

Bulletin 127

January, 1908

# The Agricultural Experiment Station

OF THE

Colorado Agricultural College

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## **CLIMATE OF COLORADO**

### **TEMPERATURE**

**21 Years' Record at Fort Collins**

BY

L. G. CARPENTER

*and*

R. E. TRIMBLE

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FORT COLLINS, COLORADO  
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# The Agricultural Experiment Station

FORT COLLINS, COLORADO

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\*After March, 1908

# TEMPERATURE AT FORT COLLINS

## 21 YEARS' RECORD

Graphical Diagrams of the Normal Daily Temperature and the Highest and Lowest  
Daily Average

By L. G. CARPENTER and R. E. TRIMBLE

The Meteorological records for Fort Collins have been continued under essentially the same system for 20 years. Observations were made tri-daily up to July 1, 1889, when we changed to the twice daily records.

The average temperature which forms the basis of these charts is the mean of the maximum and minimum temperatures of the day. The observations have been made by several different persons, but since 1891 have been made by Mr. R. E. Trimble.

The instrument house has been under substantially the same conditions, but moved several times for short distances. It has been of the Standard Weather Bureau type, a louver-sided instrument house, with the floor about 6 feet above a grassy plot.

The dotted line of the diagrams shows the average temperature for every calendar day during the year. It is the average of 20 years, 1887-1906 inclusive.

The highest daily average during the 20 years is indicated by the upper line, and the lowest daily average by the lower line. Thus the warmest first of January in the 20 years averaged  $39^{\circ}$ , and the coldest  $-4^{\circ}$ . The diagrams do not show the minimum temperature nor the maximum. The average range for January is  $28^{\circ}$ , and for August  $33^{\circ}$ . The range on the days of extreme temperature is much greater, often  $40^{\circ}$  or even  $55^{\circ}$ , so that if one selects the portion of day to be outside, the physiological effect is that of much more moderate extremes. This is still more the case when the extreme dryness of the climate is considered, moderating the physiological effect.

During the 20 years here recorded the maximum has been as follows.

### MAXIMUM

$91^{\circ}$ .....	1 year
$93^{\circ}$ .....	3 years
$94^{\circ}$ .....	3 years
$95^{\circ}$ .....	5 years
$96^{\circ}$ .....	2 years
$97^{\circ}$ .....	4 years
$99^{\circ}$ .....	2 years
$99.6^{\circ}$ .....	1 year

The minimum for the year has been as follows, below zero:

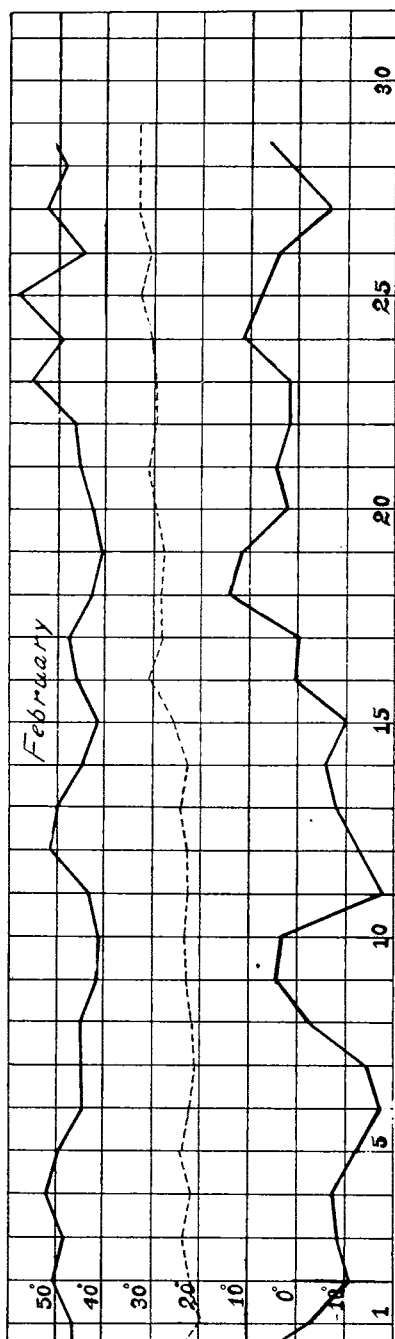
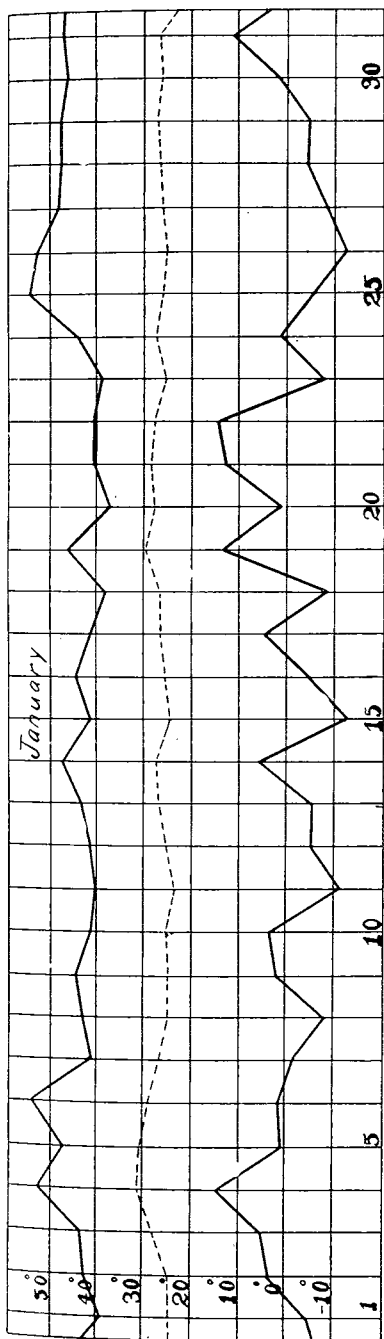
— 5°.....	1 year
6°—10°.....	2 years
11°—10°.....	2 years
16°—20°.....	4 years
21°—25°.....	4 years
26°—30°.....	6 years
31°—35°.....	2 years
—38.4°.....	1 year

