

Richmond, VA - Compare Newspaper to Wx. Bureau 1897

Green Temps. From the Weather Bureau

| DEC 1897 | TEMPERATURE | | | | TEMPERATURE | | | | PRECIP. 7:00 AM | PRECIP. Liquid | Remarks |
|--------------|-------------|------------|------------|------------|-------------|-------------|--------------|--------------|--------------------|-------------------|--------------------------------------|
| | MAX. | Bureau | MIN. | Bureau | RANGE | RANGE | MEAN | MEAN | | | |
| 1 | 48 | 50 | 25 | 26 | 23 | 24 | 36.5 | 38.0 | | | |
| 2 | 48 | 45 | 37 | 36 | 11 | 9 | 42.5 | 40.5 | | | |
| 3 | 38 | 39 | 35 | 36 | 3 | 3 | 36.5 | 37.5 | 1.90 | 0.52 | |
| 4 | 47 | 44 | 35 | 36 | 12 | 8 | 41.0 | 40.0 | 0.27 | 0.06 | |
| 5 | 51 | 54 | 45 | 35 | 6 | 19 | 48.0 | 44.5 | | 0.05 | |
| 6 | 51 | 46 | 31 | 33 | 20 | 13 | 41.0 | 39.5 | | | |
| 7 | 54 | 56 | 34 | 33 | 20 | 23 | 44.0 | 44.5 | | | |
| 8 | 52 | 53 | 34 | 36 | 18 | 17 | 43.0 | 44.5 | | | |
| 9 | 63 | 64 | 33 | 35 | 30 | 29 | 48.0 | 49.5 | | | |
| 10 | 65 | 68 | 42 | 39 | 23 | 29 | 53.5 | 53.5 | | | |
| 11 | 66 | 68 | 53 | 52 | 13 | 16 | 59.5 | 60.0 | | | |
| 12 | 60 | 60 | 54 | 46 | 6 | 14 | 57.0 | 53.0 | 0.08 | 0.07 | |
| 13 | 49 | 51 | 42 | 43 | 7 | 8 | 45.5 | 47.0 | | | |
| 14 | 57 | 60 | 48 | 45 | 9 | 15 | 52.5 | 52.5 | 0.66 | 0.54 | |
| 15 | 57 | 52 | 44 | 40 | 13 | 12 | 50.5 | 46.0 | | 0.10 | |
| 16 | 54 | 61 | 32 | 34 | 22 | 27 | 43.0 | 47.5 | | | |
| 17 | 53 | 58 | 45 | 43 | 8 | 15 | 49.0 | 50.5 | | | |
| 18 | 46 | 56 | 40 | 34 | 6 | 22 | 43.0 | 45.0 | | | |
| 19 | 37 | 36 | 26 | 28 | 11 | 8 | 31.5 | 32.0 | | | |
| 20 | 43 | 38 | 31 | 28 | 12 | 10 | 37.0 | 33.0 | 0.50 | 0.39 | |
| 21 | 48 | 48 | 43 | 38 | 5 | 10 | 45.5 | 43.0 | 0.11 | 0.21 | |
| 22 | 44 | 46 | 36 | 36 | 8 | 10 | 40.0 | 41.0 | T | 0.14 | |
| 23 | 41 | 42 | 29 | 27 | 12 | 15 | 35.0 | 34.5 | | | |
| 24 | 28 | 32 | 18 | 20 | 10 | 12 | 23.0 | 26.0 | 0.39 | | |
| 25 | 35 | 36 | 18 | 19 | 17 | 17 | 26.5 | 27.5 | | | |
| 26 | 32 | 44 | 30 | 29 | 2 | 15 | 31.0 | 36.5 | 0.10 | 0.55 | |
| 27 | 35 | 45 | 25 | 29 | 10 | 16 | 30.0 | 37.0 | | | |
| 28 | 37 | 38 | 23 | 26 | 14 | 12 | 30.0 | 32.0 | | | |
| 29 | 45 | 47 | 26 | 25 | 19 | 22 | 35.5 | 36.0 | | | |
| 30 | 55 | 58 | 37 | 38 | 18 | 20 | 46.0 | 48.0 | | | |
| 31 | 55 | 54 | 43 | 34 | 12 | 20 | 49.0 | 44.0 | | | |
| TOTAL Number | 1494 31 | 1549 31 | 1094 31 | 1059 31 | 400.0 31 | 490.0 31 | 1294.0 31 | 1304.0 31 | 4.01 | 2.63 | Green Temps. From the Weather Bureau |
| AVE. | 48.19 | 49.97 | 35.29 | 34.16 | 12.90 | 15.81 | 41.74 | 42.06 | | | |
| MAX. | 66 | 68 | 54 | 52 | 30 | 29 | 59.5 | 60.0 | | | |
| MIN. | 28 | 32 | 18 | 19 | 2 | 3 | 23.0 | 26.0 | | | |
| <=32 °F | 2 | 1 | 12 | 10 | <=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 | 12 | 1 | 50 | 26 | | 0.00 | | 0.0 | | 0 | | | | | | | | | | | | | | |
| | 1897 | 12 | 2 | 45 | 36 | | 0.00 | | 0.0 | | 0 | | | | | | | | | | | | | | |
| | 1897 | 12 | 3 | 39 | 36 | | 0.52 | | 0.0 | | 0 | | | | | | | | | | | | | | |
| | 1897 | 12 | 4 | 44 | 36 | | 0.08 | | 0.0 | | 0 | | | | | | | | | | | | | | |
| | 1897 | 12 | 5 | 54 | 35 | | 0.05 | | 0.0 | | 0 | | | | | | | | | | | | | | |
| | 1897 | 12 | 6 | 46 | 33 | | 0.00 | | 0.0 | | 0 | | | | | | | | | | | | | | |
| | 1897 | 12 | 7 | 56 | 33 | | 0.00 | | 0.0 | | 0 | | | | | | | | | | | | | | |
| | 1897 | 12 | 8 | 53 | 36 | | 0.00 | | 0.0 | | 0 | | | | | | | | | | | | | | |
| | 1897 | 12 | 9 | 64 | 35 | | 0.00 | | 0.0 | | 0 | | | | | | | | | | | | | | |
| | 1897 | 12 | 10 | 68 | 39 | | 0.00 | | 0.0 | | 0 | | | | | | | | | | | | | | |
| | 1897 | 12 | 11 | 68 | 52 | | 0.00 | | 0.0 | | 0 | | | | | | | | | | | | | | |
| | 1897 | 12 | 12 | 60 | 46 | | 0.07 | | 0.0 | | 0 | | | | | | | | | | | | | | |
| | 1897 | 12 | 13 | 51 | 43 | | 0.00 | | 0.0 | | 0 | | | | | | | | | | | | | | |
| | 1897 | 12 | 14 | 60 | 45 | | 0.54 | | 0.0 | | 0 | | | | | | | | | | | | | | |
| | 1897 | 12 | 15 | 52 | 40 | | 0.10 | | 0.0 | | 0 | | | | | | | | | | | | | | |
| | 1897 | 12 | 16 | 61 | 34 | | 0.00 | | 0.0 | | 0 | | | | | | | | | | | | | | |
| | 1897 | 12 | 17 | 58 | 43 | | 0.00 | | 0.0 | | 0 | | | | | | | | | | | | | | |
| | 1897 | 12 | 18 | 56 | 34 | | 0.00 | | 0.0 | | 0 | | | | | | | | | | | | | | |
| | 1897 | 12 | 19 | 36 | 28 | | 0.00 | | 0.0 | | 0 | | | | | | | | | | | | | | |
| | 1897 | 12 | 20 | 38 | 28 | | 0.39 | | 0.0 | | 0 | | | | | | | | | | | | | | |
| | 1897 | 12 | 21 | 48 | 38 | | 0.21 | | 0.0 | | 0 | | | | | | | | | | | | | | |
| | 1897 | 12 | 22 | 46 | 36 | | 0.14 | | 0.0 | | 0 | | | | | | | | | | | | | | |
| | 1897 | 12 | 23 | 42 | 27 | | 0.00 | | 0.0 | | 0 | | | | | | | | | | | | | | |
| | 1897 | 12 | 24 | 32 | 20 | | 0.00 | | 0.0 | | 0 | | | | | | | | | | | | | | |
| | 1897 | 12 | 25 | 36 | 19 | | 0.00 | | 0.0 | | 0 | | | | | | | | | | | | | | |
| | 1897 | 12 | 26 | 44 | 29 | | 0.55 | | 0.0 | | 0 | | | | | | | | | | | | | | |
| | 1897 | 12 | 27 | 45 | 29 | | 0.00 | | 0.0 | | 0 | | | | | | | | | | | | | | |
| | 1897 | 12 | 28 | 38 | 26 | | 0.00 | | 0.0 | | 0 | | | | | | | | | | | | | | |
| | 1897 | 12 | 29 | 47 | 25 | | 0.00 | | 0.0 | | 0 | | | | | | | | | | | | | | |
| | 1897 | 12 | 30 | 58 | 38 | | 0.00 | | 0.0 | | 0 | | | | | | | | | | | | | | |
| | 1897 | 12 | 31 | 54 | 34 | | 0.00 | | 0.0 | | 0 | | | | | | | | | | | | | | |
| Summary | | | | 50.0 | 34.2 | | 2.63 | | 0.0 | | | | | | | | | | | | | | | | |

The "*" flags in Preliminary indicate the data have not completed processing and qualitycontrol 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.

The Weather in December.

The following is the weather report for the month of December:

| CONDITIONS. | 7 A. M. | Minimum. | Rainfall— Inches. | Maximum. | Wind. |
|-----------------------|-----------|-------------|----------------------|-------------|-------|
| 1—Partly cloudy... | 27 | 25 | ..... | 48 | N. E. |
| 2—Cloudy (1)..... | 37 | 37 | ..... | 48 | N. E. |
| 3—Cloudy (2)..... | 35 | 35 | 1.90 | 38 | N. E. |
| 4—Cloudy (3)..... | 35 | 35 | .27 | 47 | N. E. |
| 5—Clear..... | 45 | 45 | ..... | 51 | S. W. |
| 6—Clear (4)..... | 31 | 31 | ..... | 51 | N. W. |
| 7—Partly cloudy.. | 34 | 34 | ..... | 54 | S. E. |
| 8—Partly cloudy (5).. | 35 | 34 | ..... | 52 | S. E. |
| 9—Clear (6)..... | 37 | 33 | ..... | 63 | S. E. |
| 10—Clear (7)..... | 44 | 42 | ..... | 65 | S. |
| 11—Partly cloudy.... | 54 | 53 | ..... | 66 | S. W. |
| 12—Cloudy (8)..... | 54 | 54 | .08 | 60 | N. |
| 13—Cloudy..... | 42 | 42 | ..... | 49 | S. E. |
| 14—Cloudy (9)..... | 48 | 48 | .66 | 57 | S. E. |
| 15—Cloudy (10)..... | 44 | 44 | ..... | 57 | N. W. |
| 16—Clear. (11)..... | 32 | 32 | ..... | 54 | S. W. |
| 17—Partly cloudy.... | 45 | 45 | ..... | 53 | W. |
| 18—Partly cloudy (12) | 40 | 40 | ..... | 46 | N. W. |
| 19—Cloudy..... | 26 | 26 | ..... | 37 | N. E. |
| 20—Cloudy (13)..... | 31 | 30 | .50 | 43 | N. |
| 21—Cloudy (14)..... | 43 | 43 | .11 | 48 | N. W. |
| 22—Cloudy..... | 36 | 35 | Tr'ce | 44 | E. |
| 23—Clear (15)..... | 29 | 29 | ..... | 41 | S. W. |
| 24—Clear..... | 18 | 18 | .39 | 28 | N. |
| 25—Cloudy..... | 18 | 12 | ..... | 35 | N. E. |
| 26—Clear (16)..... | 30 | 28 | .10 | 32 | N. W. |
| 27—Clear (17)..... | 25 | 25 | ..... | 35 | N. W. |
| 28—Cloudy (18)..... | 23 | 23 | ..... | 37 | S. W. |
| 29—Cloudy (19)..... | 26 | 24 | ..... | 45 | S. W. |
| 30—Clear..... | 37 | 27 | ..... | 55 | S. W. |
| 31—Cloudy..... | 43 | 40 | ..... | 55 | |
| Averages..... | 39 | 34.5 | 4.01 | 48.5 | |

Mean temperature for the month, 43.7.
 Amount of rainfall, 4.01 inches.
 Observations taken each morning at 7 o'clock.

