

THE RAGING CYCLONE.

FACTS FROM PROFESSIONAL DEALERS IN HIGH WINDS.

What is a Tornado, Anyway?—Points by Which the Devastating Airship Monster May Be Distinguished from a Cyclone. Some Extraordinary Effects the Wind May Produce.

PEOPLE who have never seen a tornado or a cyclone have very little idea what wind can do. It is hard to conceive the amount of force that is expended, and the manner in which its acts are little understood.

There are two varieties of powerful wind storms, the cyclone and the tornado. The former is a revolving storm, travelling about a center of low barometer, where there is absolute calm, the greatest force of the wind being found at the edge of this circle of quiet. The area of influence may be from one hundred to seven hundred miles in diameter, and as a rule the smaller the diameter the greater the wind's velocity.

The tornado is a local disturbance, often accompanying in the interior the progress of a cyclone. Sometimes the track of the tornado is limited to a few hundred feet, and it rarely has a width of half a mile.

The cyclone carries with it a velocity of as much as 300 to 400 miles an hour. It sends a certain amount of warning ahead of its track, and the acceleration of the wind's speed at any given point is gradual.

The tornado falls almost without notice, or rather the indications are often so similar to those of an ordinary thunderstorm that only a skilled and careful observer can detect the difference.

"The circular motion of a tornado is believed to produce an extremely low pressure in the center," said Prof. Beall, of the United States Signal Service, in a recent lecture before the Chicago Academy of Sciences. "For instance, where the barometer registers thirty inches on the outer edge of a tornado, it is probably not over twenty inches in the center. With the barometer

carries with it a variety of phenomena wholly distinct from those that accompany the larger storm. Many of the effects of one tornado are wholly absent in others.

tornado's track, but also at some distance from it. In the ruined houses all the iron work was found to have been strongly magnetized, so that poker, flatirons and other metal objects were found adhering to each other. Just off the tornado's track the same effects were noticed, and several persons experienced sharp electrical shocks during the passage of the storm. Afterward it was found that the magnetic influence was so strong that clocks and watches were stopped and rendered wholly useless.

The scooping action of the tornado sometimes makes considerable changes in the topography of the country, as when it gathers up the water of a large pond or water course and makes a new pond or opens a new channel. At Wallingford, Conn., the water in a pond of very large size was taken bodily from its bed, carried up a hill and dropped nearly in one mass, so that gullies and ravines were cut in every direction.

Many are the stories told of the way in which objects are carried away by the wind and left in strange places. In one Illinois tornado two children and an infant were caught up. The dead bodies of the two children were found only a few hundred feet distant, but the infant was picked up alive more than a mile away from the spot where the tornado swept the child up. An accordion that must have come a long distance—for it was never claimed—was found so entangled in the branches of a tree that it was alternately pulled apart and pressed together by the wind, creating such weird and uncanny music during a whole night that an already sufficiently scared settlement of negroes were kept in a state of frantic dismay until daylight revealed the cause.

In another case a farmer who followed the tornado's track in search of missing cattle was astonished to discover one of his cows standing about twenty feet above the ground in the branches of a half-felled maple.

and the indications that in one case have been followed by a terrible disaster are not infrequently found at other times to presage merely a heavy thunder shower.

The freaks of a tornado are wholly innumerable. In some cases, not an object in its track will fail to feel its power for long distances; in other instances it will seem to act like a cannon-ball that ploughs up the earth on striking, then rises and strikes again, leaving the space between untouched. Sometimes it will go through a forest leveling the trees as though a gang of axmen had piled their tools on lines laid out by surveyors, nothing outside the track being touched; but again in similar winds there will be found occasional pockets scored in the forest growth cutting off the right line, like small lagoons, opening into a flowing stream. These seem to have been caused by a sort of attendant whirlwind—a baby, offspring from the main monster, which, having sprung away from the chief disturbance, scoops a hole in the woods and then expires or rejoins the original movement.

I have seen one of the most violent, and, so to speak, compressed of these storms, cut a road through thick woods so that at a distance the edge stood out as bare and sharp against the sky as would those of a railway cutting through earth. Trees standing at the edge of the track had their branches clean-swept on one side, while on the other there was no perceptible disturbance of the soil.

Sometimes the tornado acts like an enormous scow, catching up every movable thing and sweeping it miles away and again it becomes a depositor, as if tired of carrying so much dead weight; it dumped it upon the earth preparatory to grabbing up a new cargo. These effects are particularly noticeable in the tornado that goes by jumps. When it strikes and starts a mass of debris it seems to spring up again like a projectile that grazes the surface, for a space there will be very high wind and some damage, but no such disaster as the tornado has previously wrought. Out of the clouds will come occasional heavy missiles and deluges of water. Then down goes the tornado again, crashing and scattering by its own force and adding to its destructive power by a battery of timbers and other objects brought along from its previous impact. Believers of these masses, if again it carries a miscellaneous cargo, repeat its previous operation.

