

start his heart. "My friends were ... blowing oxygen into my mouth ... pounding on my chest," Utley said. "Their training played a major part in saving my life."

Even if CPR is successful, a survivor might experience an irregular heartbeat for months or years after the event.

### BRAIN BLAST

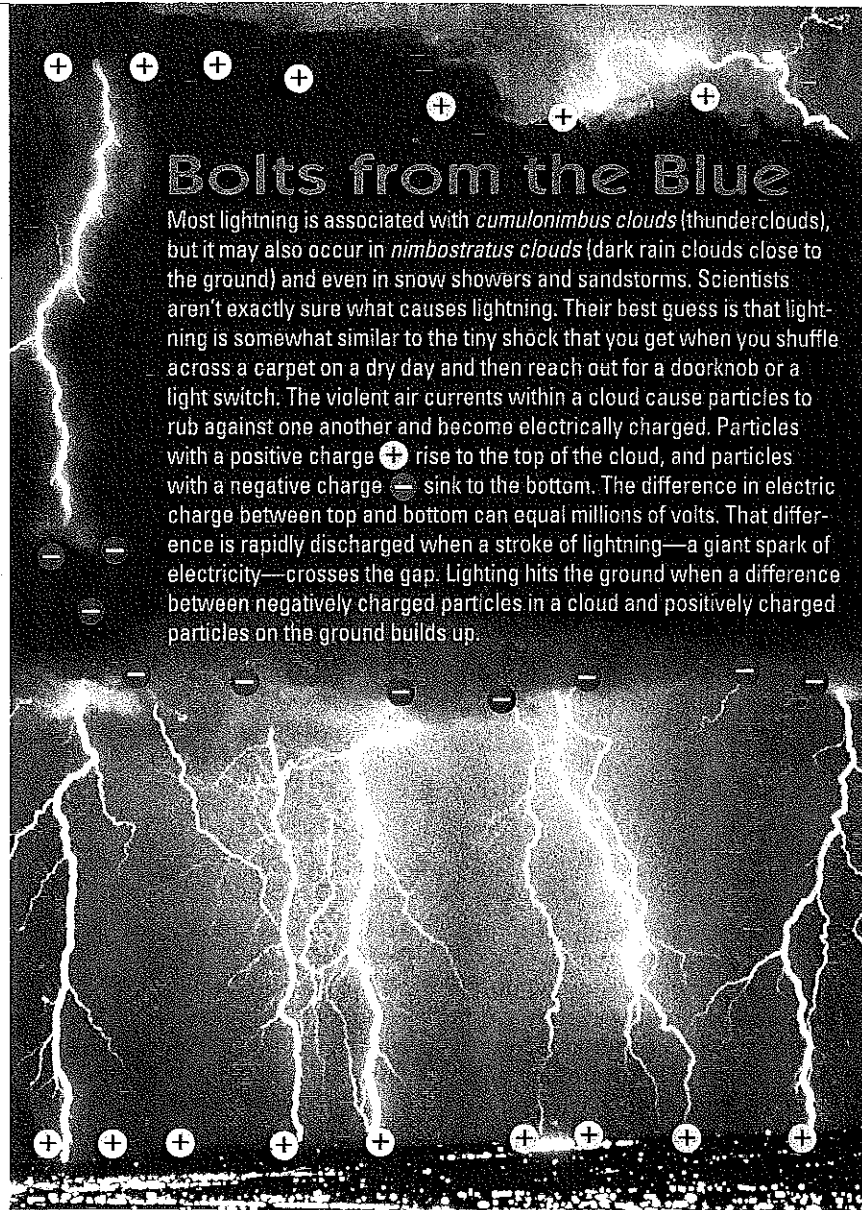
Lightning can also jar the brain. In many cases, it damages the brain's *frontal lobe*, an area that is important for *cognitive* (intellectual) function and the control of voluntary movement. Steven Crowley, 14, from Caribou, Maine, was hit by lightning last February and lost much of his ability to talk and walk. He is still relearning those skills.

Frontal lobe damage also seems to account for the personality changes common among strike victims. Nikki Storey, of Shelby, N.C., was 17 when lightning surged through her headset at the drive-through restaurant where she worked. Like many other survivors, Storey experienced rapid changes in her moods. "I'll break down over absolutely nothing," she told *People* magazine.

Lightning can also bring on *seizures*. A seizure is an involuntary condition in which all the body's muscles contract and a person loses consciousness. Seizures are triggered by a sudden discharge of electrical activity in the brain.

Seizures can set in immediately after a jolt or develop over time. Jennifer, a woman from Pensacola, Fla., who asked that her full name not be used, was struck by lightning last June while talking on a cordless phone. Within an hour, she began having seizures. She was treated at a hospital, but the condition returned. "Everything in my body was shaking for weeks," she said.

According to a study by the National Lightning Safety Institute, 52 percent of lightning-strike victims suffer memory loss. Experts have yet to explain why memory loss occurs or why survivors are susceptible to sleep disturbances, exaggerated startle responses, and panic attacks.

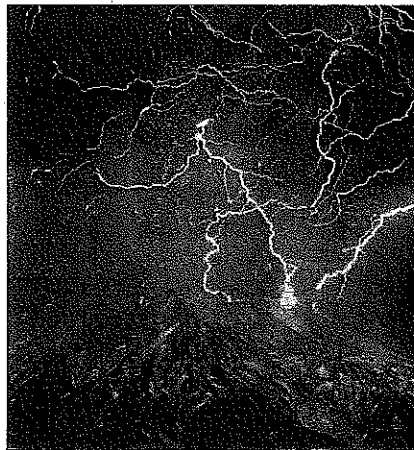


## Bolts from the Blue

Most lightning is associated with *cumulonimbus* clouds (thunderclouds), but it may also occur in *nimbostratus* clouds (dark rain clouds close to the ground) and even in snow showers and sandstorms. Scientists aren't exactly sure what causes lightning. Their best guess is that lightning is somewhat similar to the tiny shock that you get when you shuffle across a carpet on a dry day and then reach out for a doorknob or a light switch. The violent air currents within a cloud cause particles to rub against one another and become electrically charged. Particles with a positive charge (+) rise to the top of the cloud, and particles with a negative charge (-) sink to the bottom. The difference in electric charge between top and bottom can equal millions of volts. That difference is rapidly discharged when a stroke of lightning—a giant spark of electricity—crosses the gap. Lightning hits the ground when a difference between negatively charged particles in a cloud and positively charged particles on the ground builds up.

"This isn't a case of 'Gee, all you have to do is snap out of it,'" said Cooper. "Your brain is different."

Other common effects of lightning strikes include ruptured eardrums and



Lightning sometimes occurs in the erupting gas of an active volcano. In the photo above, a lightning storm shatters the sky as Japan's Sakurajima volcano erupts.

*cataracts*. A cataract is a clouding of the lens of the eye that is often brought on by old age. Cooper believes lightning induces cataracts by solidifying proteins in the eye. "It's kind of like what happens when you boil an egg," said Cooper.

### LUCKY STRIKE

Some people are helped, not harmed, by lightning strikes. For Edwin Robinson, 62, of Falmouth, Maine, the experience was both enlightening and hair-raising. Robinson had been blind and deaf for years when he went into his backyard to find his pet chicken Tuk-Tuk during a storm in 1980. Lightning ricocheted off a tree and hit him. When he came to, he realized that the bolt had restored his vision and his hearing. Not long afterward, his bald head began to sprout hair. **CS**