RIVERS AND FLOODS.

Good boating stages continued over the larger navigable rivers except the upper Tennessee, where low water necessitated a suspension of navigation during much of the month. Navigation on the upper Mississippi was practically suspended after the middle of the month despite the fact that there was ample water for all the business.

The principal occurrence of interest during the month was a flood of considerable proportions over the Wisconsin tributaries of the Mississippi River, due to excessive rains over that district. At La Crosse, Wis., 7.23 inches of rain fell during the twenty-four hours ending at 8 a. m. of the 28th, and heavy rains had also occurred during the early days of the month. Great damage was wrought by the high waters in the Chippewa, Black, and Wisconsin rivers, and the total losses reported are said to have exceeded $100,000. Streets in towns were flooded, families driven from their homes, stock drowned, crops ruined, and railroads washed out, but very fortunately, no lives were lost. At Portage, Wis., on the 9th, the Wisconsin River reached 12.5 feet on the gage, the highest known stage, and the lowlands for five or six miles around, were from four to six feet under water. The Government levee at Portage gave way and the lower portions of the city were flooded in a very few minutes.

The upper Mississippi also rose rapidly from these accretions, and damage, mostly of a minor nature, was reported as far south as the vicinity of Davenport, Iowa. No danger-line stages were reached along the Mississippi, although they were closely approached from La Crosse to Dubuque.

The lower Ohio system was somewhat affected by an outflow through the Great Kanawha River from the New River. Heavy rains occurred on the 23d and 24th over the watershed of the latter, and at Radford, Va., a stage of 22 feet, or 8 feet above the danger line, was reached on the 24th, being a rise of 21.6 feet in twenty-four hours. At Hinton, W. Va., there was a rise of nearly 11 feet. Warnings were sent to localities interested, and they were very instrumental in saving insecure floating property. In the Ohio River there was a rise of from five to eight feet from Portsmouth, Ohio, to Madison, Ind. It did not extend below Louisville until after the close of the month.

The highest and lowest water, mean stage, and monthly range at 129 river stations are given in Table XI. Hydrographs for typical points on seven principal rivers are shown on Chart V. The stations selected for charting are: Keokuk, St. Louis, Memphis, Vicksburg, and New Orleans, on the Mississippi; Cincinnati and Cairo, on the Ohio; Nashville, on the Cumberland; Johnsonville, on the Tennessee; Kansas City, on the Missouri; Little Rock, on the Arkansas; and Shreveport, on the Red.—*H. C. Frankenfield, Forecast Official.*

CLIMATE AND CROP SERVICE.

By JAMES BERRY, Chief of Climate and Crop Service Division.

The following extracts relating to the general weather conditions in the several States and Territories are taken from the monthly reports of the respective sections of the Climate and Crop Service. The name of the section director is given after each summary.

Rainfall is expressed in inches and temperature in degrees Fahrenheit.

Alabama.—The mean temperature was 68.8°, or 5.4° above normal; the highest was 98°, at Pushmataha on the 1st, and the lowest, 44°, at at Valley Head on the 12th and at Riverton on the 19th The average precipitation was 5.64, or 3.37 above normal; the greatest monthly amount, 11.42, occurred at Riverton, and the least, 2.30, at Pineapple. —*F. P. Chaffee.*

Arizona.—The mean temperature was 65.0°, or 0.8° below normal; the highest was 102°, at Blaisdell on the 8th and at Parker on the 9th, and the lowest, 11°, at Flagstaff on the 30th and 31st. The average precipitation was 0.48, or 0.52 below normal; the greatest monthly amount, 1.60, occurred at Strawberry, while none fell at Pantano, Sentinel, and Tombstone.—*L. M. Dey, Jr.*

Arkansas.—The mean temperature was 66.0°, or 4.2° above normal; the highest was 97°, at Camden on the 6th, and the lowest, 32°, at Ione on the 10th. The average precipitation was 4.31, or 1.95 above normal; the greatest monthly amount, 8.43, occurred at Spielerville, and the least, 1.19, at Brinkley.

