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VIRGINIA SECTION.

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GENERAL SUMMARY.

In temperature, the year 1918 averaged almost exactly normal. The mean annual temperature for the State was 55.3°. January was, on the average, the coldest month of record, having a mean temperature of 25.2°, which was deficient by 10.7° as compared with normal. No other month of the year showed anything like so large a departure from normal temperature conditions, although both July and September established new low record means for the respective months. April, June, and November, also, were cooler than usual. Excesses in temperature were recorded in February, March, May, August, October, and December, the greatest average departure being 4.9° in March. A remarkable heat wave, the most severe since the beginning of Weather Bureau records in Virginia, prevailed from the 5th to the 14th of August. The highest reading of the year was 108° at West Point on August 6. The lowest was -22° at Burkes Garden on January 21. The highest monthly mean was 79.6° for August at Norfolk and Danville; the lowest, 17.7° for January at Mount Weather.

Precipitation amounted to 44.43 inches. This, too, is nearly normal, being excessive by only 1.14 inches. In Tidewater and Middle Virginia there was a slight average deficiency for the year, which was more than offset by an excess of 3.92 inches in the Great Valley. The greatest monthly precipitation occurred in April, with an average for the State of 6.29 inches. This was the greatest of record for April, as was, also, the average snowfall for this month (4.0 inches) and the average number of rainy days (13). Besides April, January showed a considerable excess in precipitation, and June, August, September, and December had slight excesses. The only important average monthly deficiency was that for February, the driest month of the year. The greatest annual precipitation was 65.56 inches at Blacksburg; the least, 30.85 inches at Swansonville. In 24 consecutive hours (June 25-26), 5.00 inches each were recorded at Newport News and Williamsburg. On the other hand, only 0.10 inch fell at Culpeper during the entire month of February. Snowfall averaged 24.7 inches.

THE WEATHER BY MONTHS.

JANUARY.—This was an unusually severe month, with a mean temperature the lowest of record for any winter month since State-wide records began, and individual low readings occurred that have seldom been surpassed. The greatest depth of snowfall ever recorded in January occurred, and sleet storms were more or less general from the 11th to the 15th, and from the 27th to the 30th, inclusive, those of the latter period being, as a rule, unusually heavy. Precipitation was considerably above the normal and over most of the State snow and ice remained on the ground throughout the month. Numerous thunder-storms occurred in Middle Virginia counties on the 11th and 12th. On the farms no field work was possible, owing to the frozen condition of the soil, but the covering of snow and ice prevented serious damage to winter grains from the extremely cold weather.

FEBRUARY.—Cold weather continued until the 6th of February, when there was a change to above normal temperatures which continued, with brief interruptions, throughout the month and culminated on the 28th, with unusually high and, at many stations, record-breaking maximum readings.

Snowfall was light and precipitation, in general, the lightest for any month of the year and, with one exception, the lightest of record for February. By the middle of the month the snow cover had disappeared from the ground in most sections, and toward the end of the month, plowing began, except locally in middle counties where the ground remained wet. An excess of clear days, as compared with normal February weather, resulted in general, though slight, excess in the percentage of sunshine.

MARCH.—Sunshine continued excessive during March. There were, on the average, 15 clear days. Rains were frequent, however, and on the farms the soil was too wet to plow until near the end of the month. The total precipitation was nearly normal, while snowfall was unusually light. Mild temperatures, which prevailed during the first three weeks, operated with the plentiful sunshine and frequent rains to produce excellent growing weather for winter grains. The last 6 or 8 days were colder and occasional heavy frosts occurred, but little or no permanent damage resulted. A brilliant auroral display was observed in all sections of the State on the 7th.

APRIL.—Generally heavy rains occurred and snow fell at 50 of the 54 stations reporting. The averages of precipitation and snowfall and the average number of days with precipitation were the greatest of record for this month for Virginia. The prevalence of cloudy weather naturally resulted in a falling off in the percentage of sunshine to an amount somewhat below the April normal. The month was rather cold for April, and on the 5th and 6th damaging frosts occurred throughout interior Virginia. Killing frosts formed on later dates at scattered points in the north and west. Grass and grains maintained a satisfactory condition, but farm work was greatly retarded by the continuous wet weather; and the germination and growth of such early spring crops as were planted were retarded by the low temperature and deficient sunshine. An earthquake on the evening of the 9th was felt throughout Middle Virginia and in adjoining Tidewater and Great Valley counties. On the 30th, about 3 o'clock p. m., a tornado passed just north of Bachelors Hall, Pittsylvania County, damaging property to the value of \$1,600.

MAY.—The first week of May was comparatively cool and frosts were more or less general on the 2d. After the 7th temperatures were high, sunshine was abundant, and precipitation sufficient for crop needs. Such favorable weather brought vegetation up to normal condition by the end of the month. Washing rains visited some localities in the southwestern part of the State on the 11th and 27th; thunderstorms were unusually frequent and considerable hail was reported from nearly every portion of the State.

