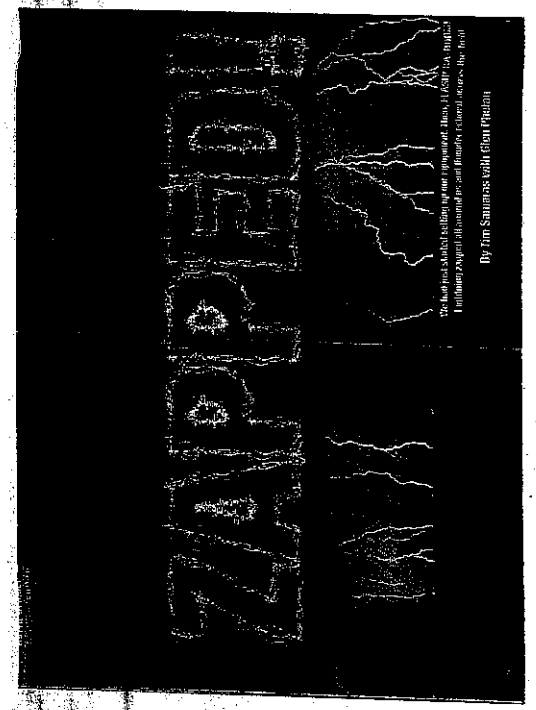


The blinding flash and deafening crash meant one thing. We were too close to the storm. A bolt of **lightning** had just split a fence post a few feet away from us. We didn't *really* mind. After all, we had been driving all day to get close to lightning like this.

On the Hunt

My team and I are storm chasers. We look for lightning so we can study it. To find it, first we have to find bad weather. So we chase the biggest, most violent thunderstorms. You see, for us, bad weather is really good weather.

The best way to find thunderstorms is to use Doppler radar. It bounces energy off objects such as raindrops. That creates colorful images on a computer screen to show where rain is falling. Areas of purple mean pounding rain. They also mean there's probably a lot of thunder and lightning, too.

Using radar and weather reports, we often can find a storm. The data tells us where it's going, its speed, and how powerful it is.

I'm looking at the radar now. It looks like something big is brewing about three hours away from here. Time to hit the road. As I climb into our van, I'm careful. It's loaded with computers, radios, cameras, and other gear. These tools help us track and study the storm.

On the road, we tell storm stories. We tell tales about amazing lightning and bad storms. It helps the time fly.

Before we get to where we're going, let's also talk about how lightning works. We need to know about storm clouds, giant collisions, and electric charges.

Opposites Attract

Lightning starts with a storm cloud. The dark cloud is made of tiny water droplets and ice crystals. As they zip and zoom around inside the cloud, they bang into each other. This creates electric charges.

Some charges are positive. They rise to the top of the storm cloud. Some are negative. They drop to the bottom of the cloud. Positive charges also build up near the ground. They build up on trees, rooftops, even our van.

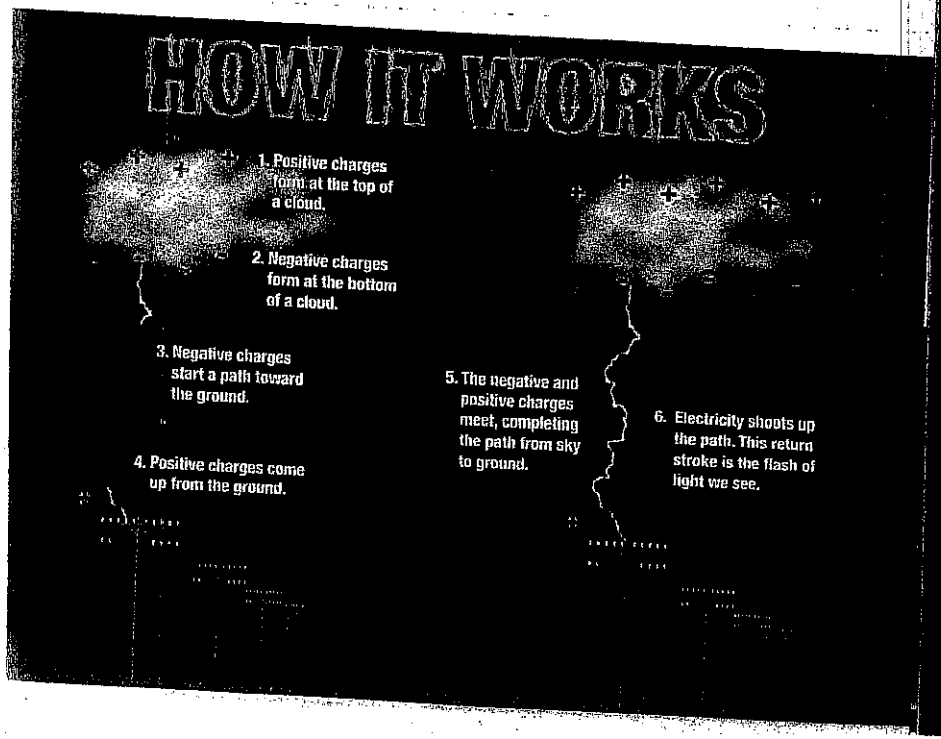
The opposite charges attract each other. Negative charges from the cloud zigzag down toward the ground. Positive charges from the ground stream up into the air. When they meet, *zap!* We see lightning.

