

PUBLIC SAFETY

Lightning Strikes Often

Recent deaths as a result of persons being struck by a lightning bolt point to the need for observing all the important precautions whenever such danger appears imminent.

A HUNDRED lightning bolts bombard the earth every second of the day, each bolt containing millions of volts and from 1,000 to 340,000 amperes of current.

In the United States alone lightning kills some 600 persons annually, injures about 1,500 others and causes more than \$100,000,000 property damage, according to the Lightning Protection Institute, Chicago.

All states have electrical storms, though some more often and some more severe than others. The average number for any given area is about 40 storms a year. There are from 40 to 80 lightning strikes a year within the average square mile in the U.S.

Although there is still no known method for preventing lightning, there are ways to protect against it.

Lightning is a gigantic electric spark resulting from the surge of electrical charges rushing to meet their opposites. This interchange may be from cloud to cloud or from cloud to earth. The average lightning bolt

is composed of 20 separate charges in rapid succession. The average lightning stroke is about 4,000 feet long.

In general, a tall object is more likely to be hit by lightning than a low one. Positive electrical ground charges congregate in tall objects. They are thus as close as possible for an explosive meeting with their negative opposites found in storm clouds.

A house in an open area is more likely to be hit than a house closely surrounded by taller structures because a "cone of protection" is provided by the highest object. This cone theory holds that an object will shield an area within a radius of one to two times the height of the object.

Lightning rods and grounding systems properly designed and installed will protect a house from lightning damage. These safeguards escort a lightning bolt into the ground or dissipate it into the air.

The average television antenna, even

though grounded and with a lightning arrester, does not offer protection to the house proper. It is neither grounded with a sufficient-sized conductor nor does it provide enough paths to earth to function as an efficient lightning rod.

The most dangerous places to be in a lightning storm are on a golf course, in a boat, in the water swimming, atop a hill, at the beach, under an isolated tree, near a wire fence or overhead wires, and riding a bike, tractor, horse or farm machinery.

The safest places are in buildings protected with lightning rods, steel-framed buildings and inside closed cars.

If outside, seek protection in a ravine, ditch or cave, or lie flat on the ground so that you are not the tallest object in the immediate area. If indoors in an unprotected building, keep away from doorways, open windows, metal objects, the fireplace, the sink, the telephone and the television set.

Lightning, which can strike twice in the same place, is as likely to strike wood or masonry as it is steel.

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MEDICINE

Doctor Can Diagnose One Type of Stroke From Eyes

DOCTORS CAN diagnose one type of stroke merely by gazing into the eyes.

A team of Boston doctors did this by observing and measuring the blood pressure of the eyes by means of a technique called ophthalmodynamometry. They were able to diagnose internal carotid artery insufficiency by this method.

This is a common cause of paralytic stroke and occurs when the internal carotid artery, which leads through the neck to the brain, becomes clogged.

If a blood clot is causing the clogging, and it is found in the artery early enough, it can be removed by surgery or dissolved, preventing a stroke.

In the procedure, the eyes are first dilated and anesthetized. When pressure is applied to the eyeballs, the blood pulsations are observed through the ophthalmoscope, the instrument commonly used in eye examinations.

This technique is rapid and safe, and is becoming increasingly important with the recent advent of more effective treatment of carotid artery insufficiency, the three doctors report in the *Journal of the American Medical Association* (July 18).

The same technique can be used to determine whether or not treatment for such artery obstructions is effective, Drs. J. Lawton Smith and David G. Cogan, Harvard Medical School, and Dr. Irving H. Zieper of Massachusetts General Hospital, added.

This check into the eyes should be made whenever a person exhibits early signs of carotid artery obstruction such as transient partial blindness; dizziness or nausea on changing posture, or weakness of the limbs on one side of the body, the authors cautioned.

Science News Letter, August 1, 1959



SAVANNAH REACTOR—The containment vessel that houses the N.S. Savannah's entire reactor plant and primary cooling system is 35 feet in diameter and 50.5 feet long. It is designed to contain all the water and steam released in the event of a mechanical failure. (See SNL July 25, p. 53.)