1. Hail and snow, followed by rain at 8 P. M.
2. Rain all day.
3. Light rain at intervals all day.
4. Heavy frost.
5. Heavy frost.
6. Heavy Frost. Fog.
7. Fog.
8. Rain very early in the morning.
9. Rain beginning early in the morning. Heavy shower at 6 A. M. Mist or light rain all day.
10. Rain during forenoon.
11. Frost.
12. Earthquake shock at 6:51 P. M., lasting nearly a minute, Direction, northeast to southwest.
13. Light rain all day, freezing as it fell.
14. Rain in evening.
15. Frost and ice.
16. Rain, beginning early in the morning, turning to sleet.
17. 18. and 19. Heavy frost and ice.

During the month there were ten clear mornings, fifteen cloudy, and six partly cloudy at the time of observation.

A very distinct shock of earthquake was felt here on the evening of the 18th. Its duration was nearly a minute; the rumbling resembled that of a heavy train; the vibration comparatively slight. It occurred just three weeks after the one on the 27th of November, mentioned in our report for that month.

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

| | | |
|-----------|------|------|
| 1880..... | 40.9 | 3.61 |
| 1881..... | 46.7 | 6.14 |
| 1882..... | 37.5 | 3.03 |
| 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..... | 44.3 | 3.1 |
| 1891..... | 47.2 | 1.57 |
| 1892..... | 39.1 | 1.47 |
| 1893..... | 41.2 | 2.52 |
| 1894..... | 44.7 | 2.30 |
| 1895..... | 40.4 | 2.09 |
| 1896..... | 40.4 | 1.27 |
| 1897..... | 43.7 | 4.01 |

Measurements of rainfall taken each morning.

The temperature for the month has been about the average, while the rainfall is a little above the average for the eighteen years.

Daily Maximum and Minimum temperatures for December, 1897.

| Stations. | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | | 8 | | 9 | | 10 | | 11 | | 12 | | 13 | | 14 | | 15 | | 16 | | 17 | | 18 | | 19 | | 20 | | 21 | | 22 | | 23 | | 24 | | 25 | | 26 | | 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. | Max. | Min. | Max. | Min. | Max. | Min. | Max. | Min. | Max. | Min. | Max. | Min. | Max. | Min. | Max. | Min. | Max. | Min. | Max. | Min. | Max. | Min. | | | | | | |
| TIDEWATER VA. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ashland | 53 | 23 | 45 | 32 | 39 | 35 | 42 | 34 | 53 | 34 | 52 | 29 | 53 | 32 | 56 | 32 | 69 | 34 | 73 | 38 | 74 | 50 | 63 | 44 | 53 | 40 | 54 | 44 | 54 | 40 | 64 | 31 | 66 | 38 | 47 | 35 | 37 | 26 | 35 | 26 | 48 | 33 | 43 | 34 | 40 | 28 | 32 | 17 | 38 | 13 | 49 | 30 | 47 | 23 | 47 | 20 | 53 | 23 | 58 | 38 | 58 | 36 | 51.5 | 32.3 |
| Cape Henry..... | 52 | 29 | 47 | 43 | 50 | 44 | 48 | 43 | 63 | 48 | 44 | 38 | 48 | 34 | 59 | 38 | 60 | 37 | 61 | 43 | 71 | 54 | 65 | 52 | 52 | 7 | 62 | 46 | 58 | 43 | 57 | 26 | 59 | 45 | 56 | 41 | 42 | 34 | 41 | 33 | 50 | 40 | 47 | 41 | 45 | 34 | 42 | 19 | 37 | 26 | 42 | 32 | 46 | 31 | 41 | 32 | 44 | 25 | 58 | 37 | 63 | 46 | 51.9 | 38.4 |
| Doswell | 45 | 18 | 50 | 25 | 36 | 23 | 49 | 44 | 50 | 32 | 51 | 27 | 52 | 28 | 52 | 28 | 63 | 30 | 66 | 30 | 67 | 36 | 61 | 37 | 50 | 40 | 63 | 40 | 65 | 43 | 53 | 25 | 63 | 25 | 57 | 38 | 36 | 26 | 45 | 24 | 48 | 33 | 45 | 32 | 43 | 35 | 32 | 13 | 33 | 10 | 43 | 13 | 43 | 18 | 36 | 16 | 45 | 12 | 51 | 31 | 51 | 33 | 49.7 | 27.9 |
| Hampton..... | 52 | 33 | 47 | 42 | 48 | 43 | 46 | 43 | 58 | 46 | 47 | 33 | 54 | 41 | 56 | 39 | 63 | 45 | 67 | 47 | 68 | 52 | 61 | 56 | 52 | 47 | 67 | 48 | 50 | 46 | 57 | 39 | 57 | 45 | 51 | 44 | 38 | 32 | 38 | 32 | 50 | 39 | 45 | 42 | 44 | 35 | 32 | 23 | 37 | 22 | 40 | 35 | 47 | 31 | 37 | 32 | 46 | 27 | 56 | 41 | 57 | 44 | 50.6 | 37.5 |
| Norfolk..... | 53 | 30 | 47 | 42 | 49 | 43 | 54 | 42 | 63 | 42 | 46 | 35 | 55 | 36 | 57 | 38 | 64 | 40 | 68 | 43 | 72 | 53 | 62 | 50 | 54 | 46 | 66 | 54 | 55 | 44 | 60 | 36 | 62 | 46 | 57 | 38 | 38 | 32 | 40 | 33 | 52 | 40 | 45 | 40 | 43 | 32 | 32 | 22 | 36 | 24 | 40 | 34 | 44 | 30 | 39 | 32 | 45 | 27 | 58 | 39 | 63 | 36 | 52.2 | 38.0 |
| Petersburg..... | 56 | 25 | 45 | 34 | 41 | 36 | 51 | 39 | 46 | 36 | 56 | 32 | 56 | 31 | 55 | 30 | 67 | 35 | 70 | 38 | 69 | 50 | 62 | 44 | 45 | 42 | 61 | 44 | 62 | 43 | 62 | 32 | 55 | 39 | 53 | 38 | 42 | 28 | 35 | 30 | 50 | 34 | 45 | 38 | 45 | 30 | 39 | 20 | 34 | 16 | 45 | 32 | 47 | 27 | 50 | 29 | 48 | 37 | 59 | 38 | 59 | 35 | 51.9 | 34.3 |
| Richmond..... | 50 | 26 | 45 | 28 | 39 | 36 | 48 | 36 | 54 | 36 | 46 | 32 | 56 | 33 | 53 | 34 | 64 | 35 | 68 | 37 | 68 | 52 | 60 | 46 | 51 | 43 | 60 | 45 | 55 | 40 | 61 | 34 | 58 | 34 | 45 | 34 | 36 | 28 | 38 | 28 | 48 | 38 | 46 | 36 | 42 | 27 | 32 | 20 | 36 | 19 | 44 | 29 | 45 | 29 | 38 | 26 | 47 | 25 | 58 | 38 | 54 | 34 | 49.8 | 33.5 |
| Richmond (near).... | 48 | 25 | 45 | 35 | 40 | 35 | 40 | 35 | 44 | 36 | 44 | 31 | 52 | 33 | 52 | 32 | 55 | 35 | 65 | 37 | 60 | 50 | 62 | 50 | 49 | 42 | 55 | 43 | 55 | 45 | 55 | 32 | 57 | 42 | 45 | 38 | 36 | 28 | 36 | 28 | 47 | 40 | 47 | 37 | 42 | 31 | 30 | 19 | 36 | 15 | 44 | 25 | 37 | 23 | 46 | 28 | 56 | 40 | 54 | 40 | 48.0 | 34.5 | | |

U. S. DEPARTMENT OF AGRICULTURE.

REPORT FOR DECEMBER, 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

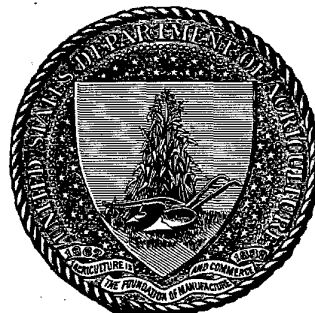
CHIEF OF WEATHER BUREAU

BY

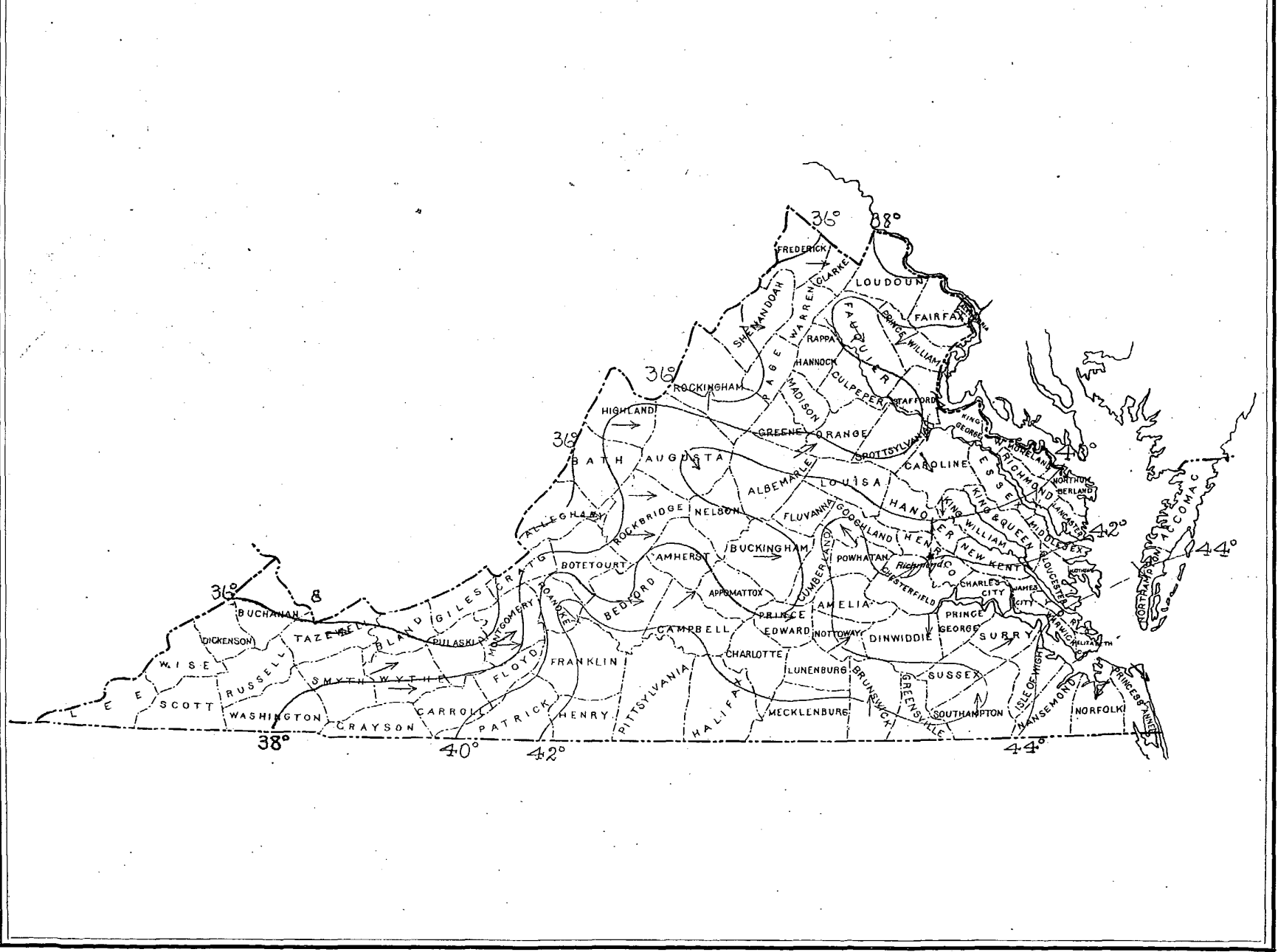
EDWARD A. EVANS

SECTION DIRECTOR.

RICHMOND, VA.



