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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.

"SALIX MACKENZIANA (HOOKER) BARRATT"

(By Carleton R. Ball)

Date?  
unpublished  
in a

Several difficult and important questions have arisen regarding the status of this name, long used in botanical literature. The chief problems are:

1. The first valid publication of the name "Mackenziana", both as species and variety?
  2. The correct authority for the combinations, in both cases?
  3. Should the proper spelling be "Mackenziana" and the "e" inserted?
  4. Was it named for the explorer, or the geographical area in Canada?
- Is the type specimen (Richardson, Great Slave Lake and Mackenzie River) a true species or a hybrid?

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In order to show the consecutively developed viewpoints and treatments by botanists, beginning in 1834 (a full 120 years ago), the following citations and questions are given, arranged mostly in chronological order.

1. (1834). Barratt, Joseph. "Monograph on the North American Willows. Manuscript prepared but never published. A copy evidently was furnished to Sir Wm. J. Hooker (L.C.).

"In 1834, I had already drawn up and read, before the Lyceum of Natural History of New York, a Monograph on the North American Willows, to be illustrated with a figure of each species. It was, however, ascertained that the expense, attending on such a work, would be too great; and the undertaking was relinquished": - - - - -

"During the last nine years I have assiduously studied the American Willows, in their living state, observing their diversified modes of inflorescence, and extending my researches on their structure and affinities, in Nature's own Salicetum (sic).

"My attempt at a natural Classification, has been shown in NINE SECTIONS, and order of arrangement of the American Willows, which Sir Wm. J. Hooker did me the honor of adopting in his magnificent FLORA BOREALI-AMERICANA."

"I have received from different portions of the United States, collections of Willows. These, with the large and most valuable collection of Specimens made in British North America, and on the North West Coast, transmitted to me by Sir William J. Hooker, for examination, have enabled me satisfactorily to determine the geographical range of the species found, on the continent of North America"

Barratt, Joseph. Salices Americane: North American Willows. 4to. p. 2. 1840. 2(1840). (privately printed, on one side only, of cheap paper. October 21, 1840. (7pp)

3. (1838). Hooker, Wm. J. Flora Boreali-Americana 2: 149. 1838.

"S. cordata (Willd.) - - - - -

y. Mackenziana: foliis obovato-lanceolatis. -- S. Mackenziana Barratt nat.  
Great Slave Lake and Mackenzie River."

(Is this a valid publication of S. Mackenziana Barratt? And what is the author of the varietal combination? GRB.)

Salix Mackenziana does not occur, either as species or variety, in Barratt's Salices-Americane: North American Willows (NO. 2, above), as that covered only the species represented by the specimens he was distributing to other collectors and herbariums.

In 1858, the Swedish Botanist, N.J. Andersson, published two papers on North American willows. One was printed in Swedish and Latin, the other in English and Latin. The latter was published in a journal and also issued as reprint with separate pagination. These are cited below.

4. (1858). Andersson, N.J. Bidrag till kännedomen om de i Nordamerika förekommande växtarter (Salices). Öfvers. Kongl. Vetensk.-Akad. Föreläsning. 15: 109-134. 17 Mar., 1858. (The species are numbered, but two bear number 7, which makes all succeeding numbers (8-58) one unit lower than those in the American edition (9-59)).

Under *S. cordata* Muhl., in the final paragraph (p. 125), he discusses two species included by Hooker (Fl. Bor.-Am.), namely *S. balsamifera* Barratt and *S. Mackenziana* Barratt. He states that *S. balsamifera* is the same as *S. scutifolia*.

Of *S. Mackenziana* he says: "*S. Mackenziana* Muhl. hybrida proles ex *S. cordata* et *vagante* videtur."

5. (1858). Andersson, N. J. Salices Boreali-Americane. A Synopsis of North American Willows. Proc. Amer. Acad. of Arts & Sciences 4: 50-78. 1858.

The introduction is in English, but the Latin text is very nearly the same as in the Swedish edition, with occasional footnotes by Dr. Asa Gray.

The statements about *S. balsamifera* Barratt and *S. Mackenziana* Barratt occur on p. 65. In that about *S. Mackenziana*, the name (*restrata*) has been inserted in ( ) after *S. vagante*, probably by Dr. Gray.

The American Academy paper was preprinted as a separate with pages 1-32, inclusive. On the cover, it bears the words: "Communicated April 13th., 1858", which would indicate that it appeared later than the Swedish paper, dated March 17, 1858.

In both the Swedish and American papers he describes the capsules of *S. Mackenziana* as "capsules longissime pedicellatas". The long pedicels may have given him the impression that it was a hybrid with *S. vagans* (*S. retrata*; *S. Bebbiana*). In *S. Mackenziana*, the pedicel normally 2-4 mm. long, which is the longest in any member of Section *Cordatae* although they sometimes reach that length in *S. lutea* var. *platyphylla* Bail.