The rains and warm weather caused some cotton to rot and sprout in the bolls, and picking was pushed as rapidly as the weather permitted. Wheat sowing was delayed during the early part of the month on account of the ground being too hard and dry for plowing, but the general rains later put the ground into better condition for plowing, and sowing of wheat became more general and progressed satisfactorily.—*E. B. Richards.*

California.—The mean temperature was 58.8°, or 1.6° below normal; the highest was 107°, at Raymond on the 13th, and the lowest, 1°, at Bodie on the 30th. The average precipitation was 2.37, or 1.22 above normal; the greatest monthly amount, 15.68, occurred at Delta, while none fell at 7 stations.—*A. G. McAdie.*

Colorado.—The mean temperature was 49.7°, or more than 3.0° above normal; the highest was 92°, at Holly on the 5th, and the lowest, 1° below zero, at Breckenridge on the 30th. The average precipitation was 0.68, or 0.34 below normal; the greatest monthly amount, 5.00, occurred at Twin Lakes, while none fell at several stations.—*F. H. Brandenburg.*

Florida.—The mean temperature was 75.7°, or 2.5° above normal; the highest was 95°, at De Funiak Springs on the 1st and at Hypoluxo and Ocala on the 8th, and the lowest, 49°, at Jasper on the 19th. The average precipitation was 5.49, or 0.99 above normal; the greatest monthly amount, 14.10, occurred at Hypoluxo, and the least, 2.13, at Archer.—*A. J. Mitchell.*

Georgia.—The mean temperature was 68.7°, or 4.7° above normal; the highest was 97°, at Thomasville on the 1st, and the lowest, 38°, at Dahlonega on the 18th. The average precipitation was 4.12, or 1.44 above normal; the greatest monthly amount, 9.64, occurred at Valona, and the least, 1.27, at Macon.

It was the warmest October on record since the establishment of the voluntary observation service in the State, in 1891. The weather conditions were generally favorable for fall plowing and seeding.—*J. B. Marbury.*

Idaho.—The mean temperature was 46.5°, or 1.1° above normal; the highest was 87°, at Hagerman on the 16th, and the lowest, 5°, at Chesterfield on the 27th. The average precipitation was 2.27, or 0.69 above normal; the greatest monthly amount, 5.07, occurred at Priest River, and least, 0.52, Lost River.—*S. M. Blandford.*

Illinois.—The mean temperature was 62.0°, or 7.2° above normal; the highest was 93°, at Hallidayboro on the 1st, at Cobden on the 2d, 3d, and 4th and at St. John on the 4th; the lowest, 23°, at Lanark on the 17th. The average precipitation was 2.47, or 0.25 above normal; the greatest monthly amount, 4.70, occurred at La Harpe, and the least, 0.73, at Halfway.

The month was very favorable for the advancement of fall farm work, and in many localities it was brought almost to completion. Corn matured and large quantities husked and cribbed. The seeding of wheat and rye was practically finished, and the excellent condition of the ground brought them generally to a good stand.—*M. E. Blystone.*

Indiana.—The mean temperature was 61.9°, or 7.9° above normal; the highest was 96°, at Paoli on the 5th, and the lowest, 26°, at Fairmount on the 17th. The average precipitation was 2.56, or 0.18 above normal; the greatest monthly amount, 5.50, occurred at Rockport, and the least, 0.50, at Valparaiso.

Warm, dry weather was very favorable for farm work; wheat sowing was completed, and, although the ground was dry in many fields, it germinated well, and at the end of the month had come up nicely and the fields looked green. Corn ripened well and was gathered in good condition.—*C. F. R. Wappenhans.*

Iowa.—The mean temperature was 59.3°, or 9.0 above normal; the highest was 90°, at Bedford on the 3d and 4th and at Toledo on the 4th, and the lowest, 21°, at Plover on the 14th. The average precipitation was 3.91, or about 1.63 above normal; the greatest monthly amount, 8.00, occurred at College Springs, and the least, 1.20, at Sibley.

