

Richmond, VA - Compare Newspaper to Wx. Bureau 1897

Green Temps. From the Weather Bureau

Nov. 1897	TEMPERATURE				TEMPERATURE				PRECIP.	PRECIP.	Remarks
	MAX.	Bureau	MIN.	Bureau	RANGE	RANGE	MEAN	MEAN	Liquid	Liquid	
1	70	68	43	53	27	15	56.5	60.5	1.77	0.65	
2	67	67	54	50	13	17	60.5	58.5		0.48	
3	61	63	45	47	16	16	53.0	55.0			
4	65	67	41	45	24	22	53.0	56.0			
5	69	68	42	41	27	27	55.5	54.5			
6	69	66	50	43	19	23	59.5	54.5			
7	69	60	33	35	36	25	51.0	47.5	0.02	0.02	
8	70	70	41	51	29	19	55.5	60.5			
9	73	72	60	51	13	21	66.5	61.5	0.05	T	Trace of snow
10	61	58	40	44	21	14	50.5	51.0			
11	54	54	39	40	15	14	46.5	47.0		0.10	
12	50	47	26	40	24	7	38.0	43.5	0.10	T	
13	66	57	27	31	39	26	46.5	44.0			
14	53	51	29	31	24	20	41.0	41.0		T	
15	73	74	31	44	42	30	52.0	59.0			
16	76	75	55	45	21	30	65.5	60.0	0.29		
17	50	48	37	36	13	12	43.5	42.0		0.42	
18	48	47	29	31	19	16	38.5	39.0			
19	56	56	29	32	27	24	42.5	44.0			
20	66	66	38	40	28	25	52.0	53.5			
21	72	74	45	40	27	34	58.5	57.0			
22	60	59	45	46	15	13	52.5	52.5			
23	48	49	43	31	5	18	45.5	40.0			
24	40	42	21	28	19	14	30.5	35.0			
25	49	48	25	29	24	23	37.0	36.5	T	T	
26	71	71	45	45	26	26	58.0	58.0	0.82	0.15	
27	61	64	60	34	1	30	60.5	49.0		0.71	
28	42	42	27	29	15	13	34.5	35.5			
29	46	47	32	35	14	12	39.0	41.0	1.32	0.54	
30	38	39	27	28	11	11	32.5	33.5			
TOTAL	1793	1769	1159	1175	634.0	597.0	1476.0	1470.5	4.37	3.07	Page 3 of the December Times Green Temps. From the Weather Bureau
Number	30	30	30	30	30	30	30	30			
AVE.	59.77	58.97	38.63	39.17	21.13	19.90	49.20	49.02			
MAX.	76	75	60	53	42	34	66.5	61.5			
MIN.	38	39	21	28	1	7	30.5	33.5			
<=32 °F	0	0	11	11	<=32 °F						
>=90°F	0	0	0	0	>70 °F						

Record of Climatological Observations

These data are quality controlled and may not be identical to the original observations.

Station: RICHMOND CHIMBORAZO PARK, VA US

GHCND:USW00013780

Observation Time Temperature: Unknown Observation Time Precipitation: Unknown

Elev: 162 ft. Lat: 37.533° N Lon: 77.417° W

P r e l i m i n a r y	Y e a r	M o n t h	D a y	Temperature (F)		a t O b s e r v a t i o n	Precipitation(see **)				Evaporation		Soil Temperature (F)								
				24 hrs. ending at observation time			24 Hour Amounts ending at observation time				At Obs Time	24 Hour Wind Movement (mi)	Amount of Evap. (in)	4 in depth			8 in depth				
				Max.	Min.		Rain, melted snow, etc. (in)	F l a g	Snow, ice pellets, hail (in)	F l a g	Snow, ice pellets, hail, ice on ground (in)			Ground Cover (see *)	Max.	Min.	Ground Cover (see *)	Max.	Min.		
	1897	11	1	68	53		0.65														
	1897	11	2	67	50		0.48														
	1897	11	3	63	47																
	1897	11	4	67	45																
	1897	11	5	68	41																
	1897	11	6	66	43																
	1897	11	7	60	35		0.02														
	1897	11	8	70	51																
	1897	11	9	72	51		T			T											
	1897	11	10	58	44																
	1897	11	11	54	40		0.10														
	1897	11	12	47	40		T														
	1897	11	13	57	31																
	1897	11	14	51	31		T														
	1897	11	15	74	44																
	1897	11	16	75	45																
	1897	11	17	48	36		0.42														
	1897	11	18	47	31																
	1897	11	19	56	32																
	1897	11	20	66	41																
	1897	11	21	74	40																
	1897	11	22	59	46																
	1897	11	23	49	31																
	1897	11	24	42	28																
	1897	11	25	48	25		T														
	1897	11	26	71	45		0.15														
	1897	11	27	64	34		0.71														
	1897	11	28	42	29																
	1897	11	29	47	35		0.54														
	1897	11	30	39	28																
Summary				59.0	39.1		3.07		0.0												

