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A Science Service Feature

? WHY THE WEATHER ?

Dr. Charles F. Brooks,
Secretary, American Meteorological Society,
discusses:

THE TERRIBLE TORNADO

The tornado is caused by the same influences which produce hail, in other words the most violent type of convection, the extreme of the turbulent vertical overturning of the atmosphere when the air next the earth is muggy. Giant forces are present in the making of the cloud masses, and a vortex generates on the same principle as an eddy in turbulent water. Not always does this vortex reach the earth, but when the whirl becomes most violent in its gyratory motion, the funnel-shaped cloud stretches down until the writhing tip comes in contact with the ground. The tornado is to the land what the waterspout is to the sea, only on the land the visible tunnel is a cloud of dust, water drops and debris. A partial vacuum is produced in the center of the whirl, and the low temperature which results generates an elephantine trunk of cloud which first makes the tube visible, the low pressure explodes air containers such as houses, and the wind about the vortex prostrates every obstacle. The velocity of this wind has never been measured, but judging from monuments and bridges moved, it is believed to reach even 500 miles an hour.

The one fortunate thing about the tornado is that it is small, averaging roughly 1,000 feet in diameter, and sometimes but a few feet. It travels generally from southwest to northeast at a rate from 20 to 50 miles an hour, and with an average length of devastation of 25 miles. At times the funnel may seem to leap, as its end ceases to reach the ground, so that places in its path may be untouched, where in both directions stretch scenes of destruction and desolation.

The Gulf States experience their tornadoes usually in winter or early spring, the Northern states in early and midsummer, when windshift line contrasts are greatest and temperatures high. The southern margin of a tornado is more dangerous than the northern because there the wind has combined progressive and rotary velocity. The way to seek safety from the oncoming tube is to run for dear life to the northwest. A few feet may make the difference between dire peril and complete safety.

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