The pastures are extra good, affording more than the usual amount of fall feed for stock, and fall sown wheat and rye, though limited in

area, have made an excellent stand are well prepared to withstand the coming winter.—*J. R. Sage, Director; G. M. Chappel, Assistant.*

Kansas.—The mean temperature was 61.5°, or 5.3° above normal; the highest was 97°, at Achilles on the 3d, and the lowest, 22°, at Tribune and Wallace on the 31st. The average precipitation was 2.68, or 0.57 above normal; the greatest monthly amount, 5.71, occurred at Wichita, and the least, 0.03, at Tribune.

Wheat sowing is nearly completed, except in the extreme western counties, and wheat is coming up and growing rapidly, the early sown being so high that farmers have begun to pasture it to prevent stooling. —*T. B. Jennings.*

Kentucky.—The mean temperature was 64.5°, or 5.7° above normal; the highest was 94°, at Bardstown and Paducah on the 3d, and the lowest, 29°, at Catlettsburg on the 18th. The average precipitation was 2.29, or 0.15 above normal; the greatest monthly amount, 6.78, occurred at Hopkinsville, and the least, 0.57, at Shelby City.

The weather was generally favorable for farm work; some localities complain of drought, and more rain would be of benefit. Probably a little less than the usual amount of wheat was sown; some early sown shows signs of the hessian fly, but the late appears to be free.—*H. B. Hersey.*

Louisiana.—The mean temperature was 71.3°, or 3.9° above normal; the highest was 103°, at Lake Charles on the 2d, and the lowest, 40°, at Robeline on the 10th. The average precipitation was 3.76, or 1.06 above normal; the greatest monthly amount, 10.50, occurred at Lake Charles, and the least, 1.50, at Mansfield.

At the close of the month most of the fall plowing and planting and some windrowing had been done, but generally sugar planters were waiting for cooler weather to windrow seed cane for spring planting. The condition of fall gardens and the products of truck farms improved during the latter part of the month.—*W. T. Blythe.*

Maryland and Delaware.—The mean temperature was 60.6°, or 6.2° above normal; the highest was 91°, at Hancock, Md., on the 5th and 6th, and the lowest, 20°, at Deerpark, Md., on the 18th. The average precipitation was 2.11, or 0.92 below normal; the greatest monthly amount, 5.30, occurred at Milford, Del., and the least, 1.10, at Woodstock College, Md.—*Oliver L. Fassig.*

Michigan.—The mean temperature was 56.6°, or 8.0° above normal; the highest was 90°, at Ovid and Owosso on the 5th and 6th, and the lowest, 19°, at Baldwin on the 17th. The average precipitation was 2.71, or 0.05 below normal; the greatest monthly amount, 5.12, occurred at Menominee, and the least, 0.52, at Newberry.—*C. F. Schneider.*

Minnesota.—The mean temperature was 55.1°, or 8.8° above normal; the highest was 86°, at Jennie on the 2d, and the lowest, 17°, at New Folden on the 7th. The average precipitation was 3.85, or 1.59 above normal; the greatest monthly amount, 11.35, occurred at St. Charles, and the least, 0.71, at Milaca.

A considerable area of rye was sown, with excellent soil conditions, and it germinated well, ensuring a good stand.—*T. S. Outram.*

Mississippi.—The mean temperature was 69.0°, or 4.4° above normal; the highest was 97°, at Brookhaven on the 1st and 2d, and the lowest, 38°, at Brookhaven on the 13th. The average precipitation was 5.46, or 3.39 above normal; the greatest monthly amount, 12.23, occurred at Water Valley, and the least, 2.35, at Bay St. Louis.—*W. S. Belden.*

Missouri.—The mean temperature was 62.3°, or 5.8° above normal; the highest was 92°, at Louisiana on the 4th, and the lowest, 25°, at Ironton on the 18th. The average precipitation was 4.24, or 1.91 above normal; the greatest monthly amount, 8.38, occurred at Miami, and the least, 1.33, at Nevada.