The "*" flags in Preliminary indicate the data have not completed processing and quality control and may not be identical to the original observation
 Empty, or blank, cells indicate that a data observation was not reported.
 *Ground Cover: 1=Grass; 2=Fallow; 3=Bare Ground; 4=Brome grass; 5=Sod; 6=Straw mulch; 7=Grass muck; 8=Bare muck; 0=Unknown
 "s" This data value failed one of NCDC's quality control tests.
 "T" values in the Precipitation category above indicate a TRACE value was recorded.
 "A" values in the Precipitation Flag or the Snow Flag column indicate a multiday total, accumulated since last measurement, is being used.
 Data value inconsistency may be present due to rounding calculations during the conversion process from SI metric units to standard imperial units.

Mean Temperature for the Month Slightly Higher Than Usual.

The following is the weather report for November, the readings of the thermometer having been taken with a government instrument a few miles from the city:

CONDITIONS.	7 A. M.	Minimum.	Rainfall— Inches.	Maximum.	Wind.
1—Cloudy (1).....	55	43	1.77	70	N. E.
2—Cloudy.....	59	54	.....	67	N. W.
3—Partly cloudy... .	45	45	.....	61	W.
4—Clear.....	41	41	.....	65	W.
5—Clear (2).....	42	42	.....	69	W.
6—Clear.....	53	50	.....	69	W.
7—Clear (3).....	38	33	.02	69	N.
8—Cloudy.....	49	41	.....	70	N.
9—Cloudy (4).....	65	60	.05	73	S. W.
10—Partly cloudy....	40	40	.....	61	S. W.
11—Cloudy (5).....	44	31	.....	54	S. W.
12—Clear.....	36	36	.10	50	W.
13—Clear.....	37	27	.....	66	W.
14—Clear.....	29	29	.....	53	S. W.
15—Partly cloudy....	31	31	.....	73	N. W.
16—Partly cloudy (6)..	57	55	.29	76	S. W.
17—Clear.....	37	37	.....	50	N. W.
18—Clear.....	29	29	.....	48	N. E.
19—Clear.....	29	29	.....	56	S. W.
20—Cloudy.....	40	38	.....	63	S. W.
21—Clear.....	47	45	.....	72	S. W.
22—Cloudy.....	47	45	.....	60	S. W.
23—Partly cloudy....	43	43	.....	48	N. E.
24—Clear.....	26	21	.....	40	N.
25—Partly cloudy (7)..	29	25	Tr'ce	49	S. W.
26—Cloudy.....	46	45	.82	71	S. E.
27—Cloudy.....	61	60	.....	61	N. W.
28—Clear.....	29	27	.....	42	S. W.
29—Cloudy (8).....	37	32	1.32	46	N. W.
30—Clear.....	27	27	.....	38	N.
Averages.....	41.5	38.9	4.37	59.7	

REMARKS.

1. Rain all day. Heavy shower 9:30 P. M.
2. Heavy fog.
3. Heavy frost. Light rain late in the evening.
4. High wind most of the day. Storm with some hail 1:30 P. M.
5. Light rain, beginning 10 A. M.
6. Shower 9 P. M.
7. Light rain during the night.
8. Rain, beginning early in the morning. Amount of rainfall, 4.37 inches.

Observations taken at 7 o'clock each morning.

Mean temperature for the month, 49.3. During the month there were fourteen clear mornings, ten cloudy, and six partly cloudy at the time of observation (7 A. M.)

On the evenings of the 6th and 7th there were lunar rainbows. On the 12th, 13th, 14th, 18th, 19th, and 28th, and the 30th, there was heavy frost and ice.

We give in the table below the mean temperature and the aggregate amount of rainfall during the month of November for the past eighteen years:

	Mean tempe- rature	Rain- fall. Inches.
1880.....	40.9	3.61
1881.....	46.2	6.14
1882.....	37.5	3.00
1883.....	41.7	1.59
1884.....	43.1	4.65
1885.....	41.2	4.39
1886.....	32.7	2.18
1887.....	42.0	4.04
1888.....	40.6	5.52
1889.....	51.1	0.57
1890.....	44.2	3.41
1891.....	47.2	1.67
1892.....	46.8	4.36
1893.....	47.2	3.56
1894.....	48.0	1.53
1895.....	50.9	3.77
1896.....	34.5	3.27
1897.....	49.3	4.37

Measurements of rainfall taken each morning.

It will be observed that the mean temperature is higher than the average for November, though not so high as last year or 1895. The rainfall also exceeds the average for the eighteen years.