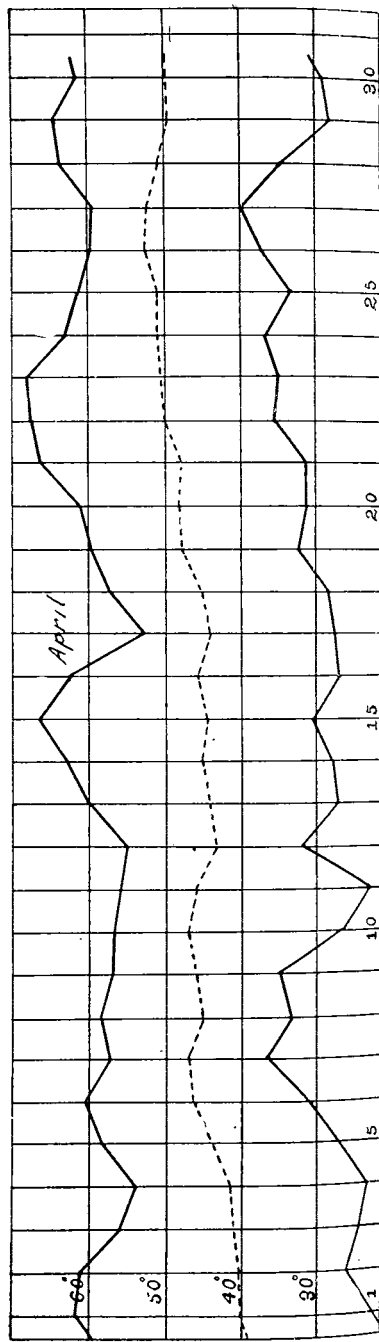
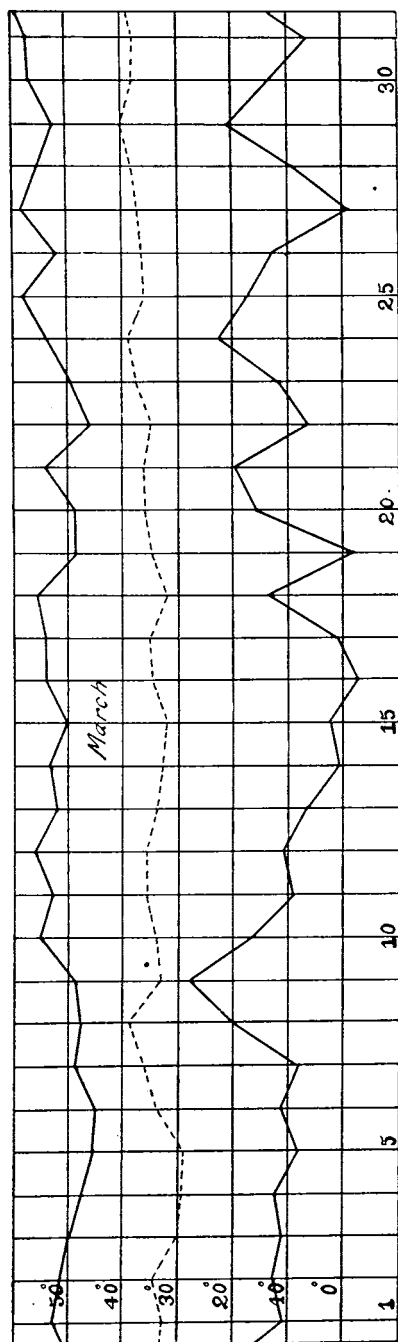
From the above record it is an even probability that the temperature will exceed or fall short of  $94.6^{\circ}$  for its maximum and  $-23^{\circ}$  for its minimum. The average temperature is  $45.7^{\circ}$ , with a probable error of  $0.2^{\circ}$ ; or it is an even probability from present information that after a much longer series of observations, the average will be found to be between  $45.5^{\circ}$  and  $45.9^{\circ}$ .

