

ginia, and West Virginia. 18th, New Jersey, New Mexico, Ohio, Oregon, Tennessee, and Washington. 19th, Maryland, New Jersey, and Utah. 20th, Kentucky, Missouri, New Jersey, North Dakota, and Ohio.

21st, Arkansas, District of Columbia, Georgia, Illinois, Kentucky, Maryland, Missouri, New Jersey, North Carolina, Ohio, Tennessee, and Virginia. 22d, Connecticut, Maine, Maryland, Massachusetts, Nebraska, New Jersey, New York, South Dakota, and Virginia. 23d, Indiana, Iowa, and Nebraska. 25th, Nevada. 26th, Colorado, Iowa, Massachusetts, and Wisconsin. 27th, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, Nevada, North Carolina, South Carolina, Virginia, and Wisconsin. 28th, Delaware, Iowa, Maryland, Michigan, New Jersey, New York, Pennsylvania, Vermont, and Wisconsin.

HAIL.

Description of the more severe hailstorms of the month is given under "Local storms."

Hail was reported as follows: 3d, Mississippi. 4th, California. 5th, California and Oregon. 6th, Oregon. 8th, California, Mississippi, and Oregon. 12th, California, Florida, Oregon, Texas, and Utah. 13th, Kansas and Oregon. 14th, Arkansas, Louisiana, and Texas. 16th, Arizona, Arkansas, and Indian Territory. 20th, Indian Territory, Oklahoma, and Texas. 21st, Louisiana, Mississippi, and North Carolina. 22d, Colorado. 25th, Florida and Washington. 26th, Arizona, Florida, Oregon, and Texas. 27th, Alabama, Florida, Georgia, Kansas, Missouri, Oregon, and South Carolina. 28th, Florida and Louisiana.

WINDS.

The prevailing winds in February, 1893, are shown on Chart II by arrows flying with the wind. In the middle Atlantic and New England states, the Ohio Valley, and Tennessee the winds were generally from the northwest; in the south Atlantic states, from the northeast; over the Florida Peninsula and along the north Pacific coast, from east to south; in the west Gulf states, from north to northeast; in the Lake region, on the northeast slope of the Rocky Mountains, over the southern plateau region, and along the middle Pacific coast, from southwest to northwest; in the upper Mississippi valley and the extreme northwest, from west to northwest; in the Missouri Valley, from northwest to north; on the southeast slope of the Rocky Mountains, from west to north; over the middle and northern plateau regions, from southeast to southwest; along the south Pacific coast, from northwest to northeast; and in the east Gulf states, and on the middle-eastern slope of the Rocky Mountains, variable.

HIGH WINDS (in miles per hour).

Wind velocities of 50 miles, or more, per hour were reported at regular stations of the Weather Bureau as follows: 1st, 80, se., at Fort Canby, Wash.; 50, e., at Tatoosh Island, Wash. 2d, 96, w., at Pikes Peak, Colo.; 78, e., at Tatoosh Island, Wash.; 60, sw., at Amarillo, Tex.; 57, se., at Fort Canby, Wash.; 55, sw., at Lander, Wyo.; 50, e., at Chicago, Ill. 3d, 84, sw., at Pikes Peak, Colo.; 68, se., at Fort Canby, Wash.; 63, e., at Tatoosh Island, Wash.; 51, nw., at Woods Holl, Mass.; 50, nw., at Cleveland, Ohio. 4th, 98, w., at Pikes Peak, Colo.; 72, sw., at Winnemucca, Nev.; 64, e., at Tatoosh Island, Wash.; 54, nw., at Woods Holl, Mass. 5th, 54, s., at Fort Canby, Wash.; 54, e., at Tatoosh Island, Wash.; 52, sw., at Winnemucca, Nev.; 50, sw., at Amarillo, Tex. 6th, 50, e., at Tatoosh Island, Wash. 7th, 60, se., at Fort Canby, Wash.; 54, e., at Tatoosh Island, Wash. 8th, 61, sw., at Keeler, Cal.; 54, e., at Tatoosh Island, Wash.; 52, sw., at Winnemucca, Nev.; 52, se., at Fort Canby, Wash.

