TWO ACCOUNTS OF A TORNADO IN THE PACIFIC NORTHWEST

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On reaching my home in Pullman, Washington, at noon on June 12, 1935, the collective youth of the neighborhood greeted me with the announcement that there was a tornado in sight, and sure enough, there was a full-grown old "Mid-west" tornado in the distance.

As nearly as my eye could judge it appeared to be about 12 to 15 miles to the northeast. It was observed from a rather poor vantage point in the northern part of the town of Pullman, Washington. I had heard that a tornado hit Pullman in 1920, but had not previously seen the positive evidence that typical tornado funnel clouds do occur in the Pacific Northwest.

Typical thunderstorm conditions prevailed on this day in the region, with dark overhanging clouds which appeared to be between 1500 and 2500 feet above the ground. The lower surface of these clouds appeared particularly black to the northeast, because of sunlit sky and less cloudy conditions directly beyond.

The tornado in question appeared to be a portion of this nearly black cloud "drawn down" into a thin column of varying diameter. Where the funnel merged onto the more or less horizontal lower face of the overlying cloud, judging its distance to be between ten and fifteen miles from Pullman, it appeared to have a diameter not exceeding 300 feet. When first seen, this diameter tapered downward with the lower half of the long funnel-like tail having an estimated diameter of not more than 50 feet. The funnel cloud appeared to be writhing much as would the body of a captive snake, sometimes dangling diagonally across between the connecting cloud above and the skyline of the Palouse hills below. Our vantage point was not sufficiently high to see definitely whether this tornado cloud reached the earth's surface or not. Occasionally the tail-like funnel twisted, assuming more or less the curly form of a pig's tail. Occasionally the entire column decreased in diameter until it appeared only as the thinnest thread; at other moments it increased in diameter until it was probably twice the minimum dimensions. These diameters changed several different times.

The climax of the entire demonstration occurred when a very pronounced thickening of the funnel appeared to be entering from the clouds above, and to continue downward most of the distance between the overlying cloud and the skyline formed by the land. It looked exactly as though a large egg were being forced downward through a dark-colored stocking which constantly became of lesser and lesser diameter downward. Finally, this bulge in the then very slender funnel appeared as though it had proved to be too large for the long slender tail through which it passed downward. This bulging portion of the cloud had a diameter at least three times that of the lower half of the funnel. The knot or bulge moved or slipped progressively downward at least four-fifths of the entire funnel length. While appearing as described, the lower end of the funnel appeared to be dragging far away from the parent or upper end. After further dragging it appeared to stretch out to so slender a thread that for a few seconds it appeared to have destroyed itself. Only the bulge (which appeared much darker than the smoothly tapering portion of the funnel) showed for a time, but about at this instant a heavy shower coming from the left (westward) entirely blotted out our view.

After the blotting out of this funnel cloud by the shower coming from the westward, I intently watched the character of the cloud ahead of the rain. The lower surface of the cloud ap-

peared approximately horizontal. Suddenly a roughness or ragged-edged lobe extended downward for from three to five hundred feet below the general cloud level. This occurred at a point at least one-half mile nearer the front of the northeastwardly moving clouds than the funnel had been. This ragged lobe was changing constantly in shape; it was increasing in size; it was elongating downward and within very few seconds a new funnel cloud had formed. This one did not last long, however, for within two or three minutes it spent itself, lost its funnel form and again was merely a ragged lower surface of the cloud.

Whether the lower end of these funnels reached the ground or not could not be determined from the writer's viewpoint, but they established beyond question that tornadoes can and do occasionally form in the Palouse country. It was learned later that the funnel cloud did not, at any time, contact the land surface.

To illustrate the fact that different people formed individual mental impressions of this phenomenon, the following description by Howard Harris, also of Pullman, Washington, is included. Mr. Harris saw the storm from a much higher hill than did the writer.

Account by Mr. Howard Harris of Pullman

"At noon on the twelfth of June, we noticed a very dark, inverted saucer-shaped rain cloud forming in the distant sky. The odd formation seemed to be about two thousand five hundred to three thousand feet above ground. Near the center of the cloud a short funnel-like projection appeared and hung like a pennant, ever growing in length and distinctness. The sky below was surprisingly clear in comparison to the overhanging cloud.

"A small hand telescope of about sixteen power helped to bring out many interesting details that were otherwise unnoticed.

"West of, and following behind the funnel, which was now probably a thousand feet long, were small funnels of the same general appearance which drifted toward the large one with increasing acceleration, until they were engulfed in it. The motion set up by the miniature funnels as they drifted toward the center of the storm greatly agitated the lower surface of the cloud, until it was ruptured in millions of places, spilling a vertically falling torrent of rain.

"As the foregoing was taking place, the body of the tornado continued to rapidly change shape and drift to the east, all the time expelling a thin cloud of water and vapor from its tip. Sometimes as the tip was lashed out to an almost horizontal position, the mist was blown away with great rapidity. Again as the funnel swung back to its nearly vertical position, the rain seemed to be pouring from the spout of a great funnel.

"After thirty or forty minutes, the funnel grew extremely long and thin, with continual writhing movement of its serpentine curves. As the rain continued, the large dark cloud seemed to wear thinner and thinner, until finally clear sky was exposed through the upper portions.

"The large funnel appeared to be in the midst of a conglomeration of many minor drafts, all blowing in different directions, but in such a way that two major drafts caused a rolling motion of the funnel-like shaft of cloud with the same movement and effect that one's hands would have upon a piece of moulding clay. The smaller drafts seemed to switch the tip of the funnel about, mostly toward the east or the direction of travel. As this switching motion continued, the shaft became extremely thin, and I should judge about 2000 feet in length, until it finally faded entirely from visibility. Following an interval of two or three minutes, a new funnel began to form, but lasted only a very short time. The total time which lapsed during the entire storm was practically an hour."