note that I have marked some of the most extreme specimens "dyspauperate". Some of the others might have been so designated. I am wondering if these specimens with reduced and somewhat thickened leaves are the effect of the extremely dry season or whether they were thus dyspauperate for other reasons. This condition is more common in *S. Bebbiana* than in most other species, and I seem to remember some specimens of *S. Bebbiana* I named for Dr. Malte years ago which showed the same condition. If I remember correctly these were from around Montreal or in other lowland parts of Quebec and Ontario.

It is interesting to note that *S. discolor prinoides* is as common or even more common there than is the species itself. This variety was so named because of the rather narrow elliptical leaves, acute or short-acuminate at the apex and usually rather closely serrate or crenate-serrate on the margins, thus resembling somewhat the leaf of the chestnut. This variety occurs throughout most of the range of *S. discolor* but apparently is most common in Canada.

It is interesting also that you should have found but one specimen of *S. cordata* Muhl. This is fairly common in the St. Lawrence Valley, as I remember, but becomes rapidly rarer as one goes north. Yours is a very narrow leafed specimen which may be natural or may reflect the effect of shade or drought.

- 2 -

No. 47 which I have determined as *S. subsericea* is relatively narrow leaved even for that species. It is distinguished from *S. petiolaris* by leaves more or less hairy on both surfaces and by somewhat shorter and blunter capsules with shorter pedicels. These characters make it somewhat intermediate between *S. petiolaris* and *S. sericea* Marshall.

I note your permission to keep this material but unless you have an abundant supply for your own needs, I will be glad to return it to you on request.

With best wishes for the New Year, I am

Cordially yours,

Carleton R. Ball,
Executive Secretary

P.S. I would like very much to know the approximate elevation of Ste. Adele.

CRB

4541 Pontiac St.

Montreal, Feb. 2nd 1942.

from G. Gardner

Dr. C.R. Ball,
Washington, U.S.A.

Dear Dr. Ball,

Thank you for your letter of Jan. 16th.
and please excuse me for not answering before as I have been rather
busy with the new term and all sorts of things to do.

I am very glad to hear that my small
collection of willows proved to have certain interesting aspects.

As for the question of some specimens marked "depauperate", I can
tell you that the summer of 1940 was very dry and the first part
of the summer of 1941 was also dry, we had rain for good only in
August, that would help to explain a bit the situation. More over
many of these willows were growing along fences and near heaps of
rocks, where water was not particularly abundant. I hope that I will
have a chance next summer if I don't go to Labrador to do more explor-
ing in the Laurentians and I will collect more willows. There are
many valleys in my own district that have never been explored bota-
nically speaking and I intend to look them up, even in early spring.
I will let you know more about it later.

These willows were collected at an
altitude of 1000 feet above sea level. I have abundant material of
the willows I sent you and I am going to deposit a copy in the Herba-

rium of the Agricultural College at Oka. I will go there soon and will take myself the specimens.

I will let you know later on if I can go to Labrador, in the meantime if there is anything you want me to do, please be at liberty to let me know and as soon as spring is here, I will roam around the district of Ste.-Adèle for more willows.

Sincerely yours,

G. Gardner

G.Gardner.

February 5, 1942

Dr. G. Gardner,
4541 Pontiac Street,
Montreal, Quebec, Canada.

Dear Dr. Gardner:

Your letter of February 2 is just here and I am glad to have this fuller information on climatic conditions in that area during 1940 and 1941. This may well serve to explain some of the disparate specimens which you sent. On the other hand, we can never be sure until the same plants are observed in several different seasons and to determine whether they have leaves of approximately the same size under all sets of conditions.

I am glad also to know that the specimens sent me were collected at an elevation of about 1000 feet above sea level. This information I will add to the labels.

As time permits, I am working on some puzzling material which occupies that general area and extends farther west. If I have been able to study it more intently I shall wish to write you about the possibility of getting specimens from your section of the country.

Whether you go to Labrador or whether you collect only in that general area, I am sure that you will find material of both interest and value.

Cordially yours,

Sargyrosarbo
S. Pellita

Carleton R. Ball,
Executive Secretary

from G. Gardner

Montreal, April 2nd 1942.

Dr. C.R. Ball,
Washington, U.S.A.

Dear Dr. Ball,

I am taking the liberty of writing you about some of my problems regarding the Arctic. But first, I will tell you that all is well here, though the war and all that goes with it is not very good for anybody. The weather has been rather changeable and just now, it is pouring, though this morning it was a perfect day. I am hoping to go the mountains for Easter and perhaps it will sound impossible, but skiing is still good.

As for the coming summer, my plans are still rather indefinite. I have asked again permission to go to Greenland, but I don't think I will get it. I could go to Labrador, but it costs so much money, that I don't know if I will be able to go. If I go, I will let you know and you will tell me what to do over there that can be of service to you.

Now for the two points I want to discuss with you. First, can you get ~~for~~ me a list of references on the effect of cold on the lignification and its role in hastening lignification in trees. The second point is the following one. In the Arctic, heavy frosts are common, even in summer time, and leaves and stems of plants are covered with frost during the night and part of the morning. What is the effect of frost on the cells of these organs?

copy

Do you think it would be possible to collect leaves covered with frost and fix them in some reactive to study later on the general appearance of the protoplasm etc... of the cells that have been subjected to frost. Naturally I would collect leaves after the effect of frost has past to compare them with those that have been covered with frost. The main point is to find a rapid fixative agent that will not damage the contents of the cells and, after the leaves are fixed, keep them in an other liquid till I can make slides out of them. This seems perhaps a bit crazy, but I would like to see what really happens to these plants and perhaps I will find like that why these plants can resist so well the colds and the cold weather even in summer and develop the same. Thank you in the meantime and perhaps it would be as well not to tell your friends my name, in case some of them decide to call our medical authorities and my career will be over....

Once more thank you and a joyful Easter,

Sincerely yours,

G. Gardner

G. Gardner.

April 6, 1942

Dr. G. Gardner,
4541 Pontiac Street,
Montreal, Canada.