6. (1867). Andersson, N. J. (Monogr. Salicum), Kongl. Vetensk.-Akad. Handlingar 6: 160. 1867.

\* *Salix Mackenziana* Barratt.

The species in Monogr. Sal. are centered and numbered, in heavy bold-faced type. This is centered, in that type, but with asterisk instead of number. It follows No. 91, *S. cordata* Muhl., and is followed by No. 92, *S. Norvegiae* Engelm.

In the 2 papers of 1858 (Nos. 4 and 5, above), Andersson describes the capsules as "longissime pedicellatas". Here he describes them as ~~extremis~~ pedicels as 8 times longer than the glands; those of *S. cordata* as 6-8 times longer, and the capsules of *S. rigida* Muhl. as "longissime pedicellatas".

He again assumes that *S. Mackenziana* is a hybrid of *S. cordata* X *restrata* (*S. Bebbiana*) and again stresses pedicel length as evidence, but his statements, recorded above, show that they are no longer than in the related *S. cordata* Muhl. and *S. rigida* Muhl.

"Syn. *Salix cordata* y *Mackenziana* Hook, Fl. boreal.-amer. II. p. 149. -- Andersson Nordamer. Fl. 1.8-p.125. -- *S. scutifolia* Hook. fl. boreal.-amer. II. p. 150."

In his two papers of 1858 (Nos. 4 and 5, above), he stated that *S. balsamifera* Barratt was the same as *S. scutifolia* Hook. Now *S. Mackenziana* is so placed.

7. (1858). Andersson N.J. Salicinae, in De Candelie, Prodrums 16 (pt. 2): 252-3. 1858.  
"X *S. Mackenziana* (Barratt in Andersson. Mon. p. 150.)"

"*S. cordata* y *Mackenziana* Hook. In America boreali ad Great Slave Lake et Mackenzie river (Richardson)."

He still regards it as *S. cordata* X *S. retrata* and stresses same

8. (1885). Coulter, John M. Manual of the Botany of the Rocky Mountain Region. p.335  
 "S. cordata Muhl. var. Mackenziana Hook." (3-line description). 1885.
9. (1886). Macoun, John M. Cat. Can. Plants. Pt. 3:447. 1886.  
 "Salix cordata Muhl. var. Mackenziana Hook. Fl. Bor.-Am. 2:149. 1839."  
 {note l.s "n" and inserted "e" in citation; also later data.}  
 (1896)
10. Britton and Brown. Illus. Flora of the Northern U.S., Canada, and British Possessions.  
 1:503. 1896.  
 "Salix cordata Mackenziana Hook. Fl. Bor. Am. 2:149. 1839. Small tree.  
 Leaves lanceolate or oblanceolate. Manitoba and Northwest Territory to California  
 (note lower-case n and inserted e in citation; also 1939.)
11. (1917). Rydberg, Per Axel. Flora of the Rocky Mts. and Adjacent Plains. p. 193. 1917.  
 (S. Mackenziana Barratt. no citation).
12. (1901). Britton, N.L. Manual of the Flora of the Northern States and Canada. p.314.  
 "10. Salix Mackenziana Barratt. Mackenzie's Willow. " - - - young bran- 1901.  
 shes yellow or often tinged with bright red" - - -. Man. to NW Terr. & Calif.  
 (he does not mention long petioles)
13. (1909). Coulter & Nelson. New Manual of Botany of the Central Rocky Mountains. p.133  
 15. Salix Mackenziana Barr. Hook. Fl. Bor. Am. 2:149. 1839. 1909.  
 Wye. to Snake, west to Nev. & Calif.  
 (this citation by Ball is really one of a narrow medium).
14. (1921). Schneider, Camille.

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15. (1923). Ball, Carleton R., in Abrams, Illus. Flora of the Pacific States 1:495. 1923  
 "15. Salix Mackenziana (Hooker) Barratt. Mackenzie Willow.  
 Salix cordata Mackenziana Hook. Fl. Bor. Am. 2:149. 1839."
16. (1934). Raup, Hugh M. Phytogeographic Studies in the Peace and Upper Liard River Regions, Canada. With a Catalogue of the Vascular Plants. Contrib. from the Arnold Arboretum of Harvard University VI:146. 1934.  
 "(Salix Mackenziana Barratt)" no citation.
17. (1936). Raup, Hugh M. Phytogeographic Studies in the Athabasca-Great Slave Lake Region. Jour. Arnold Arb. 17:223. 1936.  
 "Salix Mackenziana Barratt-- See Jour. Arn. Arb. 2:190. 1921." (note D)
18. (1939). Van Dersal, William R. Native Woody Plants of the United States. Their Erosion-Control and Wildlife Values. U.S. Dept. Agric., Misc. Publ. 203:250.  
 "Salix Mackenziana (Hooker) Barr. A large shrub to small or nearly 1938.  
 a large tree." (gives extended range, on map districts)