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



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

Central Office,
 WASHINGTON, D. C. }

{ **WILLIS L. MOORE,**
 Chief.

VIRGINIA SECTION,
E. A. EVANS, Section Director,
 RICHMOND, VA.

VOL. VII.

RICHMOND, VA.

No. 12.

DECEMBER CROP CONDITIONS.

The month, in general, was mild and pleasant, and favorable for farm, and all outdoor work. Winter wheat, clover, turnips and grass made excellent progress during the month. In the southwest portion of the State both wheat and grass are backward, but this is owing more to the dry weather of the fall which delayed seeding, than to unfavorable conditions since the seed was sown.

FORESTS AND RAINFALL.

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

Admitting that we have perfect instruments and careful observers, there still remains a most serious doubt as to the immediate environments of each gauge and as to the possibility of a direct comparison. It is probable that no two gauges 2,000 feet apart can be placed so as to catch the same amount of rain, though to all appearances the exposure is faultless in each case. This is plainly seen on the roof of a building. For example, before the office of the Weather Bureau was removed to its present location in Washington, eighteen rain gauges were placed on the roof and one upon the sod not 500 feet away. There was only one of the gauges that gave the same rainfall in all storms as the one on the sod. Some of the others gave more in some storms and some less, but all of them in the total rainfall of eight months gave less than the one which compared exactly with the sod gauge. In an early publication of rainfall records in this country (not by the Weather Bureau, however,) two stations are given, Marengo and Riley, in Illinois, not more than 3 miles apart, but yet differing by 19 inches in the total annual precipitation for several years. I have no doubt that in the latter instance one or both gauges were badly exposed; but enough has been said to show the extreme caution needed in studying such records and the absolute necessity that exists in obtaining a comparison between gauges that are not affected harmfully by their surroundings.

One of the best of all researches in this line has been conducted at Nancy, in France. Within a distance of 5 or 6 miles there have been four stations established; At Nancy in the open and Belle-Fontaine in the forest; and 500 feet higher vertically, Amance (open) and Cinq-Tranchees (forest). The latter stations are in a more hilly region and cannot be compared together, as can the former. At the lower stations we have comparative observations for twenty-five years. I have summed these in three groups, containing eight, eight and nine years in each group. First group Nancy (open), had 31.16 inches, while Belle-Fontaine (forest) had 32.46 inches; second group, 33.39 inches and 34.07 inches; third group, 30.05 inches and 29.89 inches. We see that while the first eight years showed a very slight excess in the forest rainfall over that in

the open field, in the last nine years (including 1894, last published) the open station showed a little more rain than the forest station. These observations were made with particular care, for the purpose of exactly determining the influence, and may be relied on if the environments of the gauges were comparable. At Amance (open) and Cinq-Tranchees (forest) the observations have not been quite so regular, though we have twenty-five full years records at these two stations, but not the same years as at the other stations. Amance shows 26.70 inches and Cinq-Tranchees (forest) 33.39 inches, or an apparent preponderance of 6.7 inches a year in the forest. This would make more than 20 per cent greater in the forest than in the open. It should be borne in mind, however, that these last two stations are on an eminence, and are not strictly comparable, and this result can not vitiate that at the other two stations, which shows no effect.

In Germany we have a rather remarkable record of a slightly different character. Lintzel is a station on the Luneburg heath, which began to be planted with trees in 1887, at the rate of 1,000 to 1,500 acres a year, and in a few years over 8,000 acres were covered. In the midst of this forest is the meteorologic station in an open field of some 75 acres. Before planting the forest 97 per cent of the surface was field, meadow, or heath, and afterward 80 per cent was forest and 20 per cent was roads, open field, and heath. Around this station, pretty evenly distributed, and within 50 miles, there are thirteen rainfall stations, which have been carefully established and presumably are comparable with the Lintzel station in the midst of the growing forest. There is no means of knowing whether any of these stations have been changed or not, but for our purpose we may consider the material homogenous and treat it accordingly. Records from 1882 to 1896 (fifteen years) are available. Charts were prepared for each year showing the ratio between the Lintzel record and that at each station of the thirteen. There is no space for these charts, but, in place of them, I give here the mean of all the thirteen stations ratios for each year; 1882, 81; 1883, 83; 1884, 101; 1885, 103; 1886, 82; 1887, 98; 1888, 93; 1889, 122; 1890, 97; 1891, 100; 1892, 90; 1893, 96; 1894, 142; 1895, 128; 1896, 136.

These figures are extremely significant, and may be further elucidated as follows: The smaller ratios show a less rainfall at Lintzel, or, these figures are the percentage of rainfall at Lintzel as compared with surrounding stations. It is impossible to determine whether these trees have reached the culmination of their effect or not. In 1896 most of them would be seventeen years old, and the ground would probably be fairly covered. It is a great pity that the environment was changed or some accident happened at Lintzel so as to vitiate the three last years. (An inquiry was sent to Germany regarding the error, but no response has yet been received.) The record does not seem to show any appreciable effect upon the precipitation; 1884 the ratio was 101, while in 1893, nine years later, it was 96. It is probable that no definite and unassailable result can ever be obtained either by the method adopted in France or this later one in Germany. The rainfall is so variable within a distance of even a mile or two, and it is so difficult, if not impossible, to obtain similar environments at all the stations, that no decisive result can be obtained. It will be seen readily that the multiplication of stations will do no good, and, above all, that the observation of rainfall under trees in a forest is absolutely useless for any such discussion or study as this.

It seems probable that if two or three lines of stations could be established a mile or two apart on four sides of an enormous forest, each line to have a dozen stations or so, about 3,000 feet apart, four of the stations to be outside of the forest and the others each in a large, cleared space of at

least two acres extent in the forest, something decisive might be obtained. It should be noted, however, that from the evidence already accumulated there would be very little to be gained by a further study of the question. It is certain that the effect, if there be one, is almost inappreciable. The favoring conditions over the forest are balanced by those not favoring and the integrated effect is practically the same in the two cases.

Prof. H. F. Blanford, of India, determined from a most careful series of records, from which all known errors had been eliminated, that the forest had a tendency to give 2 per cent more rain than contiguous open fields. That is, if an open place had 50 inches of rain in a year a near by forest would have only 51 inches, which is practically inappreciable.

It would be an interesting study to select all those cases in experiments in forest and near by fields in which the wind was blowing either from the forest to the field, or *vice versa*. It is evident that if there is any effect on the rainfall by the forest, it would be vitiated if not exactly reversed by such winds.

There is a class of visual observations which seems to show an effect upon rainfall by the forest. Probably many have seen heavy clouds passing over a plain, but which only precipitated as they passed over a forest. Also in a hilly region it is a frequent phenomenon that a fog and low lying cloud hover near a forest, and not over an open plain. One also notes very often in passing into a forest on a damp day that the trees drip moisture, possibly condensed from moisture evaporated from the damp earth underneath. Observations of this nature, however, can not ordinarily be checked by instrumental means, but show in a general way that the forest tends to conserve vapor and moisture which in the case of the open field would be diffused into the atmosphere.

Extract, September, 1897, Weather Review.

ATMOSPHERIC PRESSURE.

The mean monthly air pressure as deduced from the U. S. Weather Bureau Stations at Richmond, Lynchburg, Norfolk and Washington, D. C., was 30.14 inches; highest 30.56 inches, at Washington, D. C., on the 2d; lowest 29.43 inches, at Washington, D. C., on the 31st; range 1.13 inches.

TEMPERATURE. (DEG. F)

TIDEWATER VIRGINIA.—Highest monthly mean, 45.2, at Cape Henry; lowest monthly mean, 38.8, at Doswell; maximum temperature, 74, at Ashland and Spottsville, on the 11th; minimum temperature, 10, at Doswell, on the 25th; greatest daily range, 38, at Doswell and Spottsville.

MIDDLE VIRGINIA.—Highest monthly mean, 42.4, at Notoway C. H.; lowest monthly mean, 37.1, at Alexandria; maximum temperature, 71, at Lynchburg, on the 11th; minimum temperature, 9, at Stanardsville, on the 25th; greatest daily range, 42, at Buckingham and Leesburg.

THE GREAT VALLEY.—Highest monthly mean, 42.2, at Salem; lowest monthly mean, 31.2, at Goshen; maximum temperature, 71, at Lexington and Salem, on the 11th; minimum temperature, 2, at Monterey, on the 24th; greatest daily range, 40, at Burke's Garden.

FOR THE STATE.—Average of the monthly mean temperatures, 39.5; average of the maximum temperatures, 66; average of the minimum temperatures, 12; average of the greatest daily range, 32.

December was a bright, pleasant month with temperatures about the normal. The extremes of temperature ranged between a maximum of 74° on the 11th and 2° on the 24th.

The coolest weather in all portions of the State occurred during the last decade when ice was formed of sufficient thickness to afford skating.

PRECIPITATION.

TIDEWATER VIRGINIA.—Greatest monthly precipitation, 3.88 inches, at Norfolk; least monthly, 2.63 inches at Richmond; greatest amount in any twenty-four consecutive hours, 1.41 inches, at Norfolk, on the 14th.

MIDDLE VIRGINIA.—Greatest monthly precipitation, 4.40 inches, at Stanardsville; least monthly, 1.91 inches, at Farmville; greatest amount in any twenty-four consecutive hours, 1.90 inches, at Bon Air, on the 3d.

THE GREAT VALLEY.—Greatest monthly precipitation, 4.81 inches, at Burke's Garden; least monthly, 1.75 inches, at Goshen; greatest amount in any twenty-four consecutive hours, 1.41 inches, at Stephens City, on the 14-15th.

FOR THE STATE.—Average total precipitation, 3.39 inches. The average total precipitation for the State, 3.39 inches, was 0.31 of an inch above the normal for the month.

By sections Tidewater Virginia was 0.07 of an inch above the normal; Middle Virginia, 0.10 of an inch above, and the Great Valley, 0.62 of an inch above.

The average number of days on which 0.01 of an inch or more of rain or snow fell, was 9 in Tidewater Virginia; 8 in Middle Virginia, and 9 in the Great Valley. Average for the State, 8.

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

WEATHER.—Tidewater Virginia, average number of clear days, 11; partly cloudy, 7; cloudy, 13. Middle Virginia, average number of clear days, 13; partly cloudy, 9; cloudy, 9. The Great Valley, average number of clear days, 9; partly cloudy, 9; cloudy, 13. For the State, average number of clear days, 11; partly cloudy, 8; cloudy, 12.

The precipitation over the State was somewhat above the average. It was quite evenly distributed and all sections received enough for germination and growth of fall sown grain. A portion of the total amount fell as snow in the Great Valley section and some counties of the Middle section, but, generally, the snowfall was light and at no time formed a covering for young wheat, clover or turnips.

NOTES AND COMMENTS.

Mr. E. Wilkinson, of West Point, and Dr. P. B. Green, of Wytheville, were welcome visitors at the Central Office during the month.

The attention of the voluntary observers is invited to the instructions relative to entering snowfall contained in the November number of this report. The amount of precipitation falling as snow at each station, is a matter of much importance and should be carefully entered in the proper column. We are glad to see the increased number of observers who are entering the beginning and ending of precipitation and congratulate them on this material improvement in their work.

To other instructions already given on this head, we desire to add that when precipitation begins and ends, during the night (as, for example, the 25th) the notation "during the night" be entered on the 25th, but the amount *on the following day*, 26th. This will indicate to the Central Office, that it fell on the night of the 25th.

Report from Gordonsville, not received.

Errata: Page 8, Richmond, total precipitation should be 2.63; Hot Springs, total precipitation should be 3.98; Marion, total precipitation should be 4.08; Goshen, total precipitation should be 1.75.

Climatological Data for December, 1897.

Table with columns: Stations, Counties, Elevation, Length of record, TEMPERATURE (Mean, Departure from normal, Highest, Date, Lowest, Date, Greatest daily range), PRECIPITATION (Total, Departure from normal, Greatest in 24 hours, Total snowfall, Number of rainy days, Number clear days, Number partly cloudy days, Number cloudy days), SKY, Prevailing direction of wind, Observers.

* Estimated. † Incomplete. tr. trace, or less than 0.1 of an inch. (1) 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: Ashland, Buckingham, Maidens, Fredericksburg, 18.