A slight shock of earthquake was felt

Daily Maximum and Minimum temperatures for November, 1897.

Stations.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	21	22	23	24	25	25	27	28	29	30	31	Monthly Mean.																															
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.																												
Norfolk	70	59	71	52	62	47	65	51	72	46	71	54	66	46	75	53	73	55	61	49	62	48	49	38	54	34	58	38	75	49	76	52	51	42	47	38	56	34	65	42	71	46	64	50	54	36	43	32	64	35	72	58	64	43	46	36	52	42	42	33	61.7	44.5
Petersburg	70	53	70	58	65	45	68	38	70	40	70	50	70	34	72	50	71	60	60	40	58	40	50	33	61	28	54	29	76	43	76	48	60	37	49	26	60	30	68	40	73	40	70	41	60	43	48	22	58	28	70	38	65	40	44	28	47	35	45	25	62.9	38.7
Richmond	68	53	66	57	63	47	66	45	68	41	65	42	62	37	64	51	71	52	58	45	54	40	47	40	57	32	51	32	74	44	75	46	48	38	47	31	56	32	66	41	73	41	58	46	47	31	41	28	50	29	72	45	60	34	42	30	46	35	40	29	58.5	39.8
Richmond (near)...	66	55	65	55	60	46	65	40	68	40	65	39	61	34	66	50	65	58	65	41	52	40	45	37	53	29	53	29	73	41	75	52	47	37	46	29	55	29	65	38	71	38	60	44	48	36	40	24	48	27	70	44	60	50	45	20	47	35	40	28	58.0	39.1

U. S. Department of Agriculture

DEC 17 1897

U. S. DEPARTMENT OF AGRICULTURE.

REPORT FOR NOVEMBER, 1897.

VIRGINIA SECTION

OF THE

CLIMATE AND CROP SERVICE

OF THE

WEATHER BUREAU.

PUBLISHED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE.

