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00:00:00,000 --> 00:00:07,000

You know what? I've been around for a while.

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00:00:07,000 --> 00:00:13,000

I've traveled the world, met some interesting people, done some crazy things.

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00:00:13,000 --> 00:00:17,000

So you might just think there's not much that could take me by surprise.

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00:00:17,000 --> 00:00:21,000

You'd be wrong.

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00:00:21,000 --> 00:00:27,000

The world is full of stories and science and things that amaze and confound me every single day.

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00:00:27,000 --> 00:00:30,000

Incredible mysteries that keep me awake at night.

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00:00:30,000 --> 00:00:37,000

Some I can answer. Others justify logic.

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00:00:37,000 --> 00:00:42,000

A man beats incredible odds and cheats death.

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00:00:42,000 --> 00:00:46,000

He's struck by lightning six times, yet lives.

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00:00:46,000 --> 00:00:51,000

Is he a human lightning rod?

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00:00:51,000 --> 00:00:58,000

A small child freezes solid in sub-zero temperatures, clinically dead for two hours.

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00:00:58,000 --> 00:01:04,000

She amazingly survives. How is this possible?

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00:01:04,000 --> 00:01:12,000

Beneath the Pacific Ocean, mysterious discovery threatens everything we believe about our nation's history.

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00:01:12,000 --> 00:01:19,000

Did Chinese explorers reach American shores years before Columbus?

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00:01:19,000 --> 00:01:26,000

Yep. It's a weird world. And I love it.

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00:01:26,000 --> 00:01:33,000

The World

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00:01:33,000 --> 00:01:40,000

The World

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00:01:40,000 --> 00:01:48,000

For this next weird tale, I've been compelled to write a little poem.

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00:01:48,000 --> 00:01:54,000

Here goes. Lightning strikes fear in the heart.

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00:01:54,000 --> 00:02:00,000

With its silver forked skies all peeling with thunder.

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00:02:00,000 --> 00:02:04,000

Well, actually lightning doesn't strike fear into my heart.

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00:02:04,000 --> 00:02:07,000

Given the fact that I live here in the United States,

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00:02:07,000 --> 00:02:12,000

that my odds of being hit by lightning are about one in 750,000.

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00:02:12,000 --> 00:02:18,000

So I'd have to be really unlucky to get beat by those odds, right?

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00:02:18,000 --> 00:02:23,000

The World

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00:02:23,000 --> 00:02:28,000

46-year-old Carl Meis may be the unluckiest person on earth.

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00:02:28,000 --> 00:02:34,000

The Oklahoma resident has been struck by lightning more than once.

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00:02:34,000 --> 00:02:38,000

The first time in 1978.

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00:02:38,000 --> 00:02:42,000

A storm came up and it was lightning and thunder and I'd run to the truck.

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00:02:42,000 --> 00:02:50,000

And about the time that I grabbed the door handle, lightning struck.

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00:02:50,000 --> 00:02:56,000

Just a flash of lightning knocked me back four or five feet on the backside.

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00:02:56,000 --> 00:02:58,000

It just made me sore.

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00:02:58,000 --> 00:03:04,000

Then a few years later, lightning struck again.

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00:03:04,000 --> 00:03:09,000

Lightning struck hit the transformer on the pole above us.

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00:03:09,000 --> 00:03:16,000

When it just knocked the way out of me, it felt like somebody had hit me with a club or a baseball bat.

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00:03:16,000 --> 00:03:21,000

And I was laying on the ground and whenever I got up, this plumber came up and said,

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00:03:21,000 --> 00:03:24,000

Are you all right? And I said, Man, somebody hit me.

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00:03:24,000 --> 00:03:27,000

He said, No, you got struck by lightning.

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00:03:27,000 --> 00:03:34,000

In 1996, Carl is watching a tornado from what he thinks is a safe distance.

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00:03:34,000 --> 00:03:41,000

And so I'm standing under a tree and about that time lightning strikes a tree.

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00:03:41,000 --> 00:03:45,000

It comes down that and knocks me over against the house.

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00:03:45,000 --> 00:03:51,000

And I'm thinking, you know, this surely couldn't be happening again, you know, but it did.

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00:03:51,000 --> 00:03:58,000

Carl was hit for a fourth time in 1999, again in 2005.

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00:03:58,000 --> 00:04:08,000

A year later, Carl entered the record books as the only living person struck by lightning six times.

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00:04:08,000 --> 00:04:17,000

A little storm popped up and I was sitting in the house and I went out and put a tarp over the hay.

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00:04:17,000 --> 00:04:23,000

And then about the time you put tires on top of the tarps to keep them down on something like that.

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00:04:23,000 --> 00:04:31,000

And about the time I went to throw the tire up, all I remember is a bright light and noise.