Sleet: Hampton, Spottsville, Warrenton, Clifton Forge, Graham's Forge, Monterey, Stephens City, Woodstock, 20; Bedford City, Fredericksburg, Manassas, Stanardsville, 20, 26; Ashland, 20, 26, 27, 28, 29; Alexandria, 20, 25; Barboursville, 2, 20, 25, 26, Christiansburg, Staunton, 26; Lexington, 2, 19; Salem, 25.

Hail: Alexandria, Barboursville, Bon Air, 2; Bedford City, Doswell, 20; Petersburg, Manassas, 20, 26; Wytheville, 14.

Halos, Lunar: Spottsville, 11, 30; Stephens City, 6, 10; Woodstock, 6, 8, 10, 27.

Halos, Solar: Spottsville, 25.

Gales: Alexandria, 23, 31; Wytheville, 23.

Fogs, Light: Alexandria, 10; Bon Air, 9, 10; Buckingham, 9, Wytheville, 20.

Fogs, Dense: Staunton, 3, 4; Stephens City, 10; Wytheville, 4, 5.

Thunderstorms: Warrenton, 12.

Observer at Spottsville, reports alder and dandelions in bloom on 30th.

Daily Maximum and Minimum temperatures for December, 1897.

Table with columns for Stations, 31 days, and Monthly Mean. Rows are categorized by region: TIDEWATER VA., MIDDLE VA., and GREAT VALLEY. Each station entry includes 31 columns of temperature data (Max./Min.) and a final 'Monthly Mean' column.

CLIMATE AND CROPS: VIRGINIA SECTION.

DECEMBER, 1897.

Daily Precipitation for December, 1897.

| Stations. | Day of Month. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Total. | | | |
|----------------------------|---------------|-----|------|-----|------|-----|---|---|---|-----|-----|-----|------|------|------|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|----|-----|-----|-----|--------|------|------|--|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | | | | |
| TIDEWATER VIRGINIA. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ashland | | | .52 | .15 | .11 | | | | | | | tr | .61 | .14 | | | | | | | .04 | .40 | .10 | | | | .60 | | | | | | | 2.67 | |
| Birdsneat | | | .60 | .25 | | | | | | | | | | .40 | .45 | | | | | | | .75 | .45 | | | | .70 | | | | | | | 3.66 | |
| Cape Henry | | | .50 | .23 | .02 | | | | | | | | | 1.10 | .18 | | | | | | .06 | .10 | .60 | | | | .73 | | | | | .05 | 3.57 | | |
| Doswell | | | .20 | .25 | | | | | | | | | | .77 | .22 | | | | | | .45 | | | | | | .91 | | | | | | | 2.80 | |
| Hampton | | | .50 | .10 | .24 | | | | | | .02 | tr | 1.00 | .02 | | | | | | | .45 | .03 | .21 | | | | .66 | | | | | | .04 | 3.27 | |
| Norfolk | | | .66 | tr | .32 | | | | | | | | | 1.41 | .25 | .37 | | | | | .29 | .17 | .20 | | | .73 | | | | | | .03 | 3.88 | | |
| Petersburg | | | .54 | .08 | .10 | | | | | | | | | .02 | .25 | .37 | | | | | .22 | .32 | .30 | | | .40 | | | | | | .06 | 2.66 | | |
| Richmond | | .05 | .39 | .06 | .04 | | | | | | .07 | | .01 | .51 | .05 | | | | | | .43 | .11 | .12 | | | .55 | | | | | | | 2.38 | | |
| Spottsville | | | .86 | tr | | | | | | .01 | | | .71 | .13 | | | | | | | .36 | .43 | | | | .65 | | | | | | .08 | 3.23 | | |
| Sunbeam | | | .56 | tr | .24 | | | | | .10 | | | .50 | .55 | | | | | | | .35 | .57 | | | | .47 | | | | | | .06 | 3.40 | | |
| Warsaw | | | | | .67 | | | | | | | .05 | | .80 | | | | | | | .52 | | .18 | | | .72 | | | | | tr | 2.94 | | | |
| MIDDLE VIRGINIA. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Alexandria | | | .66 | .39 | | | | | | | .31 | | .14 | .75 | | | tr | | | .49 | .14 | | tr | | .45 | | | | .01 | | .09 | 3.43 | | | |
| Barboursville | | | .50 | .39 | .15 | | | | | | .13 | | 1.65 | .05 | | | | | | | .24 | .43 | .11 | | | .52 | | | | | .01 | 3.92 | | | |
| Bedford City | | | .71 | .44 | | | | | | | | .08 | | .66 | | | | | | | .50 | .11 | tr | | .39 | | .73 | | | | | | 4.01 | | |
| Bon Air | | | 1.90 | .27 | | | | | | | .05 | | .03 | .79 | | | | | .06 | .29 | .23 | .23 | | | | .48 | | | | | | | 2.77 | | |
| Buckingham | | .30 | .29 | .25 | | | | | | | .04 | | .25 | .25 | | | | | | | .26 | .26 | .36 | | | .14 | | | | | | .05 | 2.45 | | |
| Callville | | | .72 | .12 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Danville | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Farmville | | .33 | .50 | .50 | | | | | | | | .10 | | .25 | | | | | | | | .33 | | | | | | | | | | | | 1.91 | |
| Fredericksburg | | | .50 | .26 | .11 | | | | | | | | | .57 | .53 | | | tr | | .40 | .07 | .16 | tr | | | .42 | | | tr | tr | | .05 | 3.17 | | |
| Guinea | | | | | | | | | | | | | | .28 | | | | | | | | | | | | .20 | | | | | | | | 2.42 | |
| Leesburg | | | .96 | .98 | | | | | | | | | | .76 | .02 | | | | | | .29 | .18 | .29 | | | .70 | | | | | | | 3.37 | | |
| Lynchburg | | tr | .65 | .13 | .24 | | | | | | tr | .06 | | .36 | .30 | | | | | | .25 | | | | .50 | | | | | | | | 2.36 | | |
| Maidens | | | .55 | .20 | .20 | | | | | | | | .16 | | .93 | | | | | | .48 | | .13 | | | .51 | | | | | | | 3.33 | | |
| Manassas | | | .70 | .06 | .08 | | | | | | | | | .27 | .49 | | | | | | | .31 | .45 | | | .57 | | | | | | .01 | 3.21 | | |
| Nottoway C. H. | | | .60 | .20 | | | | | | | | | | .95 | tr | | | | | | .50 | .25 | .50 | | | .80 | | | | tr | | | 3.80 | | |
| Rocky Mount | | | .43 | .50 | .30 | | | | | | .42 | | 1.50 | tr | | | | | | | .44 | .28 | | | .53 | | | | | | | | 4.40 | | |
| Stanardsville | | | .63 | .31 | .12 | | | | | | | | | 1.11 | | | | | | | .38 | | .10 | | .15 | | | | | | | | 2.80 | | |
| Warrenton | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| THE GREAT VALLEY. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Big Stone Gap | | tr | .75 | .45 | .22 | .03 | | | | | tr | .05 | .15 | .20 | .03 | | .15 | .03 | | 1.08 | .67 | .39 | .05 | | | .17 | | | | | .35 | 4.77 | | | |
| Blacksburg | | | .10 | .69 | .49 | .12 | | | | | tr | .01 | | .50 | | | | | | | .48 | .38 | .16 | | | .71 | | | | | .03 | 3.67 | | | |
| Bristol | | | .37 | .58 | | | | | | | tr | tr | | .37 | | | | | tr | .18 | .68 | .80 | .40 | | | | | | | .42 | | | 3.92 | | |
| Burke's Garden | | | .70 | .28 | .39 | | | | | | tr | tr | | .06 | .09 | | | | | | .83 | .68 | .30 | | | | | | | | | | 4.81 | | |
| Christiansburg | | | .25 | .45 | .50 | | | | | | | .11 | | .18 | .40 | | | | | | .16 | .53 | .33 | | | .75 | | | | | | | 3.66 | | |
| Clifton Forge | | | .68 | .69 | | | | | | | | | | .96 | | | | | | | | .24 | | tr | | .60 | | | | | | | | 3.54 | |
| Dale Enterprise | | | .32 | .50 | | | | | | | | .34 | | 1.20 | | | | | | | .85 | .50 | .05 | .08 | | .05 | | | | | .07 | | 2.90 | | |
| Dwale | | | .60 | .15 | | | | | | | | | .25 | .39 | | | | | | | tr | | | | .60 | | | | | | | | | 3.10 | |
| Goshen | | | | | 1.00 | | | | | | | | | .15 | | | | | | | | | | | .05 | | | | | | | | | | |
| Graham's Forge | | | | | | | | | | | | | tr | 1.00 | | | | | | | | .78 | | .48 | | .85 | | | | | | | .12 | 4.39 | |
| Hot Springs | | .31 | .24 | .50 | | | | | | | | | | 1.13 | | | | | .02 | | .50 | .08 | | | | .12 | | | | | | | 2.90 | | |
| Lexington | | | .56 | .54 | .24 | | | | | | | tr | | 1.23 | | | | | | | .31 | .20 | .14 | | | .15 | | | | | | .05 | 3.42 | | |
| Marion | | | .40 | .13 | .45 | | | | | | | | | .40 | .10 | | | | .20 | | .60 | .85 | .35 | | .20 | .40 | .04 | | | | | .20 | 4.12 | | |
| Monterey | | | .15 | .40 | .50 | | | | | | | | | 1.00 | | | | .08 | | | .25 | .40 | | tr | | .40 | | | | | | | 3.38 | | |
| Salem | | | .66 | .55 | .16 | | | | | | | | | .60 | .10 | | | | | | .56 | .15 | | | | .99 | | | | | | .05 | 3.82 | | |
| Staunton | | | .46 | .38 | .18 | | | | | | | tr | .18 | tr | 1.10 | | | | | | .24 | .08 | .05 | | | .60 | | | | | | | .04 | 3.31 | |
| Stephens City | | | .53 | .81 | | | | | | | | tr | .31 | tr | .09 | tr | .98 | .43 | | | tr | | tr | | .36 | .15 | | | | | | | 3.87 | | |
| Woodstock | | | .37 | .74 | | | | | | | tr | | .28 | .75 | | | | | | | tr | | tr | | .28 | .18 | tr | | | | | .03 | 3.72 | | |
| Wycheville | | tr | .66 | .41 | .06 | | | | | | | .05 | | .06 | .63 | .04 | | | | | tr | | .03 | | .52 | .35 | .14 | | | | | .78 | 4.13 | | |

tr. Trace, or less than .01 of an inch.