UNDER DIRECTION OF

WILLIS L. MOORE

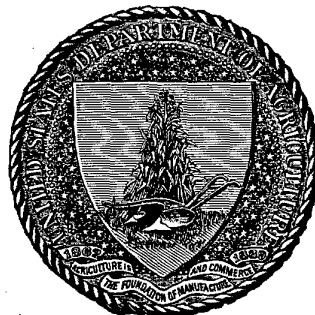
CHIEF OF WEATHER BUREAU

BY

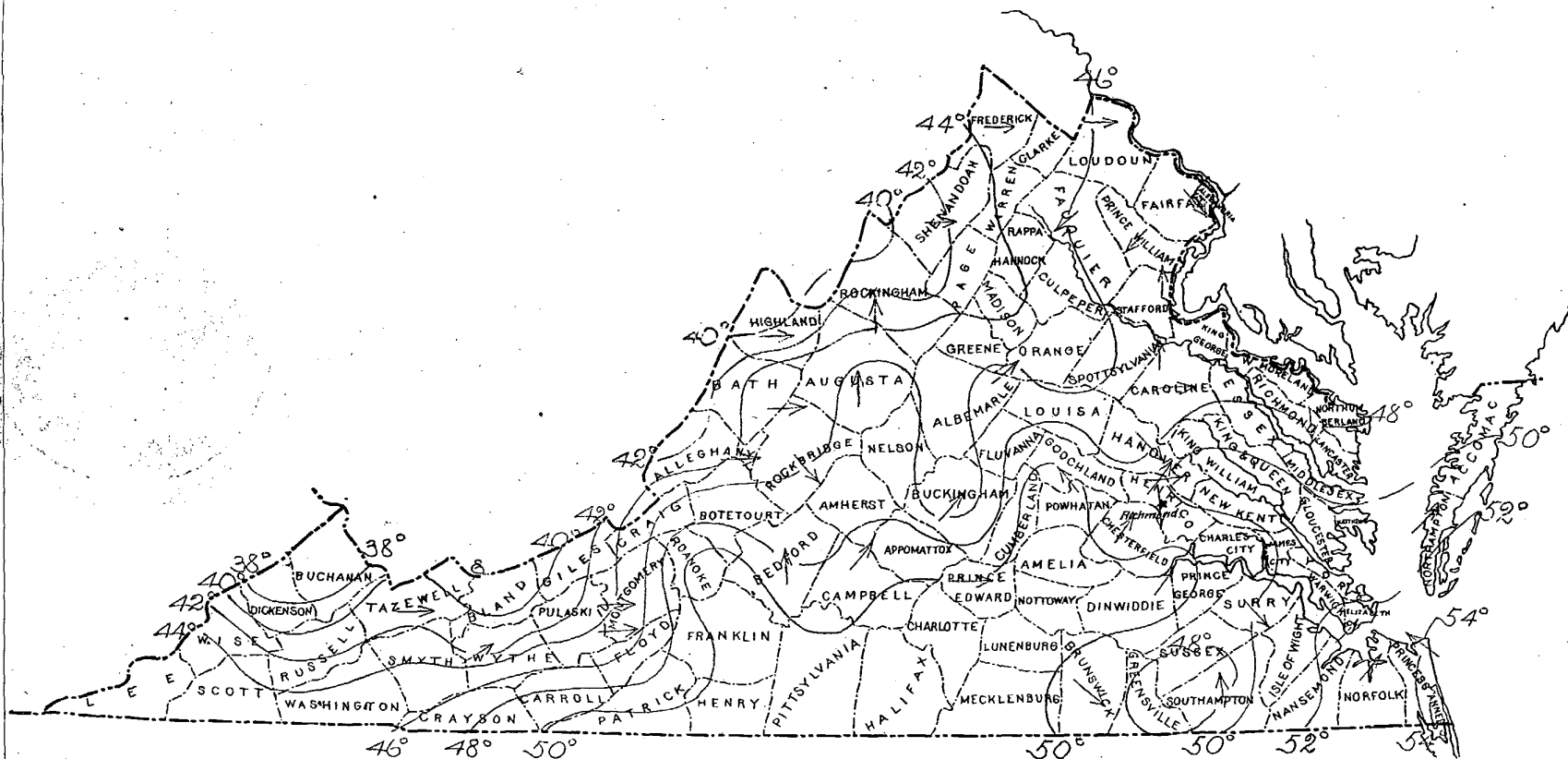
EDWARD A. EVANS

SECTION DIRECTOR,

RICHMOND, VA.



MONTHLY MEAN TEMPERATURE AND PREVAILING WIND DIRECTION FOR NOVEMBER, 1897.



U. S. DEPARTMENT OF AGRICULTURE,
CLIMATE AND CROP SERVICE
 OF THE
WEATHER BUREAU.

Central Office,
 WASHINGTON, D. C. }

WILLIS L. MOORE,
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VIRGINIA SECTION,
 E. A. EVANS, Section Director,
 RICHMOND, VA.

VOL. VII.

RICHMOND, VA.

No. 11.

NOVEMBER CROP CONDITIONS.

The nearly normal condition of temperature and precipitation which obtained during the month was very beneficial to fall sown grain. Winter wheat and oats are reported as progressing well, and pasturage is very good.

Fallowing continues, and a large amount of corn has been husked.

FORESTS AND RAINFALL.

By Prof. H. A. Hazen (dated September 15, 1897).
 Concluded next month.

Can it be possible that the cutting away of forests affects the amount of precipitation in any locality? To many, no doubt this question will seem easy of answer, but we find the results of study by no means reassuring, and recent investigations have led to almost diametrically opposite conclusions, depending, somewhat at least, upon the feeling of the writer. When we reflect that our rain storms are of very wide extent, oftentimes over 1,000 miles in diameter, and may take their origin and bring their moisture from distances of 1,000 miles or more, the thought that man, by his puny efforts, may change their action, or modify it in any manner, seems ridiculous in the extreme.

It has been well established that forests have a most important bearing upon the conservation of rainfall; that the forest floor permits a seepage of water to the source of springs and thus maintains their steady flow; that they hold back the precipitation that falls, especially in the form of snow, thus preventing or ameliorating the effects of dangerous freshets. There is not the slightest doubt of their great importance to the welfare of man, but all these facts do not affect the question of their influence upon precipitation. The following paper is prepared from the standpoint of a meteorologist, and is an attempt to present facts.

Formerly, the historical argument was a favorite one, I quote one of these: "It is a familiar fact that there are many regions in Asia and southern Europe, once exceedingly fertile and densely populated, that are now utterly sterile and desolate. The country bordering on the Euphrates and portions of Turkey, Greece, Egypt, Italy, and Spain are now incapable of cultivation from lack of rain due to deforestation. The most fertile of all provinces in Bucharria was that of Sogd. Said Malte Brun in 1826, "For eight days we may travel and not be out of one delicious garden." In 1876 another writer

says of this same region: "Within thirty years this was one of the most fertile spots of central Asia, a country which, when well wooded and watered, was a terrestrial paradise. But within the last twenty-five years a mania of clearing has seized upon the people, and all the great forests have been cut away and the little that remained was ravaged by fire during a civil war. The consequences followed quickly and this country has been transformed into a kind of arid desert. The water courses are dried up and the irrigating canals are empty." It has also been said that in the older settled portions of New England and the middle States there are arid hills and worn-out fields, due to the falling off of precipitation from the cutting away of the forest growth. Such quotations and statements might be made to fill a large volume. Without more precise data as to rainfall it would be hazardous to conclude that we have here a case of cause and effect. It is certain that the fertility of these regions in ancient times was due to stupendous irrigating devices and canals, and when these were neglected, through wars and other untoward circumstances, the fertility necessarily ceased. It is certain that there are ruins of enormous irrigating ditches and canals in Babylonia, where history indicates that there was once a teeming population and great fertility, but where now only a sandy desert greets the eye.