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00:04:34,000 --> 00:04:41,000

And I woke up on the ground and so they took me over to a building, you know, and they called the ambulance.

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00:04:41,000 --> 00:04:45,000

And all the people came and went on and they put me in the hospital for three days.

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00:04:45,000 --> 00:04:54,000

That time I was laying on my stomach on the ground working on this wire and it burnt my chest, you know, on the other side of my chest, on the left side of my chest.

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00:04:54,000 --> 00:05:04,000

A man struck by lightning six times in 30 years, a series of events so bizarre and so improbable, it defies logic.

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00:05:04,000 --> 00:05:06,000

But what are the chances?

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00:05:07,000 --> 00:05:15,000

Mathematician Jeffrey Rosenthal has calculated the extraordinary odds of Carl Meis' run of doomed luck.

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00:05:15,000 --> 00:05:22,000

If we just kind of pretended that lightning was equal around the United States and everyone just had the same chance of being struck all the time,

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00:05:22,000 --> 00:05:28,000

then the chance that somebody would be struck six different times over the course of 30 years is extremely unlikely.

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00:05:28,000 --> 00:05:32,000

It's like one chance in a trillion, trillion, trillion, if you just consider everyone to be equal,

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00:05:32,000 --> 00:05:35,000

then someone would be struck six times in a 30 year period.

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00:05:37,000 --> 00:05:43,000

I have more of a sense of feeling if it happens again, you know, it could kill me, you know, and I don't know why I feel that way.

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00:05:43,000 --> 00:05:47,000

So that way I'm pretty careful but going outside.

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00:05:48,000 --> 00:05:51,000

So why does this keep happening to Carl?

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00:05:51,000 --> 00:05:57,000

Rosenthal suspects the answer has something to do with where in America Carl lives.

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00:05:57,000 --> 00:06:04,000

Well, there's actually more lightning strikes in Oklahoma than on average, so your chance of being struck or killed or injured by lightning

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00:06:04,000 --> 00:06:09,000

are higher if you live in Oklahoma than they are just for an average person over the course of the whole United States.

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00:06:09,000 --> 00:06:19,000

Oklahoma, the heart of America's tornado alley, and a state that gets hit with the third highest numbers of lightning strikes in the U.S. every year.

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00:06:19,000 --> 00:06:21,000

Around one million.

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00:06:22,000 --> 00:06:25,000

Oh my God!

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00:06:25,000 --> 00:06:33,000

If we compare that, for example, to California, then California, the same rate, is about 0.02.

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00:06:33,000 --> 00:06:40,000

So you're about 34 times more likely to be killed by lightning if you live in Oklahoma compared to if you live in California.

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00:06:41,000 --> 00:06:47,000

Rosenthal theorizes that Carl's increased probability of being struck is due to another important factor.

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00:06:47,000 --> 00:06:55,000

He lives on a farm and his job as a maintenance worker at the University of Oklahoma keeps him frequently outdoors.

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00:06:56,000 --> 00:07:04,000

So for an average person in Oklahoma, there's about one chance in 147,000 that they'd be struck by lightning in a given year.

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00:07:04,000 --> 00:07:13,000

But Mr. Meiss, well, he apparently worked outside a lot and maybe spent about 80 times as much outside in his work life as the average person.

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00:07:13,000 --> 00:07:19,000

So if we think about it that way, then we could say that this works out to his chance of being struck by lightning in a given year.

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00:07:19,000 --> 00:07:22,000

There's about one chance in 1,800.

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00:07:24,000 --> 00:07:28,000

So what are the chances Carl will be struck again? Let's do the math.

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00:07:28,000 --> 00:07:42,000

The probability of an Oklahoma being hit by lightning is, let's see, the population divided by average number of strikes giving the U.S. a one in 470,000 chance.

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00:07:42,000 --> 00:07:52,000

And then we divide this again by the fact that Carl Meiss is approximately 49 years old and the average U.S. male lives to 76,000.

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00:07:52,000 --> 00:08:06,000

Carl, 27 years left and we factor in his job and lifestyle and we discover the chances of Carl being hit is one in 5,480,000 or pretty low.

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00:08:06,000 --> 00:08:09,000

So I think Carl can relax.

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00:08:09,000 --> 00:08:17,000

But then again, the dude was hit by lightning six times, so maybe Carl from now on.

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00:08:17,000 --> 00:08:20,000

Please stay indoors.

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00:08:21,000 --> 00:08:30,000

Combining factors, including lifestyle and location reveal, Carl is many times more likely to be struck by lightning than your average person.

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00:08:30,000 --> 00:08:37,000

But can probability alone really explain why Carl has been struck six times?

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00:08:39,000 --> 00:08:47,000

Or could there be something special about Carl that makes him attract this deadly natural force?