9th, 82, sw., at Pikes Peak, Colo.; 60, nw., at Kearney, Nebr.; 50, w., at Fort Stanton, N. Mex. 10th, 60, sw., at Buffalo, N. Y.; 56, sw., at Kittyhawk, N. C. 13th, 65, ne., at Block Island, R. I.; 56, s., at Amarillo, Tex. 15th, 60, se., at Fort Canby, Wash. 16th, 57, se., at Fort Canby, Wash. 17th, 60, e., at Tatoosh Island, Wash.; 54, e., at Chicago, Ill.; 52, sw., at Lexington, Ky. 18th, 61, ne., at Block Island, R. I. 19th, 60, nw., at Cleveland, Ohio; 52, nw., at Columbus, Ohio. 20th, 69, nw., at Block Island, R. I.; 66, sw., at Woods Holl, Mass.; 54, nw., at Atlantic City, N. J.; 53, n., at Kittyhawk, N. C.; 50, n., at Northfield, Vt.; 50, ne., at Eastport, Me. 22d, 92, w., at Pikes Peak, Colo.; 62, nw., at Woods Holl, Mass.; 50, nw., at Block Island, R. I.; 50, se, at Nantucket, Mass. 23d, 60, nw., at Cleveland, Ohio; 60, w., at Lexington,

Ky.; 56, nw., at Columbus, Ohio; 55, nw., at Woods Holl, Mass. 26th, 56, nw., at Keeler, Cal. 27th, 60, sw., at Abilene, Tex.; 56, nw., at El Paso, Tex. 28th, 60, sw., at Chicago, Ill.

LOCAL STORMS.

1st.—In eastern Upper Michigan drifted snow delayed trains. At Saint Louis, Mo., a thunderstorm, with sleet and snow, began 7 p. m. and ended 10.05 p. m. The temperature during the storm was 13°. High northerly winds and drifting snow interrupted traffic in parts of eastern Kansas. High wind and snow caused a suspension of railroad traffic at Havre, Mont., on the 1st and 2d. A severe "norther" swept over the Western and Southwestern States.

2-3d.—At Springfield, Ill., rain and snow damaged electric wires, and snow delayed trains on the 2d. An unusually severe storm of snow and sleet prevailed at Grand Haven, Mich. Railroads were operated with difficulty, and no trains arrived from the south on the 3d. A Milwaukee steamer went ashore while attempting to enter the harbor, and was not floated until the 5th. Heavy snow blocked railroad lines in northern Wisconsin and northeastern Minnesota. At Climax, Colo., a snowfall of 8 inches was reported on the 2d. Heavy snow was noted in Oregon and Washington.

3d.—A northwest gale, with sleet and snow, prevailed over eastern Lower Michigan. On the 4th trains about Port Huron, Mich., were delayed by snow and ice. An exceptionally severe wind and snow storm prevailed over eastern Upper Michigan; trains were delayed and business was suspended. At Corpus Christi, Tex., a thunder and rain storm began 3.30 a. m. The storm reached its height at 5 a. m., when the lightning was continuous, the thunder deafening, and the rain falling heavily.

5-6th.—Heavy snow fell in central and eastern Iowa. The 6th was intensely cold, and on the 7th no trains were moving at Dubuque, Iowa. During the 6th the storm extended over Minnesota, Wisconsin, and Lower Michigan, seriously interfering with railroad traffic.

8th.—At Keeler, Cal., the wind increased in the evening and attained a velocity of 61 miles per hour from the southwest; rain fell at intervals during the day, and became general in the evening; heavy snow fell in the mountains.

10th.—Southeast to southwest gales prevailed along the Atlantic coast, with heavy rain on the south New England coast. A schooner ran ashore 1 mile north of Point Judith at 3 a. m.; the crew was saved; the vessel and cargo were lost. A schooner went ashore near Kittyhawk, N. C., but was gotten off without damage.