Dear Dr. Gardner:

Your letter of April 2 is just here and I note your hopes and doubts as to summer field work. My hope is that the situation will clear like the weather. It is very easy for me to understand that skiing is good in the Laurentian Mountains. Believe it or not, snow is still ten inches deep on the north side of my house here. This, of course, is a freak aftermath of a nineteen inch snow on March 29.

I am much interested in your queries as to the physiological effect of cold on lignification and of frost on cell structure and contents. This is out of my field and so I am referring this part of your inquiry to Dr. H. L. Shantz of the Forest Service. For many years Dr. Shantz was in charge of physiological investigations in the Bureau of Plant Industry and I am sure that he will be able to give you references to publications in this field and the names and addresses of active workers on these problems at the present time. I am writing to him today.

Cordially yours,

Carleton R. Ball,
Executive Secretary

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE



WASHINGTON

May 11, 1942

Dr. G. Gardner
4541 Pontiac Street
Montreal, Canada

Dear Dr. Gardner:

As I believe Dr. Carleton R. Ball has informed you, he has referred your recent request for references on the effect of cold on lignification and plant cells to the Forest Service.

Dr. R. B. Harvey of the Minnesota Agricultural Experiment Station has worked with the problem of low temperature relations and has compiled a very extensive annotated bibliography on the subject, including nearly 4,000 references. It is published under the following title: "An Annotated Bibliography of Low Temperature Relations of Plants", by R. B. Harvey, Burgess Publishing Company, Minneapolis, Minnesota, copyright 1935, revised edition 1936 (duplicated). Some of the references given may deal with your particular problem though I am not aware of anyone working directly on the effect of cold in hastening lignification.

Regarding your second question concerning the need for a rapid fixative to permit study of frost effects on leaves, I am sorry to have nothing specific to offer. The experiments you suggest would be an extremely interesting one to perform and certainly would require special technique. Perhaps you can find some useful leads in Harvey's Bibliography.

Very truly yours,

H. L. Shantz

H. L. SHANTZ, Chief, Division of
Wildlife Management

cc: Dr. Carleton R. Ball

3814 Jocelyn St., N.W.,
Washington 15, D.C.
July 17, 1945

Dr. G. Gardner,
4541 Pontiac St.,
Montreal, P.Q., Canada.

Dear Dr. Gardner:

I have just received, and have glanced through, your paper on Exploring in Labrador and Hudson Bay. It looks extremely interesting and I look forward to reading it more fully.

I do not know when I wrote you last. I was in hospital for two months in the spring and, after two operations, convalesced at home for another month. Before I could get caught up on my office work, I retired on June 30, being past 70. Had to move many of my papers to my home, altho I still have a desk in the Dept. It has taken me a long while to get things straightened up, especially as we have had a very hot summer.

Early last spring I packed up for you some cardboards for shipping packets of plants, and think I put in a few duplicate willows I had, but they did not get shipped before my illness. Will get to them presently.

The first two jobs I am tackling since retirement are a volume on all governmental (Federal, State and local) in natural resources, and my monograph on Salix. These will keep me busy for two or three years.

If you have material for determination, I can be reached as before at the Department, where I go four days per week, or at my home address.

Thanking you for remembering me with the paper, and with personal regards and good wishes, I am

Cordially yours,

Carleton R. Ball
Collaborator

P.S. Would it not have been helpful if the reprint had shown the volume number, inclusive pages, and date of the issue of the Revue in which it appeared?

November 3, 1942

Dr. G. Gardner,
4541 Pintiac St.,
Montreal, P. Q., Canada.

On returning to Washington, I find your letter of October 22 and the accompanying packet of willows. I have given these immediate determination and am inclosing a list.

As you state that these are from the same area as those of 1941, I am labelling them from the Laurentian Mtns., at St. Adele, 50 miles NE. of Montreal, elevation 1000-1200 feet.

They seem quite like those of 1941, for the most part. This year you found *S. petiolaris* in addition, but did not recollect *S. cordata* and *S. subsericea*, nor did you get *S. discolor prinpidis*.

You noted that No. 112, *S. lucida* Muhl., might prove of interest. It seems typical of the species except in having some of the petioles and midribs affected with an insect gall. Will try to get it named.

As your packet was strengthened only by two pieces of a carton and some driers, I will return the driers presently, with some standard packing boards and trust that you may find them useful.

will

There was an extra sheet of No. 112 and I am returning it also. I have not been able to collect naything this season, and the outlook is not good for next year. I will look up any duplicates I may have from previous years and see if I can send you some of interest.

I will retire from official service next June, and expect to begin my monograph then. It will take some time, naturally, and it is only one of five things I will be working at.

I hope that you may be able to prowl around a little, at least. Appreciating your continuing help, I am

Cordially Yours,

Carleton R. Ball
Executive Secretary

Montreal, Dec. 2nd 1943.

Dr. C.R. Ball,
Extension Service,
Washington, U.S.A.

Dear Dr. Ball,

Your letter of October 29th reached me on due time, but I have been so busy (doing nothing) for the last month that I had no time to do even my own writing. We had many professors sick with the flu and we had also a series of night lectures with term exams all coming together that really I have been a bit overworked, but it is now over and I am trying to come back to normal life, ^{because} please my dear.

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I have also received your parcel of willows in perfect condition and accept my best thanks for them and the card boards, they will come handy. As for my summer work, I had no chance to travel around, as you know we have not much gasoline at our disposal and as I have to count on other people, the only way left was walking and as I had collected the two years before about all that could be collected around my farm in the Laurentians, I had to postpone my collectioning till next spring, but as I am going to the country this week, the first time for a long time, I noticed ^{before} a thicket of willows that seem strange to me, I will try to send you a twig if I can find them again, the leaves were very large and ^{also} very shiny.

As soon as I have a moment, I will work on the specimens you sent me and try to remember their

(See over)

Dr. G. Gardner, 4541 Pontiac St.,
Montreal, Quebec, Canada.

