

Nature Note

Ball Lightning

A certain kind of lightning has even top scientists stumped—ball lightning. This peculiar, often spectacular kind of electrical discharge appears as a round or elliptical moving blob of light, sometimes about four inches in diameter, sometimes larger.

These strange balls, described in colors of red, yellow, white or blue, make their weird appearance at times of regular lightning. Some decay or dwindle slowly away, and others disappear with a "sharp explosive pop."

They have been reported hovering motionless in the air a few feet off the ground, or traveling as fast as several hundred feet a second, sometimes, in erratic paths. They drift through the air, following air currents or even riding against the wind. They glide down trees and travel along wire fences. Some have even "chased" people around a kitchen table, or disappeared through a keyhole. One fell into a bucket of water and made it come to a slow boil.

Considerable controversies have been stirred up about these ball lightnings. Scientists say they may be optical illusions or figments of imagination, perhaps a clue to the world of flying saucers. Unfortunately sightings are rare, and few scientists have seen them. But

characteristics seem to be consistent, and attempts have been made to explain them. Some scientists believe they originate at a place where the downward lightning stroke from the atmosphere joins a streamer of electrical charge rising from the ground. Others think it is a ball of recombining ions and electrons, at temperatures high enough to produce light. Precise laboratory experiments are adding to the growing evidence that ball lightning does exist.

Aided by an electronic computer, Westinghouse Research Laboratories scientists have shown mathematically that known natural forces can explain it, and have drawn a model with many of the strange properties of ball lightning. They describe it as a luminous, high-temperature region of air having high electrical conductivity. Central temperatures may range from 3,500 to 6,000 degrees C., occurring when direct currents of electricity funnel through a particular region between the storm clouds and the ground, making the air in that region hot enough to glow. The glowing ball could hang stationary in space when the cloud-to-ground currents are symmetrical about it—but any change in these forces could cause the ball to move, the researchers say.

LETTERS

To the Editor

Changes Appreciated

Dear Sir:

I just want to tell you how much your magazine has improved over the past four or five years that I have been a subscriber. It is just a whole lot better than it used to be. I used to glance at it; now I read it. It used to lay around unread; now my work lies around undone while I read it.

Wesley Miller,
Columbus, Ohio.

Pronghorns

Dear Sir:

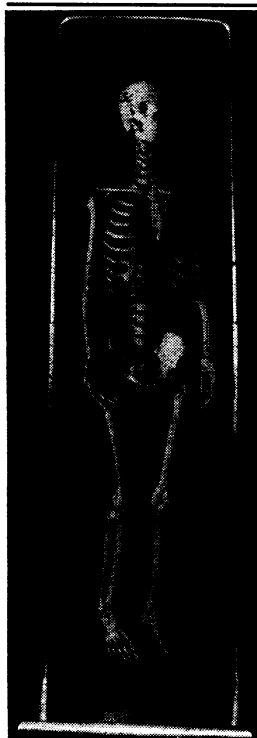
I am a science teacher and place SCIENCE NEWS high on my list of recommended reading for my students. The accuracy and organization of the subject matter is highly commendable.

In the February 25, 1967 issue (p. 180, Vol. 91/25) an article appears in the Nature Note section under the heading of "Pronghorns." This article states that the pronghorn "is also the only hooved mammal that originated here on the North American Continent." According to every reliable reference available this is incorrect. Several ungulates belonging to the order Perissodactyla, had their origins in the North American Continent. The equine genus (horses), had its origins here in the early eocene some 53 million years ago.

The horse's ancestry is traced to the little Eohippus of North America. The first species of equus appeared in North America in the pleistocene. According to Ruben Arthur Stirton, in "Time, Life and Man," p. 479, these animals spread over North America and some reached Eurasia. Several times the ancestral horse left the North America Continent and spread into Europe and Asia only to die out.

Bryan Killingbeck
West Junior High
Taylor, Mich.

(According to our sources, Ernest P. Walker, "Mammals of the World" and Frederick Dimmer, "The Animal Kingdom," the pronghorn is the only living representative of a group of ungulates that arose and developed in North America. The little horse Eohippus appeared almost simultaneously in Europe and America some 60 million years ago—but today's representative did not come from the American ancestor. Some scientists claim the entire tribe of American horses vanished during the Ice Age. The modern horse originated in Europe and Asia and was reintroduced into America by the Spaniards.)



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