

Ball Lightning

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ABSTRACT

Ball lightning is a rare, poorly understood electromagnetic phenomenon. This is a report on what happened to the author in 1982, with a model for how and why it happened.

Last evening my sister and I were watching *The Weather Channel*, and a segment was shown counting down the top ten most amazing weather phenomena. Stephanie Abrams was the narrator. That broadcast triggered a vivid memory that I hadn't revisited for decades.

When the first commercial appeared, before the list was revealed, I briefly mentioned my unique ball lightning experience in Santa Fe, NM in the summer of 1982, thirty-four years earlier. She listened politely to my weirdness, and we returned to the countdown list – until the #1 most amazing weather phenomenon of all was revealed: ball lightning. She shouted in amazement.

Ms Abrams pointed out how the very existence of ball lightning was long doubted until the 1960s when reliable witnesses first appeared. This phenomenon has been very rarely witnessed, usually at a considerable distance from the observer. Her associate, Jim Cantore, briefly appeared to say he thought he had seen distant ball lightning once years ago.

The show featured possible visual models, without clear explanation of their causation. Each recreated example appeared

somewhat like a globular star cluster seen through a modest telescope – a bright core, with fuzzy and increasingly faint outer regions. There was some speculative footage of what a tiny ball lightning object would look like if it floated around inside a house. A physics laboratory was shown creating very tiny plasma balls from bowls of energized water.

None of that is what I saw. Here is what I saw:

Briefly, I was sitting at my desk inside the converted attached car garage of the fake adobe house that my wife and I rented after our 200-years-old real adobe rental cottage was bulldozed by greedy fake adobe condo builders. (For what it's worth, real adobe walls are solid and two feet thick. Fake adobe is modern construction with cinder blocks covered by brown mud-like concrete.) The key take-away here is that the fake-adobe house directly across the street was of similar construction to ours, and not at all unusual. *It had one story, and a flat roof with tar and gravel. There were no electronics or metal poles on the roof, and no power lines overhead.*

Their flat roof is where the motionless, incandescent, sparkling ball mysteriously appeared. The weird phenomenon lasted about thirty or forty seconds, and then dissipated. It was summer around late twilight. The sky was darker than usual with some clouds overhead – but no wind, rain, hail, or lightning.

My office external door, six feet on the street side from my desk and to my right, was *directly* across from my neighbor's house and roof, with an unobstructed view. There was no screen door or glass in the way, just my fully open house door to allow in cooler air. No swarms of flying insects were in evidence. My late wife was doing something at the opposite end of the house, and never saw or heard anything. I doubt that anybody else in the neighborhood saw anything of this ball lightning, since it was never very bright or loud, and our residential street appeared empty at that time.

This is what I alone saw: I was working on the next issue of *New Life News*, a quality local paper that I edited. Suddenly I noticed a moderately bright light from the doorway. That's when I turned to my right and stared in amazement. Directly on top of my neighbor's roof was an immense, electrified, diaphenous ball of softly crackling electromagnetic energy. I stood amazed at the door.

That plasma ball was roughly spherical, and motionless atop the house. It did not appear to enter or affect the neighbor house in any way. Indeed, there were steady internal lights and happy people inside, before, during, and after this phenomenon. I detected no heat, no sulfur smell, no loud static electricity, no explosions; just visual beauty.

I quickly shifted from anxious to happy – because I initially did not appreciate the electromagnetic power just 200 feet from me, and quickly decided the phenomenon was benign. Next day life in our neighborhood was normal as usual.

The ball itself was about twice as high as the flat-roofed, one-story house, and it was about the same diameter as the house was long. It never changed size or shape. *It did NOT have a bright interior and fuzzy exterior as depicted on the TV. It was more like a virtual shell held together by electrostatic magnetism (part of electromagnetism), and illuminated by short strings of interlaced photons (the electrical component of EM). During the main stage there was steady soft crackling. The brilliant colors varied somewhat from yellow-white to blue-white, and each stringy web segment of the inhabited virtual sphere retained its color intensity.*

The whole thing was already on top of the neighbor's roof when I started looking. It did not move, and indeed left not by floating away (as the TV suggested such phenomena do). It simply started making high-frequency crackling sounds of slightly larger volume as it totally dissipated on the spot in about five seconds. In other words, either it fully existed, or it quickly faded and no longer existed on the roof.