December 14, 1943

Dear Dr. Gardner:

Your of Dec. 2 came promptly, and I note that you have been busy, even in only in doing nothing part of the time. That is good thing to do occasionally, and I find that half of the time, or even more, seems to go for matters not immediately productive.

You need not feel so regretful over lack of travel. You have made some very valuable contributions to our knowledge of northeastern willows and these will be most helpful in fixing ranges for the monograph. Just now I am trying to do *Salix* for Rd. 3 of Britton and Brown, Illus. Flora. That will mean working up some 40 or 50 species and many vars (briefly). All helps toward the final monograph.

There is a lot not yet known about interior Quebec and next to nothing about upper Manitoba. I don't know why so little has been done there. It leaves a wide gap between east-central Sask. and James Bay.

I am guessing about the willow you mention. Sounds like *lucida*, or *glauco-phylla*, or *laurentiana*.

With all good wishes for the holiday season, I am
Cordially yours,

Carleton R. Ball
Collaborator

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G. Gardner

Cordially yours,

always welcome letters.

I hope I will not have to wait so long in the future to answer your

I remain at your service if I can do something here for you and

doubt will be a pleasure in its field, let me know about it later.

taking slowly shape, everybody will be glad to see it and no

I am very glad to hear that your monograph on the willows is

at least find new localities for older species.

turn to these countries and try to bring you new species too, or

willows on their last trip and when the war is over, I will re-

I am very glad that Buttliff and Lepage found such interesting

collect more of them.

particular characters, thus if I meet some of them later on, I will

Montreal, Jan. 14th 1944.

From G. Gardner

Dear Dr. Ball,

I sent you this week a small box containing 4 sets of twigs of Willows from Ste.-Adèle. I hope they will reach you safely. I think that no. 1 is probably the one I mentioned in one of my previous letters as being something interesting. I understand the difficulties of naming these trees as they are now. What is very interesting is the fact that the catkins are already opening and so large in some of the twigs. I collected these willows at New Years after a cold spell that was really something about 35 below in that district. Useless to say, it is rather something new to botanize in nearly sub zero weather with a pair of skis, this is something new any way, but it was fun the same. Skiing was not very good at New Year's not enough snow and too crusty. Now we have about 30 inches and it is very good skiing, but I have too many things to do, thus I will wait till the end of the month for a few hours out in the open.

There is very little new here, many students and many failed at the term exams, so, they have to go, plenty of other kind of work, but all is going fine just the same. I might be able to go to the arctic soon again, there is something in the air, you never can tell these days.

I am just now completing some of my papers on my former trips north, it will take a few weeks, but I hope that the worst will be over soon, I have only the photos to past for my trips to Grady. I have been trying to get for the last two years from fellows working at the new Labrador Airport at Goose

Bay some samples and specimens of wood and willows, but I have not been able to collect anything yet from these people, though I sent them all sorts of things to please them.

I will be able I hope to obtain from you specimens from the interior and part of the coast of Labrador from a missionary who is on the coast, but it is like the rest, it is along affair.

I hope that all is well with you and that your monographs are slowly taking shape and that soon we will see one of them if not more. I hope also that your health is good and that the winter is not too hard in Washington. So far here, it has been very cold and very mild and very nice too, all mixed together in a queer way.

I remain at your service if you need any thing here and in the spring I hope to be able to cover lots of territory within my district in the Laurentians and send you once in awhile a few things.

With kindest regards,

G. S. Gardner.

Montreal, Feb. 11th 1942.

Dear Dr. Ball,

Thank you for your kind letter of Jan. 28th and also for determinating the willows I sent you. I regret that I was not more careful about the packing, but next time I will know better and will be more careful about it.

Things are quiet around here, it is winter and people seem to be in a sort of lethargy, I suppose they will wake up with the spring. Though we are nearing the middle of February it is still very cold here, though the sky is nearly always blue.

My work is progressing slowly, but I am making a little progress here and there however, I am a bit like you, trying to do too many things at the same time.

Have you seen the article of Raup in Sargentia on the willows of Hudson Bay and Labrador. He mentioned some of my willows, collected on my first trip, but the new ones, those of 1937, 1938, 1939 and even those of 1933 are not mentioned as they were not given to Gray's Herbarium, I am not worried about that, but ^{if} he had seen them, some of his maps would have been more complete. He notes some of the willows of Father Dutilly, O'Neill and Duman, these are those they have given to Gray's, otherwise, there again, he has missed quite a few. I am a little surprised that he seems not interested at all in the work you did on the willows and also he completely lost the opportunity in writing to Father Dutilly to know if more willows had been collected north by him or some of his party. I am glad in a way that Raup behaved like that, your monograph on the willows will bring by the same facts many new

*Remainder of letter
lost. was
May 1962*

(See over)

February 29, 1944

Dr. G. Gardner, 4541 Pontiac St.,
Montreal, P. Quebec, Canada.

Dear Dr. Gardner:

I was very glad to have your letter of Feb. 11, with notes on weather, work, and other things. We have had a relatively mild winter, with little snow or ice, tho there is 6 weeks to go, as we had heavy snow on April 14 a year or two ago.

I note that you are not likely to go far afield next summer. There always is a real pleasure in getting back work caught up and these limited-travel years may do that for us.

By the way, there is form of *S. cordata* with rather short broad leaves, these a and the twigs white-hairy. I seem to recall a specimen (foliage) from Lake Akitibbi and one from elsewhere. Might keep your eye out for it. It may be a depauperate form of my *S. glaucophylla* var. *albo-vestita*.

I have Raup's *Sargentia* paper but have not had time to look it over yet. Your notes will be in my mind when I get to it. The temptation always ~~is~~ is to publish rapidly and not cover the ground.

Cordially yours,

Carleton R. Ball
Collaborator

Montreal, Dec. 26th 1934.

Dear Dr. Ball,

How are you keeping in Washington with so many diplomats, army, navy and business men around, it must be quite a thing and probably the most amusing thing must be to see them all trying to impress each other that they are more important than any body else. I suppose it is human nature, but I am afraid I will have to wait till the war is over before risking my life in your fair capital.