In portions of the central and western sections heavy rains on the 1st and 2d, 6th and 7th, and 21st and 22d prevented corn from drying out sufficiently for gathering; otherwise the weather, up to the 27th, was all that could be desired for securing outstanding crops and for the seeding and germination of fall grains.—*A. E. Hackett.*

Montana.—The mean temperature was 45.6°, or 0.9° above normal; the highest was 98°, at St. Pauls on the 24th, and the lowest, 5°, at Kipp on the 4th and 6th. The average precipitation was 1.21, or 0.31 above normal; the greatest monthly amount, 3.42, occurred at Columbia Falls, and the least, 0.02, at Chester and Clemons—*E. J. Glass.*

Nebraska.—The mean temperature was 56.7°, or 6.3° above normal; the highest was 100°, at Culbertson on the 5th, and the lowest, 19°, at Kennedy on the 11th. The average precipitation was 2.08, or 0.52 above normal; the greatest monthly amount, 7.55, occurred at Eden, while none fell at several stations in the southwestern portion.

The weather was exceptionally favorable for the germination and growth of fall sown grain. The total acreage of winter wheat sown is unusually large, and the crop is in exceedingly fine condition—*G. A. Loveland.*

Nevada.—The mean temperature was 47.7°, or about 1.3° below normal; the highest was 82°, at Candelaria on the 9th, 15th, and 16th, and the lowest, 4°, at Hamilton and Palmetto on the 30th. The average precipitation was 0.80, or about 0.31 above normal; the greatest monthly amount, 4.06, occurred at Lewers Ranch, while none fell at several stations.—*J. H. Smith.*

New England.—The mean temperature was 53.9°, or 5.8° above normal; the highest was 85°, at several stations on the 5th and 6th, and the lowest, 15°, at several stations on different dates. The average precipitation was 3.65, or nearly normal; the greatest monthly amount, 8.26, occurred at Eastport, Me., and the least, 1.59, at New London, Conn.

Fall operations on the farm have progressed under most favorable circumstances, and farmers, as a rule, are well prepared for the winter now at hand.—*J. W. Smith.*

New Jersey.—The mean temperature was 59.9°, or 6.0° above normal; the highest was 92°, at Layton and Vineland on the 6th, and the lowest, 19°, at Layton on the 20th. The average precipitation was 3.70, or nearly normal; the greatest monthly amount, 6.59, occurred at Bridgeton, and the least, 1.47, at Layton.

Favorable weather conditions prevailed during the month, and fall seeding was completed early in the month, and an exceptionally good stand of wheat, rye, and grass, obtained by the 20th.—*E. W. McGann.*

New Mexico.—The mean temperature was 54.6°, or 1.1° above normal; the highest was 91°, at Mesilla Park on the 5th, and the lowest, 10°, at Aztec on the 31st. The average precipitation was 1.07, or 0.13 below normal; the greatest monthly amount, 3.33, occurred at Roswell, and the least, 0.10, at Cambray.—*R. M. Hardinge.*

New York.—The mean temperature was 55.9°, or 7.8° above normal; the highest was 94°, at Auburn on the 6th, and the lowest, 16°, at South Kortright on the 20th. The average precipitation was 3.05, or 0.13 above normal; the greatest monthly amount, 5.94, occurred at Bolivar, and the least, 1.00, at Plattsburg.