What did I do about what I just saw? To say the least, I was highly entertained. After all, living at 7,000 feet above sea level in a dry climate, inside the historic state capital city, brings to life New Mexico's advertised "Land of Enchantment." Yes, I was enchanted to say the least. But I said or did virtually nothing then or since. Why?

There were five reasons why I didn't race across the street to "rescue" my neighbors, or shout my experience to the world: First, I could tell from their lights that the stranger neighbors had no knowledge of the virtual giant on their roof, which is itself miraculous. Secondly, I mentioned this wow moment to my wife in dry detail, and she was mildly interested, but confused. Third, I knew that everybody else would think I was a weirdo, maybe on drugs (but I always had zero drugs in my body). Fourth, I was 35 and happy in my New Age state of mind, so nothing amazing surprised me.

Fifth, I already had heard a little about ball lightning, though not about its extreme rarity. I had considered in high school becoming a weatherman, but got turned off by the heavy math curriculum (ha, ha). I was also experienced with astronomy, having been introduced to the skies and telescopes when I was ten.

In other words, had I assumed a lot of people were seeing similar ball lightning. However, my lucky existential experience so close to a giant diaphanous (light, delicate and translucent) electromagnetic ball was actually very rare. I thus parked this weird experience in my pea brain, and went about my regular life in the Land of Enchantment.

Final thought: Ball lightning is a primal electromagnetic phenomenon, not restricted to modern times or inhabited places. Over past centuries I feel sure that others have found themselves fairly close to large, diaphanous ball lightning. In pre-scientific ages of magic and religious wonders, how would witnesses try to make sense of an experience very similar to mine?

I should add that Jim Cantore of *The Weather Channel* subsequently told me he had never seen or heard of a visual experience similar to mine.

There is a good *Wikipedia* article at this link. Nothing therein matches my experience: https://en.wikipedia.org/wiki/Ball_lightning

**- Addendum -
“Failed Lightning”
12/13/2016**

I have come up with a plausible hypothesis for what I saw.

Standard lightning is a powerful equalizing flow between different electrical charges on the ground and in the clouds above. These bolts are also common within cumulonimbus clouds, where different areas equalize electrical extremes.

Ball lightning, by comparison, probably has multiple origins to go with different manifestations. Mine seems to be explainable as follows:

There is nothing special about that roof across the street where the diaphanous plasma ball formed. It could have formed on my roof, or atop that of any other house in this structurally homogeneous fake-adobe neighborhood. What was special was the specific dance of ions between sky and land at this time over my area in the southern half of Santa Fe. Something was going to happen in my neighborhood, and likely that house across the street was the random host for this energy phenomenon.

The *Wikipedia* article on ions says this: “A collection of non-aqueous gas-like ions, or even a gas containing a proportion of charged particles, is called a *plasma*. Greater than 99.9% of visible matter in the Universe may be in the form of plasmas. These include our Sun and other stars and the space between planets, as well as the space in between stars. Plasmas are often

called the *fourth state of matter* because their properties are substantially different from those of solids, liquids, and gases. Astrophysical plasmas predominantly contain a mixture of electrons and protons (ionized hydrogen)."

I hypothesize that there was a cloud overhead with *some* ions that were *not quite* ready in critical density to discharge as a lightning bolt. On the nearby ground below were *more* ions of opposite charge that were electrostatically collecting cloud ions due to Santa Fe's 7,000 ft. altitude, low humidity, summer heat, and maybe other factors. What I thus saw develop was what I now call "**failed lightning.**"

Electromagnetism has two elements, and this explains what happened. Also, the shape and integrity of the ball is explained by the inverse square force (as expressed by Coulomb's Law*) within EM that is similar to, but distinct from, the inverse square law of Newtonian gravity.

The ground ions were able to attract and collect enough oppositely charged ions from the cloud above to construct and maintain this plasma ball in the regular atmosphere. The attractive inverse square force was able to magnetically hold its plasma below as a virtual sphere for a few seconds.

The magnetic sphere I witnessed quickly dissipated when the "donating" cloud above moved on, taking away the sufficient inflow of ions that had kept the ground plasma ball stable and intact.

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* Coulomb's Law, as per *Wikipedia*, says: "The magnitude of the electrostatic force of interaction between two point charges is directly proportional to the scalar multiplication of the magnitudes of charges and inversely proportional to the square of the distance between them. The force is along the straight line joining them. If the two charges have the same sign, the electrostatic force between them is repulsive; if they have different signs, the force between them is attractive."