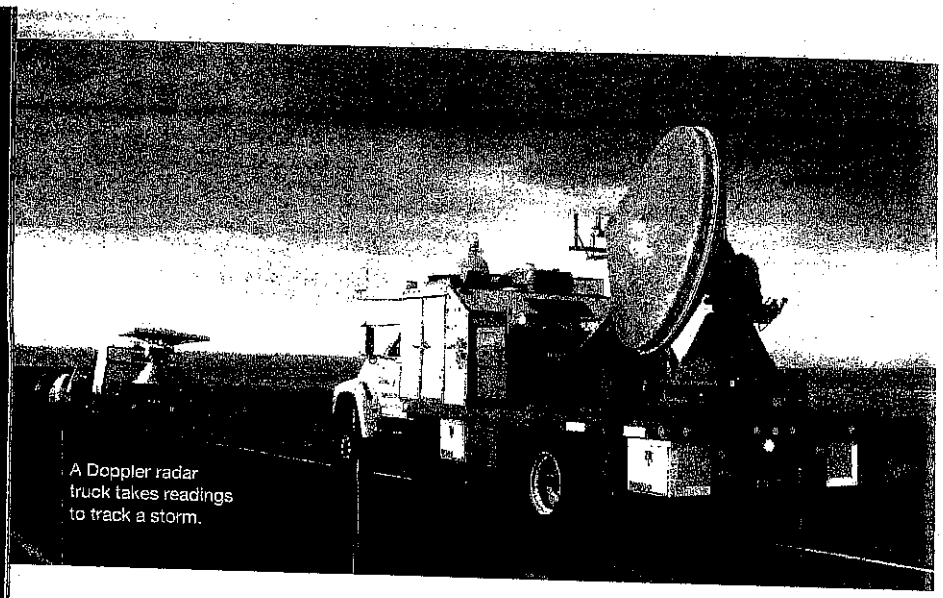
Lightning Bolts

It may look like lightning strikes down from the cloud. In fact, the streak of lightning you see is the **return stroke**. It's going *up* to the cloud. You can't tell because it happens so fast.

This cloud-to-ground lightning is the most dangerous kind of lightning. A single bolt can reach 33,000° Celsius (60,000° Fahrenheit). That's hotter than the surface of the sun. Luckily, only about 10 percent of all lightning bolts strike the ground.

More often, lightning arcs within a cloud. It makes the cloud look like it is flickering. Lightning also can leap from cloud to cloud. It can even flash over erupting volcanoes and forest fires.





A Doppler radar truck takes readings to track a storm.

Lighting Up the Sky

We are chasing this storm in order to find cloud-to-ground lightning. After three hours of driving, we pull off on the side of the road. We get out and look around.

Flat plains stretch as far as we can see. Dark gray clouds boil up in front of us. We've found a monster storm!

The sky comes alive. Lightning flashes. A second later, we hear a loud *boom!* The noisy thunder makes me shudder.