The weather was unusually favorable for the harvest of all outstanding crops; the conditions were generally favorable for the seeding and germination of fall grain, and at the close of the month winter wheat and rye were very fine, and pastures in many sections were fresh and green, probably affording more feed for stock than at any time during the summer.—*R. G. Allen.*

North Carolina.—The mean temperature was 64.4°, or 4.8° above normal; the highest was 94°, at Tarboro on the 6th, and the lowest, 29°, at Monroe and Selma on the 18th. The average precipitation was 3.14, or 0.55 below normal; the greatest monthly amount, 13.40, occurred at Linville, and the least, 0.47, at Selma.—*C. F. von Herrmann.*

North Dakota.—The mean temperature was 48.2°, or 6.2° above normal; the highest was 87°, at Dunseith on the 17th, and the lowest, 14°, at Medora on the 30th. The average precipitation was 1.54, or 0.35 above normal; the greatest monthly amount, 3.03, occurred at Amenia, and the least, 0.26, at Woodbridge.—*B. H. Bronson.*

Ohio.—The mean temperature was 60.5°, or 8.0° above normal; the highest was 93°, at Dayton on the 3d and 5th and at Thurman on the 5th, and the lowest, 23°, at Garrettsville on the 20th. The average precipitation was 1.89, or 0.22 below normal; the greatest monthly amount, 5.21, occurred at Sidney, and the least, 0.88, at Shenandoah.

The weather was favorable for the growth of wheat, except in some central and southern counties, where it was too dry. The seeding was generally later than usual, and in a few counties in the southern portion is not yet completed.—*J. Warren Smith.*

Oklahoma and Indian Territories.—The mean temperature was 65.0°, or 2.4° above normal; the highest was 95°, at Colbert and Healdton on the 4th and at Taloga on the 5th, and the lowest, 33°, at Clifton on the 8th, at Prudence on the 9th and 10th, and at Jenkins on the 11th. The average precipitation was 3.73, or 1.01 above normal; the greatest monthly amount, 7.55, occurred at Telequah, and the least, 0.97, at Woodward.

Farm work progressed rapidly, and cotton picking and corn husking were well advanced. The weather was very favorable to the development of wheat, rye, and grass, which made good growth and were in excellent condition at the close of the month.—*C. M. Strong.*

Oregon.—The mean temperature was 50.2°, or 1.6° below normal; the highest was 87°, at Prineville on the 17th, and the lowest, 14°, at Vale on the 27th. The average precipitation was 5.71, or 2.49 above normal; the greatest monthly amount, 16.04, occurred at Glenora, and the least, 1.05, at Riverside.—*E. A. Beals.*

Pennsylvania.—The mean temperature was 58.6°, or 7.7° above normal; the highest was 95°, at Irwin on the 7th, and the lowest, 19°, at Dushore and Dyberry on the 20th. The average precipitation was 2.74, or 0.80 below normal; the greatest monthly amount, 5.10, occurred at Smethport, and the least, 0.80, at Ephrata.—*L. M. Dey.*

South Carolina.—The mean temperature was 67.6°, or 5.3° above normal; the highest was 95°, at Blackville on the 1st, and the lowest, 33°, at Cheraw and Santuc on the 18th. The average precipitation was 3.65, or 0.52 above normal; the greatest monthly amount, 8.44, occurred at Smiths Mills, and the least, 1.79, at Florence.

The weather was favorable for maturing outstanding crops, and for seeding fall grains.—*J. W. Bauer.*

South Dakota.—The mean temperature was 53.6°, or about 6° above normal; the highest was 97°, at Chamberlain on the 13th, and the lowest, 10°, at Rochford on the 31st. The average precipitation was 1.68, or about 0.61 above normal; the greatest monthly amount, 3.90, occurred at Alexandria, and the least, 0.14, at Farmingdale—*S. W. Glenn.*

Tennessee.—The mean temperature was 64.7°, or 5.6° above normal; the highest was 92°, at McMinnville on the 2d, and the lowest, 34°, at Silverlake on the 18th. The average precipitation was 4.22, or 1.66 above normal; the greatest monthly amount, 8.06, occurred at Johnsonville, and the least, 1.22, at Jonesboro.