I hope that the winter has been gentle to Mrs. Ball and yourself and that your books are progressing well. As for myse things are not badd, plenty of work and the weather has been rather insteady this fall, first it was very dry and now we have as much snow as in late February, if it keeps up, we will have to melt the snow on the stoves to get rid of it, we have in Montreal about 30-36 in. already and int the country about the same, though in places more, as you see the winter sports will surely be busy all around, I am trying to go to my country place to morrow for a few days, I need it for I am a little tired after the work done this fall.

I have a small problem, for you being a Willow expert, it would be small, but not for me. I am just now making a complete and final list if I may say so of all the plants I have collected north and in looking up Ruap's paper in Sargentia, no.4, I see that he is making only one species of *Salix arctica* and *Salix anglorum*, moreover of all the varieties of *Salix anglorum*, he is keeping only one, var. *kophophylla*, would you be please be kind enough as to tell me what to do about all that as your opinion

(See over)

is more valuable to me than Raup's.

Is there a difference between *Salix cordifolia* var *typica*
or *Salix cordifolia* without any mention of variety?

I have not been able last summer to do much as far as willows
are concerned, I could not get any transportation to go around
and as for the willows near my country house, they have all been
collected, however, this week as I will be roaming more and some
of the firends with me will be out too, I will try to find some-
thing, if not, next spring I will go out of my district as one
of the gang bought a car.

Once more Happy Cristmas and best regards,

S. Gardner.

Digitized by Hunt Institute for Botanical Documentation

Montreal, April 20th, 1911.

Kind regards,

Dear Dr. Ball,

I received in due time your nice letter of March 12th as well as some of your reprints. I was very happy to hear from you and also to read your papers. I am afraid some of our friends the botanists have a great pleasure to manufacture species, and so on, may be it is the indian in them that makes them demolish all that has been built before them, however, I think it is high time that something should be done about it. I liked very much your articles and am expecting your other reprint from Rhodora when ready, thanks for all that.

I am inclosing a sheet of corrections of my Labrador list, it was badly printed and many mistakes were made of which I had no control, but with that sheet, it will be presentable.

I have no definite plans for the coming summer, but I think I will just go to the country and have a good rest, I need it as I have worked very hard at the college, personnel is short and bad, so I had to do more than usual and I am still working on all my notes of my past trips, they will soon be ready I think, as well as all the photos I took, it is a very large task. You tell me that your Willow Monograph is coming well, I am very happy to know that as I know it will be the real monograph of the willows of North America, we need that as the floras are rather poor regarding willows, they are also very hard to know very well.

I will say now good bye and if there is anything I can do please be at liberty to ask and it will be a

pleasure to do of course. I have been looking at willows and other
plants from Labrador this summer, and I am sending you a
few. Montreal, April 30th 1907.

kindest regards,

E. S. Gardner
Dear Dr. Bailey,

I received your letter of the 14th of May. I am glad to hear from you and also to read your papers. I am afraid some of our friends the botanists have a great pleasure to manufacture species and so on, may be it is the Indian in them that makes them do this all that has been built before them, however, I think it is high time that something should be done about it. I liked very much your articles and am expecting your other reprint from Rhodora when ready, thanks for all that.

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I am enclosing a sheet of corrections of my paper. I had no control, but with that sheet, it will be presentable.

I have no definite plans for the coming summer, but I think I will just go to the country and have a good rest. I need it as I have worked very hard at the college, person and is heart and bad, so I had to do more than usual and I am still working on all my notes of my past trips, they will soon be ready. I think, as well as all the photos I took, it is a very large task. You tell me that your Willow Monograph is coming well, I am very happy to know that as I know it will be the real monograph of the willows of North America, we need that as the Floras are rather poor regarding willows, they are also very hard to know very well.

I will say now good bye and if there is

any more I will be at liberty to ask and it will be a

4541 34
Montreal, June 20th 1947.

Dear Dr. Ball,

Your letter of June 16th arrived this week and I was more than happy to receive it. The news you give me are good all around and I will read with pleasure your reprints when they arrive. You are certainly working hard on the willows and I think you are right all around about people who like to manufacture species just like that. I don't think it is very wise to make a new species of one or two specimens like some of my friends and others do, it is a bit risky and as you say about some of Fernald's var. it is impossible to know how it was done and I don't think he could explain it himself either...

As you know by the invitation you received there will be that Botanical Society congress in Montreal, but I will not be there. I need a rest and have plenty of work to do in the country and I want some time to roam around this year and will try to collect a few willows from around some lakes I know if at all possible. If you come, please let me know and I will be so happy to meet you, you could come to see me at Ste.-Adele and will be delighted to show you the country and if you want to stay overnight it is perfectly possible. If you come write me at my country address : Riviere au Mulet, Terrebonne Cty. Quebec. The village nearest to my place is Ste.-Adele and I live on 3rd range, it is very easy to get there, just anybody, like Belle Isle grocery store and they will direct you to my place. I am afraid that congress is not going to be a great success, as things are a bit slow to start, but let us hope just the same.

I hope that your general work on the willows is coming slowly and surely and that next year may be it will be out and I think it

(See over)

will be the standard work on willows for years to come. If you were English, no doubt the King would make a noble for that work and you would be known as LORD WILLOW (not bad for a title).

I will say now good bye as I have still a few things to do before going to night to the country and hope to hear from you soon and to see you if at all possible,

Kindest regards,

J. S. Ardner.

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45415
Aug. 25th 1947. *Wood*

Dear Dr. Ball,

Just a few words to say hello and to send you in this letter clippings from the congress of the Botanical Society held last week in Montreal. As you can see, about 100 people came, it was not too bad, considering the moment of the year as it was during the holidays, but I am quite sure the delegates sweat plenty as we are having a record heat wave, but what can you not do for science.

I hope you had a good summer and that your work on the willows is going fine and that soon, it will be ready for publication. I did not do any collecting this summer as I was very busy working in my old house, the foundations were bad, so we dug the cellar and rebuilt the foundations, I think I need new foundations myself as I am partly worn out by the work of moving stones and more stones and picks and shovels, but I suppose it is good for health, for I feel very well and ready for a good season.

