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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.



INSTITUT AGRICOLE D'OKA

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et
École de Médecine Vétérinaire
de la Province de Québec

Station d'Express:
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P. Q.

16 juillet, 1935

Mr. Carleton R. Ball,
Executive Secretary, U.S. Dept. Agr.,
Washington, D. C.,
U. S. A.

Cher Monsieur Ball,

Merci pour toutes vos identifications,
qui me sont très précieuses. Dès que les étiquettes
en seront terminées, je vous enverrai avec ~~l'envoi~~ un
specimen de chaque espèce.

Les sept feuilles d'herbier, que vous avez retenues
pour étude ultérieure, ne sont aussi parvenues récemment
en bon état et je vous remercie également de me les
avoir déterminées.

Je vous prie de me croire, cher Monsieur, votre
bien reconnaissant

Thanks for all your determinations, which are very valuable to me.
Now that the "étiquettes" are complete I will be glad
to send you a specimen of each species.

The 7 herbarium sheets which you had retained for
further study, have been received by me recently
in good condition

October 23, 1939

Father Louis Marie,
Institut Agricole D'Oka,
LaTrappe, P.Q.,
Canada.

My dear Father Louis Marie:

Your letter of October 17 and the accompanying package of willows are safely received. I am glad to determine these specimens and enclose a list of determinations.

Between *S. brachycarpa* on the one hand, which is pubescent on both sides of the leaves and also on the capsules, and *S. chlorolepis* on the other, which has all the organs glabrous, there is rather a wide gap. It is true, however, that the leaves of *brachycarpa*, especially the lower ones, become glabrous on the upper surface as the season advances and some of them become glabrate on the lower surface especially in the Rocky Mountains of the West.

The variety *antimima* Schneider was described by him as a variety of *S. chlorolepis*, having the foliage thinly pubescent, or becoming glabrate and the capsules less densely pubescent than in *brachycarpa*. Later Raup transferred this variety to *brachycarpa* as a glabrate-leaved variety of a pubescent-leaved species.

As a matter of fact, this variety is somewhat intermediate between the two species. It varies considerably in pubescence and has styles usually longer than those of *brachycarpa* but seldom as long as those of *chlorolepis*. I would be inclined to regard it as a hybrid of these two species were it not that we seem to find it in areas to the northwest where *chlorolepis* is not yet known to occur. For the present, therefore, I am leaving it where Raup placed it, as a variety of *S. brachycarpa*.

While the variable pubescence of leaves and capsules, and the variable length of styles might indicate hybridity, we must remember that *S. brachycarpa* itself is a variable species in this respect.

- 2 -

In addition to the undescribed glabrate leaf form in the Rocky Mountains, there is a variety with glabrous capsules which Schneider named variety *glabellcarpa*. It comes from Jasper Park.

I am somewhat puzzled over the limits of *S. brachycarpa* and its variety *Sansoni* Ball in Quebec. In the far west there is much small leaved material which I described as *Sansoni*. In Quebec there seems to be every gradation between small leaved and large. A year or two ago I named several of Gosselin's Mount Albert collections as variety *Sansoni*. It may be that some of these should have been regarded as the species but it will have to be more critically reviewed later. This year I have not put all the LePage material into the variety.

His No. 1162 which you identified tentatively as *cordifolia* certainly does resemble superficially *S. cordifolia* variety *eucycla* Fernald, but because of its very short petioles, as well as the rather dense tomentum on the upper surface of the leaves, I believe it must be regarded as *S. brachycarpa*. If I remember correctly, Dr. Fernald collected some with leaves like this in the Mount Albert area years ago, but I do not have any of them in my own collection. I think, however, there are some in the National Herbarium and will try to check on them presently.

Gosselin Nos. 3623 and 3628 which you sent me on mounted sheets are both *S. brachycarpa* and *cordifolia*. The former I had received and named before.

Your letter does not say whether these plants are to be returned to you or to be kept by me. Either disposition of them will be entirely satisfactory to me. I assume, of course, that you wish the two Gosselin plants which are already mounted on herbarium sheets to be returned to you, but I will hold them until I hear from you regarding the unmounted ones.