Some have said that where our densest forests are found there we have the greatest precipitation. There is no way whereby we can see that such forests would have started unless favored by rainfall, so that the presence of the forest rather indicated the earlier occurrence of practically the same rainfall as at present. Meteorologists are agreed that there has been practically no change in the climate of the world since the earliest mention of such climates. Plants found in mummy cases in Egypt that were plucked thousands of years ago show the same size as those now found in that land. The "early and the latter rains" are experienced in Palestine to-day just as they were four thousand years ago. Jordan "overflows all its banks" to-day, in February, precisely, as it did in Joshua's day. When we come down to recent times and to the records of rainfall measured in New England for more than one hundred years or, at least, before and since the forests were cut, we find a constancy in the rainfall which shows its entire independence of man's efforts. Right here it should be noted that totally barren lands of any extent, in New England for example, are to be found only in imagination. Even where the forest has been cut away mercilessly there springs up a growth of sprouts which covers the ground and answers almost the same purpose in causing rainfall (if there is any effect of that kind) as the forest. Even where land is entirely cleared of a forest we have at times the green pasture, and at others still heavier crops which leave the ground anything but a sandy waste.

But the strongest argument adduced in the past to show the influence of forest on rainfall has existed in a comparison between rain-gauge measures in the forest and the open field. Such records have been made for more than thirty years in France and Germany and surely we must have here, if anywhere, a sufficient proof of a forest's influence.

Extract, September, 1897, Weather Review.

ATMOSPHERIC PRESSURE.

The mean monthly air pressure as deduced from the U. S. Weather Bureau Stations at Lynchburg, Norfolk and Washington, D. C., was 30.12 inches; highest 30.60 inches, at Washington, D. C., and Lynchburg, Va., on the 18th; lowest 29.36 inches, at Washington, D. C., on the 9th; range 1.24 inches.

TEMPERATURE (DEG. F)

TIDEWATER VIRGINIA.—Highest monthly mean, 54.4, at Cape Henry; lowest monthly mean, 45.8, at Doswell; maximum temperature, 80, at Ashland, on the 16th; minimum temperature, 18, at Doswell, on the 24th, and 25th; greatest daily range, 49, at Doswell.

MIDDLE VIRGINIA.—Highest monthly mean, 50.8, at Nottoway C. H.; lowest monthly mean, 44.8, at Alexandria; maximum temperature, 78, at Nottoway C. H., on the 16th; minimum temperature, 17, at Buckingham and Stanardsville, on the 23d and 24th respectively; greatest daily range, 48, at Leesburg and Nottoway C. H.

THE GREAT VALLEY.—Highest monthly mean, 51.0, at Salem; lowest monthly mean, 36.6, at Dwale; maximum temperature, 79, at Salem on the 16th; minimum temperature, 10, at Burke's Garden and Monterey, on the 24th; greatest daily range, 44, at Lexington.

FOR THE STATE.—Average of the monthly mean temperatures, 46.5; average of the maximum temperatures, 72; average of the minimum temperatures, 20; average of the greatest daily range, 36.

The month was, on the whole, a very pleasant one, the days being mostly bright, sunny and crisp. The temperature, as compared with the normal for eleven years, showed a deficiency of only 0.8 of a degree, or practically normal. The extremes of temperature were not great, but there was rather a general, uniform and nearly normal condition throughout the entire month. The dates on which the maximums were generally observed may possibly be an exception to this rule, though even they are not unusual.

Cool, raw weather was prevalent on the first and second of the month, but thereafter, except on a few dates, the conditions were unusually fine, omitting temporary variations. There was a slight, gradual increase in the temperature until the 15th and 16th insts., on which dates nearly all of the maximum temperatures observed were recorded, and then a steady decline until about the 24th when the lowest temperatures occurred. The month, in respect to temperature, was quite favorable for late fall work and the germination of fall seed.

PRECIPITATION.

TIDEWATER VIRGINIA.—Greatest monthly precipitation, 3.47 inches, at Ashland; least monthly, 2.02 inches at Cape Henry; greatest amount in any twenty-four consecutive hours, 1.32 inches, at Ashland, on the 26th and 27th.

MIDDLE VIRGINIA.—Greatest monthly precipitation, 4.37 inches, at Bon-Air; least monthly, 1.50 inches, at Farmville; greatest amount in any twenty-four consecutive hours, 2.48 inches, at Manassas, on the 2d.