I expect specimens of plants from Labrador this fall and if there are any willows, I will send them to you. They will come from Nain upwards and some of them from very little known spots too. I remain at your service as usual if you need anything in Montreal.

With my kindest regards and best
souvenirs,

S. S. Gardner

(See over)

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

Dr. G. Gardner,
4541 Pontiac Street,
Montreal, Quebec, Canada.

September 15, 1947

Dear Dr. Gardner:

I greatly appreciate your letter of August 25, with the clippings giving account of the papers and discussions of the Bot. Soc. Am in its recent Montreal meeting. I would have liked greatly to have been there.

We drove to Detroit to visit my son and spent time on both Lake Erie in Canada and on Lake Michigan (Traverse Bay), returning through Ontario by way of Niagara Falls which my grandson had not seen.

I was able to collect but few willows because our stops were not made for that purpose but I did study the dune species along the lakes and collected a few.

Glad you were able to get in some hard work on the house and foundations. Nothing like it before the school grind begins. My lawn and yard needed a lot of work when I got home because the drought had been followed by steady rain (and high humidity).

Will be glad to see willows from the Canadian Arctic at any time. One of my geographic troubles is that the Peninsula once was "Labrador" and now it is mostly Quebec. Where the two meet at the entrance of Hudson Strait, collectors do not seem to be sure which one they are in. Port Burwell is an illustration, as also the Hutton Islands.

With all good wishes, I am

Cordially yours,

Carleton R. Ball

Digitized by Hunt Institute for Botanical Documentation

Montreal, Oct. 17th 1947.

Dear Dr. Ball,

I received in due time your nice letter of Sept. 13th and I was happy to know that you had a nice drive around the country and though you were just traveling you had the chance to collect a few willows. I don't think you missed very much in not coming to the Montreal Meeting after all. It was not very well attended.

I had a phone call at the beginning of the month from Mrs. Waters, but unfortunately they could not dispose of much time, but I hope that on their next visit I will be able to meet them and show them the sights of Montreal.

I am sending you today a few willows from the Nain district I received them from Mrs. Peacock of Nain, they were all collected around the village in 1945. ~~and 1946~~
I inclose a tentative list of them, please correct the mistakes.

I understand very well what you say about the question of geography regarding Labrador and Qubee, but Port Burwell is in Labrador, but the Button Islands are considered as Canada, geography is like that and I think too that all the islands in Hudson Bay as well as those of Hudson Strait belong to the North West Territories from the point of view of administration.

I suppose you have seen Father Dutilly since he came back from Alaska loaded with science and specimens. I expect news of him any day now.

I will just say good bye for now as I have

(See over)

still many things to finish before the day is over.

3824 Jocelyn St., N.W.

Dr. G. Gardner,
Montreal, Quebec, Canada.

With kind regards,
Washington 25, D.C.

October 29, 1947

Dear Dr. Gardner:

Your letter of Oct. 17 and packet of willows collected at Main, Labrador, by Mrs. Peacock in 1945 were safely received. I now have studied them and ~~make~~ list of determinations follows:

1. *S. planifolia* Rush. (Partly developed leaves and early fruit. *S. glaucophylloides* would have broader leaves and leafy-bracted anthers with glabrous capsules).
2. *S. cordifolia* Ph., var. (probably) *callicarpaea* (Trent.) Fernald. (young leaves are gray-pubescent beneath & flower scales yellow like *S. argyrocarpa*). Too young for certain varietal identification).
3. *S. aretophila* Kill. (Glabrous except for thinly silvery-pubescent capsules; leaves shallowly crenulate-serrulate apically).
4. *S. uva-ursi* Rush. (Leaves oblanceolate, acute to acuminate, crenulate, glaucous beneath).
17. *S. vestita* Rush. (Leaves only partly developed, densely sericeous beneath.)
80. *S. anglorum* Chamisso. (glabrous developing leaves; stem & pist. flowers with black scales).
83. *S. argyrocarpa* Anderson. Small short-peduncled anthers with silvery-pubescent capsules having short styles; leaves green and glabrous beneath above, silvery hairy beneath, tiny (young), oblanceolate).
90. *S. herbacea* L. (Leaves large orbicular to oblate, retuse, crenulate; capsules glabrous).

Your letter did not say if these specimens were to be retained by me or returned to you. If these are the entire collections, they certainly should go back to you. If you have only fragments remaining, then these certainly should go back so that you may have ample specimens. If you have good full specimens remaining, I will be glad to keep these. Please let me know about it.

I am sorry to learn that not many attended the botanists meeting in Montreal. It was not possible for me to be away at that time but I know that I would have enjoyed the meeting, and would have enlarged the attendance that much.

I am glad that Mrs. Waters called to let you know they were in Montreal and had recently stopped with us. It was very kind of you to offer to show them the sights. I did not intend that you be put to any trouble through their calling you. I think that Mr. Waters' mother was born there and he may have lived there when younger. They have arrived safely at home but did not come back this way.

With all good wishes I am

Cordially yours,

Carleton R. Ball

P.S. What is the rest of Mrs. Peacock's name?

dupl in Lab.

July 2nd 1948.

Dear Dr. Ball,

Your very kind letter of June 22nd has reached me at last in the country where I am working and resting at the same time. I had a month ago an operation and it has left me a bit weak and tired, but I am coming back to life now and I think that in few days I will be as good as new. It seems that work cannot kill a man, I hope that soon you will be back to normal and will be able to have a good rest.

It seems that you have plenty of work for everybody and that you are obliged to work overtime, but as long as you work on the Willows, all is well. I will read with pleasure your papers on the willows, I will find them when I am in town next week for a day or so. I am happy that the willows I collected in the past years have been useful, I hope that may be next year I will go back to Labrador, but I don't know yet, it is too far and expenses are so high, that I have to save, but we shall see. Our friend Fernald is certainly a strange man, but I hope that he will publish soon the next edition of the Gray Manual, after that he will quiet down and stop worrying about little details etc...