12th.—At De Land, Fla., a heavy rain and hail storm occurred in the afternoon. At 3 p. m. the temperature was 82°. At 3.35 p. m. the wind increased from the south, with tor-

rents of rain. At 3.40 p. m. hail began and continued 5 to 10 minutes. The temperature fell to 65°. The hailstones were clear and irregular in shape, and contained air bubbles; some of the stones weighed about 2 ounces.

13th.—At Boston, Mass., high northeast winds prevailed, with snow during the day and sleet in the evening. The storm was very severe over southern New England. At Block Island, R. I., heavy rain fell, and the wind reached a velocity of 65 miles per hour from the northeast. At New London, Conn., snow changed to sleet about noon, and sleet to rain at 12.15 p. m. The storm extended over New Hampshire and Maine the night of the 13th. At Manchester, N. H., 12 inches of snow fell. The snowfall was heavy in western Maine. At Dodge City, Kans., a heavy rain and hail storm began 4.47 p. m. and continued 8 minutes. The hailstones increased in size as the storm progressed, the largest being about the size of a sparrow's egg. The storm advanced from the southwest and hail fell to a depth of about one inch. At North Platte, Nebr., rain fell in the afternoon. About 5 p. m. the wind changed from southeast to northwest and increased to 40 miles per hour, with heavy snow, and a fall in temperature of 15° in 15 minutes. The storm continued until nearly noon of the 14th.

14-15th.—Heavy rain caused a rapid rise in the rivers of Alabama and Mississippi.

16th.—At Memphis, Tenn., a severe thunderstorm, with high wind, occurred between 5.30 and 6 a. m. Heavy rain fell at 9 a. m., and thunderstorms occurred at intervals during the day. Snowfall to a depth of 14 inches was reported at Hartley, Tex.

17th.—A heavy northeast snowstorm prevailed at Philadelphia, Pa., in the afternoon. In the evening the snow became light and changed to sleet about 11 p. m. High south to southeast winds prevailed at Toledo, Ohio. Sleet changed to snow in the afternoon, and snow ended 10.25 p. m. Street and railroad traffic was interrupted. At Kansas City, Mo., sleet began 10.07 p. m., and changed to snow 10.45 p. m.: of the 16th, and snow continued until the morning of the 17th. Six inches of snow fell, delaying traffic. Heavy snow fell at night in southwestern Kansas.

18th.—At Boston, Mass., snow began the night of the 17th and continued until 8 a. m., 18th. Eleven inches of snow fell, interrupting traffic, and gales damaged shipping. The steamer "Baltic" went ashore on the eastern point of Nahant, Mass., at 5 a. m. The vessel, valued with the cargo at \$45,000, was a total loss; the crew was saved. Northeast gales and heavy snow interrupted traffic and impeded navigation along the southern New England and New York coasts.

19th.—Heavy snow fell in New York, Pennsylvania, Maryland, and northern Ohio; severe local storms occurred in Maryland; and a strong gale, with snow flurries, prevailed over Lower Michigan. At Harrisburg, Pa., the wind reached an extreme velocity of 60 miles per hour, snow drifted heavily, and lightning flashes were observed in the southeast in the evening. A destructive windstorm, lasting 10 minutes, unroofed houses and uprooted trees at Willow Street, Pa. The temperature fell 34° in 4 hours. At Baltimore, Md., a northwest gale, with heavy snow, began 9.52 and ended 10.20 p. m. A brilliant flash of lightning, with heavy thunder, occurred at the beginning of the storm. The wind continued high until midnight.

A northwest gale, with sleet and flashes of lightning, struck Fallston, Md., at 9.48 p. m.; houses were unroofed and trees prostrated. At Fenby, Md., considerable damage was caused by wind, and lightning was observed. Damage by wind was also reported at Salisbury, Md. At Solomons, Md., a thunderstorm at 11 p. m. was followed by a violent northwest gale, which continued until 9 a. m., 20th; a number of vessels were blown ashore at that place. At Westminster, Md., a sudden and violent windstorm began 9 p. m., and continued 10 minutes.

