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FROM THE TRANSACTIONS OF THE ROYAL SOCIETY OF CANADA
SECOND SERIES—1905-1906
VOLUME XI

**Report of the Botanical Club of Canada
for 1904-1905**

**By A. H. MacKAY, LL.D.,
General Secretary**

(ISSUED JULY, 1905)

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1905

Report of the Botanical Club of Canada
for 1904-1905

By A. H. MacKAY, LL.D.
General Secretary

ISSUED JULY, 1905

XVI.—*Report of the Botanical Club of Canada for 1904-5.*

By the General Secretary, A. H. MacKAY, LL.L.

There was nothing striking in the history of the Club during the year. Prince Edward Island appears to have done more work than usual; British Columbia has not reported as much as usual. In Nova Scotia the public schools have been doing good work in phenology. Over three hundred accurate and full schedules of observations were sent in from as many school sections representing every county in the Province. These were referred in groups to the following phenological staff for examination, selection, and compilation; and the criticisms on faulty observations were published in the *Journal of Education* for the benefit of observers in future years—from page 12 to 15 of the April issue, 1905.

Region	I. (Yarmouth & Digby), A. W. Horner, Principal, Salem School, Yarmouth.
"	II. (Shelburne Co.), C. Stanley Bruce, Principal, Academy, Shelburne.
"	II. (Queens Co.), Miss M. C. Hewitt, Science Teacher, Academy, Lunenburg.
"	II. (Lunenburg Co.), B. McKittrick, B.A., Principal, Academy, Lunenburg.
"	III. (Ann. & Kings), E. Robinson, Principal, Academy, Kentville.
"	IV. (Hants Co.), Miss A. Forbes, B.A., Academy, Windsor.
"	V. (Halifax Co.), G. R. Marshall, B.A., Principal, C.A. School, Halifax.
"	V. (Guysboro Co.), J. B. McCarthy, B.Sc., Science Master, Academy, Halifax.
"	VI. (Col. & Cum.), J. E. Barteaux, Science Master, Academy, Truro.
"	VII. (N. Cum. Co.), E. J. Lay, Principal, Academy, Amherst.
"	VII. (Pictou Co.), W. P. Fraser, Science Master, Academy, Pictou.
"	VII. (Antigonish Co.), F. G. Morehouse, Principal, Schools, Antigonish.
"	VIII. (Richmond Co.), G. W. MacKenzie, B.A., Principal, Public Schools, Sydney Mines.
"	VIII., IX., X. (C.B. Vic. & Inv. Co.), L. A. DeWolf, M.Sc., High School, North Sydney.

The phenochrons of each of these compilers were again averaged into the ten columns of phenochrons for each region of the Province by Miss Jean Lindsay, B.A., of the Education Department, as they are given in the first table following.

The annual phenochrons for Nova Scotia, and the observations reported by the following observers from stations within the other Provinces of the Dominion are given in the last table:

New Brunswick: Geo. U. Hay, D.Sc., Saint John.
Prince Edward Island: John MacSwain, Charlottetown.
Prince Edward Island: J. M. Duncan, Kensington.
Ontario: Cephas Guillet, Ph.D., Ottawa.
Ontario: Mrs. F. E. Webster, Creemore.
Ontario: A. B. Klugh, Guelph.
Saskatchewan: Rev. Charles W. Bryden, B.A., Shellbrook.
British Columbia: J. K. Henry, P.A., Vancouver.

It was found to be impossible hitherto to obtain reports from Yukon and Newfoundland. Several parties at the beginning of the year hoped to be able to record observations, but before the close of the season pressure of other affairs had prevented them from making a series of observations which they cared to report. But were only a half a dozen observations made, they would be of very great interest, for they would form a basis of comparison with as many objects observed in the other provinces. It is hoped we may be more successful in the future in obtaining observations representing portions of the continent from the Atlantic to the Pacific and north to the Arctic. Even should the observations be very few, they would be of very great value.

Circular and special letters were sent out to hundreds of addresses during the year, asking for co-operation in the various kinds of botanical work which may be found convenient in each locality. The exploration of the local floras is going steadily on. It is suggested, that those sending in to the General Secretary list of plants new to any locality, should have each species with the notes on it so separated on the manuscript, that each can be easily cut off to be collated by the central compiler with similar notes on the same species from other localities.

The annual meeting of the Club was held during the meeting of the Royal Society at Ottawa; the first meeting at noon on the 24th of May, 1905, and the second on the 25th May, at 4 p.m., in the Section IV. meeting room in the Normal School Building. There were present: John Macoun, G. U. Hay, James Fletcher, Professor Fowler, Dr. Burgess, Mr. Evans, and A. H. MacKay. John Macoun gave an idea of the amount of new work done since the first volume of the Catalogue

1—

of Canadian Plants was issued, and expressed the view that the revision should not be printed until the report of the Vienna Congress on Nomenclature should be published. The work outlined at the previous annual meeting—at Saint John, New Brunswick—was further considered, and each member present constituted a committee to stimulate the movement within his own Province and where ever an opportunity should offer. The officers of the previous year were re-elected as follows:

Honorary President: John Macoun, M.A., F.L.S., Ottawa.
President: Geo. H. Hay, D.Sc., Saint John, New Brunswick.
General Secretary-Treasurer: A. H. MacKay, LL.D., Halifax,
Nova Scotia.