U. S. DEPARTMENT OF AGRICULTURE.

ANNUAL SUMMARY. 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

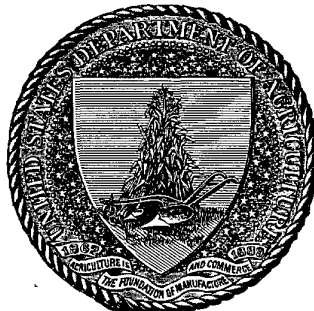
CHIEF OF WEATHER BUREAU

BY

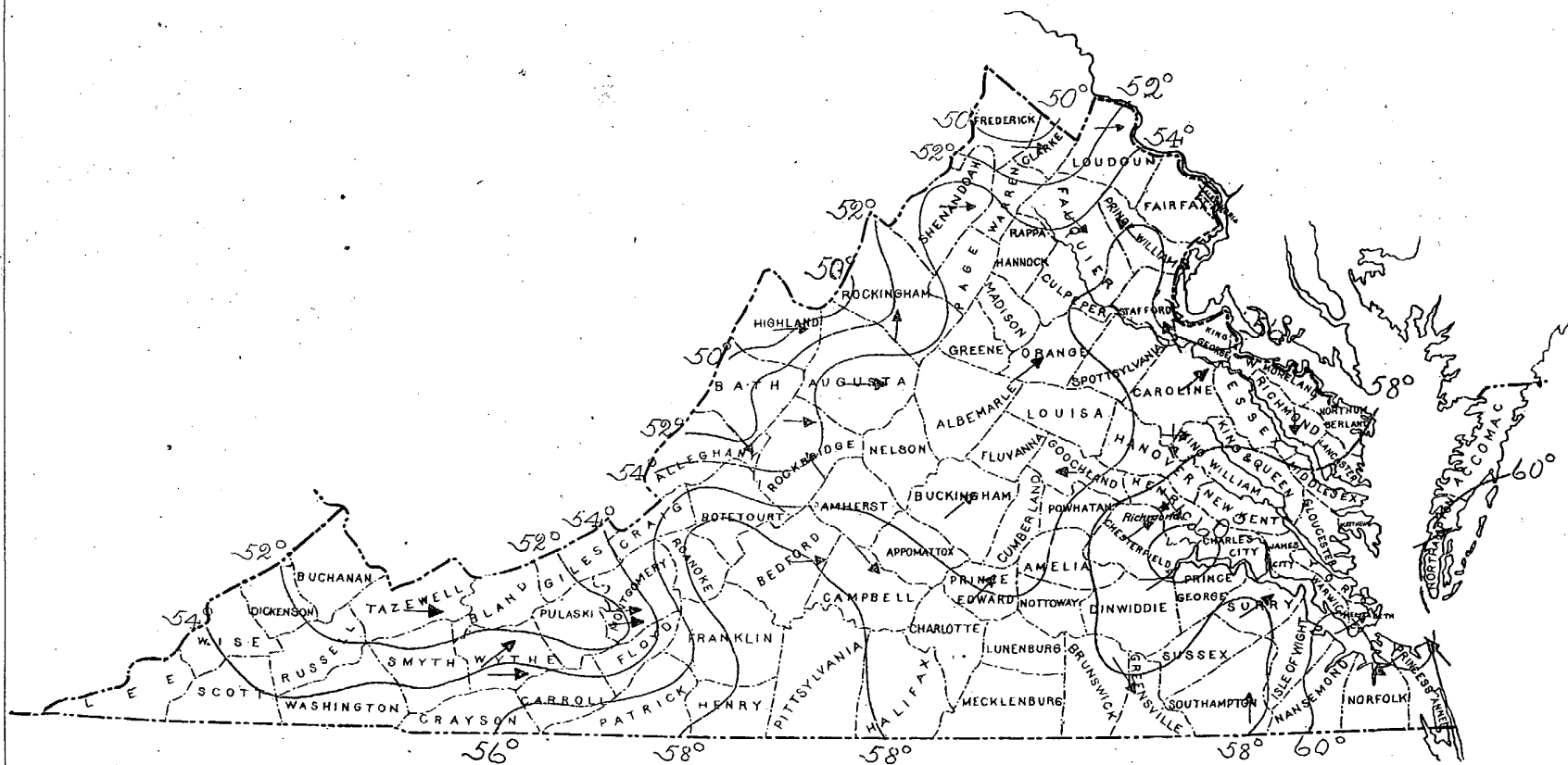
EDWARD A. EVANS

SECTION DIRECTOR,

RICHMOND, VA.



MEAN ANNUAL ISOTHERMS AND PREVAILING WIND DIRECTION FOR 1897.



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

Central Office,
 WASHINGTON, D. C. }

WILLIS L. MOORE,
 Chief.

VIRGINIA SECTION,
 E. A. EVANS, Section Director,
 RICHMOND, VA.

**REVIEW OF CROP CONDITIONS IN VIRGINIA
 DURING THE SEASON OF 1897.**

CROPS sown during the fall of 1896, were generally reported to have wintered well and came into the Spring of 1897 in very promising condition. Notwithstanding the scarcity of snow in many counties over the State, which left wheat and oats sprouts unprotected, but few reports of winter-killing were received. In some few counties where fall sown crops were a little backward, the favorable weather of the early Spring months brought them forward rapidly.

By the first of April a good seasonal condition of crops obtained, though farm work had been somewhat retarded by dry and windy weather in March.

In the trucking counties considerable gardening had been done and early vegetables seeded and planted. Peach and plum trees were generally in blossom early in the month receiving some damage from frosts. Tobacco plant beds were in excellent shape and the plants themselves were plentiful and thriving. Considerable corn was planted and seeding of spring oats pushed, and towards and close of the month a large acreage of these crops was up and growing well save for a slight setback caused by frost.

May opened somewhat droughty in portions of the State, and rather too cool, but by the 10th this had given away to plentiful rains and warmer weather which continued until the latter part of the month when it again became too cool for good growth. Light frosts did damage to fruit blooms, garden vegetables and truck and the growth of clover and other grasses was checked. Corn planting was finished in the Tidewater and Middle counties early in the month. Tobacco plants continued thrifty and abundant and many farmers began preparing their tobacco land. Winter wheat and oats did well all the month and the former began to head by the 15th in some of the counties of the Tidewater district.

In the southeastern counties cotton and peanut planting were begun and a larger acreage than usual of the former was put in. Pasturage was very good but clover and timothy grass did not make much progress until the last of the month. Some german clover was cut in eastern counties as early as the 10th of the month. The late planting of corn came up badly and some corn land was replanted. Local injury to crops was reported from chinch and potato bugs and cut worms.

Throughout June the progress of crops was rather slow owing to unusually cool weather during the first fifteen days, and local droughty conditions, especially in the Tidewater section. The growth of corn and tobacco was much retarded. The former came through the month in a very backward state, being uneven, and short in stalk; but the latter, under

the warmer and showery weather of the last decade, gained in condition. Farm work was vigorously pushed all the month. Harvesting of winter wheat began in the Tidewater and southern counties of the middle section during the first week, and was general throughout the month. Threshing followed with excellent results, the yield being reported "best in years" by many correspondents. Some winter oats were cut, and spring oats headed well, but were generally short in straw. Haying was prosecuted but was rather below the average in quantity. All truck made good progress, also garden stuff.

On the whole July was a favorable month for the growth and maturity of crops. The month opened with rather droughty weather in all portions of the State, and this condition obtained until the second week when moderate showers occurred in the Middle and Valley divisions which freshened up all the standing crops. It still continued dry, though, in the Tidewater section. The third week gave abundant and general showers and very seasonable temperatures, and crop growth was rapid. This was also the case with close of the month. Such staples as corn and tobacco suffered during the dry weather, but with the advent of rain and favorable temperatures, a rapid and vigorous growth set in which again put them abreast of the season in condition. The second decade saw about all of the winter wheat harvested, and a most excellent yield in quantity and quality is reported. The bulk of haymaking was finished with the month. Cotton, peanuts and pastures gained. Topping of tobacco was begun, and during the last decade considerable fall plowing was done.

During the first week of August the progress of the crops was highly satisfactory. There was sufficient rain for all crop purposes, and this combined with favorable temperatures was rapidly maturing them and placing them beyond danger. Corn and tobacco were doing well, the latter especially. Cotton improved, gardens and pastures were in good condition, and fall plowing was being pushed vigorously. This favorable condition was followed by a period of dry, almost droughty, weather the effect of which was immediately noticeable. There was a general falling off in tobacco and corn, especially the late planted, and peanuts and potatoes; pastures began to fail. Later, "firing" of tobacco, began and the ground became too hard to plow for fall seeding. Light showers near the close of the month gave passing relief to vegetation, but much of the corn was beyond aid. Pastures improved slightly with the rain, but tobacco, corn and potatoes were not benefited to any extent. Fodder pulling progressed rapidly during the month, and considerable cutting and curing of tobacco was done.

During September the progress of crops and farm work (except fodder pulling and saving of tobacco) was very seriously interfered with by an unusually long-continued period of high temperature, and an intensely droughty condition. Indeed, in this latter respect, the month was without a parallel for any September so far as shown by our records. Infrequent and very light showers were the rule, except on the 22-23d, when fairly good rainfalls occurred generally over the State, and this condition combined with the hot weather of the first and second decades, was productive of a steady decline in late corn and tobacco, peanuts, pastures and turnips, while the soil hardened to such an extent that fall fallowing was impossible. Some little seeding, principally German clover, was done early in the month, but, with this exception there was practically no seeding done. Fodder pulling, and cutting, curing and housing of tobacco progressed under favorable circumstances all the month, and a large crop of fodder was secured in excellent condition. Tobacco stood the heat better than any of the other late crops and

quite a large crop was saved. Cotton came through the month fairly well. The showers of the 22-23d freshened vegetation somewhat; enabled a little fall plowing to be done and was beneficial to pastures. Light frosts in the western half of the State towards close the of the month did some slight damage to late tobacco, gardens and vines.

GENERAL SUMMARY FOR THE YEAR 1897.

JANUARY was a cold, dry month. In temperature the deficiency averaged about 4° and in precipitation 2.44 inches. Snow was quite general over the State during the latter part of the month and fogs were frequent over the river basins of the Tidewater section. Prevailing winds W., and NW.

FEBRUARY gave a continuation of the cold weather, the deficiency in this respect being about 2°, but in regard to precipitation there was a reversal of the January conditions. The average total for the State was 6.49 inches which was 2.50 inches in excess of the normal and about balanced the deficiency which obtained in January. Snow occurred in all sections early in the month, and high water was general in all the rivers. Prevailing wind NW.

MARCH averaged about 4° warmer than usual and was about normal in precipitation. Snow occurred in all portions of the State, but was noticeably less than in February. Thunderstorms were frequent. Prevailing wind SW.

APRIL gave an average deficiency of 2° in temperature and about 1 inch in precipitation. Frosts both light and killing were frequent and general, and quite destructive to early fruit blooms and vegetables. Fogs were common in the mountain valleys. Prevailing winds SW., and W.

MAY was a month of many cool days, but nearly normal precipitation. In temperature the deficiency averaged about 4°. Damaging frosts continued injuring fruit blooms and necessitating replanting of some vegetables. Snow fell in the mountains but disappeared with the month. Seismic disturbances were quite frequent and general the most severe being on the 31st. Prevailing wind SW.

JUNE was also a cool, and verging on dry, month, the temperature averaging about 2°, and the precipitation about half an inch less than the normal. But notwithstanding this, temperatures ranging from 90° to 103° were recorded at the middle and close of the month. Thunderstorms were frequent; some hail fell and slight earthquake shocks were reported. Prevailing wind SW.

JULY temperatures were about normal; precipitation about 0.85 of an inch in excess of the normal. Month warmest about the 3d and 23d and coolest about the 14th. Prevailing wind SW.

AUGUST, in temperature, was about 1° below the normal, but still gave some hot periods, and deficient in precipitation to the extent of 1.17 inches. This month marks the beginning of a droughty period which continued until the middle of October. Prevailing wind SW.

SEPTEMBER averaged about 1° above the normal in temperature, and about 3.50 inches below the normal in precipitation. It was noteworthy for an unusually long-continued period of high temperatures followed by a reaction towards cooler which produced light to killing frosts all over the State except on the coast. An intense and disastrous drought prevailed. Late crops were much injured, the flow of streams and wells greatly reduced and in some localities cut off entirely. Prevailing winds, NE., and W.

OCTOBER was 1.6° cooler than usual, and gave precipitation about 1 inch in excess of the normal. It is worthy of remark that the major portion of the monthly rainfall occurred be-

tween the 19th and 31st when rains were almost incessant. Fogs and frosts were frequent and a slight earthquake was reported on the 22d. Prevailing wind, NE.

NOVEMBER weather was sunny and bright with temperature about normal and precipitation slightly above normal. The first snow of the season fell in the mountains on the 11th-12th. Slight earthquake reported on the 27th. Prevailing wind, W.

DECEMBER was also about normal in temperature and nearly so in precipitation. Some ice made late in the month. Slight earthquake reported on the 18th; thunderstorms on the 12th. Prevailing wind, W.

TEMPERATURE. (DEG. F.)

TIDEWATER VIRGINIA—Highest yearly mean, 60.5, at Hampton; lowest yearly mean, 56.8 at Warsaw; maximum temperature for the year, 100, at Doswell and Petersburg, on July 10th and August 30th respectively; minimum temperature for the year, 2, at Ashland, on January 30th; annual range of temperature, 98.

MIDDLE VIRGINIA—Highest yearly mean, 59.0, at Bon Air; lowest yearly mean, 54.1, at Maidens; maximum temperature for the year, 103, at Farmville, on June 24th; minimum temperature for the year, —5, at Buckingham, Guinea, Maidens and Nottoway C. H., on January 29th, 28th and 30th; annual range of temperature, 108.

THE GREAT VALLEY.—Highest yearly mean, 58.6 at Salem; lowest yearly mean, 49.3, at Monterey; maximum temperature for the year, 100, at Woodstock, on July 7th; minimum temperature for the year, —15, at Big Stone Gap and Bristol, on January 29th and 28th respectively; annual range of temperature, 115.