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00:08:51,000 --> 00:08:55,000

A huge electrical discharge between a thundercloud and the ground.

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00:08:55,000 --> 00:09:01,000

Lightning is a massive version of the electrostatic spark given off when you touch a door handle.

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00:09:01,000 --> 00:09:06,000

Each lightning bolt has as much energy as a ton of TNT.

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00:09:07,000 --> 00:09:19,000

Even if you could avoid being struck directly by a bolt, lightning can radiate across the ground and anyone like Carl can be affected indirectly through physical contact with a struck object.

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00:09:19,000 --> 00:09:30,000

Suffering third degree burns, ruptured eardrums and even death caused by a disruption of the nervous system and stopping the heart.

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00:09:31,000 --> 00:09:39,000

Now, let's have ourselves a little Ben Franklin moment.

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00:09:39,000 --> 00:09:47,000

When a lightning bolt bursts out of a thundercloud, it releases a massive amount of electrical energy into the air.

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00:09:47,000 --> 00:09:55,000

Metal objects act like an antenna for this electricity, basically pulling in the excess energy that's in the air.

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00:09:55,000 --> 00:10:11,000

That's why if you're holding metal or just near metal, you're directing the charge of the lightning bolt straight to you, causing you to be electrocuted, even if you're never directly struck by lightning.

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00:10:12,000 --> 00:10:25,000

Lightning researcher Don McGormann thinks the indirect nature of the majority of Carl's lightning hits can explain his misfortune.

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00:10:25,000 --> 00:10:32,000

Every time he was struck, Carl was touching something that conducts electricity.

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00:10:32,000 --> 00:10:45,000

A lot of his injuries were caused by touching metal. He probably wasn't struck directly in the good many of those cases, but the fact that he was touching metal caused him to be injured in those situations.

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00:10:45,000 --> 00:10:49,000

He was touching long pieces of metal, which is even worse, or large pieces of metal.

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00:10:49,000 --> 00:10:55,000

So he was touching a wire, the lightning struck a nearby pole, the current surge came through the wire and hit him.

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00:10:55,000 --> 00:11:04,000

He was touching a crowbar, and so even if the crowbar wasn't hit directly, it would still pick up

the electrical energy from a lightning flash and really seriously injuring.

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00:11:04,000 --> 00:11:15,000

Even exposing yourself to the hazard is by staying outside, lots of people are outside, and it's just a statistical fluke, I think, in one way.

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00:11:15,000 --> 00:11:24,000

Like I said before, though, being outside and touching metal are things that greatly increase your chances of being injured.

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00:11:24,000 --> 00:11:33,000

And so if there's one thing I would urge Carl to do, it would be if he's got to stay outside, go ahead and stay outside, but get away from metal.

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00:11:33,000 --> 00:11:37,000

Don't be touching metal or standing in pools of water.

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00:11:38,000 --> 00:11:43,000

Carl Meis puts himself in harm's way far more often than most people.

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00:11:43,000 --> 00:11:49,000

But that alone cannot explain his 30 years of living in fear.

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00:11:49,000 --> 00:11:55,000

Electrical expert David Stetzer wants to test a more bizarre theory.

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00:11:55,000 --> 00:12:01,000

Is there something about Carl himself that makes him more susceptible to lightning strikes?

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00:12:01,000 --> 00:12:06,000

Current will take the path of least resistance. Now that's Olin's law.

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00:12:06,000 --> 00:12:09,000

Electrical resistance is measured in ohms.

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00:12:09,000 --> 00:12:19,000

If you knew where lightning was going to strike, and we went out on a golf course and somebody was 200 ohms of resistance and somebody was 500 ohms of resistance, and lightning hits,

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00:12:19,000 --> 00:12:27,000

more current would flow through the person that has 200 ohms of resistance than the person that had 500 ohms of resistance.

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00:12:27,000 --> 00:12:31,000

If the person has less resistance, they're a better conductor.

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00:12:31,000 --> 00:12:35,000

Again, going back to what you want to conduct electricity.

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00:12:35,000 --> 00:12:40,000

You want to use a ceramic rod or you want to use a copper wire, for example.

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00:12:40,000 --> 00:12:45,000

So copper wire has one valence electron or it's more conductive.

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00:12:45,000 --> 00:12:52,000

People's resistance to electrical currents vary. Some scientists believe levels of body fat and sweat can be a factor.

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00:12:53,000 --> 00:13:02,000

Stetzer's experiment will determine if Carl has less resistance that could explain why lightning is striking him more than other people.

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00:13:02,000 --> 00:13:08,000

And so we're going to connect that to you and we're going to measure the voltage drop between here and here.

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00:13:08,000 --> 00:13:11,000

The more voltage that it drops, the more conductive you are.