Last week I heard an illustrated lecture on Labrador by Prof. O'Neil of Catholic University of America, who was travelling with the party of Dr. Gardner and Father Dutilly. Dr. O'Neil told me they would send me his willows for determination as soon as they get the material sorted. I shall look forward to seeing all of the summer collections from this little known area.

Cordially yours,

Carleton R. Ball,
Executive Secretary



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et

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de la Province de Québec

Bureau de Poste:
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P.Q.

20 mars 1940

Docteur Carleton R. Ball,
Extension Service,
U.S. Dept of Agriculture,
Washington, U.S.A.

Cher Monsieur Ball,

Enfin, j'ai pu vous adresser, ces jours-ci, une trentaine de Saules de la Gaspésie que vous aviez eu la bonté de m'identifier, déjà. Nos jeunes botanistes, qui se mêlent de récolter des saules, devraient séparer scrupuleusement chacune de leurs récoltes, sur le champ. Gosselin et Dr Gardner n'ont démêlé leurs récoltes et les ont numérotées, seulement au retour de leurs expéditions; les mélanges furent presque inévitables. Revoyez, je vous prie, les numéros de Gosselin que je vous adresse, au cas où il y aurait de ces erreurs.

Vous souhaitant une excellente santé en cette
prochaine fête de Pâques, je suis

vosre tout dévoué

Dear Dr. Humphrey

Please call me when
you have time (Ext
2785) to read this
C.R.S.

L. Louis-Marie, o. c. r.
Père Louis-Marie, o. c. r.

March 28, 1940.

Pere Louis-Marie, c. c. r.
Institut Agricole D'Oka,
La Trappe, P. Q.,
Canada.

My dear Pere Louis-Marie:

Your letter of March 20 and the accompanying package of willows were promptly received and I have been glad to examine the material. The specimens collected by Ernest Lepage and which I had previously identified, I am very glad to have and to add to my collection. The specimens collected by Gosselin I am returning to you. If you care to send me any of them later for my herbarium, I will be glad, of course, to have them. The following notes may be of some interest.

No. 3628a The three specimens under this number all are *S. brachycarpa antinima* Schneider. This is the same as the No. 3628 you sent me in May, 1938. No. 3628 as I received it through Professor Hermann of Michigan University, however, was *S. chlorolepis* Fernald.

No. 3630 The single specimen is *S. brachycarpa Sansoni* Ball which agrees with the determination made for Prof. Hermann.

No. 3631 The single sheet sent contains two specimens, one broad leafed and one narrow leafed, both of which represent *S. brachycarpa Sansoni*, although the narrow leafed one approaches variety *antinima*. The specimen received through Prof. Hermann was variety *Sansoni*.

No. 3632 The single specimen sent has rather large leaves and I would refer it to *S. brachycarpa* instead of variety *Sansoni*.

No. 3632a This is *S. brachycarpa Sansoni* Ball, with small leaves and apparently is the same as the plant determined for Prof. Hermann under No. 3632.

- 2 -

No. 3635 This number was determined for Prof. Hermann as *S. brachycarpa* Sansoni Ball and the three specimens of it which you sent me in May, 1938, all represent that variety. Most of the specimens of this number which I am returning to you are variety Sansoni as labeled. One sheet, however, which I have separated from the others has large leaves and is the species *S. brachycarpa* Nuttall.

Nos. 3645 (two specimens), 3646, and 3647, all are *S. humilis* as labeled. The two specimens of 3645 are somewhat different in leaf shape and coloring but belong to the same species. The specimen of 3646 has densely tomentose leaves whereas the specimen of that number determined for Prof. Hermann had thinly tomentose leaves.

No. 3678 is *S. Bebbiana* Sargent. It was not received through Prof. Hermann.

There is much variation in the leaf size and shape and hairiness on *S. brachycarpa* and its varieties in your area. Part of this apparent variation probably is the result of collecting plants in different habitats and on different dates and in different degrees of development on the same date. In general the longer a leafy shoot grows the broader will be the new leaves developing at the outer end. When several specimens are collected, as you know, from a small species like *S. brachycarpa*, they necessarily must come from different plants and, therefore, considerable variation will be expected.