THE GREAT VALLEY.—Greatest monthly precipitation, 4.10 inches, at Monterey; least monthly, 0.69 of an inch, at Bristol; greatest amount in any twenty-four consecutive hours, 1.50 inches, at Lexington, on October 31st and November 1st.

FOR THE STATE.—Average total precipitation, 2.49 inches. The average total precipitation for the State, 2.49 inches, was 0.01 of an inch above the normal for the month.

By sections Tidewater Virginia was 0.33 of an inch above the normal; Middle Virginia, 0.33 of an inch above, and the Great Valley, 0.53 of an inch below.

The average number of days on which 0.01 of an inch or more of rain or snow fell, was 7 in Tidewater Virginia; 6 in Middle Virginia, and 7 in the Great Valley. Average for the State, 7.

WIND.—The prevailing direction of the wind in the different sections was as follows: Tidewater Virginia SW.; Middle Virginia, SW.; the Great Valley, W. Prevailing direction for the State, W.

WEATHER.—Tidewater Virginia, average number of clear days, 14; partly cloudy, 9; cloudy, 7. Middle Virginia, average number of clear days, 16; partly cloudy, 8; cloudy, 6. The Great Valley, average number of clear days, 14; partly cloudy, 9; cloudy, 7. For the State, average number of clear days, 15; partly cloudy, 8; cloudy, 7.

November precipitation, like the temperature, was very close to the normal, there being only a difference of 0.01 of an inch excess. The greater portion of the monthly fall, as a rule fell, on the first and second days and these with the 26th and 27th were the only dates on which precipitation was general over the State. Light local snow flurries were reported at various points in the Valley section on the 11th and 12th. Isolated instances of sleet and hail also occurred and thunder storms were reported at stations on the 2d, 11th, and 27th.

The ground was sufficiently moist all the month to promote the germination and growth of all fall seed.

NOTES AND COMMENTS.

As the season is now at hand when snowfall is likely, the attention of the Voluntary Observers is invited to the instructions covering the entry of the same on Form 1009 (Monthly report.) The depth of snowfall, in inches or tenths of an inch, should be entered in the proper column, and its equivalent in water, recorded in the column "Amount." If there is rain turning to snow, or *vice versa*, care should be exercised to determine what portion of the fall is rain and what snow. In such cases the entry of the depth of snow either by measurement, or approximately, if it melts rapidly, will be sufficient. Too much pains cannot be taken in accurately timing, measuring, recording and stating the character of precipitation.

This office would be glad to have each Observer who can do so note on his report the condition of the winter wheat and oats, fall sown clover, turnips etc.

Received too late to include in tables. Wytheville, mean temperature, 47.2; highest 71° on the 26th; lowest 19° on the 24th; greatest daily range 35°; total precipitation 1.26 inches; greatest in any twenty-four consecutive hours, 0.32 of an inch; trace of snowfall; number of rainy days with .01 or more, 8; number of clear days 17; number of partly cloudy 3; cloudy 10.

Climatological Data for November, 1897.