There is also given in Table I the monthly averages of temperature as found throughout the twenty years; in Table II, the table of extremes for each month; in Table III, the average daily range for each month.

# COLORADO TEMPERATURE.

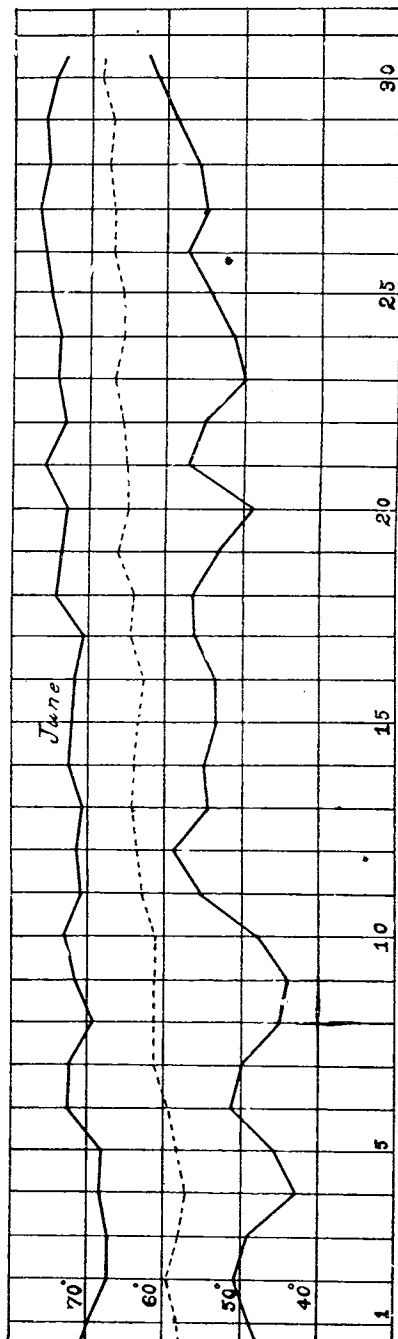
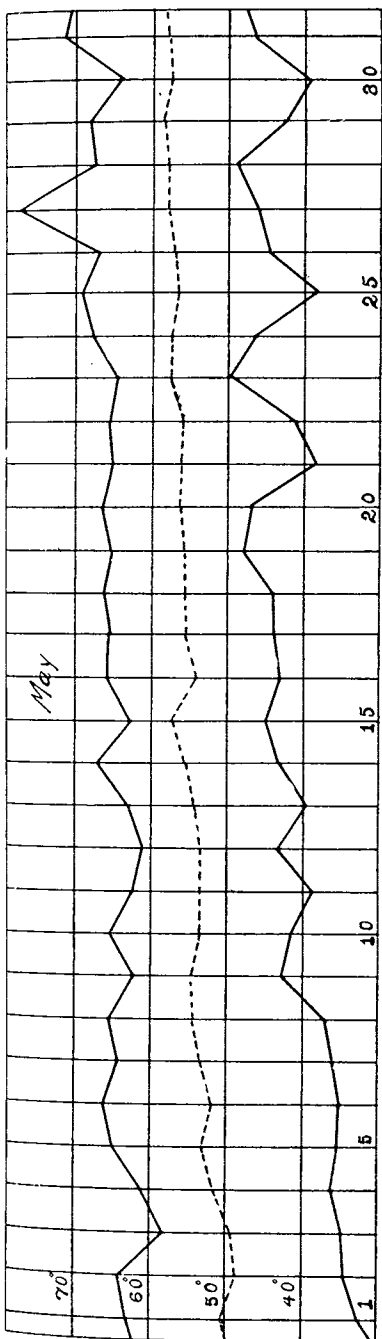
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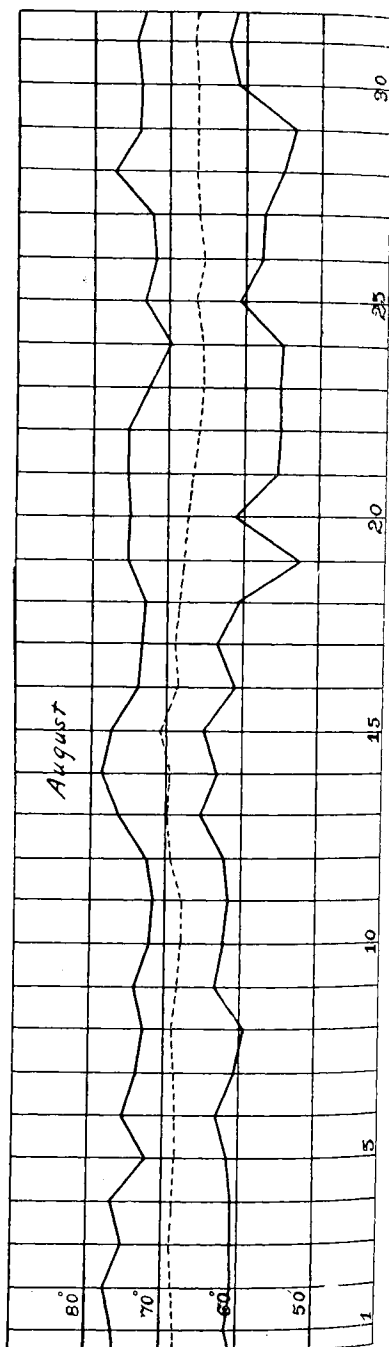
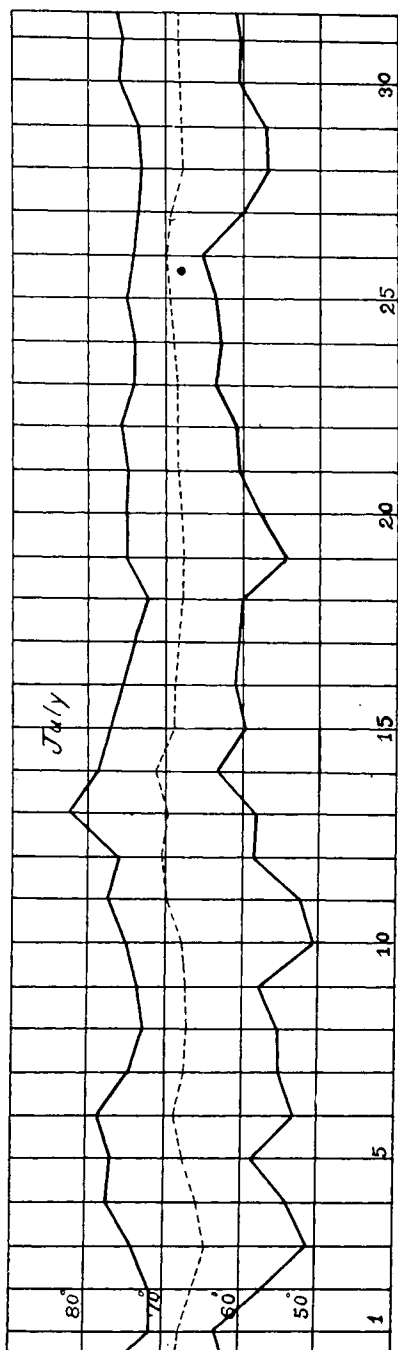