Cordially yours,

Carleton R. Ball,
Executive Secretary

dupl. in brachycarpa - letter



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P.Q.

Sept. 12th, 1940

Y. C. R. Ball,
Washington, D.C.,
U.S.A.

My dear M. Ball,

Father Dutilly, who travelled through the western arctic, this summer, on airplane, managed to collect plants which he sent me for drying them! But there is a long way from Fort Smith (N.W.T.), Yukon, Victoria & Banks Islands to Oka (Quebec). From the much deteriorated material received, I am sending samples for identification which you may keep if you like.

Yours very truly
Father Louis-Marie

P.S. Dear M. Ball

Your willowian documentation being unique could you please - if not under hand - give me the names of the species of Salix from (Alaska & Labrador) you know of. I would like to give a short "summary" on this topic at our Ottawa Congress (Oct. 12th) for Advancement of Science.

not in Polunin 1940

Cher Monsieur Ball,

Mille merci pour votre
intéressante et abondante liste
de références. J'ai presque des re-
mers pour vous avoir occasion-
né ce long relevé. Il me sera fort
utile. J'en ferai mention quelque part.
Votre tout dévoué
Father Louis-Marie

August 2, 1941

Father Louis-Marie, O.C.F.
Institut Agricole D'Oka
La Trappe, P. Q.
Canada

Dear Father Louis-Marie:

Your letter of July 25 is just received and because the time before your meeting of the Quebec Society for the Advancement of Sciences is so short, I am giving it immediate attention.

I have run through some 200 or 300 cards classified under physiology and morphology of *Populus* and *Salix* or both. I find none which deal specifically with the particular phases of bud and inflorescence morphology which you mention. I find some 30 or 40 however which may or do contain incidental reference to some of these subjects.

I am citing these references on the enclosed sheets where I have an abstract of contents on the card, I have copied this also, or at least as much of it as relates to your field of inquiry. I hope that these references will be of some value to you and only wish that they were more nearly related to your subjects. I may say that I have not had time to scrutinize the abstracts published in Botanical Abstracts and in the more recent Biological Abstracts. I generally get references to ~~or~~ articles in which *Salix* or *Populus* is mentioned specifically, but I probably miss some studies in physiology and morphology in which the title does not contain references to either of these groups.

I have numerous other cards related to abnormal catkins and flowers in willows and poplars. Nearly all of these contain teratological forms in which stamens and capsules occur in the same amount. I assume that you would not be interested in these, but if you are, I will be glad to send them. The fact that there are so many of these papers on abnormal expressions and so few dealing with the normal form, reminds me of the eminent eye surgeon who was asked to prepare a paper on "The Normal Human Eye". He replied that he had spent his whole life studying the abnormal human eye and was not prepared to discuss its normal aspects.

I might remark that while there are numerous papers concerned with the seeds of *Salix* and *Populus*, they relate only to longevity and germination.

Cordially yours,

Carleton R. Ball
Executive Secretary

CRBall/EL

REFERENCES TO ANATOMY, PHYSIOLOGY, AND PHYLOGENY OF POPULUS AND SALIX

With Special Reference to Inflorescence

A. POPULUS ONLY

Bessey, Charles E. Botanical Notes. The number and weight of cottonwood seeds. p. 118; weight of dandelion down, p. 118. Science 20:118-119. July 22, 1904.

Burger, Dionijs. Beitrage zur lebensgeschichte der Populus tremula L. Zurich, H. Rutschi, 1920. Thesis, Eidg. Tech. Hochschule Zurich, pp. 79, pl. 1, figs. 32, 1920. A technical study of the European aspen, in which the morphology and physiology of the buds, bud scales, petioles and leaves are discussed in detail. E. S. Record 45:350.

Erlanson, Eileen Whitehead, and Frederick J. Hermann. The morphology and cytology of perfect flowers in Populus tremuloides Michx. Papers of the Mich. Acad. Science, Arts, and Letters 8:97-110, pls. 4-6, 1927.