JUNE.—High temperatures prevailed during the first two days. After the 2d cooler weather set in, which was most pronounced during the last half of the month, when the growth of corn and tobacco was somewhat retarded by the low temperatures. In the Tidewater and Middle Virginia rainfall was light previous to the 25th, and crops, especially in the latter district, began to show the need of moisture; but the preponderance of fair weather was favorable for the harvesting of wheat and oats, and the cultivation of corn, tobacco, etc. In western counties moderate to heavy rains fell from the 17th to the 22d, and in some mountain districts wheat harvest was delayed and the grain somewhat damaged thereby. Ample rainfall occurred in all sections on the 25th or thereafter.

JULY.—With continuous cool weather during the first three weeks, and nearly normal temperatures thereafter, this was, on the whole, the coolest July of record. Rainfall was below normal, especially in some eastern and middle counties, but vegetation suffered little in consequence, as the rainfall was

uniformly distributed through the month, which rendered it of maximum benefit, while low temperatures and prevailing light winds prevented excessive evaporation from soil and plant. The low temperatures retarded the growth of crops, especially corn, but no considerable permanent injury resulted. In a number of middle-western counties, hail-storms on the 12th did some local damage to growing crops.

AUGUST.—In marked contrast, as regards temperature, to the preceding months of June and July, was the weather from August 5 to 14, inclusive. Unusually high temperatures persisted throughout this period, and on the 6th and 7th record breaking maximum readings occurred in all sections. Some varieties of fruits and vegetables, such as pears, apples and tomatoes, were, in a few localities, partially "baked" or "scalded" by the intense heat. Special correspondence brought reports of 288 prostrations and 21 deaths. Most of the prostrations and all of the deaths occurred in the southeastern part of the State. After the 14th cooler weather prevailed until the 24th, followed by above normal temperatures during the remainder of the month. Precipitation averaged nearly normal, although there was a considerable average deficiency in Tidewater Virginia. Thunder-storms were of frequent occurrence, especially about the middle and last of the month.

SEPTEMBER.—This was another relatively cool month, the temperature averaging below any previous September of record. The low average was due to persistent, rather than extreme coolness, as the minimum readings were not unusually low. During the last 10 days frosts occurred throughout the Great Valley and most of Middle Virginia, those of the 20th and 22d being classed as "killing" in a few western border counties. There was more than the usual amount of rainfall, especially in Tidewater Virginia. The cool weather retarded the maturing of late crops, and corn was locally slightly damaged by frost. Considerable garden truck and excellent pastures remained uninjured at the end of the month.

OCTOBER.—With a few brief interruptions, warm weather prevailed throughout October. By the end of the month, however, frosts had occurred over the entire State, and killing frosts in all except some Tidewater and a few southern border counties. As regards rainfall, there was a decided contrast between the weather in the Great Valley and that east of the Blue Ridge. In the Great Valley heavy rains fell from the 24th to the 30th, during which period very little was recorded at Middle Virginia stations and practically none in Tidewater Virginia. No snowfall was reported. Thunder-storms were infrequent and no other severe storms of any kind occurred.

NOVEMBER.—This month showed a deficiency in precipitation, which was greatest in Tidewater Virginia. Almost no rain fell until the 17th, and from the 19th to the 27th, inclusive, it was again dry. Temperatures averaged nearly normal and no unusual extremes of temperature, nor storms of any kind, were reported. Sunshine, too, averaged about normal. Killing frosts formed throughout Tidewater Virginia, except at coast stations, on the 2d and 3d. An aurora was noted at Parksley, Accomac County, on the 29th.

DECEMBER.—December was mild and wet. The excess in temperature was considerable, especially in the middle and western portions. For the State, as a whole, the month was, with one exception, the warmest December of record. The excess in precipitation was not so great, and was most pronounced in Tidewater Virginia. Snowfall was extremely light. The proportion of cloudy weather was greater than usual and dense fogs were of frequent occurrence; the sunshine was deficient in consequence. This condition was most marked in the southeastern portion of the State.—H. C. M.

CLIMATOLOGICAL DATA, 1918.

Month.	Temperature.			Precipitation.			Number of days.			
	Mean.	Highest.	Lowest.	Average.	Greatest 24-hour rain.	Average snow-fall.	Rainy.	Clear.	Partly cloudy.	Cloudy.
January	25.2	65	-22	5.09	3.05	20.3	11	10	8	13
February	39.5	83	-10	0.82	1.12	0.9	6	14	6	8
March	50.1	88	13	3.58	2.85	T.	10	15	7	9
April	52.8	84	19	6.29	3.20	4.0	13	8	9	13
May	68.6	99	28	3.24	3.85	0.0	9	14	12	5
June	69.8	103	38	4.58	5.00	0.0	8	14	8	8
July	71.8	98	39	3.50	2.65	0.0	11	13	10	6
August	75.1	108	38	4.62	2.90	0.0	9	14	11	8
September	63.5	90	26	3.98	3.02	0.0	7	17	7	6
October	60.8	89	22	2.44	4.24	0.0	5	15	8	7
November	46.4	79	15	1.54	2.90	T.	4	15	8	8
December	42.3	76	10	4.03	2.52	0.1	9	9	6	16

COMPARATIVE ANNUAL DATA.