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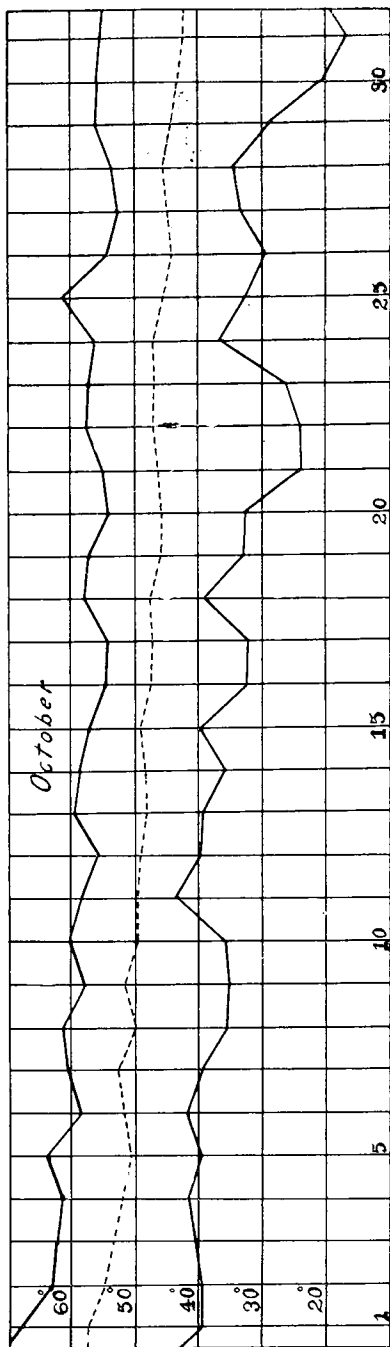
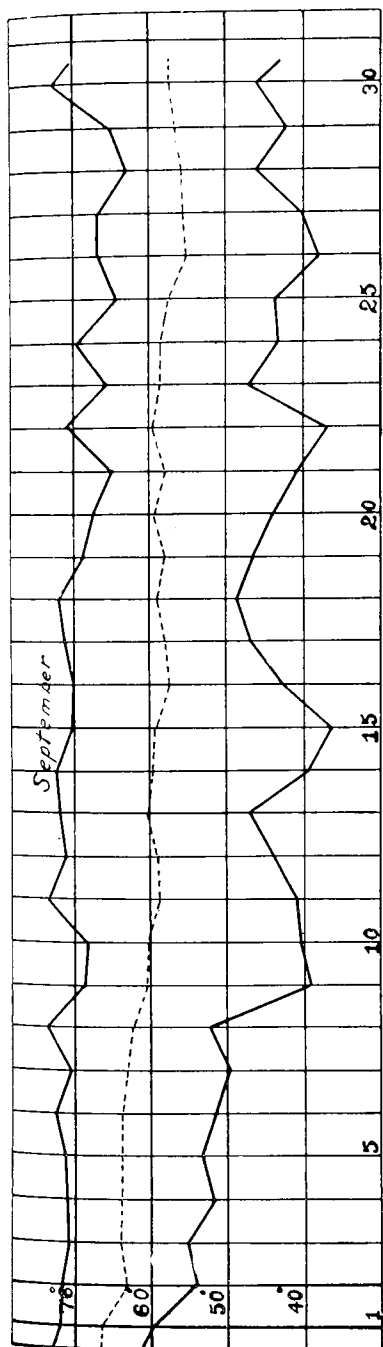