Graf, J. Beitrage zur Kenntnis der Gattung Populus. Inaug. Diss., Univ. Frankfurt on the Main. Pp. 52, pls. 2, figs. 10, 1921. This is a technical report of microscopical studies upon the new growth and the leaf and flower bud development of several species of Populus growing in the vicinity of Frankfurt on the Main, Germany. It was found that both the male and female flower buds are differentiated in July of the preceding year. The male buds were distinguished from the female by greater thickness and length. E. S. Record, 48:450.

B. SALIX ONLY, OR BOTH

1. Physiology

Gill, N. The relation of flowering and cambial activity. Observations on vascular differentiation and dry-weight changes in the catkins of some early-flowering catkin-bearing dicotyledons. New Phytologist 32:1-12, March 27, 1933. "Renewed differentiation of wood and phloem occurs in the axis of the male catkins of Populus serotina and Salix caprea L. as the catkins expand in the spring. At the same time phloem differentiation is found throughout the twigs below the expanding catkins but wood production does not commence in the twig beyond the region at which the catkin trace unites with stele of the twig." (p. 11) Absolute dry weight increases during the expansion of the catkins. (p. 11). Most of the dry-weight increase is due to organic matter withdrawn from the twigs. (p. 12). (From author's summary and all that relates to poplar and willow).

1. Physiology (continued)

Harrison, J.W.H. Sex in the Salicaceae and its modification by eriophyid mites and other influences. Brit. Jour. Exper. Biol. 1:445-472, illus. July, 1924. Ref. pp. 470-472.

2. Anatomy and Histology

Haller, J.

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Lubbock, J. ~~On buds and stipules.~~ On buds and stipules. 239 pp., text figures 340. 4 col. pls. London, 1899. Salix pp. 110-116, fig. 173-185. (Cataloged under Avebury)

Moore, Emmeline. The study of winter buds with reference to their growth and leaf content. Bull. Torrey Club 36:117-145. Pl. 9-11. 27 Mr. 1909. (includes Salix fragilis) ^{12 col.}

Neese, Paul. Zur Kenntnis der Struktur der Niederblätter und Hochblätter einiger Laubbölzer. (Diss. Kiel, 1916, 8°, 46 pp., mit 11 Text fig.) Flora, N.F. 9 (109): 144-187, figs 1-11, 1916. (1) Comparison of leaf and flower buds of S. Caprea, p. 146; (2) Changes in leaf in transformation to bud scales and "Hochblätter". Notes on S. pentandra. pp. 158 et seq.

Nordhausen, M. Ueber die Wechselbeziehung zwischen Infloreszenzknospe und Gestalt des Stützblattes bei einigen Weidenarten. Ber. d. Deut. Bot. Gesellsch. 28:203-207. 1 fig. 1910.

Rainio, A. J. Ueber die Achselknospen der Weiden. (Axillary buds of the willows). Ann. Zoo. Bot. Fennicae 5:307-315, 3 fig. 1927. Three buds are in axil of each leaf, 2 having arisen acropetally from central bud. These lateral buds are serial though in appearance collateral. In leaf buds, the lateral buds are outside and in flower, buds inside the budscale of the central bud. H.D.Hill. Biol. Abstr. 3(7-8):1472. 1929.

Rainio, A. J. Ueber die achselknospen der weiden. Julk. Suomalaisen Eläin- & Kasvit. Seuran Vanamo (Ann. Soc. Zool. -Bot. Fenn. Vanamo) 5:27-306. 1927.

Resvoll, Thakla R. Ueber die Winterknospen der Norwegischen Gebirgswiden. Nyt. Magasine for Naturvidenskaberne. 47:299-368. figs. 1-19, taf. 22-24. 1909. (abstr. in Just. Bot. Jahresber. 372:639-640)

Rogers, Walter E. ~~Willow flowers of forest, park, and street.~~ Willow flowers of forest, park, and street. (The drawings from nature by Olga A. Smith). Appleton, Wisc. The author. 500 pp. 1935. Willow pp. 58-83 text and unnumbered pl. Enlargements of buds (p. 3), staminate catkins (p. 70), pistil (p. 75), stamen (p. 79), carpel and hairs (p. 83). Populus pp. 85-99.