Year.	Mean temperature.	Highest.	Lowest.	Average precipitation.	Average snow-fall.	No. of rainy days.	No. of clear days.	No. of partly cloudy days.	No. of cloudy days.
1892	54.8	106	-8	40.01	.....	95	163	101	102
1893	55.1	104	-26	46.83	23.1	103	156	100	109
1894	57.0	106	-11	35.97	17.0	88	166	104	95
1895	54.6	107	-18	38.09	38.8	94	174	103	88
1896	56.4	105	-10	42.89	12.3	93	163	106	97
1897	56.0	103	-15	40.81	11.8	92	171	99	95
1898	56.5	105	-9	44.80	8.7	108	162	101	102
1899	56.4	106	-29	43.18	36.7	98	176	95	94
1900	57.0	107	-8	39.33	18.6	86	181	91	93
1901	55.3	106	-14	50.17	9.5	100	167	94	104
1902	55.6	108	0	51.42	14.9	95	170	97	98
1903	55.1	105	-13	44.85	8.4	95	172	89	104
1904	53.8	100	-14	35.18	24.9	96	170	101	95
1905	54.8	98	-15	43.58	18.5	111	155	112	98
1906	56.3	102	-2	49.56	15.2	124	143	120	102
1907	54.3	97	-16	44.19	17.4	115	159	115	91
1908	55.4	102	-20	45.21	30.0	110	162	108	96
1909	55.5	102	-5	39.81	12.9	101	171	104	90
1910	54.7	102	-9	41.37	20.3	112	151	116	98
1911	56.8	104	0	41.50	9.2	115	149	110	106
1912	54.5	100	-25	39.19	24.6	103	165	106	95
1913	57.2	102	-3	42.75	4.0	100	178	98	89
1914	55.0	103	-17	37.17	39.8	101	168	100	97
1915	55.8	101	-5	39.12	13.5	97	160	116	89
1916	55.5	102	-11	39.36	18.6	103	165	106	95
1917	59.3	103	-27	40.82	23.7	114	158	107	100
1918	55.3	108	-22	44.43	24.7	105	159	97	109

KILLING FROSTS, 1918.

Stations.	Last in spring.	First in autumn.	Stations.	Last in spring.	First in autumn.
TIDEWATER VIRGINIA.			MIDDLE VIRGINIA—CON.		
Ashland	May 2	Oct. 23	Leeds Manor	Apr. 13	Nov. 3
Cape Henry	Apr. 6	Dec. 29	Lincoln	Apr. 14	.....
Diamond Springs	Apr. 6	Nov. 14	Lynchburg	Apr. 6	Oct. 23
Doswell	May 2	.....	Mineral	May 2	Oct. 23
Franklin	.....	Oct. 23	Mount Weather	Apr. 13	Nov. 3
Hopewell	Apr. 6	Nov. 14	New Canton	May 2	Oct. 22
Ivor	Apr. 14	.....	Quantico	.....	Oct. 22
Newport News	Mar. 27	Nov. 24	Rocky Mount	Apr. 15	Oct. 23
Norfolk	Mar. 16	Nov. 25	Swansville	Apr. 13	Nov. 3
Onley	.....	Nov. 3	Washington, D. C.	Apr. 6	Oct. 23
Parksley	.....	Oct. 23	THE GREAT VALLEY.		
Richmond	Apr. 6	Nov. 3	Blacksburg	Apr. 6	Sept. 22
Runnymede	May 2	Oct. 23	Buchanan	Apr. 15	Oct. 23
Wachapreague	Apr. 6	.....	Burkes Garden	May 3	Sept. 22
Warsaw	Apr. 13	Oct. 23	Catawaba Sanatorium	Apr. 14	Nov. 2
West Point	Apr. 6	Oct. 23	Dale Enterprise	May 2	Sept. 22
Williamsburg	Apr. 6	Nov. 3	Dante	May 2	Oct. 15
MIDDLE VIRGINIA.			Elk Knob	Apr. 11	Nov. 2
Arcola	Apr. 15	Oct. 9	Hot Springs	May 2	Sept. 22
Callville	Apr. 15	Oct. 23	Kindrick	Apr. 14	.....
Charlottesville	Apr. 13	Nov. 12	Lexington	Apr. 13	Oct. 23
Clarksville	.....	Oct. 23	Monterey	.....	Sept. 20
Columbia	May 2	Oct. 15	North Holston	May 2	Oct. 15
Culpeper	May 2	Oct. 22	Radford	.....	Oct. 15
Danville	Apr. 12	Oct. 23	Roanoke	Apr. 6	Oct. 23
Fredericksburg	Apr. 12	Oct. 23	Staunton	May 2	Oct. 22
Gordonsville	May 2	Oct. 23	Winchester	Apr. 14	Oct. 24
Hawfield	May 2	.....	Woodstock	Apr. 30	Oct. 8
Lassiter	Apr. 14	Oct. 22	Wytheville	Apr. 14	Oct. 15