# COLORADO TEMPERATURE.

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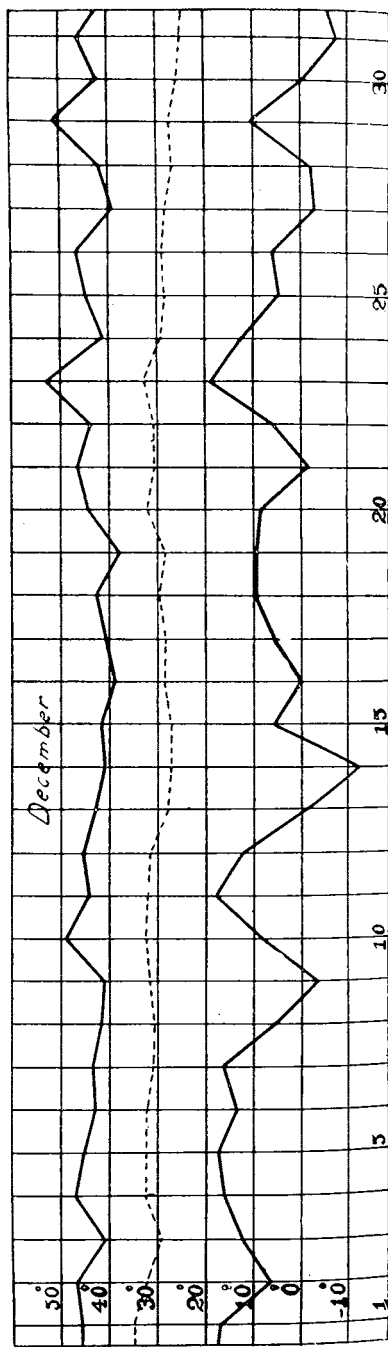
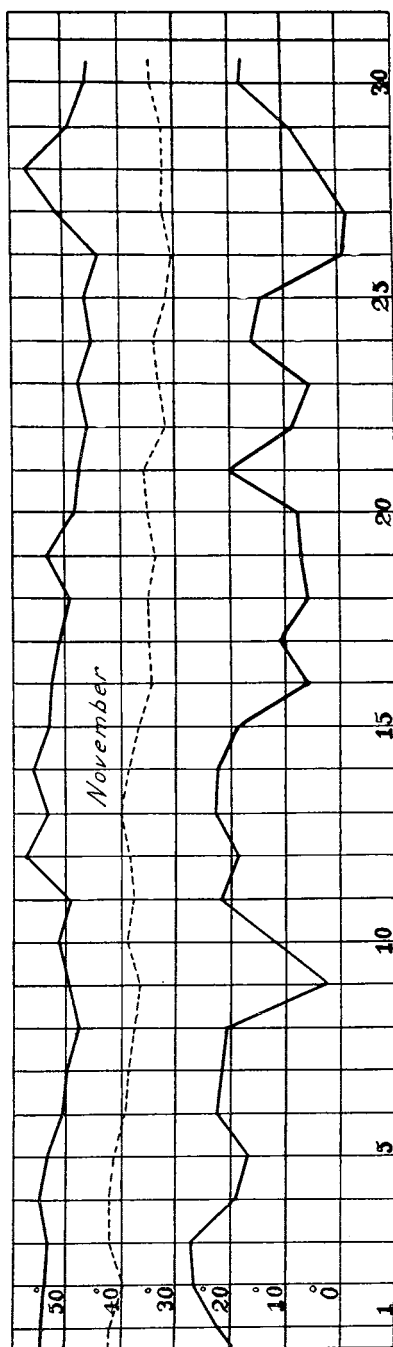