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00:13:11,000 --> 00:13:16,000

First, Stetzer is going to test Carl's friends, Joe and Steve.

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00:13:16,000 --> 00:13:22,000

He's reading 2.3 volts, 2.4.

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00:13:25,000 --> 00:13:27,000

Almost 4 volts.

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00:13:27,000 --> 00:13:29,000

But what about Carl's friends?

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00:13:29,000 --> 00:13:30,000

Here we go.

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00:13:30,000 --> 00:13:35,000

And you can see the number drops down to 1.9 volts.

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00:13:35,000 --> 00:13:42,000

Amazingly, Dave's test has revealed that Carl does indeed have greater conductivity than normal.

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00:13:43,000 --> 00:13:51,000

But Don McGormand, one of the world's leading experts on lightning, is skeptical about the findings.

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00:13:51,000 --> 00:13:58,000

There's very little about a person that could make them more likely to be struck.

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00:13:58,000 --> 00:14:06,000

Even if they're a little more conducting, that's a really, really small influence on where lightning flash hits.

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00:14:06,000 --> 00:14:13,000

Because a lightning flash is coming down from miles up in the atmosphere and it's finding its way down to the ground.

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00:14:13,000 --> 00:14:18,000

And why it hits a particular patch of ground is really a statistical process.

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00:14:18,000 --> 00:14:26,000

It's the chance of any one piece of ground being hit, if you look at that probability ahead of time, is really, really small.

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00:14:27,000 --> 00:14:32,000

It seems the reason Carl's been repeatedly struck by lightning can be traced to several factors.

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00:14:33,000 --> 00:14:35,000

Where in America he lives?

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00:14:36,000 --> 00:14:38,000

His outdoor lifestyle?

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00:14:38,000 --> 00:14:41,000

His proximity to conductive materials?

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00:14:42,000 --> 00:14:45,000

And sheer bad luck.

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00:14:46,000 --> 00:14:49,000

But one question remains shrouded in mystery.

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00:14:49,000 --> 00:14:53,000

How has Carl survived almost completely unscathed?

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00:14:54,000 --> 00:15:03,000

Mathematician Jeffrey Rosenthal continues to grasp at a simple logical answer in a story that seemingly defies reason.

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00:15:03,000 --> 00:15:09,000

So you actually have even a little better than a 50-50 chance of surviving, even if you did get struck six times.

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00:15:09,000 --> 00:15:19,000

So by comparison, if you flip a coin you have a 50% chance of heads, so the chance of getting heads six times in a row would then be a half multiplied by itself six times,

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00:15:19,000 --> 00:15:22,000

which is one chance in 64 or just about one and a half percent.

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00:15:22,000 --> 00:15:28,000

So it's much less likely that you'll get six heads in a row than that you'll survive six major lightning strikes in a row.

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00:15:28,000 --> 00:15:35,000

According to Rosenthal, the odds of Carl's survival are around one in five thousand.

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00:15:35,000 --> 00:15:43,000

But the fact remains, this is a man struck by lightning a world beating six times.

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00:15:45,000 --> 00:15:48,000

Is that weird or what?

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00:15:49,000 --> 00:15:54,000

What's the difference between a man and a woman?

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00:16:04,000 --> 00:16:09,000

In the dead of night, a toddler wanders lost and alone in the eye of a winter storm.

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00:16:09,000 --> 00:16:14,000

She quickly succumbs to the cold and is frozen almost solid like a block of ice.

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00:16:14,000 --> 00:16:17,000

Within minutes, she is clinically dead.

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00:16:18,000 --> 00:16:26,000

Until something happens that can only be described as weird or what.

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00:16:28,000 --> 00:16:35,000

Edmonton, Alberta, Layla Nordby and her two daughters, Erica and Elise, were having a sleepover at a friend's house.

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00:16:35,000 --> 00:16:41,000

But when the kids went to sleep, the fun night turned into a waking nightmare.

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00:16:42,000 --> 00:16:53,000

Erica was next to the wall and sometime through the night she shimmy down the wall and basically got out of bed and went exploring.

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00:16:53,000 --> 00:16:59,000

Layla woke at 2am when she saw her little girl had vanished. She panicked.

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00:16:59,000 --> 00:17:05,000

I went all around the room, I went downstairs, I went into the playroom, I went everywhere and Erica was gone.

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00:17:05,000 --> 00:17:14,000

Then I saw the back door flapping and that's when I realized something was wrong and that's when I started panicking.

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00:17:14,000 --> 00:17:18,000

Erica had managed to get into the backyard wearing only a t-shirt and a diaper.

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00:17:18,000 --> 00:17:24,000

The temperature was a minus 11 degrees Fahrenheit with a vicious wind chill.

