



THE DEPOSITION OF DUST IN CENTRAL OKLAHOMA
DURING THE 1935 DUST STORMS

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At Stillwater there were 27 days when the visibility was appreciably lessened by the presence of dust in the air. On several other days smaller

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amounts of dust were present in the atmosphere. According to weather records, the first dust storm of the year occurred on January 16. Other days when visibility was greatly reduced were February 23, 24; March 4, 15, 16, 19, 20, 21, 25, 26, 27, 28 and 31; April 10, 11, 13, 14, 15, 16, 25, 26 and 27; May 1, 2; July 10, 17; and August 1. The most severe storms occurred on March 15-16, April 10-11, and April 25-27.

No dust samples were collected for the storms in January and February since they came without warning. After the first storm in March (March 4), attempts were made to collect the dust and to measure the accumulation. The first method used was to collect the dust which settled on glass skylights on the roof of Whitehurst Hall. Three collections were made using this method. The glasses are so placed that north, east, west and south slopes were obtainable. It was thought at first that such an arrangement would give rather accurate measurements, but later results did not substantiate this except on quiet days, so a different procedure was attempted which was found to be satisfactory. The final procedure used was to place a series of shallow pans containing a small amount of distilled water on the roof and to allow the dust to settle in them. The water prevented the dust from blowing out of the pans. The glass-surface method did not prevent the removal of dust by wind. On some days the loss by wind from the glass was negligible because the lower atmosphere was quiet, but on other occasions considerable removal took place. With the shallow pan-water method, it was found necessary to replenish the water rather often because of intense evaporation.

The results secured are given in Table I and represent the average for two to eight collections at each date. No dust samples were collected after April 27, 1935, although on a few scattered dates following this, dust occurred in the atmosphere.

TABLE I.

Date	Method	Lb./acre	Notes
Mar. 11-21	Glass surface	19.8	Dust storm, March 15, 16
Mar. 22-28	Glass surface	1.3	No storm, but dusty atmosphere
April 10-11,	Pan, without water	312.0	Dust storm on this date
April 14-15,	Glass surface	3.8	No storm, but dusty atmosphere
April 18-25,	Pan-water	136.0	No storm, very dusty atmosphere
April 25-26,	Pan-water	46.0	No storm, but dusty atmosphere
April 26-27,	Pan-water	56.0	No storm, but dusty atmosphere

The glass surface method results are too low, especially for the March 11-21 period when a wind accompanied the deposition. When no storm (wind) occurred in connection with the deposition, the results are probably about right because in these cases it was merely a matter of collecting a slow settling dust.

CHARACTERISTICS OF THE DUST

The dust was a very fine silt which had been transported a long distance. It was grayish brown in color and in appearance resembled the color of the heavy silt loam soil found in the Panhandle of Oklahoma and the adjoining area. A chemical analysis of a composite sample of the dust showed that it contained 4.05 per cent organic matter, 240 parts per million of phosphorous soluble in 0.2 N sulfuric acid, and 0.058 per cent total phosphorus. The dust was so fine that it found its way even into tightly closed buildings. No coarse particles were left in the air to settle out when the dust had reached central Oklahoma. In sections nearer the source of origin of the dust, the effects were more severe than at Stillwater.