Secretaries for the Provinces:

Nova Scotia: Principal E. J. Lay, Academy, Amherst.
New Brunswick: James Vroom, Esq., St. Stephen.
Prince Edward Island: John MacSwain, Esq., Charlottetown.
Quebec: Rev. Robert Campbell, M.A., D.D., Montreal.
Ontario: James Fletcher, LL.D., F.L.S., Ottawa.
Manitoba: Rev. W. A. Burman, B.D., Winnipeg.
Assiniboia: Mr. Thos. R. Donnelly, Pheasant Forks.
Northwest Prov. and Territories: T. N. Willing, Esq., Regina.
Alberta: Percy B. Gregson, Esq., Blackfalds.
Saskatchewan: Rev. C. W. Bryden, B.A., Shellbrook.
British Columbia: J. K. Henry, B.A., High School, Vancouver.
Vancouver Island, B.C.: A. J. Pinco, B.A. High School, Victoria.

The determination of species can be most effectively made by

JAMES M. MACOUN,

Curator of the Herbarium, Geological Survey.

OTTAWA, ONT.

The Botanical Club of Canada was organized by a committee of section four of the Royal Society of Canada, at its meeting in Montreal, May 29th, 1891.

The object is to promote by concerted local efforts and otherwise, the exploration of the flora of every portion of British America, to publish complete lists of the same in local papers as the work goes on, to have these lists collected and carefully examined in order to arrive at a correct knowledge of the precise character of our flora and its

geographical distribution, and to carry on systematically seasonal observations on botanical phenomena.

The intention is to stimulate, with the least possible paraphernalia of constitution or rules, increased activity among botanists in each locality, to create a corps of collecting botanists wherever there may be few or none at present, to encourage the formation of field clubs, to publish lists of local floras in the local press, to conduct from year to year exact phenological observations, etc.; for which purposes the secretaries for the provinces will appoint secretaries for counties or districts, who will be expected, in like manner, to transmit the same information to as many as possible in their more local spheres of action.

Members and secretaries, while carrying out plans of operation which they may find to be promising of success in their particular districts, will report as frequently as convenient to the officer under whom they may be immediately acting.

Before the end of January, at the latest, reports of the work done within the various provinces during the year ended December the 31st previous, should be made by the secretaries for the provinces to the general secretary, from which the annual report to the Royal Society shall be principally compiled. By the first of January, therefore, the annual reports of county secretaries and members should be sent in to the secretaries of the provinces.

To cover the expenses of official printing and postage, a nominal fee of twenty-five cents per annum is expected for membership (or one dollar for five years in advance, or five dollars for life membership). Secretaries for the provinces, when remitting the amount of fees from members to the general treasurer, are authorized to deduct the necessary expenses for provincial office work, transmitting vouchers for the same with the balance.

The names of those reporting any kind of valuable botanical work during the year will be published in the list of active members, even should the payment of fees be forgotten. All payments are credited to the current year and the future. Lapsed active membership can, therefore, be restored at any time without the payment of arrears.

FLOWERING AND OTHER PHENOCHRONS FOR EACH REGION OF THE PROVINCE OF NOVA SCOTIA, COMPILED FROM 300
PUBLIC SCHOOL OBSERVATION SCHEDULES