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00:17:24,000 --> 00:17:30,000

When I went outside and I looked over to the left you could see these little footprints and you could see the trail.

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00:17:30,000 --> 00:17:37,000

So I followed that little trail and it was only about 12, 13 feet but it felt like it was longer.

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00:17:37,000 --> 00:17:40,000

And at the end there I found Erica.

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00:17:40,000 --> 00:17:44,000

So coming to hypothermia, Erica's heart had stopped beating.

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00:17:44,000 --> 00:17:51,000

She had been clinically dead for over two hours with no visible signs of breathing or blood circulation.

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00:17:51,000 --> 00:17:56,000

In this state, permanent brain damage can occur within a matter of minutes.

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00:17:56,000 --> 00:18:00,000

So I had no idea what I was in for.

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00:18:00,000 --> 00:18:05,000

I didn't even know that there was a way to help her.

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00:18:05,000 --> 00:18:08,000

I didn't know that there was nothing.

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00:18:08,000 --> 00:18:16,000

When paramedics arrived, they found a distraught mother with her child almost frozen solid.

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00:18:16,000 --> 00:18:25,000

When the paramedics took her from my arms and then they made a big clunking sound when they put her on the table.

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00:18:25,000 --> 00:18:29,000

I really thought my daughter was not going to make it.

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00:18:29,000 --> 00:18:33,000

But remarkably, they detected faint signs of life.

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00:18:33,000 --> 00:18:38,000

All I can remember is one paramedic saying, we got a pulse, let's move her.

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00:18:38,000 --> 00:18:42,000

And they moved her quick.

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00:18:42,000 --> 00:18:47,000

Arriving at the hospital, Erica's internal body temperature was 60 degrees Fahrenheit,

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00:18:47,000 --> 00:18:54,000

nearly 40 degrees lower than normal and far colder than any previous patient had survived.

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00:18:54,000 --> 00:18:57,000

We're talking about at least an hour and a half.

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00:18:57,000 --> 00:19:01,000

So by that point in time, I think we still knew that there was a chance,

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00:19:01,000 --> 00:19:06,000

but our fear was that the chance of either her pulling through alive

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00:19:06,000 --> 00:19:11,000

or the chance of pulling through without significant brain injury was getting smaller and smaller.

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00:19:11,000 --> 00:19:17,000

So not so small that it wasn't worth trying, but clearly by the time we were hitting the intensive care unit,

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00:19:17,000 --> 00:19:23,000

we're getting very worried as to if we got her back, how badly injured she was going to be.

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00:19:23,000 --> 00:19:29,000

Dr. Alan DeCand, battle to get Erica's core temperature back to 98.6 Fahrenheit.

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00:19:29,000 --> 00:19:34,000

The problem always ends up being up front trying to be able to predict whether or not

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00:19:34,000 --> 00:19:36,000

this is going to be the one kid that ends up getting through.

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00:19:36,000 --> 00:19:40,000

And I think what we end up doing is throw everything at that job,

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00:19:40,000 --> 00:19:43,000

use all of your expertise, all the equipment, all the personnel that you have.

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00:19:43,000 --> 00:19:51,000

It's long odds, but you do what you can to hopefully get that one in a thousand through.

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00:19:51,000 --> 00:19:57,000

Incredibly, the team was able to get the toddler's heart beating and her lungs working again.

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00:19:57,000 --> 00:20:02,000

Despite suffering severe frostbite on her fingers and toes, requiring skin grafts,

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00:20:02,000 --> 00:20:10,000

Erica was saved, brought back from the dead.

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00:20:10,000 --> 00:20:16,000

But this is not the first time a human is recovered from extreme cold core temperatures.

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00:20:16,000 --> 00:20:24,000

In October 2006, a Japanese rock climber got lost for 23 days on Mount Rako, Japan.

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00:20:24,000 --> 00:20:30,000

When found by rescuers, his organs had failed, his core temperature was 71 degrees Fahrenheit.

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00:20:30,000 --> 00:20:35,000

But he made a full recovery. How could this be possible?

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00:20:35,000 --> 00:20:41,000

The doctors tell me that it was like an animal going into hibernation,

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00:20:41,000 --> 00:20:50,000

and basically going unconscious. It kind of helped me to deal with it.

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00:20:50,000 --> 00:20:54,000

That subconscious, they were all like some kind of animal.

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00:20:54,000 --> 00:21:02,000

Did Erica's body somehow do the impossible and go into some form of life-saving hibernation?

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00:21:02,000 --> 00:21:08,000

Dr. Giesbrecht has spent over 20 years studying the effect of cold on the human body.

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00:21:08,000 --> 00:21:15,000

Hibernation is an intentional decreasing of temperature and metabolic rate and oxygen consumption.

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00:21:15,000 --> 00:21:20,000

Everything still works just at a slower rate at a lower temperature.

