OREGON.

Temperature.—The mean was above the normal; maximum, 89, at Grants Pass, 7th, and at Lakeview, 8th; minimum, 11, at Burns, 30th.

Precipitation.—The average was 0.39 above the normal; snow fell at Beulah, Joseph, and on the high plateaus and mountains of Oregon.

Wind.—Prevailing direction, south.—*Hon. H. E. Hayes, Master State Grange, Portland, director; B. S. Pague, Observer, Weather Bureau, asst.*

PENNSYLVANIA.

Temperature.—The mean was 1.5 below the normal; maximum, 91, at Carlisle, 3d; minimum, 15, at Dyberry, 29th; greatest monthly range, 69, at Coatesville and Dyberry; least monthly range, 47, at Altoona.

Precipitation.—The average was 0.25 below the normal; greatest monthly, 4.46, at Selins Grove; least monthly, 0.84, at New Castle.

Wind.—Prevailing direction, northwest.—*Under direction of the Franklin Institute, Philadelphia; L. M. Dey, Observer, Weather Bureau, assistant.*

SOUTH CAROLINA.

Temperature.—Maximum, 92, at Greenwood, 5th; minimum, 28, at Kingstree and Kitchings Mills, 29th; greatest monthly range, 62, at Greenville and Kingstree; least monthly range, 42, at Port Royal.

Precipitation.—Greatest monthly, 4.20, at Charleston; least monthly, 0.18, at Spartanburgh.

Wind.—Prevailing directions, north and northeast.—*A. P. Butler, Observer, Weather Bureau, Columbia, director.*

SOUTH DAKOTA.

Temperature.—The mean was 2.0 above the normal; maximum, 95, at Forest City, 24th; minimum, 11, at Oelrichs, 2d; greatest monthly range, 75, at Forest City; least monthly range, 54, at Pierre.

Precipitation.—The average was 0.40 below the normal; greatest monthly, 1.88, at Aberdeen; least monthly, 0.34, at Rapid City.

Wind.—Prevailing direction, northwest.—*S. W. Glenn, Observer, Weather Bureau, Huron, director.*

TENNESSEE.

The most marked feature of the month was the small amount of rainfall.

Temperature.—The mean was 0.4 below the normal; maximum, 94, at Arlington, 1st, and with one exception, 1884, was the highest maximum on record for October; minimum, 24, at Austin and Hohenwald, 23d.

Precipitation.—The average was 1.80 below the normal, and was the least amount on record; the rainfall was greatest in the western part and least along the eastern border.—*J. B. Marbury, Observer, Weather Bureau, Nashville, director.*

TEXAS.

Temperature.—The mean was generally below the normal except in the west part and in the Panhandle; maximum, 98, at Dallas, 3d; minimum, 30, at Dallas, 8th; greatest monthly range, 68, at Dallas; least monthly range, 28, at Galveston.

Precipitation.—The average was below the normal except in the Panhandle; greatest monthly, 3.33, at Hartley; 0.00 was reported at a number of stations in the central part of the state.—*D. D. Bryan, Galveston, director; I. M. Cline, Observer, Weather Bureau, assistant.*

UTAH.

Temperature.—Maximum, 90, at Saint George, 9th and 10th; minimum, 12th, at Scofield, 30th and 31st; greatest monthly range, 67, at Beaver; least monthly range, 40, at Snowville.

Precipitation.—No appreciable rain fell after the 2d of the month; greatest monthly, 1.26, at Salt Lake City; least monthly, 0.00, at a number of stations.—*G. N. Salisbury, Observer, Weather Bureau, Salt Lake City, director.*

VIRGINIA.

Temperature.—The mean ranged from 2.0 to 3.0 below the normal; maximum, 92, at Richmond, 3d, and at Nottoway C. H., 5th; minimum, 22, at Big Stone Gap, 28th; greatest monthly range, 64, at Richmond; least monthly range, 43, at Salem.

Precipitation.—Greatest monthly, 11.55, at Birdsnest; least monthly, 0.24, at Bedford City.—*Dr. E. A. Craighill, Lynchburgh, director; J. N. Ryker, Observer, Weather Bureau, assistant.*

WASHINGTON.

Temperature.—Maximum, 89, at North Yakima, 7th; minimum, 18, at Waterville, 13th and 15th; greatest monthly range, 66, at North Yakima; least monthly range, 23, at East Sound.