The force with which these objects strike is best seen when they fall outside of the tornado's path, since the work done by the missile is not then disturbed by the general destructive force of the storm. Thus, near Racine, Wis., I have known an ordinary rail, slightly sharpened on one end, to be driven against a young tree like a spear and pierce it several feet. The velocity of the rail must have been something enormous, or otherwise the rail would have glanced from such a round and elastic object.

Many of the settlers in the tornado districts of Southern Minnesota, Iowa, Kansas, and Nebraska excavate a deep cellar beneath their houses and cover it with heavy timbers as a place of refuge for their families when a tornado threatens to strike them. While these "dugouts" are usually effective, they are not invincible. There have been instances where families having only time to descend, and not time enough to close the trap-door, have been exposed to the storm's full fury by the tornado getting into the opening and lifting the whole roof after having first swept away

the floor of the house.

REMARKABLE ESCAPE OF AN INFANT.

sweeps up a mass of water that goes whirling over the surface with tremendous whirlings and gyrations. Just after the close of the war I was lying in the Chessie peak in a sleep of war. A boat heavily laden with a swimming party had been allowed to go ashore, and just as it was returning a terrible cloud came down—one of the small creeks at a height apparently of only a few hundred feet. As it reached the open bay a leader-colored, snake-like column sprang up to meet the cloud, and came twisting and squirming straight for the boat. The latter was so crowded that only a few oars could be pulled, and there seemed no escape for the men unless they could reach the shore.

Unfortunately not a gun in the battery was loaded, and we could not open the magazine and load our battery, for the water would be upon us. It was, of course, questionable what would be the fate of the ship itself if the waterspout struck us.

I don't think that it would be to any one's interest were we to be at the rate of our shipmates in the battery. The boat's oars were pulled away to be ready to lower the boat the instant the shout should pass in order to pick up the men. Why we did not sweep on shore, the men at the oars pulled away the energy of despair, but loaded down and sloping crowded they made slow progress.

Before reaching the shore the waterspout made a retreat and moved toward the ship as if to make certain of getting off their escape, and then they were about out of sight, floating down with both cutters into the water, and their crews were in them, and getting away toward the center of the steamboat the ship had just cleared off. Then, to our great relief and surprise, the boat with the swimming party emerged from the turbulent main drenched and exhausted by the persons straining, but otherwise safe in the waterspout.

Some of the Western tornadoes are accompanied by electrical manifestations to an extent that has originated a belief in electricity as their cause. These disturbances are often marked by the same effects, which in other cities have not been noticed. One tornado in Central Illinois apparently played very regular antics, not only in the center but in the outer ring.

One of the most remarkable effects of a cyclone was recorded at Matanzas, Cuba, where the center passed directly over the city. As the vortex arrived the air pressure outside was so suddenly diminished that the air inside the houses forced the window panes out, and then as soon as the calm center had passed the violent whirl, having an inflating and lifting effect through the open apertures, lifted many of the roofs off.

The local tornado that so frequently plays havoc with property and life in the West is like the cyclone, a revolving force, but it

is not so violent but that it may be seen approaching a distance of even a mile.

Presently there was a shout of exulta-

tion. In one corner of the ruin, completely sheltered by the beams and boarding, which had formed an arch above it, sat a chubby 18-months-old baby. It was cov-

ered with dust and hemmed in on every side, but not a hair of its little head was injured. When the searchers uncovered it the pudgy face broke into a merry laugh, and the little hands dropped the chips of timber they had been playing with and were extended to the rescuers.

A meteorologist in the employ of the United States Signal Service was asked re-

HONORING HIS MEMORY.

DEDICATION OF THE GARFIELD MEMORIAL.

President Harrison, Members of the Cabinet, and Many Other Distinguished Statesmen Participate.

CLEVELAND, Ohio, May 31.—The roar of cannon and the cheers of 50,000 people welcomed President Harrison and Vice-President Morton to Cleveland to participate in the unveiling of the monument to the memory of the late President Garfield. The monster demonstration at the union depot, however, crowned the triumphal entry into the city. The first to greet the President was ex-President Hayes. The President shook hands with him and several other gentlemen, and was then escorted to his carriage.

As the President stepped into his carriage there was a mighty roar. In advance of the carriage doing escort duty were the cavalrymen of the First Cleveland troop in their black and yellow uniforms. Behind them in the first car-



"I NEVER ALLOWED SHE COULD CLIMB A TREE."

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