3. Phylogeny

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Fisher-

Aubert, P. L. Organogenie de la fleur dans le genre Salix. Adan. 11:183-186. 1873-1876.

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Bessey, C. E. Phylogeny and taxonomy of the angiosperms. Bot. Gaz. 24: 145-178. 1897. * * * "The origin of the Salicaceæ, like that of the angiospermous group as a whole, remains an unsolved mystery; and, indeed, we can point with confidence to no family as closely allied, although a number of authors (including Bessey (10) who agrees with Nidensu, in Engler and Prantl, in thinking the Salicaceæ show affinity with the Tamaricaceæ) have called attention to the resemblance between the flowers of the Salicaceæ and the tamarisks." * * * Fisher. Amer. Jour. Botany 15(6): 390. June, 1928.

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3. Phylogeny (continued)

primitiveness. The flowers formerly possessed a perianth and were pollinated by insects. Wind pollination in this group is not ancient, but has been acquired recently. The honey glands represent a vestigial perianth. - H. Y. State Col. Agr. and Cornell Univ. Agr. Exp. Sta. 41st Ann. Rpt. 1928: 75.

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Hallier, H. L'origine et système phylétique des angiospermes. Arch. Neerl. Sci. Illa, 1:146-234. 1912.

Henslow, G. On self-fertilization of plants. Trans. Linn. Soc. London, Ser. 2, 1: 317-398. 1880. * * * "Henslow (21) 1880, says, 'Authors regard the little prominence at the base of the stamens and of the pistil in *Salix* either as the calyx or else as the axis. It appears to me to be simply a cellular gland for secreting honey, which they do abundantly. I could detect no spiral vessels in them at all.' Chamberlain (13) 1898, states that 'there is nothing in its (the nectary's) history which would allow it to be regarded as a reduced or transformed floral organ.'" * * * Fisher, Amer. Journ. Bot. 15(6): 378, June, 1928.

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Holden, Ruth. p. 175. Reduction and reversion in the North American Salicaceae. Ann. Botany 26: 165-173. pls. 20, 21. 1912. Contr. Phaenogam. Lab. Harv. Univ. Abstr. by J. M. Coulter in Bot. Gaz. 54: 175-176. Aug. 1912. Discusses relationships and phylogenetic position on basis of wood structure.

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3. Phylogeny (continued)

Robertson, G. The structure of the flowers and the mode of pollination of the primitive angiosperms. Bot. Gaz. 37:294-298. 1904. * * * "Robertson (29) likewise is not averse to this view and states: 'For the relations of Salicaceae I would look among the entomophilous polyspermous forms having similar fruit and seed. So from my standpoint, and in the absence of some other considerations, I would readily accept the view that the Salicaceae should follow the Tamaricaceae, the reduction of flowers being correlated with close crowding in a specialized inflorescence.'" * * * Fisher. Amer. Jour. Bot. 15(6): 390, June, 1928.

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Van Tieghem, Ph. Sur la structure de l'ovule et de la graine et sur les affinites des Salicacees. Bull. Mus. Paris VI, 197. (Just. Bot. Jahresber. 28(2): 179.)

Velenovsky, J. Vergleichende Studien über die Salix-Blüte. Beih. Bot. Centralbl. 17: 123-128. 1904. * * * "The third is supported, among others, by Velenovsky (32) who homologizes the adaxial gland, which in S. aurita (the species under observation) tends to split into two practically equal portions which then shift from a median to lateral positions, with the adaxially placed bracteoles of the flower of Juglans regia. He has, however, a different interpretation for the abaxial gland which he regards as homologous with the two or three 'perigons' of the walnut flower." * * * Fisher, Amer. Jour. Bot. 15(6): 378, June, 1928.

La Trappe, Ont., Canada
Institut d'Oka
BOTANIQUE ET GÉNÉTIQUE

Dear Dr Ball

I'm sending you
few odd specimens of *Salix*, not
to be sent back. Hoping your
health is good and wishing
you, a little foretaste, a Merry
Christmas.