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00:21:20,000 --> 00:21:25,000

Humans are not designed to do that. We're designed throughout our entire life.

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00:21:25,000 --> 00:21:29,000

All year round, we operate at a normal core temperature.

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00:21:29,000 --> 00:21:36,000

The only reason that we ever get low temperature is not because we allow it, which is what hibernation is.

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00:21:36,000 --> 00:21:45,000

We get to a low temperature only because we are accidentally cold stressed to the point that we can't defend against it,

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00:21:45,000 --> 00:21:49,000

and we are in a clinically bad situation.

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00:21:49,000 --> 00:21:54,000

Animals hibernate to survive the long cold winter months when food is scarce.

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00:21:54,000 --> 00:22:01,000

Can humans pull the same biological trick in extreme circumstances?

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00:22:01,000 --> 00:22:08,000

Bears, for instance, are made to, in the winter, go to sleep, slow down their metabolism,

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00:22:08,000 --> 00:22:13,000

and lower their core temperature to a very, very low degree.

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00:22:13,000 --> 00:22:18,000

But their heart is still working and they're still breathing throughout the whole winter period.

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00:22:18,000 --> 00:22:23,000

But unlike a hibernating bear, Erica was found in a state of near cardiac arrest.

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00:22:23,000 --> 00:22:31,000

We are made to live our whole lives at a core temperature around 98.6 or 37 degrees Celsius.

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00:22:31,000 --> 00:22:38,000

When a human becomes severely hypothermic and they become clinically dead, their heart's not working, they're not breathing,

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00:22:38,000 --> 00:22:42,000

that is not hibernation. That's clinical death.

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00:22:42,000 --> 00:22:47,000

So was Erica's hypothermic state mistaken for hibernation?

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00:22:47,000 --> 00:22:52,000

Hypothermia occurs when the body's core temperature drops below normal.

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00:22:52,000 --> 00:22:57,000

A drop of a mere three degrees causes shivering and lethargy.

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00:22:57,000 --> 00:23:00,000

Blood flow becomes restricted to the hands and feet.

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00:23:00,000 --> 00:23:06,000

A drop of five degrees can lead to a loss of coordination, slurred speech, and violent shivering.

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00:23:06,000 --> 00:23:11,000

At this point, people become irrational and their pulse rate decreases.

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00:23:11,000 --> 00:23:17,000

By the time the body drops to 86 degrees Fahrenheit, severe hypothermia has set in.

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00:23:17,000 --> 00:23:21,000

A person looks dead and cellular processes cease.

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00:23:21,000 --> 00:23:27,000

Before long, major organs begin to fail, causing clinical death.

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00:23:27,000 --> 00:23:31,000

But how did Erica survive with a core temperature of just 60 degrees?

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00:23:31,000 --> 00:23:40,000

Ironically, doctors believe the fact that Erica was so young, tiny, and fragile might have been what saved her.

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00:23:40,000 --> 00:23:47,000

If your heart's gonna stop, you want your heart to be stopping when the organs are still full of enough oxygen and energy

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00:23:47,000 --> 00:23:53,000

so that they're gonna be able to work for a long time at a low metabolic rate while you're trying to restart the heart.

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00:23:53,000 --> 00:24:01,000

Because all tissue requires less oxygen when it's cold, when you become clinically dead because of severe hypothermia,

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00:24:01,000 --> 00:24:04,000

your tissue is actually preserved for a while.

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00:24:04,000 --> 00:24:09,000

So you can go a longer period of clinical death than you could if you died when you were warm.

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00:24:09,000 --> 00:24:13,000

Small children and babies, because of their body surface area,

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00:24:13,000 --> 00:24:18,000

because of how large their skin is relative to their overall weight and overall size,

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00:24:18,000 --> 00:24:27,000

they are exquisitely sensitive to losing heat and developing a very low body temperature very quickly.

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00:24:27,000 --> 00:24:32,000

Did Erica's tiny size help save her life?

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00:24:32,000 --> 00:24:39,000

If you cool down fast enough, what happens is that your organs, the function of them, it slows down.

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00:24:39,000 --> 00:24:45,000

The metabolic activity, how much oxygen, how much energy they end up needing to survive,

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00:24:45,000 --> 00:24:53,000

goes down to just a trickle of what the normal amount of energy and oxygen would be usually necessary to keep you alive.

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00:24:53,000 --> 00:24:58,000

So what happened with is that because she rapidly cooled down, it allowed her,

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00:24:58,000 --> 00:25:02,000

even though her heart had stopped contracting and her heart wasn't pushing blood around her body,

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00:25:02,000 --> 00:25:11,000

she had a much, much longer period of time where her organs were going to be able to survive without the heart pumping oxygen and nutrients.