TABLE I.  
AVERAGE MONTHLY TEMPERATURE

At Agricultural College, Fort Collins, Colo., in Degrees Fahrenheit

YEAR	Jan.	Feb.	Mar.	Apl.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1887.....	25.7	23.7	39.8	45.2	57.7	68.1	68.4	65.6	60.4	46.0	38.2	29.7	47.1
1888.....	22.2	37.1	37.4	55.3	54.4	68.1	72.8	66.6	61.4	49.2	33.0	31.3	49.0
1889.....	22.2	25.6	41.6	50.6	54.1	63.5	68.1	66.6	53.9	44.1	27.0	32.1	45.8
1890.....	24.7	30.0	38.0	46.5	58.0	64.0	71.1	66.1	58.3	47.4	38.1	37.8	49.1
1891.....	22.2	19.8	30.5	46.6	54.8	60.9	66.9	66.3	61.1	48.7	35.1	28.7	45.1
1892.....	21.1	27.8	33.7	44.0	50.0	61.7	68.2	67.3	62.4	47.7	37.4	23.1	45.4
1893.....	32.6	26.9	35.2	42.7	52.3	65.3	70.7	66.8	60.0	48.7	33.6	33.6	47.3
1894.....	23.9	18.7	37.4	48.3	57.2	63.2	69.1	68.3	58.9	51.3	40.5	25.6	46.9
1895.....	23.9	21.1	34.2	49.2	53.6	59.2	65.3	67.6	61.0	46.9	33.7	28.6	45.4
1896.....	32.6	33.4	34.0	46.6	57.0	65.3	70.2	69.0	58.8	48.0	30.8	34.0	48.3
1897.....	24.8	27.6	32.3	45.8	51.8	63.1	66.8	66.8	63.7	48.5	35.6	25.4	46.6
1898.....	25.6	34.1	32.7	47.7	51.6	64.0	69.0	69.9	58.6	46.3	30.3	23.6	46.1
1899.....	24.7	9.9	29.7	44.7	53.8	63.6	67.0	67.6	61.4	46.1	40.8	27.7	44.7
1900.....	30.9	24.2	29.1	42.9	57.8	67.1	67.9	68.0	58.6	50.2	37.4	31.6	48.0
1901.....	28.2	23.9	34.7	44.0	57.0	63.3	72.5	69.0	59.0	49.7	40.0	27.7	47.4
1902.....	24.2	32.0	35.3	45.7	56.1	63.6	66.0	68.7	56.8	48.8	36.1	27.1	46.7
1903.....	30.3	14.0	30.6	45.3	52.2	59.3	68.5	68.1	56.8	49.6	36.1	32.3	45.3
1904.....	26.1	35.3	39.6	46.2	53.7	59.9	65.6	67.0	59.2	48.9	39.7	31.9	47.8
1905.....	25.2	21.4	42.2	43.4	52.1	64.8	65.7	68.2	60.5	43.6	37.8	27.0	46.0
1906.....	30.9	30.5	25.0	47.1	55.0	61.8	64.9	67.2	58.7	46.3	33.6	34.8	46.3
1907.....	25.9	35.4	43.3	42.5	48.9	60.9	67.8	66.9	58.7	49.9	32.9	30.5	47.0
Average....	26.1	26.3	35.5	46.2	54.7	63.4	68.2	67.5	59.4	47.9	35.6	29.7	46.7

\*Fort Collins, Colo., Agricultural College. Latitude, 40° 34'. Elevation, 4,993 Feet. Located on the Plains, 4 miles east of the foothills of the Rocky Mountains.

TABLE II.  
EXTREME MONTHLY TEMPERATURES

At Agricultural College, Fort Collins, Colo.

