

nessee; 17th, Louisiana, Ohio, Pennsylvania and Tennessee; 18th Kansas and Tennessee; 28th, Virginia; 30th, Virginia and Wisconsin; 31st, Virginia.

(3) *Lunar rainbows* noticed at Richmond, Va., on the 17th, and at Baxter Springs Kan., on the 14th.

ATMOSPHERIC ELECTRICITY.

Thunder-storms.—This feature of the July weather has been already sufficiently exhibited by the data under head of *Local Storms and Tornadoes*.

Auroras were unusually scarce. One was observed at Alpena, Mich., on the 10th. It first appeared as a faint arch of light of a pale, white color, reaching an elevation of twenty degrees, at 10:30 p. m. At 11 p. m. it was marked by a few faint streamers; also a well-defined dark segment. From 11 p. m. to 11:30, it increased in brilliancy, and at 11:40, changed into the shape of a curtain of light, about thirty-five degrees high, of a bright, emerald-green color, the fold of the curtain moving from east to west and west to east, the westerly motion being the most frequent. At 11:56 p. m. the curtain showed a nearly complete circle of bright green, yellow and crimson colors, and shortly after, broke up in streamers of a pale, green color, having an elevation of seventy degrees, and finally subsided into a pale, hazy arch of white, which remained until daylight.

At Marquette, Michigan, on the 26th, a faint auroral arch was distinguished in the northern horizon, about 9:40 p. m., and slowly disappeared at 11 p. m. The elevation of the topmost portions of the arch at no time exceeding twenty degrees.

Auroras were reported at Mount Washington, on the 3d; Standish, Me., on the 28th; St. Paul, Minn., on the 27th, and Bangor, Me., on the 30th.

MISCELLANEOUS PHENOMENA.

(1) *Natural History*.—The items of special interest under this head are—

Grasshoppers and locusts, which were reported as follows: At Burlingame, Kansas, large numbers passed north on the 15th and 16th. At Newark, N. J., they were numerous on the 18th. At Plattsmouth, Neb., grasshoppers were reported flying west on the 2d, south on the 6th, and northwest on the 7th and 8th. At Colton, Kan., they flew southwest on the 6th, west on the 7th, and northwest on the 8th. Except a few stragglers, the grasshoppers left Virginia City, M. T., on the 22d, their first appearance there having been reported on the 18th.

Colorado Beetles, destructive to potatoes, during the month at Vineland, N. J.

(2) *Polar bands* at Wytheville on 1st, 16th and 30th; at Iowa City, on the 3d and 10th; at Fayette, Miss., on the 12th, and at St. Paul on the 5th.

(3) *Meteors* were noticed at Lyndon, Ill., on the 9th, 24th, 26th and 29th; at Afton, Iowa, on the 7th, at Point Pleasant, La., on the 2d and 4th; at Woodstock College, Md., on the 12th and 21st; at New Market, Md., on the 12th; and Detroit, Mich., on the 15th.

(4) *Earthquakes*.—One shock was felt at Colebrook, Connecticut, on the 28th. It proceeded from east to west.

(6) *Barometer and Lake-water Oscillations*.—During the month of June, a comparison of the oscillations of the barometer and of the water at Marquette, on Lake Superior, showed that they acted together twenty-seven times, and in a contrary manner sixty-three times. A similar comparison during the month of July, shows that they acted together thirty-two times, and in a contrary manner sixty-one times.

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