Precipitation.—The average was in excess of the normal in the western part of the state, except at lower Sound points and Tatoosh Island, and it was deficient in the eastern part; greatest monthly, 10.06, at Neah Bay; least monthly, 0.16, at Baker City, Oregon.

Wind.—Prevailing direction, south.—*E. B. Olney, Observer, Weather Bureau, Olympia, director.*

WEST VIRGINIA.

Temperature.—Maximum, 95, at Morgantown, 3d; minimum, 24, at Parkersburgh and Pleasant Hill, 28th.

Precipitation.—Greatest monthly, 2.91, at Martinsburgh; least monthly, trace, at Kingwood.—*W. W. Dent, Observer, Weather Bureau, Parkersburgh, director.*

WISCONSIN.

Temperature.—Maximum, 90, at Beaver Dam, 1st, and at Juneau, 2d; minimum, 14, at Hayward, 27th.

Precipitation.—In the extreme northwest, northeast, and southern parts of the state there was a deficiency of from 1.00 to 2.00; elsewhere it was above the normal; greatest monthly, 4.29, at Whitehall; least monthly, 0.18, at Cadiz.—*W. L. Moore, Observer, Weather Bureau, Milwaukee, director.*

WYOMING.

Temperature.—The mean was about normal; maximum, 88, at Casper, 26th, and at Fort Fetterman, 17th; minimum, 9, at Saratoga, 31st; greatest monthly range, 69, at Fort Fetterman; least monthly range, 51, at Fort McKinney and Laramie.

Precipitation.—The average was below the normal; greatest monthly, 1.50, at Lander; least monthly, 0.00, at Wheatland.

Wind.—Prevailing direction, northwest.—*E. M. Ravenscraft, Observer, Weather Bureau, Cheyenne, director.*

CONTRIBUTIONS AND ORIGINAL ARTICLES.

FLUCTUATIONS OF TEMPERATURE AND PRESSURE AT THE BASE AND SUMMIT OF MOUNT WASHINGTON.

[By Prof. H. A. HAZEN, Weather Bureau.]

The last chart in this REVIEW contains a continuation of the curves previously published, and completes these fluctuations for the months of January, February, and March from 1871 to 1886, or for 16 years.

1st. An interesting question arises as to the effect of the mountain upon the temperature of the air. The curves seem to show that if there is any effect it is exceedingly slight and cannot influence the maximum and minimum points, except to prevent the extreme rise and fall in warm and cold waves that might occur in the free air. In other words, the temperature in a warm wave might not rise quite so high if the summit were cooler than the air and might not fall quite so low in a cold wave if the summit rocks were warmer than the air. It would appear that, under any and all circumstances, the dips and rises in the fluctuations of temperature at the summit would not be shifted appreciably in time of occurrence by the presence of the mountain.

2d. Is the diurnal range entirely eliminated from the base curve? It will be noted that the base curve shows a great many minor fluctuations of temperature not to be found in the summit curve, and a close inspection will show that many of these are due to the diurnal range. For example, with a clouded sky the diurnal range has been over compensated, since the clouds prevent radiation at night and insolation by day. These cases, however, are very few and the effects are not sufficiently strong to obliterate the larger fluctuations.

3d. As was to be expected the fluctuations of pressure are almost exactly identical at the base and summit. Occasionally the change in temperature at the summit has preceded that in pressure to such an extent as to cause the pressure phases to lag behind at the summit.

4th. As has been noted before, the most marked characteristic in the temperature curves has been their closeness at base and summit, indicating, apparently, a general effect not essentially modified by local causes. The earlier change at the summit in both cold waves and hot waves is remarkable and does not seem to be due, as has been suggested, to the greater rapidity of the upper current which carries the warm or cold air from the west more rapidly to the summit than to the base. It will be seen that any effect of this kind would be very quickly obliterated by the motion of the air. Again, while on some accounts warm air from the earth's surface might produce such an effect, it would seem that cold air could not have this source, but must come from above.

Observations are much needed at very much greater heights, even up to 30,000 feet, in order to settle these and many other questions. These curves have been published in order to bring the material contained in them before others, and it is hoped that many will be interested in making them a special study.

Fluctuations of pressure and temperature near Mount Washington, N. H.