I'm not surprised to hear it. Thunder often follows lightning. That's because thunder is caused by lightning. Lightning heats nearby air to an extreme temperature.

The sizzling heat makes the air expand so fast, it explodes outward. That's the booming sound we hear.

Lightning and thunder happen at just about the same time. However, light travels a lot faster than sound. That's why we see lightning before we hear thunder.

Risky, Not Reckless

Most lightning strikes as a storm begins. So we try to stay in front of the storm. That way we can see the most lightning.

Of course, that puts us right in the storm's path. If the storm moves faster than we expect, we're in trouble. We can find ourselves in the strike zone. That's where lightning zips and zaps all around us. When that happens, we jump into our vehicles and race away. We need to stay safe and be smart around lightning. A direct hit can kill.

We're fairly safe in our vehicles. If lightning strikes one, the electricity travels through the metal to the ground. It might blow out a tire. We're okay as long as we don't touch the metal.

Sometimes there's no warning lightning is coming. It can travel 190 kilometers (118 miles) away from its cloud and strike seemingly out of nowhere. That means we could get zapped even if the sky is blue above us. It's rare, but it shows how unpredictable lightning is.

Leaving Its Mark

When lightning strikes, it can leave its mark. Its heat can shatter a tree trunk. It can leave black burn marks on metal.

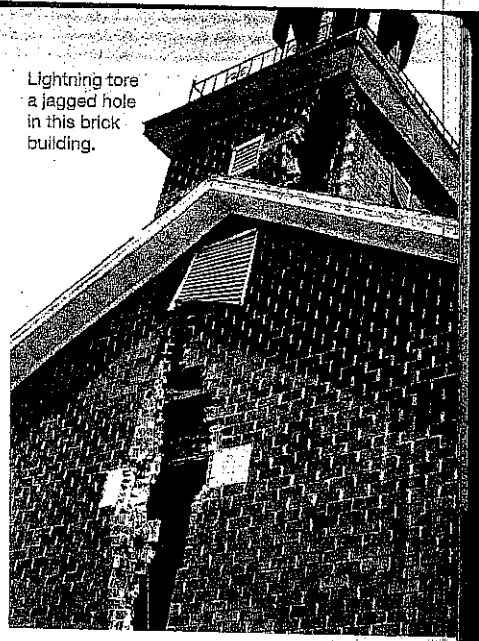
Lightning can even make sculptures. Just imagine a storm raging over a beach or desert. When lightning strikes sand, its heat fuses the grains together. That creates a kind of glassy rock in the shape of a lightning bolt. It's called a fulgurite.

Lightning has left its mark on me, too, but in a good way. It fascinates me. People often ask, "Why do you chase lightning?"

If you have ever watched a thunderstorm, you already know part of the answer. You have witnessed the power of this force of nature. It's thrilling.

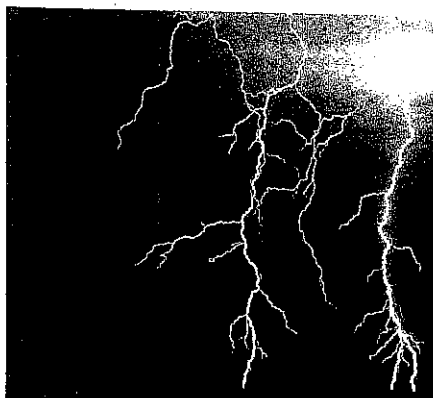
The bigger thrill for me, though, is exploring the unknown. There's so much about lightning we don't know. Some storms make a lot of lightning. Others make little lightning. I want to find out what is different about these storms.

I also wonder how lightning finds its target. It often strikes tall objects. However, I've seen it smash into the ground instead of a nearby telephone pole. We don't know why—yet.



Lightning tore a jagged hole in this brick building.

Lightning is so speedy and hot that it's hard to study. I'm determined to unravel its secrets, though. The answers to these questions could help us all stay safer during storms. That's why once again this summer, you'll find me out chasing storms.



WORDWISE

electric charge: the buildup of positive or negative electricity

lightning: the flash of light when electricity passes between clouds or between clouds and the ground

return stroke: the return path electricity takes from ground to cloud