YEAR	January		February		March		April		May		June	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1887.....	58.	-19.0	70.	- 8.	80.	8.	83.	16.	90.	24.	96.	45.
1888.....	71.	-28.	68.	14.	79.	3.	91.	30.	84.	30.	97.	42.
1889.....	58.	- 3.5	62.	-16.0	67.8	-17.0	79.	24.	81.	31.0	90.5	35.
1890.....	65.6	-13.0	68.3	-20.0	70.1	- 9.0	78.0	13.8	85.0	29.1	92.2	32.7
1891.....	48.9	-16.3	46.5	-1.50	66.0	- 4.1	81.9	12.9	84.6	31.2	86.9	37.9
1892.....	61.2	-28.4	55.1	- 9.0	70.1	-19.7	78.7	19.4	82.0	31.4	86.5	35.4
1893.....	67.3	- 2.2	66.7	-10.0	78.3	- 1.9	78.9	7.6	88.7	23.1	95.0	31.3
1894.....	63.3	-22.0	54.6	-15.3	73.0	9.9	79.0	16.4	85.9	27.1	91.0	37.9
1895.....	57.2	- 9.6	62.2	-27.8	80.2	-18.0	78.7	17.0	90.0	28.6	88.7	33.0
1896.....	67.8	- 7.6	68.1	3.9	75.8	- 6.8	80.0	7.0	88.3	31.0	91.2	39.3
1897.....	64.0	-26.0	59.5	- 5.3	65.3	- 7.0	77.2	20.0	82.3	31.6	90.1	35.3
1898.....	61.5	-11.8	63.7	6.7	66.3	- 6.2	86.2	14.5	81.8	29.6	97.2	36.0
1899.....	55.0	-16.8	50.8	-38.4	65.7	-24.5	78.0	8.0	82.5	23.4	96.1	36.4
1900.....	63.0	- 6.0	56.0	-23.4	76.9	9.7	73.9	5.1	84.7	29.8	94.4	40.7
1901.....	61.8	-21.7	63.0	-14.7	71.9	- 7.5	81.8	8.7	82.9	31.1	94.4	38.2
1902.....	62.2	-31.4	63.0	-23.0	63.9	2.0	79.8	18.0	85.9	29.6	96.0	37.0
1903.....	61.3	1.0	46.0	-28.0	66.2	-10.0	78.2	12.8	85.1	27.4	92.5	37.0
1904.....	65.0	- 7.0	69.0	3.0	70.0	10.0	79.8	14.1	82.0	28.2	87.2	38.4
1905.....	63.5	-22.3	66.2	-26.8	70.3	12.4	78.0	12.0	76.3	29.5	92.3	40.0
1906.....	67.8	- 3.5	67.0	- 5.0	69.9	-24.6	80.1	22.1	82.9	33.0	89.9	37.2
1907.....	62.6	- 4.7	68.8	- 2.8	80.3	2.8	80.0	5.7	83.0	19.2	87.7	33.9
Extreme	71.	-31.4	70.0	-38.4	80.3	-24.6	91.	5.1	90.0	19.2	97.2	31.3

**TABLE II. (CONT'D.)**  
**EXTREME MONTHLY TEMPERATURES**

At Agricultural College, Fort Collins, Colo.

YEAR	July		August		September		October		November		December	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1887.....	97.	50.	97.	44.	91.	32.	88.	11.	78.	-13.	61.	6.
1888.....	99.	51.	88.	44.	89.	32.	75.	20.	64.	16.	68.	4.
1889.....	97.	37.5	97.	41.3	93.	23.0	85.2	24.9	61.	1.0	66.5	3.0
1890.....	93.4	46.9	95.3	39.5	85.3	28.0	77.0	15.7	75.7	6.5	62.9	5.8
1891.....	89.4	41.2	93.1	36.7	88.8	34.3	79.8	19.5	75.9	-6.2	60.0	-10.0
1892.....	92.7	45.3	99.2	33.9	89.3	27.5	87.0	18.7	62.7	10.6	65.6	-17.4
1893.....	94.9	44.2	91.7	38.3	90.0	25.7	82.0	11.8	70.7	-12.8	60.4	2.5
1894.....	94.4	46.0	92.2	39.5	88.6	30.9	80.7	19.3	78.0	-1.1	64.7	-24.0
1895.....	93.2	44.9	93.7	42.3	95.0	23.2	79.7	14.8	73.7	-2.9	66.7	-5.0
1896.....	95.8	48.8	93.8	40.2	90.0	31.8	84.2	21.0	74.7	-11.3	66.1	0.5
1897.....	94.8	38.9	93.5	42.7	89.8	33.8	81.7	21.5	75.6	-3.0	63.0	-10.8
1898.....	97.0	44.3	95.6	43.1	90.2	29.7	85.7	16.2	71.3	-11.3	55.0	-22.3
1899.....	94.0	44.6	95.2	39.7	94.6	29.0	86.7	23.7	69.5	15.0	63.7	-9.3
1900.....	92.9	40.2	94.0	41.2	88.2	29.7	83.0	12.5	74.0	8.7	62.9	-22.0
1901.....	96.7	47.9	96.7	43.6	86.6	29.4	82.0	25.0	69.6	12.0	64.6	-31.0
1902.....	98.0	38.8	99.6	42.3	89.8	22.0	80.0	25.5	69.2	3.8	58.2	-17.6
1903.....	95.0	36.0	94.6	41.9	92.5	26.0	81.0	20.0	71.0	-10.0	61.0	5.0
1904.....	90.7	40.3	91.0	33.0	90.0	29.6	80.1	17.8	75.4	0.5	65.7	1.0
1905.....	91.0	42.3	93.2	44.8	90.5	30.8	85.3	-8.0	74.0	3.4	62.2	-4.0
1906.....	92.6	41.0	92.0	39.2	86.9	37.3	83.2	19.4	70.2	-9.3	64.5	7.0
1907.....	94.4	44.6	91.6	45.0	85.6	31.0	81.8	22.4	70.0	-1.2	61.7	-5.4
Extreme	99.	36.0	99.6	33.0	95.0	22.0	88.	-8.0	78.0	-13.0	68.0	-31.0