Stations.	Counties.	Elevation, feet.	Length of record, years.	TEMPERATURE, IN DEGREES FAHRENHEIT.							PRECIPITATION, IN INCHES.					SKY.			Prevailing direction of wind.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall (unmelted).	Number of rainy days.	Number clear days.	Number partly cloudy days.	Number cloudy days.			
TIDEWATER VIRGINIA.																					
Ashland	Hanover	220	5	49.5	+0.5	80	16	22	24	34	3.47	+0.67	1.32	4	10	12	8	sw w.	E. L. C. Scott.		
Birdsnest (t)	Northampton	40	28	51.2	+1.4	78	16	32	14 19 28	2.05	-0.58	0.70	7	10	12	8	sw.	C. R. Moore.			
Cape Henry	Princess Anne	17	22	54.4	+2.5	77	8	34	25	29	2.02	-1.55	1.01	7	9	14	7	sw.	U. S. Weather Bureau.		
Doswell	Hanover	134	0	45.8	-2.0	75	15	18	24 25	49	2.57	0.95	0.95	6	22	6	2	se.	C. W. Butterworth.		
Hampton	Elizabeth City	3	9	53.2	+3.6	72	16	32	24	29	3.36	+0.27	0.73	9	13	5	12	sw.	C. L. Goodrich.		
Norfolk	Norfolk	3	25	53.1	+0.9	76	16	32	24	29	2.84	-0.26	0.91	8	17	7	6	sw.	U. S. Weather Bureau.		
Petersburg	Dinwiddie	11	9	50.8	-2.1	76	15	16	22	24	3.78	-0.06	0.86	6	14	6	10	n. s.	Prof. Jas. M. Colson		
Richmond	Henrico	49.2	0	49.2	0	75	16	28	24	32	3.07	0.86	0.86	8	12	8	10	sw.	U. S. Weather Bureau.		
Richmond (near)	Henrico	96	21	49.2	0	75	16	28	24	32	3.07	0.86	0.86	8	12	8	10	n. s.	Capt. J. C. Shafer.		
Spottsville	Surry	15	7	50.3	+2.3	76	3	6	24	13 25	3.25	-0.19	1.40	8	22	2	6	nw.	B. W. Jones.		
Sunbeam	Southampton	60	2	48.3	-2.7	72	16	26	25	43	2.84	+0.12	1.01	8	21	4	5	s.	Dr. W. H. Daughtry.		
Warsaw	Richmond	200	3	48.4	+0.6	72	9	16 26	22	13	31	2.65	-0.38	0.80	6	8	19	3	n.	C. H. Constable.	
MIDDLE VIRGINIA.																					
Alexandria	Alexandria	35	37	44.8	-0.1	74	16	24	23 24 30	38	3.44	+0.92	1.40	10	14	10	6	nw.	H. C. Slaymaker.		
Barboursville	Orange	0	0	45.7	+2.0	73	16	21	24	33	2.16	-0.93	1.05	10	16	10	4	sw.	Dr. Thos. H. Ellis.		
Bedford City	Bedford	900	6	48.3	+0.5	75	16	21	23	45	2.51	+0.03	1.55	3	16	11	3	sw.	J. T. Davidson.		
Bon Air	Chesterfield	130	2	49.4	-2.7	76	16	21	24	42	4.37	+1.07	1.77	7	14	6	10	sw.	Win. H. Peasants.		
Buckingham	Buckingham	550	3	45.2	-2.8	75	15	21	17	23	39	3.47	+0.69	1.38	4	17	3	3	sw.	Dr. W. E. Pratt.	
Callaville	Brunswick	570	0	49.4	+0.9	75	16	26	19	24	33	3.19	+0.05	0.90	8	17	11	2	nw. s.	F. M. Gage.	
Farmville	Prince Edward	47	3	49.9	0	77	16	22	27	34	1.50	0.90	1.25	2	25	4	1	w.	Jno. R. Martin.		
Fredericksburg	Spottsylvania	47	3	47.1	-0.6	77	16	23	13 14	42	1.99	-0.53	0.60	11	16	13	1	s.	E. C. Rowe.		
Gordonsville	Orange	0	0	46.2	0	77	16	22	22	25	29	2.94	1.22	1.22	4	23	2	2	w.	H. S. Smitthers.	
Guinea	Caroline	100	0	46.2	0	77	16	22	22	25	29	2.94	1.22	1.22	4	23	2	2	w.	M. A. Nunn.	
Leesburg	Loudoun	0	0	46.2	0	77	16	22	22	25	29	2.94	1.22	1.22	4	23	2	2	w.	C. A. English.	
Lynchburg	Campbell	525	17	48.6	+1.5	77	16	22	15	23	24	3.6	-0.70	0.86	7	14	7	9	sw.	U. S. Weather Bureau.	
Maidens	Goochland	185	1	49.6	-1.6	76	15	16	21	18	24	4.06	+0.80	1.00	5	17	5	8	se.	J. R. Hopkins.	
Manassas	Prince William	317	2	46.6	-1.2	75	16	22	24	38	4.34	-1.76	2.48	8	14	7	9	ne.	Thos. H. Lion.		
Nottoway C. H.	Nottoway	7	7	50.8	+1.4	78	16	18	16	18	24	4.06	+0.65	1.58	6	19	18	16	sw.	George Dunn.	
Quantico	Prince William	33	0	46.6	-1.2	75	16	22	4	23	24	2.6	-0.16	1.81	6	16	5	9	s.	E. V. King.	
Rocky Mount	Franklin	1150	2	50.2	-0.4	74	21	20	24	37	2.22	-1.75	0.82	4	16	10	4	sw.	J. H. Binford.		
Stanardsville	Greene	560	2	45.0	-0.8	73	16	21	17	24	34	2.68	-0.16	1.81	6	16	10	4	sw.	W. N. Parrott.	
Warrenton	Fauquier	2	2	46.4	0	68	16	28	24 28 30	24	2.84	1.06	tr	8	10	5	15	ne.	J. T. Preston.		
THE GREAT VALLEY.																					
Big Stone Gap	Wise	1966	6	44.2	+1.6	77	1	15	24	43	1.31	-1.38	0.35	9	14	6	10	sw.	John W. Fox Sr.		
Blacksburg	Montgomery	2100	7	43.5	+0.8	71	15	13	24	39	1.34	+0.15	0.55	5	18	5	7	w.	Prof. W. B. Alwood.		
Bristol	Sullivan, Tenn.	1676	2	45.4	-0.2	73	26	17	23	35	0.69	-1.73	0.27	3	19	4	7	sw.	J. Bunting, Jr.		
Burke's Garden	Tazewell	0	0	43.4	-0.4	65	26	10	24	40	2.50	-1.83	1.00	10	16	4	10	w.	C. H. Greever.		
Christiansburg	Montgomery	2160	9	43.4	-0.4	65	26	10	24	40	2.50	-1.83	1.00	10	16	4	10	w.	J. H. Walters.		
Clifton Forge	Allegheny	1047	2	43.6	-0.5	71	16	19	24	40	2.64	-1.46	0.74	tr	8	8	8	14	w.	T. P. Halloran.	
Dale Enterprise	Rockingham	1350	10	43.4	-1.7	71	16	21	14	24	39	2.40	-0.02	1.10	tr	11	16	8	6	s.	L. J. Heatwole.
Dwale	Dickenson	0	0	36.6	0	52	1	2	15	27	14	0.70	0.50	0.50	3	5	15	10	sw.	Frank M. Beverly.	
Goshen	Rockbridge	1590	1	38.4	-7.2	62	14	20	17	24 29	30	37	0	27	0	3	w.	J. B. Wood.			
Graham's Forge(d)	Wythe	3	40.2	-2.4	70	15	13	24	40	1.34	-0.85	0.77	4	10	18	2	sw.	David Gham.			
Hot Springs	Bath	2195	4	44.2	+1.2	79	15	18	24	32	2.02	-0.19	1.00	tr	7	13	13	4	nw.	A. M. Stinson.	
Lexington	Rockbridge	946	23	45.0	-1.9	76	16	18	24	44	2.44	-0.68	1.50	10	14	10	6	nw.	Prof. H. C. Campbell.		
Marion (t)	Smyth	2124	8	43.7	-2.1	70	26	15	24	40	1.19	-1.18	0.45	5	14	6	10	sw.	A. T. Lincoln.		
Monterey	Highland	3008	2	39.6	-0.1	66	21	22	10	24	32	4.10	+1.41	1.00	tr	6	17	2	11	w.	Jos. Jones.
Salem	Roanoke	1200	6	51.0	+0.9	79	16	23	24	34	1.25	-0.89	0.62	tr	5	5	5	5	sw.	Prof. S. C. Wells.	
Staunton	Augusta	1380	6	47.2	+0.9	72	16	19	24	34	2.14	-0.32	1.36	8	11	13	6	sw.	W. C. Hedrick.		
Stephens City	Frederick	4	44.8	+1.4	73	16	21	20	24	33	3.79	+1.56	0.84	10	10	12	8	w.	W. B. Steele.		
Woodstock	Shenandoah	820	0	42.1	0	70	16	20	30	36	2.20	0.62	0.62	12	2	24	4	w.	H. F. Miley.		
Wytheville*	Wythe	2370	25	42.1	0	70	16	20	30	36	2.20	0.62	0.62	12	2	24	4	w.	Dr. P. B. Green.		