Father Louis-Marie

TRAFFIC
DEC 2
44
GUE

Handwritten: *Handwritten*

Mr. Carlton R. Ball,
Extension Service,
U. S. Dept. of Agriculture,
Washington, D. C.
U. S. A.

48

Quebec

Father Louis-Marie,
Dept. Botanique et Genetique,
Institut d'Oka, La Trappe, Quebec, Canada.

December 7, 1944

Dear Father Louis-Marie:

Your postal card was received promptly and the packet of willows came today.
My determinations are as follows:

FLORA OF QUEBEC: ~~Stm~~Conte' de Gatineau. P. Louis-Marie et Gaston
Lamarre

39. *S. humilis* Marshall. Raskatong, 15 milles au nord de Grand Remous, Aug. 1, 1944
137. *S. pyrifolia* Andersson. Camp Derval, greve sablonneuse, Aug. 3, 1944 (old frt)
138. *S. pellita* Andersson. As the last. (leaves becoming glabrate)
139. *S. Bebbiana* Sargent As the last.
290. *S. humilis* Marshall. Grand Remous, rocher et greve sablonneuse au dela du pont.
Aug. 5, 1944. (depauperate with very small leaves)
293. *S. lucida* Muhl. As the last. (" " " " " ")
383. *S. discolor* Muhl. Bas katong, ile du lac. Aug. 6, 1944.
387. *S. Bebbiana* Sargent. As the last.

FLORA OF QUEBEC, YAMASKA. L. Verret & A. Dion. 1944.

4415. *S. petiolaris* J.E. Smith. Baie du Febvre: Bord de la route vers St.-Zephirin.
(small leafed, evidently flowering shoots earlier) June 22.
4434. *S. petiolaris* Smith, Baie Febvre, Communs, aulnages, Secteur Pepin. June 23.
(sterile seasonal shoot)
4444. *S. petiolaris* Smith, Baie du Febvre, Secteur Nicolet, Bord de la route. June 29
(sterile seasonal shoot)
4446. *S. petiolaris* Smith. As the last. (Slender very leafy shoots, with very small
leaves, as if from plants mowed or browsed)

I am sorry to report that the plants were badly broken in transit. They were packed with only two thin sheets of soft cardboard, one on each side of packet. As a result, the whole packet was crushed and doubled up in the mail bags. Parts of the plants spilled out into the wrapping paper, and two labels came out, also. I hope I have put them back in the right sheets. The address label also had come off and some one had fastened it to the string with a paper clip.

I inclose a piece of the cardboard so that you can see how weak it is. Also the label so that you may see that it was not pasted closely to the wrapper.

Many thanks for your good Christmas wishes, which I reciprocate most heartily. Thanks also for the permission to keep the specimens. The larger pieces I will mount on the sheets and the smaller I will place in large pockets which I attach to each mounted sheet for just such fragments.

Cordially yours,

Carleton R. Ball
Collaborator

Quebec

Father Louis-Marie,
Dept. Botanique et Genetique,
Institut d'Oka, La Trappe, Quebec, Canada.

December 7, 1944

Dear Father Louis-Marie:

Your postal card was received promptly and the packet of willows came today.
My determinations are as follows:

FLORA OF QUEBEC: ~~Stam~~Comte' de Gatineau. P. Louis-Marie et Gaston
Lamarre

39. *S. humilis* Marshall. Baskatong, 13 milles au nord de Grand Remous, Aug. 1, 1944
137. *S. pyrifolia* Andersson. Camp Derval, greve sablonneuse, Aug. 3, 1944 (old frt)
138. *S. pellita* Andersson. As the last. (leaves becoming glabrate)
139. *S. Bebbiana* Sargent As the last.
290. *S. humilis* Marshall. Grand Remous, rocher et greve sablonneuse au dela du pont.
Aug. 5, 1944. (depauperate with very small leaves)
295. *S. lucida* Muhl. As the last. (" " " " ")
335. *S. discolor* Muhl. Baskatong, ile du lac. Aug. 6, 1944.
387. *S. Bebbiana* Sargent. As the last.