PRECIPITATION.

TIDEWATER VIRGINIA.—Greatest yearly precipitation, 48.95 inches, at Spottsville; least yearly precipitation, 34.36 inches, at Doswell; greatest monthly fall during the year, 9.64 inches, at Spottsville, in October; least monthly fall during the year, 0.32 of an inch, at Cape Henry, in September.

MIDDLE VIRGINIA.—Greatest yearly precipitation, 47.03 inches, at Manassas; least yearly precipitation, 35.64 inches, at Maidens; greatest monthly fall during the year, 9.25 inches, at Rocky Mount, in February; least monthly fall during the year, trace, at Farmville, in September.

THE GREAT VALLEY.—Greatest yearly precipitation, 50.66 inches, at Big Stone Gap; least yearly precipitation, 31.98 inches, at Staunton; greatest monthly fall during the year, 9.82 inches, at Big Stone Gap, in February; least monthly fall during the year, 0.30 of an inch, at Sword's Creek, in September.

Comparative Table Showing Monthly Mean Temperature and Total Precipitation for Virginia for 1897, and Normal for Same Based on 11 Years' Record.

| Months. | Temperature (in degrees Fahr.) | | Precipitation (Inches and hundredths.) | |
|-----------------|-----------------------------------|-----------------|---|-----------------|
| | 1897. | 11 year normal. | 1897. | 11 year normal. |
| January | 32.7 | 36.9 | 1.94 | 4.38 |
| February | 39.5 | 41.4 | 6.49 | 3.99 |
| March | 48.2 | 44.3 | 4.94 | 4.15 |
| April | 53.9 | 55.9 | 2.98 | 3.03 |
| May | 61.3 | 65.5 | 4.15 | 4.44 |
| June | 71.7 | 73.7 | 3.18 | 3.68 |
| July | 76.4 | 76.3 | 4.46 | 3.61 |
| August | 73.7 | 75.0 | 2.42 | 3.59 |
| September | 68.8 | 67.8 | 1.01 | 4.47 |
| October | 59.0 | 57.4 | 4.26 | 3.17 |
| November | 46.5 | 47.3 | 2.49 | 2.48 |
| December | 39.5 | 40.0 | 3.39 | 3.08 |
| Annual | 55.9 | 56.8 | 3.33 | 3.67 |

Climatological data for the year 1897.

Table with columns: Stations, Counties, Elevation, Temperature (degrees Fahrenheit), Precipitation (inches), and Sky. Rows are categorized by region: TIDEWATER VIRGINIA, MIDDLE VIRGINIA, and THE GREAT VALLEY.

All records are used in determining State or district means, but State and district departures are determined by comparison of current data of only such stations as have normals. † More than one date. ‡ Incomplete. tr. trace, or less than 0.1 of an inch. (r) Means from 7 am, 2 and 9 + 9 pm. observations.

ERRATA, page 5, mean annual temperature, Sunbeam, should be 56.6; mean annual temperature, Lexington, should be 54.8, and mean annual temperature, Marion, should be 53.8; page 9, annual precipitaaion, Ashland, should be 42.89.

Monthly annual mean temperatures for the year 1897, with departures from the normal.

Table with columns for Stations, months (January-December), and Annual. Each month has Temperature and Departure sub-columns. Rows are categorized by region: TIDEWATER VIRGINIA, MIDDLE VIRGINIA, and THE GREAT VALLEY.

(1) Thermometer not self-registering.

Monthly Maximum temperatures for the year 1897, with dates.

Table with 12 main columns for months (January-December) and 2 sub-columns for Maximum and Date. Rows are categorized by region: Tidewater Virginia, Middle Virginia, and The Great Valley, listing various stations and their monthly temperature records.

† More than one date.

Monthly Minimum temperatures for the year 1897, with dates.

| Stations. | January. | | February. | | March. | | April. | | May. | | June. | | July. | | August. | | September. | | October. | | November. | | December. | | |
|----------------------------|----------|-------|-----------|-------|----------|-------|----------|-------|----------|-------|----------|-------|----------|-------|----------|-------|------------|-------|----------|-------|-----------|-------|-----------|-------|----|
| | Minimum. | Date. | Minimum. | Date. | Minimum. | Date. | Minimum. | Date. | Minimum. | Date. | Minimum. | Date. | Minimum. | Date. | Minimum. | Date. | Minimum. | Date. | Minimum. | Date. | Minimum. | Date. | Minimum. | Date. | |
| TIDEWATER VIRGINIA. | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ashland | 2 | 30 | 15 | 1 | 26 | 29 | 28 | 21 | 39 | 4 | 46 | 2 | 57 | 15 | 56 | 7 | 38 | 29 | 35 | †30 | 22 | 24 | 13 | 25 | |
| Birdsnest (r) | 16 | 29 | 24 | 1 | 30 | 17 | 36 | 20 | 51 | 8 | 60 | 7 | 70 | 15 | 67 | 17 | 50 | †28 | 41 | †30 | 32 | †14 | 20 | 25 | |
| Cape Henry | 11 | 29 | 22 | 28 | 33 | 1 | 34 | 21 | 45 | 4 | 60 | 18 | 67 | 10 | 66 | 29 | 52 | 30 | 51 | 30 | 34 | 25 | 19 | 24 | |
| Doswell | 3 | 29 | 20 | 21 | 31 | 17 | 24 | 19 | 40 | †1 | 48 | 11 | 58 | 30 | 47 | 7 | 35 | 29 | 31 | †18 | 18 | †24 | 10 | 25 | |
| Hampton | 14 | †26 | 26 | 28 | 32 | 1 | 35 | 2 | 46 | 4 | 58 | 2 | 68 | 15 | 65 | 2 | 44 | 29 | 44 | 30 | 32 | 24 | 22 | 25 | |
| Norfolk | 11 | 29 | 26 | 28 | 32 | 1 | 34 | 21 | 43 | 9 | 58 | 2 | 68 | 18 | 66 | 24 | 49 | 29 | 46 | 31 | 32 | 24 | 22 | 24 | |
| Petersburg | 4 | 30 | 21 | 28 | 28 | †28 | 30 | 21 | 41 | 9 | 45 | 2 | 59 | 15 | 58 | †7 | 38 | 29 | 35 | 31 | 22 | 24 | 16 | 25 | |
| Richmond | 4 | 30 | 17 | 1 | 30 | 28 | 30 | 21 | 40 | 4 | 45 | †1 | 62 | 16 | 57 | 6 | 41 | 37 | 37 | †30 | 24 | 24 | 15 | 25 | |
| Richmond (near) | 4 | 30 | 17 | 1 | 30 | 28 | 30 | 21 | 40 | 4 | 45 | †1 | 62 | 16 | 57 | 6 | 41 | 37 | 37 | †30 | 24 | 24 | 15 | 25 | |
| Spotsville | 9 | 29 | 18 | 1 | 25 | 29 | 26 | 2 | 37 | 4 | 47 | 22 | 57 | 15 | 58 | 7 | 37 | 29 | 35 | 31 | 24 | †13 | 15 | 25 | |
| Sunbeam | 12 | 29 | 23 | 28 | 28 | 1 | 28 | 2 | 38 | 4 | 49 | 22 | 60 | 15 | 61 | †25 | 39 | 29 | 39 | †30 | 25 | 25 | 16 | 25 | |
| Warsaw | 3 | 29 | 15 | 1 | 25 | 17 | 27 | 21 | 38 | 4 | 48 | 2 | 56 | 15 | 56 | 7 | 41 | 27 | 34 | †30 | 22 | 13 | 11 | 25 | |
| MIDDLE VIRGINIA. | | | | | | | | | | | | | | | | | | | | | | | | | |
| Alexandria | 7 | 25 | 16 | 27 | 27 | 16 | 28 | 19 | 40 | 3 | 43 | 1 | 59 | 14 | 57 | 17 | 42 | †20 | 35 | 30 | 24 | †23 | 12 | †24 | |
| Barboursville | 1 | 30 | 8 | 1 | 21 | 1 | 29 | 21 | 40 | 4 | 45 | 1 | 58 | 15 | 56 | 6 | 39 | 29 | 34 | 31 | 21 | 24 | 12 | 25 | |
| Bedford City | 5 | †26 | 16 | 27 | 25 | †26 | 25 | 2 | 34 | †2 | 4 | 46 | 60 | 15 | 56 | 7 | 39 | †21 | 35 | 29 | 21 | 23 | 14 | 24 | |
| Bon Air | 5 | †26 | 16 | 27 | 25 | †26 | 25 | 2 | 34 | †2 | 4 | 46 | 60 | 15 | 56 | 7 | 39 | †21 | 35 | 29 | 21 | 23 | 14 | 24 | |
| Buckingham | 5 | 29 | 2 | 1 | 20 | 26 | 25 | 1 | 34 | 3 | 43 | 1 | 54 | 14 | 55 | 12 | 43 | †28 | 35 | 32 | 30 | 17 | 23 | 11 | 24 |
| Callaville | 4 | 30 | 18 | 28 | 26 | 1 | 26 | 2 | 36 | 4 | 47 | 2 | 57 | 15 | 59 | 25 | 39 | 29 | 35 | 30 | 19 | 24 | 14 | 25 | |
| Farmville | 4 | 30 | 20 | 28 | 25 | †1 | 28 | 21 | 35 | 4 | 45 | 2 | 62 | 31 | 58 | †7 | 48 | †28 | 34 | 30 | 22 | 27 | 20 | 24 | |
| Fredericksburg | 4 | 29 | 10 | 1 | 25 | 1 | 29 | 2 | 40 | 4 | 46 | 2 | 57 | 15 | 57 | †7 | 41 | 29 | 35 | 31 | 23 | †13 | 12 | 25 | |
| Gordonsville | 0 | 30 | 23 | †1 | 28 | 29 | 32 | 2 | 40 | 3 | 57 | 2 | 68 | †11 | 60 | †4 | 38 | 29 | 33 | 30 | 20 | 24 | 11 | 16 | |
| Guinea | 5 | 28 | 23 | 25 | 25 | 29 | 31 | 9 | 30 | 27 | 30 | 2 | 58 | 29 | 50 | 11 | 36 | 30 | 33 | 31 | 29 | 30 | 11 | 16 | |
| Leesburg | 8 | 28 | 14 | 27 | 22 | 27 | 25 | 2 | 39 | †3 | 38 | 7 | 52 | †17 | 52 | †17 | 35 | 30 | 30 | 20 | †22 | 11 | 16 | | |
| Lynchburg | 5 | 30 | 23 | 28 | 30 | 8 | 28 | 21 | 38 | 4 | 41 | 2 | 56 | 15 | 55 | †8 | 36 | 28 | 31 | 18 | 22 | 24 | 11 | 10 | |
| Maidens | 5 | 30 | 23 | 28 | 30 | 8 | 28 | 21 | 38 | 4 | 41 | 2 | 56 | 15 | 55 | †8 | 36 | 28 | 31 | 18 | 22 | 24 | 11 | 10 | |
| Manassas | 7 | †26 | 10 | 1 | 15 | 1 | 28 | 21 | 38 | 4 | 41 | 2 | 56 | 15 | 55 | †8 | 36 | 28 | 31 | 18 | 22 | 24 | 11 | 10 | |
| Nottoway C. H. | 5 | 30 | 18 | 27 | 11 | 1 | 22 | 23 | 32 | 8 | 41 | 2 | 55 | 15 | 55 | †7 | 31 | 29 | 34 | 30 | 18 | 24 | 9 | 12 | |
| Quantico | 4 | 29 | 18 | 27 | 11 | 1 | 22 | 23 | 32 | 8 | 41 | 2 | 55 | 15 | 55 | †7 | 31 | 29 | 34 | 30 | 18 | 24 | 9 | 12 | |
| Rocky Mount | 4 | 28 | 20 | 28 | 30 | †27 | 30 | 2 | 36 | 4 | 48 | 22 | 57 | 15 | 55 | †27 | 40 | 29 | 35 | 31 | 20 | 24 | 11 | 14 | |
| Stannardsville | 5 | †28 | 12 | 1 | 23 | 1 | 26 | 21 | 40 | 3 | 45 | 2 | 54 | †15 | 55 | †27 | 38 | 28 | 32 | 30 | 17 | 24 | 11 | 9 | |
| Warrenton | 5 | †28 | 12 | 1 | 23 | 1 | 26 | 21 | 40 | 3 | 45 | 2 | 54 | †15 | 55 | †27 | 38 | 28 | 32 | 30 | 17 | 24 | 11 | 9 | |
| THE GREAT VALLEY. | | | | | | | | | | | | | | | | | | | | | | | | | |
| Big Stone Gap | 15 | 29 | 10 | †27 | 16 | 28 | 24 | 11 | 32 | 2 | 38 | 1 | 46 | 14 | 48 | 18 | 34 | 21 | 26 | 29 | 15 | 24 | 16 | 25 | |
| Blacksburg | 3 | 28 | 9 | 1 | 21 | 25 | 24 | 21 | 30 | 26 | 39 | 1 | 49 | †14 | 49 | †13 | 30 | †22 | 27 | 5 | 13 | 24 | 9 | †24 | |
| Bristol | 15 | 28 | 15 | 26 | 19 | 27 | 29 | 17 | 35 | 1 | 50 | 21 | 50 | 13 | 54 | †17 | 36 | 20 | 30 | 29 | 17 | 23 | 11 | 23 | |
| Burke's Garden | 9 | 30 | 9 | 1 | 20 | 28 | 24 | 21 | 29 | 26 | 37 | 22 | 47 | 14 | 49 | 18 | 46 | 20 | 25 | 31 | 10 | 24 | 4 | 24 | |
| Clifton Forge | 7 | †28 | 10 | 1 | 21 | 1 | 27 | †2 | 37 | 4 | 40 | 2 | 51 | †13 | 52 | †13 | 34 | 22 | 30 | 31 | 19 | 24 | 10 | 25 | |
| Dale Enterprise | 2 | 29 | 3 | 27 | 20 | 7 | 22 | †2 | 29 | 4 | 40 | 1 | 48 | 15 | 47 | 26 | 30 | 22 | 26 | 19 | 14 | 24 | 5 | 28 | |
| Dwale | 4 | †28 | 14 | 4 | 24 | 1 | 40 | 3 | 50 | 22 | 60 | †14 | 49 | 49 | 29 | 26 | 47 | †21 | 15 | 27 | 10 | 24 | 2 | 24 | |
| Goshen | 4 | 30 | 14 | 4 | 21 | 29 | 28 | †2 | 33 | 26 | 48 | 22 | 47 | 5 | 49 | 25 | 31 | 30 | 26 | 5 | 13 | 24 | 10 | 25 | |
| Graham's Forge | 3 | 27 | 12 | 27 | †24 | 23 | 13 | 18 | 3 | 50 | †1 | 58 | †14 | 57 | †13 | 32 | 21 | 33 | †4 | 18 | †24 | 6 | 24 | 2 | 24 |
| Hot Springs | 1 | 30 | 9 | 1 | 24 | 29 | 27 | 21 | 33 | 4 | 44 | 12 | 54 | 15 | 53 | †18 | 32 | 29 | 31 | 30 | 18 | 24 | 11 | 25 | |
| Lexington | 4 | †29 | 14 | 28 | 22 | 29 | 28 | 12 | 34 | †2 | 43 | 1 | 48 | 14 | 49 | 27 | 34 | 22 | 28 | 30 | 15 | 24 | 9 | 24 | |
| Marion | 0 | 30 | 6 | 27 | 22 | 22 | 18 | 20 | 29 | 4 | 40 | †1 | 48 | 14 | 48 | 7 | 34 | †28 | 15 | 24 | 2 | 24 | 2 | 24 | |
| Monterey | 3 | 28 | 20 | 1 | 30 | †28 | 32 | †2 | 37 | 4 | 48 | 2 | 61 | 14 | 60 | 27 | 39 | 22 | 38 | 21 | 23 | 24 | 16 | †24 | |
| Salem | 2 | 30 | 11 | 1 | 25 | †27 | 26 | †20 | 35 | 4 | 42 | 2 | 56 | †13 | 53 | 13 | 32 | 22 | 32 | 30 | 19 | 24 | 12 | 24 | |
| Staunton | 3 | 25 | 10 | 1 | 24 | 1 | 25 | 20 | 38 | 4 | 40 | 2 | 57 | 15 | 53 | †8 | 35 | 22 | 31 | 18 | 20 | 24 | 8 | 25 | |
| Stephens City | 6 | 28 | 11 | 27 | 21 | 29 | 28 | 21 | 35 | †6 | 44 | 2 | 60 | 13 | 48 | 24 | 32 | 24 | 31 | 8 | 20 | 24 | 8 | 25 | |
| Sword's Creek | 5 | †25 | 10 | 1 | 25 | †26 | 24 | 2 | 39 | †3 | 45 | 1 | 55 | 14 | 53 | 7 | 33 | 21 | 30 | 17 | 20 | 30 | 6 | 28 | |
| Woodstock | 2 | 28 | 12 | 4 | 25 | 28 | 29 | 12 | 33 | 3 | 41 | 1 | 52 | †14 | 54 | †25 | 37 | 30 | 33 | 19 | 24 | 12 | 24 | 2 | 24 |
| Wytheville | 2 | 28 | 12 | 4 | 25 | 28 | 29 | 12 | 33 | 3 | 41 | 1 | 52 | †14 | 54 | †25 | 37 | 30 | 33 | 19 | 24 | 12 | 24 | 2 | 24 |