WHEN FIRST SEEN.				YEAR ENDED JULY, 1904.		WHEN BECOMING COMMON.									
Regions.				Nova Scotia.		Regions.									
1. Yarmouth and Digby.	2. Shelburne, Queens and Lunenburg.	3. Annapolis and Kings.	4. Hants and South Colchester.	5. Halifax and Guysboro.	6. South Cobequid Slope (S. Cumb. and Col.)	7. North Cumb. Col. Pictou and Antigonish.	8. Richmond and Cape Breton.	9. Bras d'Or Slope (Inv. and Victoria).	10. Inverness Slope to Gulf.	Average for Province.					
102.3 101.	98.6 110.9 114.9 103.8 107.4 112.1 109.3 108.5	106.9	113.2 108.8 105.6 103.7 115.4 121.	114.2 112.7 119.2 114.6 113.5	124.3 127.	118.9 117.	128.2 131.5 125.7 121.	124.	123.	127.	127.	127.	127.	127.	127.
115.5 113.5 109.	119.3 129.2 120.	115.	119.7 119.	125.	118.	118.4 107.8 109.8 108.8 116.7 119.8 124.3 121.8 123.4 123.7 127.4	135.2 135.5 131.8 137.7 131.	145.2 139.3 134.7 136.5 124.5 135.5	130.8 126.	132.1 133.	133.	133.	133.	133.	133.
92.9 96.3 99.5 103.7 113.	115.8 113.2 115.7 117.8 121.4	109.1	128.2 131.5 125.7 121.	124.	123.	132.6 127.5 128.4 134.4 130.2 134.2 132.4 133.6 135.8 133.	135.3 130.8 131.7 133.5 133.5 138.6 134.	136.	139.4 136.4 139.2	127.5 137.5 190.	134.	123.	120.5 130.	130.2	139.2
125.9 127.4 132.5 126.6 134.4 133.6 128.8 132.2 121.5 125.5	128.8	127.5	132.6 127.5 128.4 134.4 130.2 134.2 132.4 133.6 135.8 133.	135.3 130.8 131.7 133.5 133.5 138.6 134.	136.	139.4 136.4 139.2	127.5 137.5 190.	134.	123.	120.5 130.	130.2	139.2	130.2	139.2	139.2
120.5 121.6 125.5 125.	126.4 126.9 127.8 130.	129.5 129.6 126.3	132.6 127.5 128.4 134.4 130.2 134.2 132.4 133.6 135.8 133.	135.3 130.8 131.7 133.5 133.5 138.6 134.	136.	139.4 136.4 139.2	127.5 137.5 190.	134.	123.	120.5 130.	130.2	139.2	130.2	139.2	139.2
124.5 126.1 126.8 127.2 136.1	128.8 129.4 134.2 133.5 133.6 130.	127.3	132.6 127.5 128.4 134.4 130.2 134.2 132.4 133.6 135.8 133.	135.3 130.8 131.7 133.5 133.5 138.6 134.	136.	139.4 136.4 139.2	127.5 137.5 190.	134.	123.	120.5 130.	130.2	139.2	130.2	139.2	139.2
127.1 127.1 124.9 126.9 131.1	127.3 127.1 132.5 128.3 136.	128.8	132.6 127.5 128.4 134.4 130.2 134.2 132.4 133.6 135.8 133.	135.3 130.8 131.7 133.5 133.5 138.6 134.	136.	139.4 136.4 139.2	127.5 137.5 190.	134.	123.	120.5 130.	130.2	139.2	130.2	139.2	139.2
122.1 124.2 123.4 123.5 130.2	127.3 129.6 133.6 132.3 131.3	127.7	132.6 127.5 128.4 134.4 130.2 134.2 132.4 133.6 135.8 133.	135.3 130.8 131.7 133.5 133.5 138.6 134.	136.	139.4 136.4 139.2	127.5 137.5 190.	134.	123.	120.5 130.	130.2	139.2	130.2	139.2	139.2
158.1 159.5 157.5 158.4 152.4 161.9 154.1	168.9 170.5 168.1	161.9	132.6 127.5 128.4 134.4 130.2 134.2 132.4 133.6 135.8 133.	135.3 130.8 131.7 133.5 133.5 138.6 134.	136.	139.4 136.4 139.2	127.5 137.5 190.	134.	123.	120.5 130.	130.2	139.2	130.2	139.2	139.2
125.5 127.4 127.6 128.8 133.7 133.1 132.4 136.3 134.7 137.	131.6	131.6	132.6 127.5 128.4 134.4 130.2 134.2 132.4 133.6 135.8 133.	135.3 130.8 131.7 133.5 133.5 138.6 134.	136.	139.4 136.4 139.2	127.5 137.5 190.	134.	123.	120.5 130.	130.2	139.2	130.2	139.2	139.2

FLOWERING AND OTHER PHENOCHRONS FOR THE PROVINCE OF NOVA SCOTIA.—(Continued).

When First Seen.		When Becoming Common.	
Regions.		Regions.	
Year ended July, 1904.		Nova Scotia.	
Day of the year corresponding to the last day of each month.		Average for Province.	
Jan.....	31	137.7	141.8
Feb.....	59	133.2	139.1
March.....	89	128.1	132.1
April.....	120	138.4	143.6
May.....	151	137.1	144.8
June.....	182	200.1	217.9
For Leap year add one to each except January.			
1. Yarmouth and Digby.	139.	140.9	138.5
2. Shelburne, Queens and Lunenburg.	125.4	132.9	132.1
3. Annapolis and Kings.	124.	130.	129.9
4. Hants and South Colchester.	137.1	137.6	141.2
5. Halifax and Guysboro.	136.8	135.7	141.5
6. South Cobequid Slope (S. Cumb. and Col).	137.1	135.6	141.6
7. North Cumb. Col. Pictou and Antig. Breton.	138.5	141.5	141.5
8. Richmond and Cape Breton.	180.	216.5	203.6
9. Bras d'Or Slope (Inv. and Victoria).	131.7	137.1	137.6
10. Inverness Slope to Gulf.	125.4	132.3	137.9
11. Erythronium Americanum.....	13	137.7	141.8
12. Coptis trifolia.....	14	133.2	139.1
13. Claytonia Caroliniana.....	15	128.1	132.1
14. Nepeta Glehouna.....	16	138.4	143.6
15. Amelanchier Canadensis.....	17	137.1	144.8
16. " " fruit ripe.....	18	200.1	217.9
17. Prunus Pennsylvanica.....	19	144.5	149.5
18. " " fruit ripe.....	20	215.9	223.1
19. Vaccinium Can. and Penn.....	21	141.7	148.7
20. " " fruit ripe.....	22	207.6	222.7
21. Ranunculus acris.....	23	147.5	155.5
22. R. repens.....	24	156.9	162.3
23. Trill erythrocarpum.....	25	145.9	151.1
24. Rhododendron Rhodora.....	26	145.1	153.6

FLOWERING AND OTHER PHENOCHONS FOR THE PROVINCE OF NOVA SCOTIA.—(Continued).