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00:25:11,000 --> 00:25:20,000

In normal conditions, the brain can be deprived of oxygenated blood for around five minutes before suffering irreversible damage.

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00:25:20,000 --> 00:25:25,000

After around ten minutes without oxygen, death is almost certain.

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00:25:26,000 --> 00:25:34,000

Because extreme cold reduces the body's metabolic activity, the brain can survive unharmed for hours or even days

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00:25:34,000 --> 00:25:39,000

on the reserves of oxygen and energy present when the body is rapidly cooled.

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00:25:39,000 --> 00:25:47,000

This condition is called metabolic icebox and occurs when the core temperature drops below 86 degrees.

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00:25:47,000 --> 00:25:51,000

We often have the question, how cold is too cold?

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00:25:51,000 --> 00:25:56,000

And it's people like Erica who make the answer to that question very difficult.

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00:25:56,000 --> 00:26:02,000

Twenty years ago we would have said that Erica could not survive, but then somebody treated her and she lived,

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00:26:02,000 --> 00:26:07,000

so it's very, very difficult to say. We don't know the lowest limit.

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00:26:07,000 --> 00:26:13,000

Erica's core temperature was 60 degrees Fahrenheit or 15 degrees Celsius.

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00:26:13,000 --> 00:26:20,000

There used to be limits of temperature, it's 20 degrees, body temperatures of 19 degrees, body temperatures of 18 degrees.

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00:26:20,000 --> 00:26:23,000

It does keep on getting lower.

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00:26:23,000 --> 00:26:33,000

18 degrees Celsius is 64 degrees Fahrenheit. Until recently doctors didn't attempt to resuscitate people with core temperatures below 68 Fahrenheit.

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00:26:33,000 --> 00:26:39,000

Luckily for Erica, today doctors work on a different principle.

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00:26:39,000 --> 00:26:48,000

We basically tell physicians and anyone else who finds someone cold, you must try to revive a person almost no matter what.

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00:26:48,000 --> 00:26:52,000

That's why we say you're never cold and dead until you're warm and dead.

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00:26:52,000 --> 00:26:59,000

We end up trying to rewarm people. If we think by the circumstances of where they had their cardiac arrest,

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00:26:59,000 --> 00:27:04,000

we think that there is a significant chance that we're going to be able to resuscitate them.

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00:27:04,000 --> 00:27:10,000

Basically if someone is found cold and clinically dead, unless they have an obvious fatal injury,

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00:27:10,000 --> 00:27:14,000

or they're literally like a block of ice and cannot be moved at all,

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00:27:14,000 --> 00:27:21,000

we say because of people like Erica, try to revive them because you never know.

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00:27:21,000 --> 00:27:28,000

Usually doctors have to warm up hypothermia victims by filling their lungs with warmed air,

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00:27:28,000 --> 00:27:33,000

injecting warm fluids, or by warming the blood through an external heater.

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00:27:33,000 --> 00:27:40,000

Her temperature when she arrived was about 16 degrees, her heart started working again at about 17 degrees.

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00:27:40,000 --> 00:27:50,000

But Erica had one last surprise in store, a mysterious biological response the medical team simply cannot explain.

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00:27:54,000 --> 00:28:01,000

The wonderful thing about what happened with Erica is once her heart rhythm fixed itself and her heart started pumping,

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00:28:01,000 --> 00:28:05,000

basically she regulated her rewarming by herself.

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00:28:05,000 --> 00:28:11,000

Her heart pushing blood around her body and us just providing warm air blowing over her skin,

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00:28:11,000 --> 00:28:16,000

she was able to regulate how quickly her body temperature needed to rise.

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00:28:16,000 --> 00:28:22,000

For some reason, Erica, with that body temperature, gods were on her side.

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00:28:23,000 --> 00:28:27,000

Erica survived her ordeal without suffering any form of brain damage.

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00:28:27,000 --> 00:28:34,000

She spent six weeks in hospital but made a full recovery.

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00:28:34,000 --> 00:28:43,000

My health is pretty good. When I grow up at night I'm going to be a wrestler and during the day I'm going to be a teacher

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00:28:43,000 --> 00:28:49,000

because sometimes teachers can be actually good role models.

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00:28:49,000 --> 00:28:51,000

I think I'm a lucky kid.

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00:28:51,000 --> 00:28:59,000

For Erica's family and the doctors who brought her back to life, Erica's survival isn't just lucky, it's miraculous.

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00:28:59,000 --> 00:29:05,000

This remarkable story raises as many questions as it answers, but whatever the truth,

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00:29:05,000 --> 00:29:10,000

Erica now has a second chance to enjoy a long life.

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00:29:11,000 --> 00:29:13,000

Weird or what?