Father Dutilly is gone back to Alaska, I suppose he will come back with tons of material, I have not seen him since last year or a little last fall, he is very busy and always on the go, I hope that someday he will stop and write something about all his collections.

Thanks again for your papers and allow me to join in your numerous friends in wishing you many, many years of good health on this poor earth and time and more time to publish

(See over)

Dr. G. Gardner,
4561 Pontiac Street,
Montreal, Que., Canada.

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

July 6, 1948

Dear Dr. Gardner:

I have just received your letter of July 2 and thank you heartily for all of your many good wishes. I am sorry in deed to know that you have had an operation but I am glad that you are in a good summer country and can enjoy life more than if you were down here. I certainly hope that you may be fully recovered soon. Five years ago I had two major operations only a month apart but I came out of it better than before.

Two items in your letter, I wanted to comment on, and if I don't do it now it will get forgotten. Dr. Dutilly is still here, or was a few days ago and was not planning to go to Alaska this summer. Father Lepage of Rimouski went up to Alaska, stooping at Catholic University here on the way. He got there early in the season and the first shipment of willows has arrived and Dutilly brought it over to me. The organs are mostly juvenile and it is hard work guessing what some of the collections represent. But we need juvenile collections if we are to know plants. But we need more mature material from the same plants.

Dutilly and Lepage have been publishing their notes on the Quebec flora in the Naturaliste Canadien, Vols. 72, 73, and 74. It is now completed and a reprint, separately pagged, has been issued as "Coup D'Oeil sur la Flore de Quebec, de la Baie St. James au Lac Mistissini. Contribution of the Arctic Institute, The Catholic Univ. of America, No. 1, F:1-170, June, 1948. Details of the journey are given on pp. 1-62, and the annotated list of plants follows. Doubtless you will receive a copy soon.

Again wishing you quick recovery from your illness and a fine summer in the woods, I am

Cordially yours,

Carleton R. Ball

Sincerely yours,

a very hefty volume on all the willows of America,

July 18th 1948.

Dear Dr. Ball,

Thank you very much for your letter of the 6th and I am gl d to tell you that allis well with me, my operation is slowly fading away and I think in a few days, it will be just a souvenir, as you say, I might be even better than before, you never can tell. Thanks also for your kind words of encouragment.

I thought that Father Dutilly was in Aàaska this summer, at least it is what I understood, it is really too bad tha the willows you are receiwing are too young to be very useful and easy to determine. They left very early I am afraid, so the trees and plants were just starting to bloom. I will write Father Dutilly to night and as you say, I will no doubt receive in the very near future a reprint of his article with father Lepage on their trip to Lac Mistassini. An other botanist went there, but his report and papaers are not com ng out fast. It takes so much time to prepare everything when you have other work to do every day.

With my best thanak and kindest regards,

G. S. Gardner.

Montreal, Feb. 17th 1950.

Dear Dr. Ball,

I was very happy to hear from you and your letter of Feb. 9th gives me the information I wanted on my Labrador willows and I will send it to Mrs. Peacock too. I met her last summer on her way to Labrador and she is very nice, too in fact to live among the eskimos.

I see that your work on the willows is going fairly well and when the Alaska-Yukon willows are finished, it will be really some work, I will be glad for you. I am looking forward to the book of Dr. Anderson, he is doing a fine job on the Western arctic flora, it is a very important paper he is publishing and very useful too.

The weather has been terribly queer this year.

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We had plenty of rain and of snow, but it melted away after a few hours and us poor skiers were sitting on the sidewalks crying, and nobody would help us. We had this week our biggest snowstorm of the year, but today it is so mild that the water is running in the streets and I would not be surprised if it rains before the week is over, raining for probably the last time the snow this year. It cannot be helped and we may as well accept it. Your information about the sunspots is very interesting and I hope that next year, commencing this spring will be more stable and not so extraordinary. Our merchants have lost business as winter goods stayed on the counters, nobody buying warm clothes as they were simply useless. I am writing to day to Father Dutilly, I understand that he has not much time now for his work, as he is deeply engaged in good work for his congregation.

Once more thank you for your letter and for the reprints that arrived safely and with my kindest regards,

E. S. Anderson

(See over)

Dear Dr. Gardner:

5 March, 1950

Your letter of May. 17 came promptly and I thank you much for the good wishes.

My chief reason for writing is that I am mailing two more reprints today. Don't worry, for there won't be any more for awhile. All I have in press now is the films. Flare and willow write-ups.

Got slowed down some on the Alaska-Yukon but am straightening out now and hope it will go faster.

Just got a lot of willow from Natl Herb. Canada for study. Possibly included a lot he collected in Yukon and Victoria Ids. Last summer, all names but on which he wanted my opinion. He may be surprised. Cordially

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My dear Dr. Ball,

I received last week your card and your reprints, please accept my best thanks for both. I am happy to hear that all is well with you and it seems that you are working more than ever. I think that with two write-ups in the press, it is something, but for a man like you it is nothing, but I admire your courage and perseverance in that work. I am glad to hear that you are doing so well on the willows of Alaska and Yukon and soon you will have finished all that too. I suppose that next on the list will be the flora of North America: Willows, this is the work I am hoping to see before long and that will be the glory of your life.

As for myself, always the same old stuff, work and more work with the students and the museum. I hope to receive sometimes this spring a publication from Paris on the Mosses, algae etc.. of my trips and will send you a copy, this will be about the last on the list, except the sections of wood and plants, that will take a long time before it is finished, but I am still hoping to do that just the same.

With kindest regards,

E. S. Gardner

Dear Dr. Gardner:

25 March, 1960

Just got your letter of March 15, 1960. I am happy to hear that you are working more than ever. I think that with two wife-ups in the press, it is something, but for a man like you it is nothing, but I admire your courage and perseverance in that work. I am glad to hear that you are doing so well on the willows of Alaska and Yukon and soon you will have finished all that too. I suppose that next on the list will be the flora of North America: Willows, this is the work I am going to see before long and that will be the glory of your life.