WHEN FIRST SEEN.			YEAR ENDED JULY, 1904.		WHEAT BECOMING COMMON.										
Regions.			NOVA SCOTIA.		Regions.										
			Day of the year corresponding to the last day of each month.												
			Jan.	31 July	212										
			Feb.	59 Aug.	243										
			March	90 Sept.	273										
			April	120 Oct.	304										
			May	151 Nov.	334										
			June	181 Dec.	365										
			For Leap year add one to each except January.												
			27	Cornus Canadensis	150.5	150.4	151.2	153.4	153.6	149.9	152.2	157.8	156.1	157.8	
			28	" " fruit ripe.....	220.	204.	217.7	210.	253.5	202.6	224.5	219.9	215.	231.5	
			29	Trientalis Americana	151.2	150.8	150.7	150.3	153.6	156.3	154.4	154.5	157.2	159.1	
			30	Clintonia borealis	137.5	153.3	168.7	156.8	151.1	105.1	156.7	157.6	157.1	162.5	
			31	Calla palustris.....	165.4	178.5	155.2		150.7	165.3	165.7	163.4	172.1	174.6	
			32	Cypripedium acaule.....	162.4	156.4	158.4	168.7	159.9	163.5	162.5	159.9	171.9	171.1	
			33	Sisyrinchium angustifolium.....	164.7	158.8	158.9	163.3	156.9	166.9	167.	165.5	170.3	172.8	
			34	Linnea borealis	168.	161.2	163.4	166.1	164.8	167.3	167.3	169.7	170.	174.5	
			35	Kalmia glauca	156.6	149.8	154.2	154.3	151.	167.1	151.8	156.7	158.9	163.5	
			36	Kalmia angustifolia	174.3	166.4	174.	173.5	176.2	162.2	176.7	174.6	179.	186.	
			37	Crataegus oxyacantha	167.3	162.8	162.5	165.2	164.5	167.5	171.5	162.5	177.	172	
			38	Crataegus coccinea, etc	163.	165.3	159.2	158.4	154.8	163.	165.	159.5	167.5	169.1	
			39	Iris versicolor	170.3	164.3	163.8	170.4	164.	173.6	167.8	170.6	176.	174.6	
			40	Chrysanthemum Leucanth	171.4	163.7	167.2	167.6	169.3	165.9	170.3	169.6	175.9	176.7	

FLOWERING AND OTHER PHENOCHRONS FOR THE PROVINCE OF NOVA SCOTIA—(Continued).

WHEN FIRST SEEN.										WHEN BECOMING COMMON.												
Regions.										Regions.												
NOVA SCOTIA.																						
YEAR ENDED JULY, 1904.																						
Day of the year corresponding to the last day of each month.																						
Jan.	31	July	212							1. Yarmouth and Digby.	170.5	170.3	165.3	170.3	165.2	170.3	172.5	170.3	174.2	173.5		
Feb.	59	Aug.	243							2. Shelburne, Queens and Lunenburg.	166.9	162.8	162.5	166.6	161.4	167.8	160.9	168.4	171.2	173.7		
March.	90	Sept.	273							3. Annapolis and Kings.	227.1	220.5	219.	216.	225.5	236	227.	238.7	.....	227.		
April.	120	Oct.	304							4. Hants and South Colchester.	175.9	172.5	176.6	180.	177.1	180.8	153.	181.9	176.2	180.		
May.	151	Nov.	334							5. Halifax and Guysboro.	171.6	167.5	171.3	169.3	164.5	170.4	165.7	174.7	176.8	177.5		
June.	181	Dec.	365							6. South Cobequid Slope (S. Cumb. and Col.)	249.2	236.3	253.	239.	252.5	247.5	252.5	249.7	.....	244.		
For Leap year add one to each except January.										7. North Cumb. Col. Pictou and Antig.	172.1	171.7	167.3	167.		153.6	175.7	175.5	180.	187.		
										8. Richmond and Cape Breton.	142.2	178.	175.7	178.3	178.		165.5	178.	181.7	186.5		
										9. Bras d'Or Slope (Inv. and Victoria).	181.6	180.	178.3	182.	180.6	184.6	179.	181.9	176.	192.		
										10. Inverness Slope to Gulf.	173.7	170.7	168.3	175.7	170.7	175.7	172.9	177.6	177.7	174.5		
										Average for Province.	178.6	167.3	182.7	179.5	179.5		176.	174.2	191.			
										11. Linaria vulgaris.....	146.	144.9	145.7	145.6	139.1	150.5	141.4	143.9	153.	149.8	146.1	
										12. Trees appear green	147.2	141.2	146.4	146.2	143.9	150.7	144.8	144.3	152.7	153.3	148.1	
										13. Ribes rubrum(cultivated).....	211.1	194.5	199.		191.	238.	215	5212.1		209.	230.	
										14. " (fruit ripe).....	203.4											

FLOWERING AND OTHER PHENOCHRONS FOR THE PROVINCE OF NOVA SCOTIA.—(Continued).