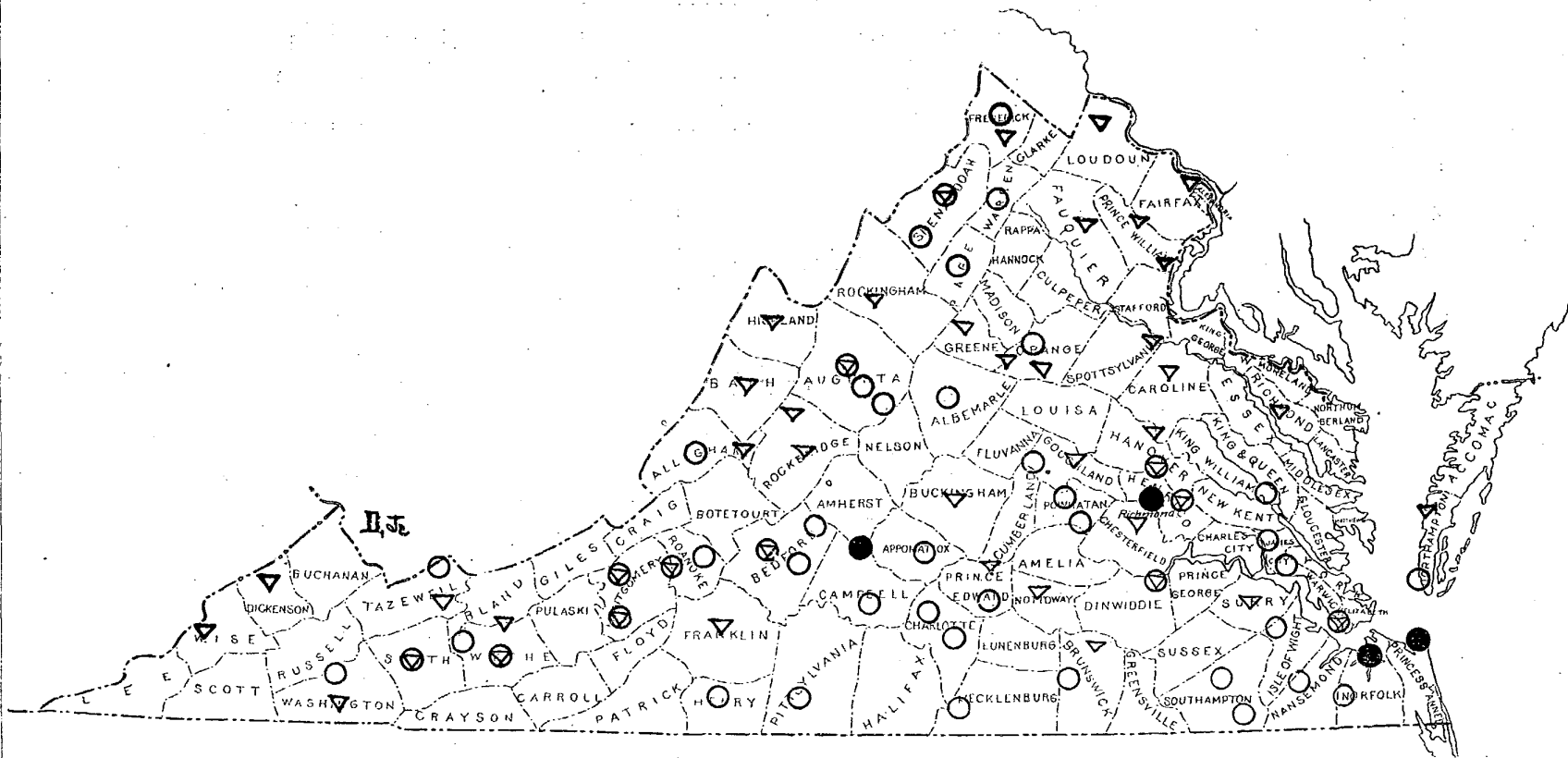
† More than one date. (1) Thermometer not self-registering.

Monthly and annual precipitation for the year 1897, with departures from the normal.

Table with columns for Stations, months (January-December), and Annual. Each month has two sub-columns: Precipitation and Departure. Rows are grouped by region: Tidewater Virginia, Middle Virginia, and The Great Valley. Includes handwritten annotations like '2.84' and '4.64'.

† Incomplete. ‡ Estimated.

CHART SHOWING OBSERVATION AND FORECAST DISPLAY STATIONS.



Key to Symbols.

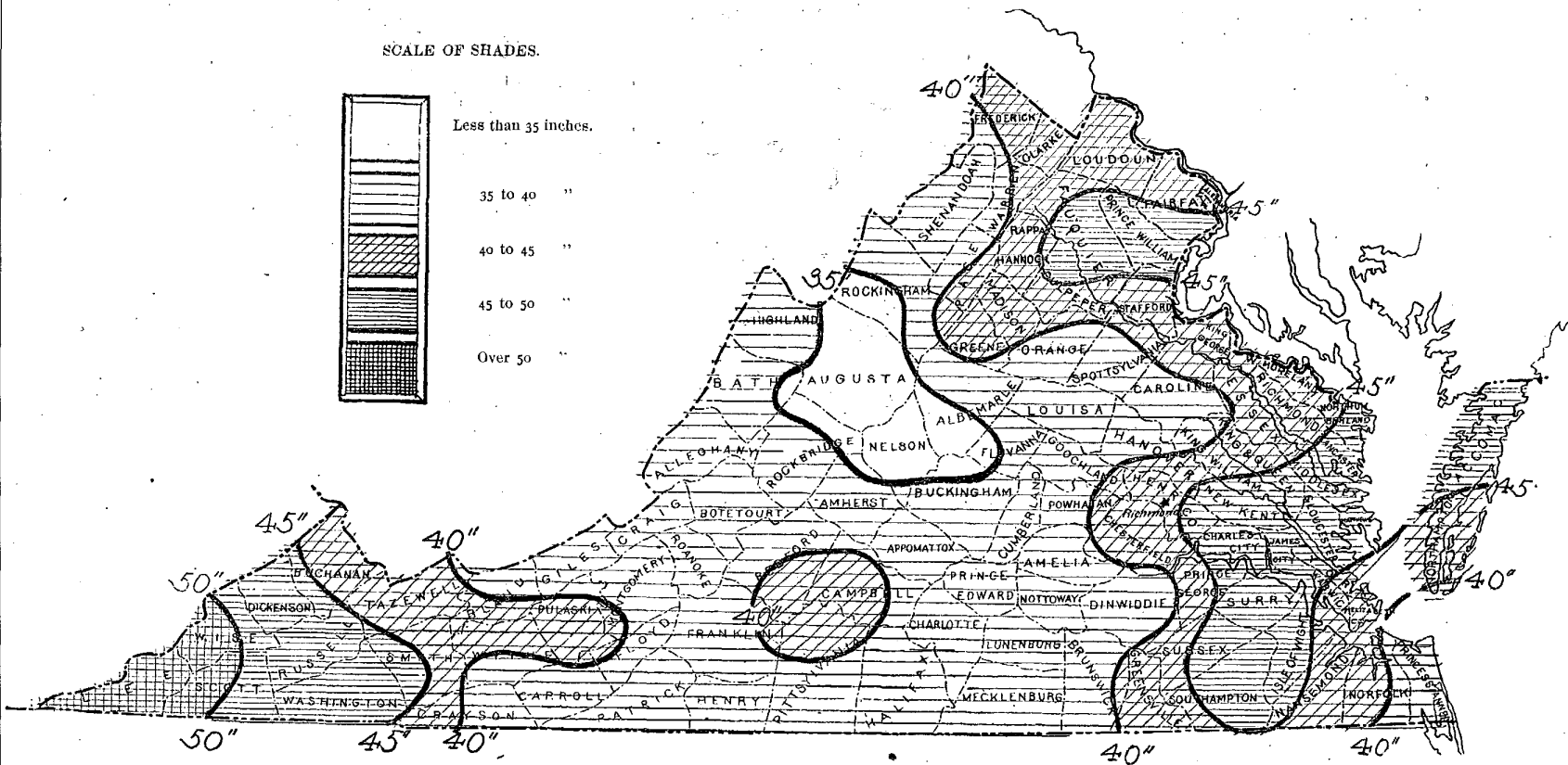
- | | |
|-----------------------------|---|
| ● Weather Bureau Station. | ▽ Voluntary Observation Station. |
| ○ Forecast Display Station. | ⊖ Voluntary Observation and Forecast Display Station. |

TOTAL PRECIPITATION, 1897.

