

*Missouri valley.*—3d, 4th, 12th, 18th.

*Middle slope.*—8th, 10th, 11th, 12th, 29th.

*North Pacific coast region.*—Astoria, Oregon, 4th, 8th, 9th, 17th, 18th, 19th.

*South Pacific coast region.*—Yuma, Arizona, 3d.

At Austin, Texas, a severe thunder-storm occurred on the night of the 11-12th, during which the University building was struck by lightning and damaged to a considerable extent.

### OPTICAL PHENOMENA.

#### SOLAR HALOS.

Solar halos have been observed in the various districts on the following dates:

*New England.*—2d, 3d, 10th, 11th, 15th, 16th, 19th, 21st, 22d, 27th.

*Middle Atlantic states.*—3d, 4th, 6th, 12th, 13th, 16th, 22d, 27th.

*South Atlantic states.*—1st, 2d, 6th, 8th, 20th, 23d, 26th to 29th.

*Tennessee.*—2d, 5th, 11th, 12th, 14th, 15th, 18th, 21st, 22d, 26th.

*Ohio valley.*—1st, 16th, 21st, 26th.

*Lower lake region.*—1st, 16th, 19th, 21st, 29th.

*Upper lake region.*—1st, 3d, 5th, 6th, 8th, 10th, 11th, 20th, 21st, 27th, 28th.

*Extreme northwest.*—5th, 6th, 12th, 15th, 19th.

*Upper Mississippi valley.*—10th, 15th, 18th to 23d, 25th, 26th, 27th.

*Missouri valley.*—3d, 6th, 12th, 13th, 15th, 19th to 22d, 25th, 27th.

*Middle slope.*—15th, 18th, 20th, 29th.

*Middle Pacific coast region.*—8th, 9th, 10th, 13th, 17th, 19th, 20th, 22d, 24th.

Solar halos were also observed at the following stations not included in the districts named above:

Fort Grant, Arizona, 14th.

Deadwood, Dakota, 6th.

Boisé City, Idaho, 25th.

Nephi, Utah, 27th.

Salt Lake City, Utah, 10th.

Spokane Falls, Washington Territory, 20th.

#### LUNAR HALOS.

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

*New England.*—3d, 5th, 7th, 8th, 10th, 14th, 15th, 19th.

*Middle Atlantic states.*—3d, 5th, 6th, 7th, 10th, 13th, 15th, 16th.

*South Atlantic states.*—2d, 4th to 8th, 12th.

*Florida peninsula.*—1st, 6th.

*Eastern Gulf states.*—7th, 8th, 10th.

*Western Gulf states.*—1st, 2d, 4th, 15th, 24th.

*Rio Grande valley.*—5th, 6th, 9th, 19th.

*Tennessee.*—4th, 5th, 15th, 16th, 22d.

*Ohio valley.*—1st to 4th, 16th, 19th, 23d, 25th.

*Lower lake region.*—7th, 10th.

*Upper lake region.*—2d, 5th, 6th, 7th, 9th, 10th.

*Extreme northwest.*—5th, 6th, 7th, 9th, 10th, 11th, 14th.

*Upper Mississippi valley.*—2d, 4th, 5th, 9th, 13th, 20th.

*Missouri valley.*—1st, 2d, 3d, 6th, 9th, 11th, 12th, 22d.

*Northern slope.*—1st, 5th, 6th, 8th, 9th.

*Middle slope.*—2d, 4th, 6th, 9th, 15th, 16th, 18th.

*Southern slope.*—4th, 8th, 10th.

*Middle plateau.*—5th, 8th, 12th, 13th.

*Northern plateau.*—5th, 9th, 10th.

*Middle Pacific coast region.*—2d, 3d, 4th, 6th, 9th, 10th, 13th.

Lunar halos were also observed at the following stations not included in the districts named above:

Prescott, Arizona, 9th.

Olympia, Washington Territory, 16th.

Port Angeles, Washington Territory, 7th.