Damage was caused by high west winds in parts of Virginia and West Virginia. At Sandusky, Ohio, the wind reached an extreme velocity of 60 miles per hour, and the temperature fell 13° in one hour.

19-20th.—In eastern Massachusetts and southern New Hampshire heavy snow began the evening of the 19th and continued during the morning of the 20th, with a northwest gale. The temperature was very low and the snow drifted heavily. A severe windstorm, with thunder, rain, and snow, began at Asbury Park, N. J., at 11 p. m. of the 19th, and the wind continued high during the 20th. Considerable damage was caused by wind in New Jersey. Destructive gales prevailed on the Carolina coast. At Philadelphia, Pa., snow ended the night of the 19th, but the wind continued high from the northwest during the 20th. Two vessels, with cargoes, were lost near Hatteras, N. C.; the crews were saved.

20th.—An unusually severe snowstorm, with high wind, prevailed in Maine. Traffic was interrupted, and damage to shipping was reported. At Plymouth, N. H., heavy snow continued until the 22d. Dangerous gales prevailed along the New England coast. A schooner went ashore near the entrance to Vineyard Haven harbor, Mass. A coal barge valued at \$25,000 was lost near Block Island, R. I., and the captain and crew of three men were drowned. A schooner went ashore near Niantic, R. I. The storm was reported the severest of the season throughout Connecticut; railroads suspended operations, and country roads were impassable. In Brooklyn, N. Y., 15 unfinished houses were blown down. High northwest winds prevailed along the middle Atlantic coast. At Mountain Spring, Tex., heavy rain, with small hail, fell from 4 to 5 p. m.; 1.30 inch of rain fell in 15 minutes.

21st.—A southwest gale, reaching a velocity of 40 miles per hour at 1.30 p. m., prevailed at Pensacola, Fla. A destructive local storm was reported about 50 miles east of Mobile, Ala., in the early morning. Severe local storms were reported about 30 miles west of Mobile between noon and 1 p. m.; large trees were prostrated. A violent wind, rain, and hail storm was reported at Bastrop, La., about 1 a. m. A destructive storm was reported at Jacksonville, Tex., in the early morning.

22d.—Heavy snow fell in New England, New York, and Pennsylvania. In parts of Maine snow drifted to a depth of 9 to 11 feet, blockading railroads. Along the coast high wind and snow delayed vessels, and a number of wrecks were reported. Heavy drifting snow delayed trains in New York and Pennsylvania. A schooner went ashore near Kittyhawk, N. C.

25th.—At Jupiter, Fla., a heavy rain and thunderstorm began 12.16 p. m. and ended 6.45 p. m.; 2.65 inches of rain fell. At 12.50 p. m., during heavy rain, hail began and fell 30 minutes; the hailstones were one-half inch in diameter.

26th.—A heavy thunderstorm from the southwest visited New Orleans, La., from 2.30 to 3.30 p. m.

27th.—During a northeast rain and wind storm, in the early morning, a bark went ashore on Cape Fear, N. C. A south squall, lasting 5 minutes, caused slight damage at De Land, Fla. A heavy snowstorm, beginning with thunder and lightning, visited western Iowa. Heavy, drifting snow was reported in Minnesota.

28th.—The snowstorm overspread Wisconsin and Upper Michigan, and continued in Minnesota and northern Iowa, attended by high winds. A destructive storm was reported at Marksville, La., at 1 p. m. The storm advanced from the southwest in a path one-fourth to one-half mile in width, attended by thunder, lightning, and hail. Two persons were reported killed, and a number of buildings were demolished. A thunderstorm from the west visited Alexandria, La. At Chicago, Ill., the wind reached a velocity of 60 miles per hour from the west. Several buildings were blown down and 6 persons were reported killed.