SCALE OF SHADES.



Less than 35 inches.
 35 to 40 "
 40 to 45 "
 45 to 50 "
 Over 50 "



VOLUNTARY OBSERVERS.

| Station. | Observer. | Station. | Observer. | Station. | Observer. |
|----------------------|-----------------------|---------------------|-----------------------|-----------------------|-----------------------|
| Alexandria..... | H. C. Slaymaker. | Dwale..... | F. M. Beverlv. | Nottoway C. H. | Geo. Dunn. |
| Ashland..... | E. L. C. Scott. | Farmville..... | J. R. Martin. | Petersburg..... | J. M. Colson. |
| Barboursville..... | Dr. T. H. Ellis. | Fredericksburg..... | E. C. Rowe. | Quantico..... | E. V. King. |
| Bedford City..... | J. T. Davidson. | Gordonsville..... | H. S. Smithers. | Richmond | U. S. Weather Bureau. |
| Big Stone Gap..... | Jno. W. Fox, Sr. | Goshen..... | J. B. Wood. | Richmond (near)..... | J. C. Shafer. |
| Birdsneat..... | C. R. Moore. | Graham's Forge..... | David Graham. | Rocky Mount..... | J. H. Binford. |
| Blacksburg..... | Prof. W. B. Alwood. | Guinea..... | M. A. Nunn. | Salem..... | Prof. S. C. Wells. |
| Bon Air..... | W. H. Pleasants. | Hampton..... | E. L. Goodrich. | Spottsville..... | B. W. Jones. |
| Bristol..... | J. Bunting, Jr. | Hot Springs..... | A. M. Stimson. | Stanardsville..... | W. H. Parrott. |
| Buckingham..... | Dr. W. E. Pratt. | Leesburg..... | C. A. English. | Staunton..... | W. C. Hedrick. |
| Burke's Garden..... | C. H. Greever. | Lexington..... | Prof. H. D. Campbell. | Stephens City..... | W. B. Steele. |
| Callville..... | F. M. Gage. | Lynchburg..... | U. S. Weather Bureau. | Sunbeam..... | Dr. W. H. Daughtry. |
| Cape Henry..... | E. S. Weather Bureau. | Maldens..... | J. R. Hopkins. | Warrenton..... | C. H. Constable. |
| Christiansburg..... | H. D. Walters. | Manassas..... | Thos. H. Lion. | Warsaw..... | Dr. P. B. Green. |
| Clifton Forge..... | T. P. Halloran. | Marion..... | A. T. Lincoln. | Woodstock..... | H. F. Miley. |
| Dale Enterprise..... | L. J. Heatwole. | Monterey..... | Jos. Jones. | Wytheville..... | J. T. Preston. |
| Doswell..... | C. W. Butterworth. | Norfolk..... | U. S. Weather Bureau. | | |

FORECAST DISPLAYMEN.

| Station. | Displayman. | Station. | Displayman. | Station. | Displayman. |
|-------------------------------|-------------------|----------------------------------|------------------------|-----------------------------|--------------------|
| Abingdon..... | F. B. Hurt. | Green Bay..... | I. C. Rowlett. | Rural Retreat..... | J. W. Eiffert. |
| Ashland..... | E. L. C. Scott. | Hampton..... | C. L. Goodrich. | Salem..... | Prof. S. C. Wells. |
| Bedford City 10..... | Postmaster. | Keysville..... | E. S. Jeffress. | Smithfield..... | W. V. Joiner. |
| Blacksburg..... | W. B. Alwood. | Lawrenceville 725..... | Chf. Train Dispatcher. | Smithville..... | W. G. Williams. |
| Bower's Hill..... | W. S. W. Kain. | Low Moor 76..... | H. G. Merry. | Stanleyton 713..... | E. J. Foote. |
| Cape Charles 30..... | Postmaster. | Lynchburg 158..... | U. S. Weather Bureau. | Staunton 22 750..... | Postmaster. |
| Castle Craig..... | Postmaster. | Marion..... | A. T. Lincoln. | Suffolk..... | W. B. Mc Anagh. |
| Charlottesville 7..... | Postmaster. | Martinsville 12..... | C. P. Kearfott. | Toano..... | W. R. Branch. |
| Christiansburg 72..... | H. D. Walters. | Norfolk 113..... | U. S. Weather Bureau. | Waynesboro..... | Postmaster. |
| Clarkeville..... | Morton Bros. | Orange 10..... | Postmaster. | West Point 713..... | E. Wilkinson. |
| Courtland..... | D. H. Turrentine. | Pamplin City 11..... | Postmaster. | Williamsburg..... | H. D. Cole. |
| Danville 31..... | Postmaster. | Pedlar *..... | C. L. Peagans. | Winchester 710..... | W. H. Hoover. |
| Elk Hill 25..... | Postmaster. | Petersburg 71..... | T. B. Underhill. | Woodstock 97..... | H. F. Miley. |
| Fishersville..... | J. R. Kemper. | Pocahontas..... | Flat Top Drug Co. | Wytheville..... | E. M. Funk. |
| Forest Depot *..... | J. J. May. | Powhatan C. H..... | Sax Mfg. Co. | | |
| Franklin..... | W. H. Dabney. | Richmond 150 76 7*21..... | U. S. Weather Bureau. | | |
| Front Royal..... | H. L. Cook. | Roanoke 12..... | Postmaster. | | |

Forecast distributing centers are shown in bold faced type. Figures following stations indicate number of card forecasts mailed from distributing centers. Figures preceded by a dagger (+) indicate number of places receiving forecasts by telephone from distributing centers. Figures preceded by a double dagger (‡) indicate number of places receiving forecasts by telegraph. * Cold wave only.

CLIMATE AND CROP CORRESPONDENTS.

| Station. | Correspondent. | Station. | Correspondent. | Station. | Correspondent. |
|-------------------------|--------------------|-----------------------------|--------------------|------------------------|---------------------|
| Abbyville, Va..... | E. P. Mc Lean. | Gladys, Va..... | D. N. Brooke. | Roanoke, Va..... | W. P. Nissinger. |
| Alexandria, "..... | A. Smoot. | Goodloe's, "..... | D. J. Waller. | Rocky Mount, "..... | J. H. Binford. |
| Alexandria, "..... | H. H. Young. | Graham's Forge, "..... | D. Graham. | Rockville, "..... | B. K. Cocke. |
| Allisonia, "..... | C. H. Thomas. | Handsons, "..... | J. J. Dyer. | Rural Retreat, "..... | Jno. W. Eiffert. |
| Avalon, "..... | T. H. Gill. | Harris Creek, "..... | L. D. Stillwell. | Saddle, "..... | M. B. Cox. |
| Big Island, "..... | J. B. Cox. | Hot Springs, "..... | A. M. Stimson. | Salem, "..... | W. H. Ruthruff. |
| Big Stone Gap, "..... | J. W. Fox, Sr. | Jetersville, "..... | J. W. Southall. | Salem, "..... | S. C. Wells. |
| Birdsneat, "..... | C. R. Moore. | Keysville, "..... | E. S. Jeffress. | San Marino, "..... | E. C. Powell. |
| Blacksburg, "..... | W. B. Alwood. | Litwalton, "..... | T. S. Curlett. | Savedge, "..... | C. M. Cox. |
| Bluestone, "..... | A. St. Clair. | Louisa C. H., "..... | G. D. M. Hunter. | Scottsville, "..... | Thos. E. Martin. |
| Bon Air, "..... | W. H. Pleasants. | Lovingston, "..... | W. J. Kidd. | Spanish Oaks, "..... | J. R. Horsley. |
| Booker, "..... | R. F. Moss. | Manassas, "..... | T. H. Lion. | Spoke, "..... | W. B. Eanes. |
| Buchanan, "..... | D. D. Booze. | Marion, "..... | A. T. Lincoln. | Spottsville, "..... | B. W. Jones. |
| Buckingham, "..... | Dr. W. E. Pratt. | Marion, "..... | J. S. Apperson. | Stanardsville, "..... | W. H. Parrott. |
| Buffalo Gap, "..... | J. W. Keller. | Marysville, "..... | R. W. Hawkins. | Staunton, "..... | W. C. Hedrick. |
| Chase City, "..... | W. H. Saunders. | Mathews, "..... | J. B. Donovan. | Stephens City, "..... | W. B. Steele. |
| Christiansburg, "..... | H. D. Walters. | Middleburg, "..... | W. C. Benton. | Stormont, "..... | W. Bristow. |
| Clarkton, "..... | E. W. Henry. | Middleway, W. Va..... | Jas. D. Smith. | Sunbeam, "..... | Dr. W. H. Daughtry. |
| Clover, "..... | W. G. Marton. | Mons, Va..... | A. D. Powell. | Sussex C. H., "..... | J. D. Nebetts. |
| Covington, "..... | A. A. Mc Allister. | Monterey, "..... | Jos. Jones. | Tenth Legion, "..... | J. M. Bradford. |
| Dale Enterprise, "..... | L. J. Heatwole. | Moseley's Jct., "..... | E. A. Moseley, Jr. | Toano, "..... | O. F. Taylor. |
| Daleville, "..... | W. J. Showalter. | Ninmo, "..... | J. Woodhouse. | Vienna, "..... | Wells A. Sherman. |
| Danville, "..... | S. B. Lowry. | Oak Forest, "..... | R. G. Garnett. | Wallaceton, "..... | J. G. Wallace. |
| Disputanta, "..... | J. H. Johnson. | Onancock, "..... | J. C. Weaver. | Waltz, "..... | C. Alderman. |
| Dwale, "..... | O. S. Williams. | Orange, "..... | R. C. Macon. | Warsaw, "..... | C. H. Constable. |
| East Leake, "..... | F. M. Beverlv. | Petersburg, "..... | J. M. Colson. | W. Appomatox, "..... | Ike Abbott. |
| Elba, "..... | R. A. Siddons. | Port Republic, "..... | J. S. Strayer. | W. Appomatox, "..... | Maj. J. W. Flood. |
| Elwood, "..... | T. C. Creasy. | Prince George C. H., "..... | H. E. Smith. | Weyer's Cave, "..... | I. B. Kagey. |
| Emory, "..... | T. H. Barnes. | Pulaski, "..... | J. B. Caddall. | Winnie, "..... | Edwin Stables. |
| Farmville, "..... | J. A. Davis. | Rileysville, "..... | W. J. Wood. | Winchester, "..... | J. H. Barton. |
| Fredericksburg, "..... | Z. C. Vaughan. | Riner, "..... | W. L. Turner. | Yancey's Mills, "..... | J. A. Payne. |
| Fredericks Hall, "..... | S. G. Howison. | Riverton, "..... | J. E. A. Harris. | Zuni, "..... | A. E. Bell. |