As for myself, always the same old stuff, work and more work with the students and the museum. I hope to receive sometimes this spring a publication from Paris on the Mosses, algae etc.. of my trips and will send you a copy, this will be about the last on the list, except the sections of wood and plants, that will take a long time before it is finished, but I am still hoping to do that just the same.

With kindest regards,

F. Gardner

Montreal, Dec. 27th 1951.

Dear Dr. Ball,

Thank you very much for your Xmas card and your good wishes and also for the news you are giving me. I am happy to know that all is well with you and that you keep "willowing" as your main occupation. Yes, the new collections in the Arctic, especially in the last few years must have brought much new material and as you say, it gave you a chance to understand some obscure facts of the distribution of the willows. I know that Dr. Rousseau made several trips north, but I don't know what happened to the material he collected. I think that he will publish some lists in the near future, at least, it is what I understood when he spoke about some of his trips.

As for myself, I am always very busy at the college, but I manage to do some work just the same. I have finished most of the work I had to do on the arctic collections and now, I am working on the wood and plant sections, that is a real undertaking and I don't know when it will be over, but I will let you know more about it later on.

If you are buried under snow and ice, don't complain, we are simply crushed by the last falls we had and though the city is supposed to work on the cleaning, things move so slowly that probably a new fall will come before the rest is gone. I hope to go to morrow to the Laurentians for a few days, that will do me good and I will relax a bit in the open and ski just a little so I will have a chance to breathe the clean air of the mountains.

Once again thank you for your wishes and please accept mine for the coming year: Happiness and good health and peace

(See over)

and many "new" willows,

Very sincerely,

S. Gardner.

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Dr. ~~Karl~~ Gerard Gardner,
Ecole des Hautes Etudes Commerciales,
535 Avenue Viger, Montreal (24), P.Q., Can.

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

17 June, 1952.

Dear Dr. Gardner:

It was very kind of you to send me the personal copy of your Study No. 4, *La Valeur Economique du Grand-Nord Canadien*. I greatly appreciate your remembering me with this interesting and helpful document.

I have glanced it through and have read some parts. I know that I shall read most of it before I am done, because it tells me a lot I wish to know. I find that my French has become rusty and it will be good for me to get it back into my mind again.

I have been driven wild in trying to determine just what Hulten has done to our arctic willows in his *Flora of Alaska-Yukon*. It is the hardest job I have ever tackled. One can make assertions without giving proof, but to refute assertions one must give full proof, and that takes work.

The specimens cited under one species sometimes represent two or three different species, and, on the other hand, several specimens are cited under two different species or other entities. Then his passion for hybrids, by the hundreds!

Anyway, I have just passed my 79th birthday, am feeling well, and enjoying my work. Your many collections are of the greatest value to me in settling these arctic problems.

With many thanks and all good wishes, I am Most cordially yours,

Carleton R. Ball

Montreal, June 20th 1952.

Dear Dr. Ball,

I have received to day your very nice letter of the 17th and I was very happy to hear from you. It seems that the Willows of Aalaska by Hulten is giving you very muc, too much trouble. Some people like to split species, so their names will be attached to forms and varieties, but as you say, what is the use, for after a careful study you can spot right away te mistakes. I hope that you are trthrough all that work soon, so you can publish your maste piece on the Willows of North America. I am looking forward to it.

I am glad that you liked my reprint, it is more or less a general resumé of waht has been going on in the Grand Nord, but it is not the final word about it either, but somebody else will some day, write the real book about the geogrpahy and resources of the north, but it will be quite a job.

I am going to the mountains for the summer and expect to go to Labrador may be next year and to Europe the year after if everything goes well. Your health is good and you are felling fine, these are good news and I pray God that you remain many years again working on Willows on this poor earth and I hope that some day I will bring you from the north the new species that will deserve to receive your name and all will be perfect in the Willow world.

With kindest regards,

E. S. Gardner

(See over)

Dear Dr. Gardner,

3814 Jacelyn St., N.W.,
Washington 15, D.C.
23 June, 1952.

Your kind letter of June 20 is just her, and I thank you heartily for your goodwishes. I give you the same, and trust that you may get rest and recreation from your summer in the mountains.

I have not yet finished the study of Hylten's worst crimes in Alaska and Yukon, but am beginning to see the end. The biggest problem is to settle the relationships of *S. glauca* and *S. desertorum*, two of the oldest species in Glaucæ, and also their relationship to the varieties of *S. cordifolia* established by Fernald. The primary problems are the range of size and shape in leaves and the degree of hairiness, when young, mid-sized and fully mature, as also in late summer.

I am selfishly writing you about this just now because I thought that you might pick up a few very helpful specimens in the mountains this summer. These probably would all be what has been called *Salix cordifolia*, var. *callicarpæa*. var. *tensa*, var. *intensa*, and var. *Macounii*. Var. *callicarpæa* is not far from typical *S. desertorum*.

One chief problem is that European botanists, and early American also, paid but little attention to leaves because they believed that the flower and fruits were the basis of classification. Animals should have taught them better than that.

What we need most are specimens showing all the various shapes, sizes, and degrees of development of leaves on a single plant. Midsummer and autumn are the best times for such collecting because the fruiting twigs with reduced leaves are still there and summer and fall growth with much larger leaves has begun or is advanced.

In my paper 149, *Illustrating Plant Organs for Taxonomic Purposes*, which you have, I explained the three shapes of leaves usually found on ~~WILLINGHAM~~ each willow twigs, and the three successive types of twigs which appear each year on the same plant.

I do not want to make you work during your vacation rest, but if you happen to see specimens of the Section Glaucæ, with apparent wide range of expression in the leaves, I can assure you that they will be most helpful in settling some difficult problems. In fact, if some plants are near enough to you so that you can to them and collect from them same plant early and late in the summer it would greatly help to show the variation in hairiness of twigs and leaves, as well as in size and shape. ~~A~~ set of specimens taken in this way would be worth much more in this problem than 10 or 20 early collections.