When First Sown.		When Planted July, 1904.		When Becoming Common.	
Regions.		Nova Scotia.		Regions.	
Regions.		Nova Scotia.		Regions.	
1. Yarmouth and Digby.	Average for Province.	Day of the year corresponding to the last day of each month.	Average for Province.	1. Yarmouth and Digby.	Average for Province.
2. Shelburne, Queens and Lunenburg.		Jan. 31 July 212		2. Shelburne, Queens and Lunenburg.	
3. Annapolis and Kings.		Feb. 59 Aug. 243		3. Annapolis and Kings.	
4. Hants and South Colchester.		March 90 Sept. 273		4. Hants and South Colchester.	
5. Halifax and Guysboro.		April 120 Oct. 304		5. Halifax and Guysboro.	
6. South Cobequid Slope (S. Cumb. and Col.)		May 151 Nov. 374		6. South Cobequid Slope (S. Cumb. and Col.)	
7. North Cumb. Col., Pictou and Antig.		June 181 Dec. 365		7. North Cumb. Col., Pictou and Antig.	
8. Richmond and Cape Breton.				8. Richmond and Cape Breton.	
9. Bras d'Or Slope (Inv. and Victoria).				9. Bras d'Or Slope (Inv. and Victoria).	
10. Inverness Slope to Gulf.				10. Inverness Slope to Gulf.	
For Leap year add one to each except January.					
55 R. nigrum (cultivated).	142.9	55 R. nigrum (cultivated).	142.9	55 R. nigrum (cultivated).	142.9
56 " (fruit ripe).	190.5	56 " (fruit ripe).	209.4	56 " (fruit ripe).	214.9
57 Prunus Cerasus.	138.4	57 Prunus Cerasus.	147.4	57 Prunus Cerasus.	156.9
58 " " fruit ripe.	221.1	58 " " fruit ripe.	210.1	58 " " fruit ripe.	210.3
59 Prunus domestica	141.7	59 Prunus domestica	151.1	59 Prunus domestica	155.8
60 Pyrus Malus.	143.5	60 Pyrus Malus.	150.5	60 Pyrus Malus.	155.7
61 Syringa vulgaris.	151.1	61 Syringa vulgaris.	157.6	61 Syringa vulgaris.	163.6
62 Trifolium repens.	150.4	62 Trifolium repens.	157.3	62 Trifolium repens.	165.3
63 Trifolium pratense	144.3	63 Trifolium pratense	155.7	63 Trifolium pratense	164.6
64 Phleum pratense	173.8	64 Phleum pratense	157.2	64 Phleum pratense	180.6
65 Solanum tuberosum.	175.5	65 Solanum tuberosum.	176.8	65 Solanum tuberosum.	198.7
66 Ploughing (first of season)	101.2	66 Ploughing (first of season)	119.3	66 Ploughing (first of season)	126.8
67 Sowing	122.3	67 Sowing	128.4	67 Sowing	135.9
68 Potato-planting (first of season)	119.2	68 Potato-planting (first of season)	126.6	68 Potato-planting (first of season)	134.4

FLOWERING AND OTHER PHENOCHRONS FOR THE PROVINCE OF NOVA SCOTIA.—(Continued).

WHEN FIRST SEEN.										WHEN BECOMING COMMON.																								
REGIONS.										REGIONS.																								
NOVA SCOTIA.																																		
YEAR ENDED JULY, 1904.																																		
Day of the year corresponding to the last day of each month.										Average for Province.																								
Jan. 31 July 212										1. Yarmouth and Digby.																								
Feb. 59 Aug. 243										2. Shelburne, Queens and Lunenburg.																								
March 90 Sept. 273										3. Annapolis and Kings.																								
April 120 Oct. 304										4. Hants and South Colchester.																								
May 151 Nov. 334										5. Halifax and Guysboro.																								
June 181 Dec. 365										6. South Cobequid Slope (S. Cumb. and Col.)																								
For Leap year add one to each except January.										7. North Cumb., Col., Pictou and Antig.																								
69 Sheep-Shearing (first of season)										8. Richmond and Cape Breton.																								
70 Hay-cutting										9. Bras d'Or Slope (Inv. and Victoria).																								
71 Grain-cutting										10. Inverness Slope to Gulf.																								
72 Potato-digging										Average for Province.																								
73a Opening of rivers.										129.6	127.2	138.2	135.4	129.8	123.5	114.8	123.6	203.7	215.3	213.5	213.5	205.7												
73b Opening of lakes										205.7	186.3	202.7	226.5	218.1	209.5	225.	218.	220.	256.4	252.2	247.2	249.6	258.6	253.3	257.1	271.	264.	254.5						
74a Last snow to whiten ground										248.3	252.2	247.2	249.6	258.6	253.3	257.1	271.	264.	254.5	272.2	256.8	276.7	270.9	276.1	257.2	278.9	281.	274.	278.3					
74b " to fly in air.										266.2	256.8	276.7	270.9	276.1	257.2	278.9	281.	274.	278.3															
75a Last Spring frost—hard										88.5	107.1	112.2	118.4	138.9	159.8	102.5	186.8	271.9	296.3															
75b " " hoar.										107.1	112.2	118.4	138.9	159.8	102.5	186.8	271.9	296.3																
76a Water in streams—high.										112.2	118.4	138.9	159.8	102.5	186.8	271.9	296.3																	
76b " " low.										138.9	159.8	102.5	186.8	271.9	296.3																			
77a First autumn frost—hoar										159.8	102.5	186.8	271.9	296.3																				
77b " " hard.										102.5	186.8	271.9	296.3																					

FLOWERING AND OTHER PHENOCATIONS FOR THE PROVINCE OF NOVA SCOTIA—(Continued).

