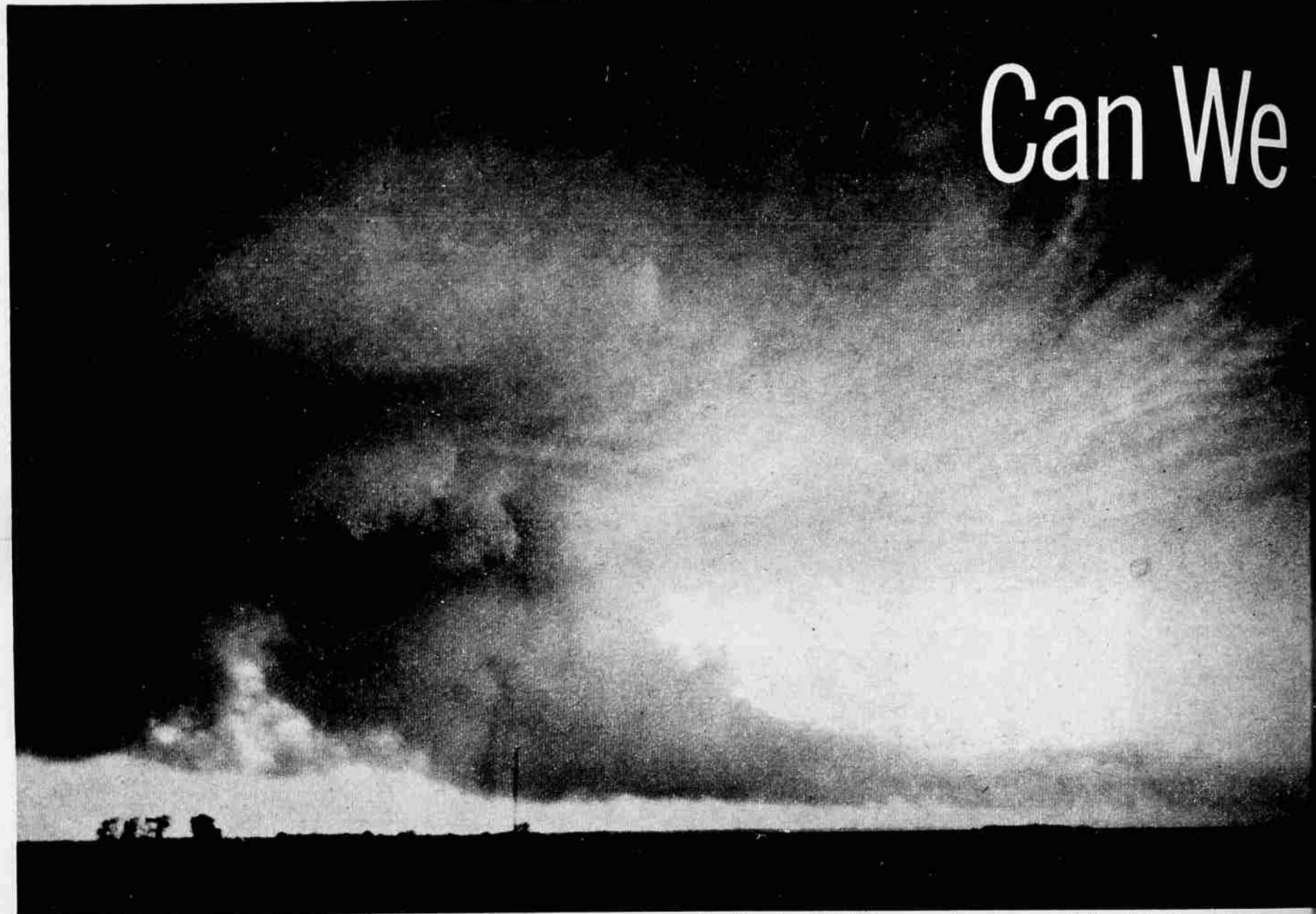




Can We

Remarkable picture series shows development of 1957 Fargo tornado. Here "mother cloud" builds up, sucking low squall line into its swirling mass.



Moments later tornado forms, reaches for ground.

by Kevin V. Brown

"I NOTICED an odd formation on the horizon, sort of a mass coming down from the sky. Then it became clear—the most horrible thing I ever saw. I yelled for the neighbors to look.

"Mr. Perkins ran out and saw the monster, twisting and weaving like a graceful snake. Then it was almost on top of us, so huge, so terrifying, so ugly that I had to look straight up to see the top. Its base was obscured by dirt and debris, making a cloud so black it would be impossible to describe...

"We managed to circle around the monster and turn back. At first we saw no destruction, then the telephone poles in the distance looked curiously bent. The farther we went, the worse it got, until finally we could go no farther because of the rubble in the streets, strewn thick in weird piles.