FLORA OF QUEBEC, YAMASKA. L. Verret & A. Dion. 1944.

4415. *S. petiolaris* J.E. Smith. Baie du Febvre: Bord de la route vers St.-Zephirin.
(small leafed, evidently flowering shoots earlier) June 22.
4434. *S. petiolaris* Smith, Baie Febvre, Commune, aulnages, Secteur Pepin. June 23.
(sterile seasonal shoot)
4444. *S. petiolaris* Smith, Baie du Febvre, Secteur Nicolet, Bord de la route. June 29
(Sterile season shoot)
4446. *S. petiolaris* Smith. As the last. (Slender very leafy shoots, with very small
leaves, as if from plants mowed or browsed)

I am sorry to report that the plants were badly broken in transit. They were packed with only two thin sheets of soft cardboard, one on each side of packet. As a result, the whole packet was crushed and doubled up in the mail bags. Parts of the plants spilled out into the wrapping paper, and two labels came out, also. I hope I have put them back in the right sheets. The address label also had come off and some one had fastened it to the string with a paper clip.

I inclose a piece of the cardboard so that you can see how weak it is. Also the label so that you may see that it was not pasted closely to the wrapper.

Many thanks for your good Christmas wishes, which I reciprocate most heartily. Thanks also for the permission to keep the specimens. The larger pieces I will mount on the sheets and the smaller I will place in large pockets which I attach to each mounted sheet for just such fragments.

Cordially yours,

Carleton R. Ball
Collaborator

12 in CRB.
dupl in file + off

Father Louis-Marie,
Institute Agricole d'Oka,
La Trappe, Que., Canada.

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

17 April, 1953.

Dear Father Louis-Marie:

Your letter of 7 April has been received. I have finished the determinations and am inclosing the list herewith.

In accordance with your suggestion, I have changed the numbering of the two sheets ~~sheets~~ of 48002, making the second and more typical one to be 48002a.

As to the unnumbered sheet, you suggested that it was either 48014 or 48015 and that I would know which was right because I would have the other one with the number on it. But I did not have either of these two numbers in the package, so I have entered under both numbers at the bottom of the list and you probably can tell, by the name given, which number is right. If not, I will be glad to return the specimen for your inspection. (I inclose one leaf, which may help you)

As I worked over the material I discovered that there were two sheets of another number also. That is 48009. Both contained *S. vestita*, tho of somewhat different appearance, as noted in the list.

But the first sheet, as listed, contained two different species. One is normal *S. vestita*. The other is *Selix anglorum* Chamisso. This is called *S. arctica* Pallas in the new edition of Gray's Manual, by Fernald. but is quite different.

Please let me know what numbers should be given to these three collections now under 48009.

It would greatly help both college students and the teachers and specialists if the height, habit, and habitat of each collection were made part of the label record. Several of these specimens are depauperate in appearance, as would be the case if growing in very dry, sandy, or rocky situation, but no mention is made of the habitat or height.

The question of the numbers used also is important to students and other workers, and they would be greatly helped if a logical series were started and used continually thereafter. In this small group of only 19 sheets, a collection of 1945 bears a number beginning with 45 and a hyphen; a collection of 1948 bears a number beginning with 48 and no hyphen (48001); several collection of 1950 bear numbers beginning with 48 and no hyphen (48002-48021); while a collection of 1951 bears a number beginning with 51 and a hyphen (51-416). Here we have three different methods of numbering used in 19 collections. That will confuse workers for thousands of years. It also is very helpful if the serial number, applied to aid in referring to collections, in publications and elsewhere, are applied in the chronological order of collection. Many errors are made in numbering specimens and numbering in chronological order helps greatly in detecting such errors and in correcting them.

I trust that you will pardon me for making these suggestions, but they are the conclusions based on more than 60 years of experience and hundreds of problems that have been presented in that period.

As noted in my former letter, I greatly appreciate your permission to keep the specimen but will be very glad to return any that you wish. If your remaining sheets do not contain that specimen of *S. anglorum* under 48009, you certainly should have it there returned.