WHEN FIRST SEEN.										WHEN BECOMING COMMON.									
Regions.										Regions.									
YEAR ENDED JULY, 1904. NOVA SCOTIA.																			
Day of the year corresponding to the last day of each month. Jan..... 31 July 212 Feb..... 59 Aug..... 243 March..... 60 Sept..... 273 April..... 120 Oct..... 304 May..... 151 Nov..... 324 June..... 181 Dec..... 365 For Leap year add one to each except January.										Average for Province.									
Average for Province.										Average for Province.									
1. Vermouth and Digby.	295.9	298.2	298.4	298.5	302.2	299.1	300.6	297.8	314.	290.5	299.6	78a	First snow to fly in air	.....	.....	.....	.....	.....	.....
2. Shelburne, Queens and Lunenburg.	305.7	311.3	304.6	310.	320.3	299.8	305.	310.9	316	299.5	308.3	78b	" " " " " " " " " " " "	.....	.....	.....	.....	.....	.....
3. Annapolis and Kings.	332.	338.3	342.	332.7	.....	335.	348.4	348.	353.1	353.	342.5	79a	Closing of lakes	.....	.....	.....	.....	.....	.....
4. Hants and South Colchester.	.....	354.8	.....	341.5	47.	305.	348.4	357.7	359.	354.1	340.9	79b	" " " " " " " " " " " "	.....	.....	.....	.....	.....	.....
5. Halifax and Guysboro.	.....	86.	86.4	80.2	84.1	96.1	89.2	90.5	91.6	90.3	88.3	81a	Wild ducks migrating.	N	.....	.....	.....	.....	.....
6. South Cobequid Slope (S. Cumb. and Col.)	.....	298.7	298.7	243.	.....	287.7	312.	270.	350.	306.	295.7	81b	" " " " " " " " " " " "	S	.....	.....	.....	.....	.....
7. North Cumb. Col., Pictou and Antig. Breton.	84.7	85.9	84.8	78.6	82.7	85.5	81.7	82.7	86.7	85.7	83.9	82a	" geese	N	.....	.....	.....	.....	.....
8. Richmond and Cape Breton.	317.	283.5	336.	324.	.....	337.7	315.7	283.	303.	.....	312.5	82b	" " " " " " " " " " " "	S	.....	.....	.....	.....	.....
9. Bras d'Or Slope (Inv. and Victoria).	85.	83.8	88.5	87.5	88.4	97.9	92.1	93.7	96.	93.7	91.2	83	Melospiza fasciata.	North	.....	.....	.....	.....	.....
10. Inverness Slope to Gulf.	82.4	84.7	83.8	85.2	85.6	87.3	90.5	90.7	90.7	90.8	88.1	84	Turdus migratorius	"	.....	.....	.....	.....	.....
	70.	88.1	81.0	89.6	86.2	94.2	91.5	85.7	92.	94.3	87.3	85	Junco hiemalis	"	.....	.....	.....	.....	.....
	.....	108.5	132.	124.4	121.3	130.8	134.3	138.5	131.	125.5	127.4	86	Actitis macularia	"	.....	.....	.....	.....	.....
	.....	114.5	.....	122.3	.....	116.	121.	126.5	124.	.....	121.7	87	Sturnella magna	"	.....	.....	.....	.....	.....
	129.5	122.6	126.7	125.7	117.6	127.5	123.2	125.	126.5	125.	124.9	88	Ceryle Alcyon	"	.....	.....	.....	.....	.....

THUNDERSTORMS-PHENOLOGICAL OBSERVATIONS, NOVA SCOTIA, 1903.

The indices indicate the number of stations from which the Thunderstorms were reported on the day of the year specified.

OBSERVATION STATIONS.

[illegible]

THUNDERSTORMS- PHENOLOGICAL OBSERVATIONS, NOVA SCOTIA, 1904

The indices indicate the number of stations from which the Thunderstorms were reported on the day of the year specified.

(OBSERVATION STATION.)

[illegible]

THUNDERSTORMS—PHENOLOGICAL OBSERVATIONS, NOVA SCOTIA, 1904.

The indices indicate the number of stations from which the Thunderstorms were reported on the day of the year specified

OBSERVATION STATIONS.