"The growing darkness began to cover the terrible scene, reeking in the sweet, sick smell of broken gas mains, and drenched in the gurgles of water gushing from severed pipes. Cries of agony and pain came from shocked groups of people wandering about with no idea of what would come next..."



Fargo tornado, which was to kill eight persons, now starts its savage swath toward city, uprooting or exploding anything in its way.

Tame the Tornado?

Here's how man hopes to master this fiercest of all storms which annually wreaks havoc across America's mid-section.

To understand what is being done to tame the tornado, it's necessary to understand some of the things a tornado is—and isn't.

1. Tornadoes are the smallest but fiercest of the circular storms.

Cyclones (a name often erroneously given to tornadoes) are the largest, measuring up to 1,000 miles in diameter with winds up to 70 miles an hour. Hurricanes are half as small but twice as strong (winds up to 150 miles an hour). In the Far East, they're called typhoons. Both types can last a week and cause considerable damage.

A tornado, as if concentrating all this same force in one furious spiral, seldom exceeds a few hundred yards in width or lasts more than 15 to 20 minutes; but it is unmatched in instant, utter destruction. Its winds are estimated at 500 miles an hour, but no instrument has been found strong enough to measure them. In its path, strong buildings are literally exploded and the pieces scattered like kindling; trains are lifted from tracks and cars flung in circular patterns; bridges are wrenched from foundations, rivers sucked dry.

The granddaddy of all tornadoes occurred March 18, 1925. Starting in Missouri, it crossed the Mississippi River into Illinois, then cut a savage mile-wide swath across the state, finally dissolving in Indiana more than three hours and 219 miles later. It left 689 dead, 1,980 injured, and damage of more than 16 million dollars, including total destruction of several communities.

2. Tornadoes are caused by a precise combination of weather factors.

Chief factors are a low layer of moist warm air, a high layer of dry cool air, and a narrow band of high-velocity winds in the upper atmosphere (a jet stream). Complicated energy transformations take place but, in simple terms, the warm air rises rapidly; triggered by the jet stream, it begins swirling. The uprush of air leaves a vacuum, and into the void roar warm currents from lower and lower down until the ground is reached and a tornado is born. The suction of the vacuum and the whirling winds cause the damage, picking up or knocking down anything in the way.

The combination of weather factors produces tornadoes throughout the world, notably in Russia and Australia, but no area is hit as often or as hard as the American Midwest. Here the potent mixture is moist air from the Gulf of Mexico and dry air from the West and Canada.

3. Tornadoes are most probable at certain times of the year and in certain places.

Like a gigantic left hook, tornadoes begin their

devastation in early Spring in the Gulf states, becoming more frequent and powerful as they swirl up the middle states. They are most frequent in March and April in Alabama, Georgia, and Mississippi, in April and May in Texas and Oklahoma, in May and June in Kansas and Iowa. They have caused most deaths in Illinois (nearly 1,000 in the past 40 years).

They form most readily in the hours closely following the warmest parts of the day. More than 80 percent occur between noon and midnight; nearly half between 3 and 7 p.m.; about one-fourth between 4 and 6 p.m.

More than half of all tornadoes occur in April, May, and June in the Midwest, but some of the worst occur elsewhere. The most devastating of all time—\$52,000,000 in damage—happened June 9, 1953, in Massachusetts, which in 40 previous years had averaged less than one a year.

TO PREDICT such devastation and thus save lives is the aim of weather forecasting. To prevent such devastation, and save property, is the aim of weather research. Great strides have been made in both fields.

Tornado forecasting right now can make predictions up to 12 hours in advance with 50 percent accuracy. But the forecast usually covers too large an area—up to 30,000 square miles—whereas the tornado itself can pop up anywhere within it, affecting only about 10 square miles. To predict which small-scale weather pattern in the larger system will produce the tornado is part of the problem. To solve it, three tools are now being used.

Actual observation of a tornado is the first. Admittedly, it's like locking the tornado cellar after the twister has blown it to bits, but not quite. Once formed, tornadoes usually follow a predictable path: most travel east or northeast from 10 to 40 miles an hour. When a tornado is spotted and its path tracked, those in its way can be warned.

Nearly 200 "tornado networks" have been formed in recent years, networks composed of average citizens—members of ground observer corps, police departments, telephone companies, and radio and television stations—who have been trained to spot tornado-producing weather and spread warnings when one forms.

Many lives have been saved and much valuable information collected from these on-the-spot methods. Last Summer, when a twister struck Fargo, N. D., one resident heard the warning on television. Opening his front door, he saw the tornado coming directly toward him.

"I headed for the basement," he said, "and within seconds the first blow struck. Then there were

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Black with debris, funnel roars through residential area, then dissolves on far side.

Ruskin Heights tornado tore this fatal path.