Cordially yours
Carleton R. Ball

INSTITUT AGRICOLE D'OKA

(Affilié à l'Université de Montréal)

LA TRAPPE, QUÉ. (CANADA)

Mr. C.R. Ball,
3814 Jocelyn St., N.W.,
Washington 15,
D.C., U.S.A.

April 25th., 1953.

Dear Monsieur Ball,

I am sorry for the trouble I've caused you with the numbers and the labels lacking of the elemental ecological data. The plants were collected by one of my guides, Phydime Lévesque who can hardly write. So we had divided a hand made map of the Logan Mt region in sectors (sector 22, 3, 8, etc.), many of them I have not visited myself. The indication on the labels "Alt. 2000 ft." is also misleading. I had asked Phydime Lévesque to write at least this bit of information on the sheats, every time he collected over that altitude, id est, "from 2000 ft. to 3575 or 3750 ft altitude at the summit of Mt Logan. So his 2000 ft means over that altitude. The labels were made by a youngster, amateur-botanist, during my absence. I went to the hospital for an operation and a too long convalescence. I wont reach your good age, my dear Mr. Ball. The hyphenated numbers are the invention not too happy, of a young botanist of the Québec Ministère de l'Agriculture, who offered his help.

Please, send me the specimen of Salix anglorum found under number 48009, since I do not find any trace of it here.

Hoping you the best health,
I remain gratefully yours

F. Louis-Marie, o.c.r.
Father Louis-Marie, o.c.r.

Father Louis-Marie,
Institut Agricole d' Oka,
La Trappe, Que., Canada.

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

27th April, 1953.

Dear Father Louis- Marie:

Your kind letter of April 25 is just here. I am sorry that I have made you so much trouble about those labels. I know the problems when work is done by inexperienced assistants, especially when the head man is absent.

I am sorry to know about your hospital operation and the long convalescence which followed. I certainly hope that your recovery will be complete and that your good work may continue for many, many, years. When I was 70, I went into hospital for a major operation. While performing that one, the surgeons discovered that I needed another one. So they let me rest awhile and then performed the second one. I was in the hospital for 10 weeks, but made a complete recovery and have been well, and active ever since. So here's hoping for you.

Dr. Gardner has just written me that his collections are stored with yours. I had asked him about his no. 1519, determined by me as *S. serissima* (Bailey) Fernald. At your convenience, I will be glad to have you look at this specimen collected at Moosonee, Ontario, on Sept. 30, 1939. I would like to know if the leaves seem to be properly dried and so not discolored, and if they are glaucous, or merely glaucescent, or only paler green beneath. I would like to know how many stipules it bears, if any, and about what shape and size they are. There is no hurry whatever about this. There is a possibility that another species related to *S. serissima* (the introduced *S. pentandra* L.) occurs there and that there may have been an error in determining some specimens now in my herbarium.

I am very glad to return the specimens of *S. anglorum* C. Anisio which were in the specimen of no. 49009. You may discover that they represent another No. that was not sent to me ~~separately~~ separately.

I wrote you about an unnumbered sheet, collected on 30 April, 1950, and when you replied that it would be either 48,014 or 48,015, depending on which one I had with one of these two numbers. But I did not have any specimen with either of these two numbers, so I am returning the unnumbered one to you.

Trusting that all goes well with you now, I am Cordially yours,

Carleton R. Ball

UNITED STATES DEPARTMENT OF AGRICULTURE

DIRECTOR OF EXTENSION WORK

WASHINGTON, D. C.

Dr. Hall.

At last I am able to send you ^{now (as yours-ci)} some
- thirty willows from the Gaspé that you already
had the kindness to identify for me. Our young
botanists who apply themselves to collecting willows
should scrupulously separate each of their collections
in the field [on the spot] Gosselin and D-Gardner
have separated their collections and numbered them
only on return from their excursions [collecting trips];
mixtures were almost unavoidable. I am asking
that you return to me Gosselin's specimens that
I am sending you in those instances where there
are errors.

Wishing you excellent health etc.

Glad to assist any time
Humphrey.

Pere Louis-Marie c.c.r.