1. Yarmouth and Digby.	2. Shelburne, Queens and Lunenburg.	3. Annapolis and Kings.	4. Hants and South Colchester.	5. Halifax and Guysboro.	6. S. Cobequid Slope (S. Cans. & Col.)	7. North Cum., Col. Pictou & Antigonish.	8. Richmond and Cape Breton.	9. Bras d'Or Slope (Inv. & Victoria)	10. Inverness Slope to Gulf.	Province of Nova Scotia.
				163		163 ²				163 ³
					164					164
									165 ²	165 ³
	166		165							166
	167 ³		167 ²	167 ⁴		167				167 ¹¹
168	168 ³		168 ⁹	168 ⁴	168 ⁴	168 ³⁰		168		168 ⁶²
169	169	169 ⁸	169 ²			169				169 ⁴
170		170 ⁵	170 ¹²		170 ⁹	170 ⁴⁰	170 ²	170		170 ⁶⁴
171			171 ²			171 ⁴				171 ⁷
	172				172	172 ⁵				172 ¹⁰
173 ⁵	173 ¹¹		173 ¹²	173 ⁵	173 ⁹	173 ²²		173		173 ⁸⁵
174 ³	174	174 ⁸	174 ⁷	174 ²	174 ²	174 ¹³		174		174 ³⁵
175	175 ⁹					175 ⁴				175 ¹⁴
176 ⁶	176 ⁴		176	176						176 ¹²
177 ²	177		177 ³		177	177 ³				177 ¹⁰
			178	178	178 ²					178 ⁴
179										179
181			181							181 ²
			182							182

PHENOLOGICAL OBSERVATIONS, CANADA, 1904

" WHEN FIRST SEEN."

OBSERVATION STATIONS.

Number	Day of the year 1903 corresponding to the last day of each month.	Average dates for Nova Scotia	St. John, N.B.	Charlottetown, P.E.I.	Kentville, P.E.I.	Ottawa, Ont.	Greenboro, Ont.	Guelph, Ont.	Shelbrook, Sask.	Vancouver, B.C.
	Jan..... 31 July..... 218 Feb..... 59 Aug..... 243 March..... 90 Sept..... 273 April..... 120 Oct..... 304 May..... 151 Nov..... 334 June..... 181 Dec..... 365									
	For Leap Year add one to each except January.									
*1	<i>Alnus incana</i> , Wild.	106.9	118	120		114		117		75a
2	<i>Populus tremuloides</i>	118.	125	132		118	126	123		
3	<i>Epigaea repens</i> , L.	108.1	1.5	120	1.6	118				
4	<i>Equisetum arvense</i>	128.8			131	†124		127		102
5	<i>Sanguinaria Canadensis</i>	127.				124		117		
6	<i>Viola blanda</i>	126.8	131		127	†127	142	130		
7	<i>Viola palmata</i> , <i>encullata</i>	130	130		134	131	174	131		
8	<i>Hepatica triloba</i> , etc.....	121.5	123			167	126	123		
9	<i>Acer rubrum</i>	128.8	125	132	136			123		100b
10	<i>Fragaria Virginiana</i>	127.7	131	119	136	127		132		
*11	" " (fruit ripe).....	161.9	162							
12	<i>Taraxacum officinale</i>	131.1	130	135	140	127	130	111		
13	<i>Erythronium Americanum</i>	137.2	125			122	126	117		
14	<i>Cuscuta trifolia</i>	133.2			137	†133		144		
15	<i>Claytonia Caroliniana</i>	128.1				111		117		
16	<i>Nepeta Glechoma</i>	138.4				†133				108
17	<i>Amelanchier Canadensis</i>	137.1	159		139	133		132		
18	" " (fruit ripe).....	200.1								
19	<i>Prunus Pennsylvanica</i>	141.5	149		1.	1.2	142			114c
20	" " (fruit ripe).....	215.9								
21	<i>Vaccinium Can. and Penn.</i>	141.5	146		118	135		135		80
22	" " (fruit ripe).....	207.6								
23	<i>Ranunculus acris</i>	147.5			156			131		124
24	<i>R. repens</i>	156.8			170					128
25	<i>Trillium erythrocarpum</i>	145.9	139		141	127				
26	<i>Rhododendron Rhodora</i>	145.1	139		151					
27	<i>Cornus Canadensis</i>	147.2			147	152		163		133
28	" " (fruit ripe).....	212.6								
29	<i>Trientalis Americana</i>	148.5	146		159	138		148		
30	<i>Clintonia borealis</i>	151.5	149		160	138				
31	<i>Calla palustris</i>	158.5			131			165		

a. *Alnus inbrum*; b. *Acer macrophyllum*; c. *Prunus emarginata*.
 * When becoming common, except 1 and 11.
 † When becoming common.

PHENOLOGICAL OBSERVATIONS, CANADA, 1904.

"WHEN FIRST SEEN."

OBSERVATION STATIONS.