The weather was fine for all outdoor work, and vegetation generally remained green to the end of the month.—*H. C. Bate.*

Texas.—The mean temperature was 70.3°, or 2.2° above normal; the highest was 101°, at Camp Eagle Pass on the 5th and at Fort McIntosh on the 6th, and the lowest, 34°, at Menardville on the 10th. The average precipitation was 3.30, or 1.06 above normal; the greatest monthly amount, 7.10, occurred at Wichita Falls, and the least, 1.15, at Waco.

Conditions being favorable, corn gathering was prosecuted with vigor. The quality of the crop was not all that could be desired, much of it being reported damaged either by weevil or rain. The yield, as a whole, was considerably below the average

Cotton picking was rushed during the month, advantage being taken of the favorable conditions. This work was somewhat delayed during the third decade by the rainy weather. There were scattered complaints of the scarcity of pickers. Notwithstanding this, the work was well advanced, and the close of the month found the crop practically picked, except over the northern and western portions. The crop was generally below the average in amount, having been injured to some extent by worms and other pests, and also by the hurricane which swept over the State on September 8 and 9.

Wheat sowing was general during the month, the work being somewhat delayed by the rainy weather toward the last of the month. Early-sown wheat came up nicely. The month closes with weather favorable for germination of seed in the ground.

Fall gardening along the coast progressed fairly well, the showers during the third week of the month proving very beneficial.—*I. M. Cline.*

Utah.—The mean temperature was 48.9°, or 0.4° above normal; the highest was 95°, at Pinto on the 1st, and the lowest, 1° below zero, at Loa on the 29th. The average precipitation was 0.89, or 0.03 below normal; the greatest monthly amount, 2.88, occurred at Huntsville, while none fell at Castle Dale and Wellington.—*L. H. Murdoch.*

Virginia.—The mean temperature was 61.9°, or 5° above normal; the highest was 93°, at Barboursville on the 6th, and the lowest, 26°, at Meadowdale on the 17th and at Burke's Garden on the 18th. The average precipitation was 3.01, or 0.22 below normal; the greatest monthly amount, 5.46, occurred at Clifton Forge, and the least, 0.95, at Callaville.

The weather was favorable for farm work and for the germination of seed.—*E. A. Evans.*

Washington.—The mean temperature was 48.9°, or 0.3° below normal; the highest was 82°, at Colfax on the 16th, and the lowest, 20°, at Centerville on the 7th. The average precipitation was 4.75, or 2.24 above normal; the greatest monthly amount, 17.64, occurred at Clearwater, and the least, 0.48, at Connell.—*G. N. Salisbury.*

West Virginia.—The mean temperature was 60.9°, or 6.2° above normal; the highest was 96°, at Byrne on the 7th, and the lowest, 24°, at Philippi on the 18th. The average precipitation was 2.33, or 0.26 below normal; the greatest monthly amount, 4.80, occurred at Lewisburg, and the least, 1.15, at Martinsburg.

The weather was favorable for farm work, and in well-prepared ground wheat is coming up nicely and is in fairly good condition.—*E. C. Vose.*

Wisconsin.—The mean temperature was 56.4°, or 8.1° above normal; the highest was 91°, at Watertown on the 3d, and the lowest, 10°, at Barron on the 8th. The average precipitation was 5.92, or 3.54 above normal; the greatest monthly amount, 12.09, occurred at La Crosse, and the least, 1.87, at Racine.—*W. M. Wilson.*

Wyoming.—The mean temperature was 46.5°, or 2.0° above normal; the highest was 90°, at Cody on the 12th, and the lowest, 8°, at Bittercreek on the 30th. The average precipitation was 0.58, or 0.23 below normal; the greatest monthly amount, 1.81, occurred at South Pass City, while none fell at Hyattville.—*W. S. Palmer.*

SPECIAL CONTRIBUTIONS.