NOTE.—Extreme temperatures of each year indicated by blackfaced type.

**TABLE III.**  
**AVERAGE MONTHLY RANGE OF TEMPERATURE**

At Agricultural College, Fort Collins, Colo.

YEAR	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1887.....	23.2	31.5	35.3	28.6	32.6	33.1	29.7	31.7	32.8	33.6	30.8	27.6	30.9
1888.....	32.7	28.	31.3	32.7	24.5	28.6	32.6	29.8	35.9	28.0	23.9	31.1	29.9
1889.....	28.2	27.2	28.8	27.5	25.2	29.6	33.1	34.2	34.9	28.7	25.4	28.6	29.3
1890.....	30.2	30.0	29.7	26.9	30.2	34.4	31.9	29.7	37.4	32.7	33.6	31.3	31.5
1891.....	26.4	24.1	21.5	29.5	27.5	26.9	30.1	32.7	33.8	36.8	26.8	25.2	28.4
1892.....	28.0	22.8	23.7	29.2	22.2	30.4	30.6	37.7	40.6	32.3	29.0	27.5	29.5
1893.....	33.6	29.2	30.1	28.7	29.0	36.1	34.6	32.6	37.4	34.0	32.2	27.2	32.1
1894.....	31.0	30.0	29.9	32.5	28.8	32.2	32.6	33.4	34.8	34.3	34.5	29.5	32.0
1895.....	26.1	28.2	28.7	34.1	29.4	28.7	27.8	32.5	38.2	34.1	29.4	29.3	30.6
1896.....	32.9	31.5	24.5	32.3	31.5	31.4	29.2	32.2	28.0	33.2	28.5	30.1	30.2
1897.....	30.9	26.7	25.0	27.5	30.2	28.9	32.9	30.9	32.6	32.6	30.8	27.2	30.1
1898.....	30.1	33.0	30.4	33.6	22.3	31.7	32.1	35.4	39.4	29.6	28.4	28.6	31.2
1899.....	28.6	30.7	23.6	31.6	31.6	32.5	28.6	33.1	37.9	28.3	31.8	29.9	30.7
1900.....	31.4	27.1	29.6	23.3	29.2	33.8	31.6	37.0	30.6	34.8	31.4	31.3	30.9
1901.....	31.2	29.0	26.9	25.8	28.2	30.0	35.2	32.1	32.7	33.7	33.4	25.2	30.3
1902.....	30.0	27.0	25.5	30.6	28.8	30.8	33.0	32.8	34.6	31.3	27.0	25.5	29.7
1903.....	27.8	28.3	24.4	28.2	31.4	24.6	32.7	33.7	34.9	35.3	34.2	33.4	30.7
1904.....	33.3	30.2	30.4	29.7	25.0	27.1	29.7	31.6	33.7	35.0	39.9	32.0	31.5
1905.....	25.4	29.2	25.9	24.0	23.2	29.5	29.3	34.1	37.4	33.5	31.8	36.2	30.0
1906.....	33.0	35.5	23.0	25.7	28.1	39.1	27.9	32.2	28.8	31.6	24.9	26.6	29.7
1907.....	26.9	31.0	32.0	26.9	23.8	31.6	30.8	31.9	33.0	35.4	33.4	29.7	30.5
Average....	29.6	29.1	27.6	29.0	27.7	31.0	31.2	32.9	34.7	32.8	30.5	29.2	30.4