Number	Day of the year 1904 corresponding to the last day of each month.	Average dates for Nova Scotia.	St. John, N.B.	Charlottetown, P.E.I.	Kingston, P.E.I.	Ottawa, Ont.	Green, Ont.	Geolp, Ont.	Shillbrook, Sask.	Vancouver, B.C.
	Jan. 31 July.....212									
	Feb. 59 Aug. 243									
	March..... 90 Sept..... 273									
	April.....120 Oct. 304									
	May 151 Nov. 334									
	June 181 Dec. 365									
	For Leap Year add one to each except January.									
32	Cypripedium acutum.....	157 1	162		153			156		
33	Sisyrinchium angustifolium.....	158			172	145				
34	Linnaea borealis	162 9			168			163		
35	Kalmia glauca.....	151 1						143		
36	Kalmia angustifolia	170.1			173					
37	Crataegus Oxycantha.....	162.	146			142				
38	Crataegus coccinea, etc.....	157 7		161				148		
39	Iris versicolor	164.6	102		175			168		
40	Chrysanthemum Leucanthemum.....	164.6			157			169		
41	Nuphar advena.....	164.9				151		162		
42	Rubus strigosus.....	160.6			170	151		155		74d
43	" " (fruit ripe).....	217.5								162
44	Rhinanthus Crista-galli.....	172 7								
45	Rubus villosus.....	166						150		
46	" " (fruit ripe).....	230 7								
47	Sarracenia purpurea.....	168 1						158		
48	Brunella vulgaris.....	173.3			179			178		
49	Rosa lucida.....	179.9						197		
50	Leontodon autumnale.....	167.6			151					
51	Linaria vulgaris.....	176								
52	Tree appear green	135.8				127b	146			100
53	Ribes rubrum (cultivated).....	141 8								
54	" " (fruit ripe).....	203 4								
55	R. nigrum (cultivated).....	142 9			148					
56	" " (fruit ripe).....	209 4								
57	Prunus Cerasus.....	147 4		149	150					104
58	" " (fruit ripe).....	216								
59	Prunus domestica.....	151.1			146	129				103
60	Pyrus malus	170 5		149	148					112
61	Syringa vulgaris.....	157.6		161	158					125
62	Trifolium repens.....	157 3			158					127

d. Rubus spectabilis.

* When becoming common.

† When becoming common.

PHENOLOGICAL OBSERVATIONS, CANADA, 1914.

"WHEN FIRST SEEN."

OBSERVATION STATIONS.

Number	Day of the year 1903 corresponding to the last day of each month.		Average dates for Nova Scotia.	St. John, N.B.	Charlottetown, P.E.I.	Kensington, P.E.I.	Ottawa, Ont.	Creemore, Ont.	Guelph, Ont.	Shellbrooke, Sask.	Vancouver, B.C.
	Jan	July									
	Feb. 31	Aug. 212									
	March 59	Sept. 242									
	April 90	Oct. 273									
	May 120	Nov. 304									
	June 151	Dec. 334									
	 181	 365									
	For Leap Year add one to each except January.										
63	Trifolium pratense.....		155.7			159	†128				140
64	Phleum pratense		157.2								
65	Solanum tuberosum.....		170.8					188			
66	Ploughing (first of season).....		119.3			124					
67	Sowing " "		128.4			127					
68	Potato-planting "		126.0					145		131	
69	Sheep-shearing "		129.6					144			
70	Hay-cutting "		205.7					194		196	
71	Grain-cutting "		248.3					202			
72	Potato-digging "		266.2			276					
73a	Opening of rivers "		88.5		103						
7	Opening of lakes "		107.1								
74a	Last snow to whiten ground.....		112.2								82
74b	" to fly in air.....		118.4			117					82
75a	Last spring frost—hard.....		138.9			97					
75b	" " hoar		159.8	163	126	124					
76a	Water in streams—high.....		102.5					107			
76b	" " low.....		186.8								
77a	First autumn frost—hoar.....		271.9		252	252		257			
77b	" " hard.....		296.3	281		280					
78a	First snow to fly in air.....		299.6		262	301					
78b	" whiten ground.....		308.3			306					
79a	Closing of Lakes		342.5								
79b	" Rivers.....		340.9		344						
81a	Wild ducks migrating, N.....		88.3					124	123		
81b	" " S.....		295.7								
82a	" geese " N.....		83.9		69					94	
82b	" " S.....		312.5		260						
83	Melospiza fasciata, North.....		91.2		88	92	85	86	83		
84	Turdus migratorius "		88.1		90	92	84	85	83	111	
85	Junco hiemalis "		87.3		90	92	93		Res.		

80 Thunderstorms:

Charlottetown, P.E.I.:—63, 121, 141, 148, 204, 210, 231, 202.

Kensington, P.E.I.:—63, 121, 148, 170, 181, 202, 230, 242, 262.

Creemore, Ontario:—129, 194, 202, 246, 255, 273.

OBSERVATION STATIONS.

Number	Day of the year 1903 corresponding to the last day of each month.		Average date for Nova Scotia.	St. John, N.B.	Charlottetown, P.E.I.	Kensington, P.E.I.	Ottawa, Ont.	Creemore, Ont.	Guelph, Ont.	Shellbrooke, Sask.	Vancouver, B.C.
	Jau. 31	July. 212									
	Feb. 59	Aug. 243									
	March 90	Sept. 273									
	April 120	Oct. 304									
	May 151	Nov. 334									
	June 181	Dec. 365									
	For Leap Year add one to each except January.										
86	Actitis macularia, North	127.4									
87	Sturnella magna "	121.7							120		
88	Ceryle Alcyon "	124.9					93		83	112	
89	Dendroica coronata "	134.5					114		97		
90	D. aestiva "	134.6							120		
91	Zonotrichia alba "	119.4					128		126		
92	Trochilus colubris "	145.6							146		
93	Tyrannus Carolinensis "	140.1							141		
94	Dolichonyx oryzivorus "	133.4							126		
95	Spinis tristis "	143.7							124		
96	Setophaga ruticilla "	137.3						151	Res.		
97	Ampelis cedrorum "	142.					128		140		
98	Chordeiles Virginianus "	122.5		149					147		
99	First piping of frogs	108.7		114	123	108	112		155		
100	First appearance of snakes	116.2			168		93			111