

The destruction of fruit, truck, gardens, potatoes, sugar beets, corn, unharvested grain, alfalfa and other crops was very great within the limited area mentioned, little being left worth harvesting excepting the tubers. Hundreds of chickens and some rabbits perished before they could reach shelter, and numerous horses and cattle, as well as several persons caught without shelter during the storm, suffered more or less bodily injury. Runaway teams destroyed considerable property about the city and in the adjacent agricultural fields, and composition roofs and automobile tops were riddled by the hailfall. Practically all the north windows within the central area of the storm and many of the west windows were broken; and the large greenhouses of the Lehi Floral Co., with their contents, were almost totally destroyed with the breaking of about 7,000 roof glass. (Fig. 3.) The total loss was estimated by Mr. Joseph Anderson, the cooperative weather observer, at about \$50,000.—*J. Cecil Alter*, Meteorologist, Salt Lake City, Utah.

LIGHTNING PHOTOGRAPHS.

Mr. J. W. Stjernstedt, manager of the Pacific coast office of the American Transmarine Co. (Inc.), has furnished the Weather Bureau with two lightning photographs. These pictures were taken about 10 p. m. at Jamaica, Long Island, July 12, 1919. The storm was approaching from the east or northeast. Both pictures were made with a small kodak, using the F:45 stop. The two diagonal lines seen on fig. 1 *J. W. S.* near the upper left and lower right hand corners are defects in the negative. The white spots in the same picture are caused by falling raindrops illuminated by the lightning flash. Fig. 2 *J. W. S.* shows five successive flashes almost parallel; this is due to the wind movement, which carried forward the air through which the lightning was discharging.—*C. L. M.*

LIGHTNING INJURY IN A POTATO FIELD.

Articles have appeared from time to time in botanical literature describing lightning injury to plants. Such injuries to trees are of course quite common, but occasionally herbaceous plants growing in a level field are injured. The injured plants usually cover a more or less circular area of 10 to 30 feet in diameter.

A heavy electric storm occurred at College Park, Md., on August 9, between 6 and 6.30 p. m. A few days after this storm Mr. T. H. White, of the Agricultural Experiment Station, called the writer's attention to an area in one of his experimental potato plots that had apparently been struck by lightning. On the day following the storm the plants in this area were lying on the ground in a wilted condition, with stems somewhat twisted just above ground. This injured area of approximately 30 feet in diameter was staked off and no increase in its size has since been found. A 10-foot strip of grass separated this plot from an adjacent one and was partly included in the circular area, but no injury to the grass was noticed, although a few potato plants in the adjoining plot and just within the circular area were slightly injured. Fig. 1 *E. S. J.* (on plate opposite) was obtained 16 days after the storm and shows the area containing the dead plants.

All the conditions of the injury and the circumstances under which it occurred seem to be in good agreement,

with the following explanation given by Jones and Gilbert:¹

"When an electric storm breaks suddenly following a period of dry weather and the first rain wets the top soil, there remains a layer of dry earth between this wet surface and the moist soil underneath, which is a poor conductor of electricity. When the lightning strikes the wet surface soil it disperses in all directions, horizontally and then downward into the earth, following lines of least resistance. The plant stems and roots with their abundant water content are better conductors than the layer of dry soil just mentioned, and so the electric current passes through them. The tissues may thus be variously injured or killed, depending upon the amount of current passing through them. The strength of the current, of course, diminishes the farther it gets from the center of the affected spot, and consequently the lessened injury at the margins of the area."—*Earl S. Johnston*, Agricultural Experiment Station, University of Maryland.

STANDING WHEAT FIRED BY LIGHTNING.

On July 16, 1920, a field of standing wheat belonging to R. H. McKean and W. B. Rice, near Wasco, in Sherman County, Oreg., was set on fire by lightning, and about 200 acres were burned over. From such information as can be obtained it appears that the lightning struck in the open field, no buildings, trees, or fences being near. The storm was accompanied by high wind for a few minutes, and light rain fell. At Wasco, the nearest cooperative meteorological station, the rainfall on that date amounted to 0.10 inch.

While fires in ripe standing grain are very common in this section, the firing of standing grain by lightning direct is very unusual.—*Edward L. Wells.*

LIGHTNING AND FOREST FIRES.

Though forest fires caused by lightning are of frequent occurrence in California, the summer of 1920 will be recorded as one of the most disastrous in history. These summer thunderstorms are usually limited to the elevated portions of the State, which are densely forested. Lightning discharges are particularly dangerous, because, unlike eastern thunderstorms, these storms are usually accompanied by little or no rainfall, which might extinguish a fire once started.

The Forest Service announced that lightning caused 60 forest fires in northern California during the first five days of July. Again, as a result of a series of extremely violent thunderstorms which passed over the same region on August 4, approximately 240 forest fires were caused by lightning, according to the Forest Service. Again, on August 6, 35 forest fires were started by lightning in a single thunderstorm in the vicinity of Sisson, near Mount Shasta. During this storm lightning struck the forest lookout station on the summit of Mount Eddy, seriously injuring the ranger on duty there, and the lookout station was destroyed in the fire which followed. During the second week of August there were 7 extensive forest fires beyond control in northern California as a direct result of these storms. The forest-fire situation in northern California was the worst in four years. Because of deficient precipitation during the past rainy season, the forest floor was extremely dry, and fires spread with

¹ Jones, L. R., and W. W. Gilbert. Lightning injury to herbaceous plants. *Phytopathology* 8:270-282. 1918.