

Missouri.—Were of general occurrence throughout the state on the 2d, 3d, 6th, 16th, 22d.

Nebraska.—Nebraska City, 16th.

New Hampshire.—New Market, 4th.

New Mexico.—Silver City, 20th; Santa Fé, 21st, 22d.

North Carolina.—Hatteras, 4th; Weldon, 4th; Kittyhawk, 7th, 17th; Highlands, 12th, 17th, 22d; Chapel Hill, 17th; Charlotte, 18th.

Ohio.—North Lewisburg, 2d; Westerville, 2d; Cleveland, 14th, 15th; Margaretta, 14th.

Pennsylvania.—Erie, 14th; Meadville, 14th.

Tennessee.—Chattanooga, 11th, 15th; Memphis, 16th; Nashville, 14th, 15th, 16th.

Texas.—Fort Concho, 13th, 16th, 23d; Fort Davis, 11th, 23d; Palestine, 14th, 16th, 23d; Brownsville, 16th; Indianola, 17th, El Paso, 20th; Mason, 20th; Galveston, 16th, 23d; Coleman City, Fredericksburg, Eagle Pass, Henrietta, Fort McKavett, and Uvalde, on the 23d.

Virginia.—Fort Monroe, 8th.

Wisconsin.—Were reported by various stations throughout the state on the 15th and 16th.

OPTICAL PHENOMENA.

SOLAR HALOS.

Solar halos have been observed in the various districts, as follows:—

New England.—1st, 2d, 5th, 6th, 9th, 10th, 14th, 15th, 20th, 22d.

Middle Atlantic states.—6th, 9th, 10th, 12th, 13th, 20th, 22d, 24th.

South Atlantic states.—4th, 15th, 22d, 25th, 26th.

Florida.—23d, 27th.

Western Gulf.—18th, 20th, 25th, 26th.

Ohio valley and Tennessee.—1st, 2d, 4th, 8th, 9th, 10th, 12th, 13th, 15th to 18th, 20th, 23d.

Lower lakes.—1st, 10th, 23d, 24th, 27th.

Upper lakes.—1st, 4th, 7th, 9th, 10th, 12th, 13th, 17th, 20th, 21st, 24th, 27th.

Upper Mississippi valley.—1st to 4th, 7th to 10th, 12th, 13th, 15th, 17th to 21st, 24th, 25th.

Missouri valley.—3d, 4th, 8th, 9th, 11th, 13th to 16th, 19th, 20th, 27th.

Northern slope.—2d, 5th, 7th, 10th, 13th, 17th, 24th.

Northern plateau.—1st, 5th, 6th, 7th, 9th, 19th, 21st, 27th, 28th.

Middle Pacific.—3d, 8th, 13th, 16th, 18th, 19th, 20th, 24th, 26th.

South Pacific.—8th, 9th, 11th, 26th, 27th.

Solar halos were also reported by the following stations not included in the districts named above:—

Albany, Oregon, 5th; Fort Buford, Dakota, 4th; Prescott, Arizona, 8th, 24th; Salt Lake City, Utah, 18th.

LUNAR HALOS.

Lunar halos have been observed in the various districts, on the following dates:—

New England.—1st, 13th, 14th, 19th, 20th, 21st, 24th.

Middle Atlantic states.—11th to 16th, 19th, 20th, 21st, 23d.

South Atlantic states.—11th, 13th, 14th, 17th, 21st, 22d, 23d, 25th, 27th.

Eastern Gulf.—11th, 21st, 22d, 25th.

Western Gulf.—3d, 16th, 17th, 19th to 22d, 25th.

Rio Grande valley.—13th.

Ohio valley and Tennessee.—11th to 16th, 18th to 24th.

Lower lakes.—10th, 12th, 13th, 17th to 21st.

Upper lakes.—12th, 13th, 15th to 23d.

Extreme northwest.—15th, 19th, 20th, 22d.

Upper Mississippi valley.—4th, 12th to 23d.

Lower Missouri valley.—11th, 13th to 16th, 18th, 19th, 20th.

Northern slope.—13th, 16th, 21st.

Middle slope.—12th, 15th.

Southern slope.—13th, 15th, 18th, 19th.

Southern plateau.—11th, 13th, 14th, 20th, 21st, 23d, 24th, 25th, 28th.

Northern plateau.—15th, 19th, 20th, 26th.

California.—6th, 11th, 13th, 17th, 18th, 19th, 21st, 23d, 25th, 26th.

Lunar halos were also reported from the following stations, not included in the districts named above:—

Pensacola, Florida, 11th, 21st.

Salt Lake City, Utah, 17th, 18th, 21st.

Portland, Oregon, 20th.

Albany, Oregon, 27th.

Grand Haven, Michigan, 13th, an unusually large lunar halo was observed, the diameter being 84°.

MIRAGE.

Wicklów, Dakota, 11th.—The village of Madison, eleven miles distant, was plainly visible. On the 28th, mirage was observed from 7 to 9.30 a. m., between south-southwest and west-southwest, and was very remarkable for its extent and distinctiveness. Buildings were seen with their surroundings apparently at elevations of from 100 to 1,000 feet. In some instances they appeared inverted, and again in their natural positions above the inverted images. They were constantly changing in altitude in places, while in others they remained stationary.

Fort Maginnis, Montana, 14th.—At 8.30 this morning various points on the Yellowstone were visible, although some of them were one hundred and fifty miles distant. The buildings and flags of a military post were plainly seen at this place, and were recognized to be Fort Custer, nearly two hundred miles away.

Huron, Dakota, 26th.—Mirage observed from 8 to 9 a. m. Houses ten miles distant, not ordinarily visible, on account of swells in the prairie, were clearly seen, having the appearance of two structures, one resting upon the other in an inverted position. The Wessington Hills and Ree Heights, at distances of twenty-five and fifty miles, respectively, appeared as lofty glaciers. Fields in which corn-stalks were left standing appeared as forests of lofty, leafless trees. Ice on the river, in a bend five miles away, ordinarily hidden from view by high bluffs, could be seen as a sheet of opaque glass, showing distinctly the bends in the stream, and glistened in the sunlight. On the 28th, from 8 to 9.30 a. m., Triquois, eighteen miles east, was plainly visible, although ordinarily hidden from view by swells in the prairie.

Similar conditions were also observed at the following stations:—

Salina, Kansas, 8th.

Pretty Prairie, Kansas, 8th.

Genoa, Nebraska, 3d, 5th.

Alexandria, Dakota, 5th, 25th, 28th.

Wicklów, Dakota, 7th, 25th, 27th.

Barnegat City, New Jersey, 4th.

Indianola, Texas, 6th, 17th, 18th, 19th.

MISCELLANEOUS PHENOMENA.

SUNSETS.

The characteristics of the sky, as indicative of fair or foul weather for the succeeding twenty-four hours, have been observed at all Signal-Service stations. Reports from one hundred and seventy-two stations show 4,779 observations to have been made, of which fifteen were reported doubtful; of the remainder, 4,764, there were 4,091, or 85.9 per cent., followed by the expected weather.

SUN SPOTS.

North Lewisburg, Ohio.—Mr. H. D. Gowey reports: Sun spots observed on all clear days during the month. They were the most numerous on the 8th, least numerous on the 25th, largest on the 15th, and smallest at close of the month. Magnetic variations on the 1st and 22d.

Port Eads, Louisiana, 15th.—A spot was observed on the sun's disc, slightly to the right of the centre, on this date.