Greatly appreciating your many helpfulnesses in the past, I am

Cordially yours,

Carleton R. Ball

Jul 27th 1952.

Dear Dr. Ball,

I am afraid I made a mistake in reading too fast your last letter. I read willows not of the section GLAUCAE, but *S. glauca*, you must have found me very ignorant about willows, but to day I am ask your forgiveness for that and I will start collecting willows all over the district for you. I think the best is to make a complete collection of the whole district. There are many places where I have never been, so I will go all over the district and try to find specimens that will really help you.

I hope that you are keeping well and that your troubles about Hiltens are over and that finally you see the light in the mess he made. Here all is well with me, I work quite hard on my old farm but I expect that within a few days the worst will be over, it is about time too, as time is going very fast and soon the wummer will be over.

Once again, excuse my mistake and will work diligently for you.

Willowy yours,

G. S. Gardner

(See over)

Dr. G. Gardner,
4541 Pontiac Street,
Montreal, Pr. Wue., Canada.

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

14 October, 1952.

Dear Dr. Gardner:

Today I have found your letters of June 29 and July 27, with regard to the species you would collected this last summer. I do not now know how these letters came to be so neglected and I owe many apologies for it.

It is now too late to do any thing but regret that they were unanswered. I could have sent you a specimen of each of the two or three species in Section Glaucæ and so saved you bushels of work, of which you had more than enough without all this additional for me.

However, as it turned out, I think that you have done a worth-while job in getting these summer and autumn specimens of all the available species there. It will spur me to still greater efforts to get around to the proposed paper on the size of willow leaf (buds, and stipules).

Likewise, I will try to handle my correspondence better in future,

As ever, with all good wishes, I am

Cordially yours,

P.S. I now am writing the labels for
your collections.

Carleton R. Ball

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Montreal, Sept. 23rd 1953.

Dear Dr. Ball,

I hope that you had a wonderful summer and that we were also able to do much work on the Willows. The weather has been here also very warm and we suffered quite a bit at the end of August and a few days in Sept., but now it is nice and very cool. I spent the summer on my old farm and did lots of work, among the trees etc... I came back in good shape and now I am back at the old teaching.

I received last week a parcel of plants from Mrs. Peacock of Main~~e~~, Labrador. These shrubs were sent ~~a~~ bout whole and I am using the stems and roots for my study of the growth. Among these shrubs were a few willows. I am taking the liberty of sending them to you for proper identification. I am sorry to say that they are in bad shape as they ~~were~~ ^{not} were dried up properly before being sent, but simply folded and tied together. I have packed them the best I could and I hope it will be possible to identify them, I think the dried leaves will reach you in fair shape.

Tell me in your letter how your monograph on the willows is progressing, I know it is a tremendous work you are doing, but I am anxious to see it and use it too. There is very little work done here in Montreal not only on trees, but on plants just now at both universities. Father Louis Marie at Oka is collecting and doing a good job too, but his teaching is taking too much of his time, so publications

(over)

have to wait.

Once more thank you and kindest regards from

yours sincerely 8814 Jocelyn St., N.W.,
Washington 15, D.C.

Dr. G. Gardner,
4541 Pontiac Street,
Montreal, P.Q., Canada.

G. Gardner
30 September, 1953.

Dear Dr. Gardner:

Your recent letter came promptly and the packet of willows has just arrived.

As I am just leaving for Detroit, Michigan, where I shall be for a week or more, I cannot get to work on these willows until about October 10.

I trust that this delay will not inconvenience you,

Cordially yours,

Carleton R. Ball

Dr. G. Gardner,
4541 Pontiac Street,
Montreal, P. Q., Canada.

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

4 October, 1952.

Dear Dr. Gardner:

Many thanks for your good letter of Sept. 29, giving the dates of collection for the two lots of willows, Nos. 1-136, no 1137-171, and also some interesting notes on habitats.

By the way, you spoke of the Laurentian specimens as being collected in rainy weather. I have been wondering if the summer had been more than usually dry? Many of the specimens had very small leaves, some described as tiny.

I inclose a four-page list of the determination, with notes on the character of the leaves, and measurement of leaves on some of them having the largest autumnal leaves. I think that there are more species represented than I mentioned in my last letter.

I think you have a most interesting and valuable series of leaves from vigorous autumn growth, and that is why I have measured them now and recorded the larger sizes. There were several collections of *S. petiolaris* but there were none with large autumn leaves and the summer leaves were unusually small.

The single specimen you mentioned as sending me has not come yet but it takes quite a while to get thro customs.

In the right hand margins of the lists I have placed numeral 2 where there are two sheets of each number. Probably some of the others have enough material for two specimens also. Is there any particular herbarium you would like to have these duplicates sent to? I'll be glad to know.

Cordially yours,

Carleton R. Ball

Gardner says that the specimens grew along an old country road where snow is heavy in winter and the ground is damp most of the time in summer. He had noticed the small size of many of the leaves and suspects that competition may have been in part the cause.

He suggests that I know best where to send the duplicates.

Look over reverse

GENERAL SUGGESTIONS FOR COACHING.

1. Have a sense of sympathy and confidence with the players. Give only constructive comments.
2. Have pleasure in the job.
Light-hearted approach.
Sense of fun.
Imaginative point of view.
3. Make up your mind to like the play.
Find out all the author has put into it, then decide what more you can put into it.
4. Relay all criticisms through the director.
5. The coach must consider the play as a scene sequence,
6. The play must not drag at any point.

172. No S
1 (77) missing

171

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174 total sheets

Distribution by Species

- 1 *S. babylonica* L.
- 7 *S. lucida* Muhl.
- 1 *S. " var. angustifolia* André.
- 6 *S. rigida* Muhl.
- 12 *S. petiolaris* J.E. Smith
- 55 *S. discolor* Muhl.
- 4 *S. " var. latifolia* André.
- 35 *S. humilis* Marshall
- 1 *S. tristis* Aiton
- 52 *S. Bebbiana* Sargent.