* Estimated. † Incomplete. tr. trace, or less than 0.01 of an inch. (t) Means from 7 am. 2 and 9 + 9 pm. observations. Letters following name of station indicate number of days missing from the report, as b=2 days, etc. * Received too late to be considered in averages.
 Note— Estimated and incomplete data not considered in means.

MISCELLANEOUS PHENOMENA.

Earthquakes: Bon Air, Maidens, 27.
Hail: Bon Air, 9; Wytheville, 11; Monterey, 12.
Frosts: Killing: Doswell, 6, 13; Spottsville, 7, 11, 13, 14, 18, 28; Stanardsville, 12; Nottoway C. H., 13.
Frosts, Light: Spottsville, 3; Doswell, 4.
Fogs, Dense: Staunton, 2, Doswell, Richmond, Bon Air, 5. Wytheville, 28.
Fogs, Light: Woodstock, 1; Alexandria, Quantico, Spottsville, 5.

Halos, Lunar: Bon Air, 6, 7; Spottsville, 7; Burke's Garden, 8; Woodstock, 10.
Thunderstorms: Monterey, 2; Burke's Garden, 11; Spottsville, 27.
Ice: Fredericksburg, 12; Barboursville, 12, 13, 14; Bon Air, 12, 13, 14, 18, 19, 28, 30; Wytheville, 4, 12, 17, 19.
Snow: Clifton Forge, Wytheville, 11; Quantico, Warrenton, Dale Enterprise, Monterey, 12; Hot Springs, 9, 11; Staunton, 11, 12.
Sleet: Wytheville, 11, 29; Graham's Forge, 29.
Gales: Wytheville, 9, 11.

TOTAL PRECIPITATION FOR NOVEMBER, 1897.

Scale of Shades.