#### MIRAGE.

Fort Magiunis, Montana.—During the afternoon of the 15th

many points along the Yellowstone river in the southwest, and not ordinarily visible, were plainly seen. On the 17th, during the afternoon, the whole southern and eastern portions of the country appeared to be elevated above their natural positions.

Mirage was also observed at the following places during the month:

College City, California, 9th, 12th.

Vermillion, Dakota, 9th, 24th.

Alexandria, Dakota, 9th, 24th, 28th.

Saint George's, Delaware, 19th.

Larehland, Illinois, 2d, 14th.

Pretty Prairie, Kansas, 1st, 2d.

Genoa, Nebraska, 9th, 13th, 14th.

Indianola, Texas, 15th, 17th, 25th, 28th.

### MISCELLANEOUS PHENOMENA.

The peculiar appearance of the sky at sunrise and sunset, which has been observed for several months past, continued, but with diminished brilliancy, during February. The reports for February are much less numerous than those received during the previous months, and show that the phenomenon is becoming less noticeable, although, in some instances, the displays were reported to have been very brilliant.

The phenomenon was observed in the several states and territories, as follows:

*Alabama.*—Green Springs, 5th, at sunrise; 21st, at sunset. Auburn, on all clear days of the month.

*Arkansas.*—Fayetteville, 24th, at sunset.

*California.*—Hydesville, 3d, 7th, 9th, 13th, 20th, 22d to 27th, at sunrise, and on 2d, 7th, 12th, 12th, 20th, 22d to 28th, at sunset. Point Lobos, 25th, 26th, 27th, at sunset. Cape Mendocino, 23d, 25th, 26th, at sunset.

*Colorado.*—Golden, 28th, at sunset. On the summit of Pike's Peak on 22d, a dim, red light resembling the sunset glow, appeared in the southwest at 6.30 p. m., and continued for thirty minutes.

*Dakota.*—Alexandria, 1st, 8th, at sunset, and 9th, 14th, 15th, at sunrise. Vermillion, the sunset after-glow steadily diminished in brilliancy during the month. The observer at Webster reports that the sunsets during February were more noticeable than any previously observed; they were noted on the 1st, 6th to 9th, 19th, 20th, 22d, 24th; those of 6th and 20th, being remarkably brilliant; on the 9th the sky at sunrise was of the same appearance.

*Florida.*—Archer, 21st at sunrise, and 22d, 23d, and 27th at sunset. Limona, 24th, 29th, sunrise, and 23d at sunset. Newport, 1st, 2d, 4th, 5th, 20th, 21st, 22d, 25th, both before sunrise and after sunset. Jacksonville, 23d, very brilliant both after sunset and before sunrise.

*Georgia.*—Andersonville, 27th at sunset.

*Idaho.*—Boisé City, the remarkable redness in the western sky after sunset continued during February.

*Illinois.*—Cairo, 19th at sunset. Swanwick, bright sunrises and sunsets continued during February.

*Indiana.*—Vevay, 1st, 2d, 3d, 19th, 29th at sunrise. Sunman, 19th, 21st at sunrise and 20th at sunset.

*Iowa.*—Muscatine, 2d, 14th, 20th at sunset, and 20th, 21st at sunrise. Cedar Rapids, 14th at sunrise.

*Kansas.*—Wellington, red sunsets were observed on all clear days of the month, but were not so brilliant as those seen during the previous months. Fort Scott, the red sunsets of February were not so brilliant as those of January.

*Maine.*—Cornish, 15th, at sunset.

*Maryland.*—Baltimore, 2d, at sunset.

*Massachusetts.*—Taunton, 15th, at sunset, very brilliant.

*Nebraska.*—Clear Creek, 1st, 2d, 7th, 8th, 12th, 13th, 19th, 20th, 22d, at sunset. Red Willow, 27th, 28th, at sunrise.

*Nevada.*—Carson City, 29th, the red sunsets still continue.

*New Hampshire.*—Summit of Mount Washington, 10th, 15th, 16th, at sunset, and the 16th at sunrise.

*New York.*—North Volney, 21st, at sunrise.