LIGHTNING FROM A CLOUDLESS SKY.

By B. S. PAGUE, Local Forecast Official, Detroit, Mich., dated October 5, 1900.

I was much interested in the report of J. N. Weed, of Newburg, N. Y., concerning lightning from a cloudless sky and the comments thereon, as published on pages 292 and 293 of the MONTHLY WEATHER REVIEW for July, 1900. A few hours after reading the report and the comments I had the opportunity to observe lightning from a cloudless sky. The circumstances were as follows: On October 4, 1900, the weather map showed conditions somewhat favorable for thunderstorms over the greater portion of upper and lower Michigan and over the surrounding region; the local forecast for Detroit was for fair weather; during the afternoon of October 4, owing to dark appearing clouds in the southwest, it looked as though a thundershower might occur in this vicinity before midnight. The clouds kept well to the south and were of the cumulus form. About 5 o'clock rain apparently was falling over in Canada about 10 miles south and southeast of this station. As sunset approached the clouds disappeared from the horizon, except on the south and southeast sides. About 7:45 p. m. (local, sun time) I started on a bicycle, riding out Woodward avenue, which is in a straight line northwestward from the thunder and lightning then prevailing over in Canada. After riding about thirty minutes, and being then about 15 miles from where the thunderstorm was in progress, I observed flashes of lightning. The evening was nearly calm, the temperature very pleasant, and not a cloud was observed in the sky. After riding about two miles more I dismounted and looked carefully for clouds, but none were visible. Lightning was very distinct in the south and east; with my back to the place whence I knew the lightning came, I could see overhead flashes of lightning, in the form of sheets, which, like Mr. Weed, I would characterize as of rather delicate type. It continued and increased, waxing and waning. The lightning occurred at frequent intervals all along the horizon from the south to the southeast, with flashes overhead, Returning to my residence I was then facing and riding toward the horizon whence came the distant flashes; after riding about four miles I was in a position to see what appeared to be a long streak of clouds extending from the main body northwestward; from this extended cloud the lightning appeared to come.

Now, had I not known that a thunderstorm was prevailing over in Canada and had I observed the lightning only from my most distant point (about 17 miles) from the storm I should have maintained with apparent correctness that the lightning was from a cloudless sky. This occurrence of lightning from an apparently cloudless sky reminds me of rain from a cloudless sky, which I observed in Oregon a short time ago. The rainfall, as I discovered within an hour afterward, was from a cloud at some distance in the southwest, not seen where I saw and felt the rain; the rain occurred about 9 p. m.; the sky was clear, but going on my wheel about three miles toward the southwest I saw the cloud from which the rain fell; the wind had carried the rain to the place where I observed it.

Returning now to Mr. Weed's report he states first at 7:30 a light wind "mere breathings;" at 9 p. m. a sudden gust and "some minutes later succeeded by another gust of more force." The gusts then came more frequently and "soon developed into a cold, gusty wind." He then states:

> Our horizon in the northeast quadrant is low. In the southeast, limited by mountain crests from 4 to 7 miles distant, and ranging from 1,000 to 1,600 feet high. Beyond this horizon are a succession of other mountains hidden from our view, with deep valleys between, including the Valley of the Hudson River. The night was cloudless until the wind came. Soon after this a few cloudlets of stratus formed near the north end of the mountains, say east-northeast, near the horizon, but disappeared before the appearance of the phenomena I am about to mention. At the moment of the rising of Fomalhaut above the mountains southeast we noticed a gleam of lightning, of rather delicate type, just to the left of the star and back of the mountains.

The lightning continued until they left, about 1 a. m.

> The lightning occurred at frequent intervals all along the horizon from the point of origin to near the east point and was undoubtedly true lightning.

The experience of Mr. Weed was the same as mine, with