

apparatus by insulated leads of convenient length. The holes were bored at depths of 1, 4, 10, 20, 40, 66 and 108 inches. In the earlier periods readings were taken daily at 12 noon, but later a continuous recording apparatus was installed. An abstract of the snow conditions and temperature recorded are given herewith.

This record shows very clearly the material effect of snow on the depth of frost penetration and the slight cover

probably required when snow is always present early in the winter. The record of the thermometer buried at a depth of 10 inches, which showed in April, 1895, a drop of 0.2 to 0.3° below 32°, which was the temperature at the beginning of the thaw, is very interesting. This shows that a lowering of the ground temperature below 32° F. may results from a thaw. The following notes are copied from the text:—

Winter 1894-1895.

Depth of thermometer.	Period temperature was below 32° F.	Minimum temperature.	Snow conditions.
Air	Dec. 20 to March 20	—10° F. in Feb.	10 inches snow Dec. 28 which increased to 21 inches by Feb. 1, 33 inches by Feb. 7. Began to melt in March. Final melting of snow between April 7 and 14.
1 inch	Nov. 25 to April 14	27° F. in Dec., just before snow fall	
4 inches	Nov. 28 to April 14	28° F. in Dec., just before snow fall	
10 inches	Dec. 16 to April 14	31½° F. in Dec., just before snow fall	
20 inches	o	33° F. Dec. 14, melting snow	
40 inches	o	35½° F. April 20, melting snow	
66 inches	o	38° F. April 21, melting snow	
108 inches	o	41½° F. April 22, melting snow.	

Winter 1895-1896.

Depth of thermometer.	Period temperature was below 32° F.	Minimum temperature.	Snow conditions.
Air	Nov. 20 till Apr. 10 except for short rises	—15° F. Feb. 18	Practically no snow till Jan. 24. The winter is remarkable for lateness of heavy snow fall and for the rapidity of its disappearance.
1 inch	Dec. 2 to April 20	27° F. Jan. 22, before snow fell	
4 inches	Slightly shorter period than for 1 in.	28° F. Jan. 22, before snow fell	
10 inches	Dec. 22 to April 20	30° F. Jan. 22, before snow fell	
20 inches	o	32½° F. Jan. 23	
40 inches	o	34¼° F. April 15, melting snow	
66 inches	o	38° F. April 20, melting snow	
108 inches	o	41° F. April 25, melting snow	

The final thawing of the ground took place at a depth of 10 inches on April 19th. The 10-inch thermometer which had remained within less than 0.1° F. for about two months previously, showed a depression of 0.3 when the thaw reached it, probably due to lowering melting point by dissolved salts. . . . The percolation of water caused a slight simultaneous fall in the two thermometers next below.

Winter 1896-1897.

Depth of thermometer.	Period temperature was below 32° F.	Minimum temperature.	Snow conditions.
Air	Nov. 15 to March 20	Mean temperature air Dec. 23, 5° F.	No snow during early part winter; frost penetrated much deeper into soil than during two years previous; thawing of ground after disappearance of snow was lengthy operation; 20 days were required. Temperature at 20 inches did not rise above freezing till May 1.
1 inch	Nov. 23 to April 3	10° F. Jan. 20	
4 inches	Dec. 1 to April 10	12° F. Jan. 20	
10 inches	Dec. 15 to April 18	19° F. Jan. 20	
20 inches	Jan. 5 to April 25	27° F. Jan. 20	
40 inches	Nearly reaches 32° F. during Mar. and April.	33° F. March and April.	
66 inches	o	36° F. April 22, melting snow	
108 inches	o	39° F. May 2, melting snow.	

First fall of snow quite light Dec. 5. Practically no snow till Jan. 20. About 20 inches snow on ground from Jan. 20 to Feb. 20. About Feb. 20 snow increased gradually and uniformly to about 28 inches by March 1. Snow disappears about Apr. 2 or 3.