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00:29:30,000 --> 00:29:39,000

Who were the first foreigners to lay claim to what is now the USA?

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00:29:39,000 --> 00:29:41,000

Well, most people would answer.

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00:29:41,000 --> 00:29:45,000

Thanks to Christopher Columbus it was these guys, the Spanish.

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00:29:45,000 --> 00:29:52,000

There's some evidence to suggest it was even these guys, the Vikings.

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00:29:52,000 --> 00:30:04,000

But what if intrepid explorers from somewhere completely unexpected had really discovered America a hundred years earlier than anyone else?

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00:30:04,000 --> 00:30:11,000

Mysterious carved stones found off the coast of California threatened to turn history on its head.

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00:30:11,000 --> 00:30:14,000

I've never seen anything like this.

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00:30:15,000 --> 00:30:22,000

These stones could be proof that the Chinese beat Columbus to the New World.

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00:30:23,000 --> 00:30:29,000

Bob Muster was scuba diving off Palos Verdes in Southern California when he made a strange discovery.

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I love to dive, it's a lot of intrigue.

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00:30:32,000 --> 00:30:35,000

Every time you go you don't know what you're going to see.

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00:30:35,000 --> 00:30:39,000

You may see a turtle every once in a while, you do see him.

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00:30:39,000 --> 00:30:46,000

You might see a shark out here who'll be cruising along on scooters and this seven-gill shark comes right up and swims alongside of you.

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00:30:46,000 --> 00:30:50,000

You think that's my buddy? No, that isn't my buddy. And it's just a lot of fun.

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00:30:56,000 --> 00:30:59,000

I used to collect seashells for an old man that I knew.

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00:30:59,000 --> 00:31:03,000

And as I did it, I found two round balls down there with a hole in them.

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00:31:04,000 --> 00:31:06,000

Now how did that hole get there?

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00:31:06,000 --> 00:31:08,000

I've never seen anything like this.

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00:31:08,000 --> 00:31:12,000

I had no idea what this thing is. I had no idea. Nobody else did.

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00:31:15,000 --> 00:31:18,000

The stone is unlike any natural object Bob has ever seen.

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00:31:19,000 --> 00:31:27,000

Suspecting it must be man-made, Bob took a picture of a stone and sent it to experts in underwater archeology.

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They suggested it might be a boat anchor.

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Stone was used as boat anchors for over 3,000 years.

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00:31:37,000 --> 00:31:46,000

The ancient Egyptians, Greeks and Romans all used stones with grooves or holes cut into them to secure the ships.

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00:31:49,000 --> 00:31:54,000

Stone anchors were only replaced when iron and steel became widely available.

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And Europeans who reached the coast of California in 1542 would have used metal.

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00:32:01,000 --> 00:32:05,000

So where could stone anchors have come from?

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00:32:07,000 --> 00:32:16,000

Well, let's see. I've been studying those Palace Forty stones off and on for, gosh, 35, 40 years.

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00:32:17,000 --> 00:32:20,000

Larry J. Pearson is an expert in nautical archeology.

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The stone anchor style represented by the collection from Palace Forties is a traditional anchor shape or group of anchor shapes

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that have been used continuously since very early times in China.

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The Chinese began switching from stone to metal anchors around 600 years ago.

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00:32:41,000 --> 00:32:47,000

If Bob's anchors are at least that old, it could change everything we know about American history.

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00:32:47,000 --> 00:32:54,000

It could mean the Chinese beat Columbus by over 100 years. It's a controversial theory.

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00:32:55,000 --> 00:33:04,000

There's a huge fringe element out there that we'd like to believe in the Tooth Fairy and everything, you know.

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00:33:05,000 --> 00:33:12,000

Larry Pearson has another less sensational theory. He thinks the rocks are from modern times.

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00:33:12,000 --> 00:33:23,000

The most logical explanation for the presence of that assemblage at that location has to be 19th century Chinese fishing.

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Larry's argument is that modern fishermen use an old technology because stone is cheap and readily available.

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Chinese fishermen in the 19th century California were using stone anchors of a style that had been used for thousands of years in China.

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Bob isn't convinced that his stone anchors belong to 19th century immigrant fishermen.

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00:33:48,000 --> 00:33:56,000

He claims that some as yet unrecovered anchors weigh thousands of pounds, way too big, for the immigrant fishing boats to even carry.

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00:33:57,000 --> 00:34:06,000

I think there's a couple out there that are 3,000 or 4,000 pounds and I think the real big ones out in 60 feet of water, they've got to be at 4,000 or 5,000 pounds.

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00:34:07,000 --> 00:34:11,000

He assembles a team to recover a giant anchor to prove his point.

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00:34:22,000 --> 00:34:25,000

Bob and his team pull up a huge stone anchor.

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The original one weighs 280 pounds. The biggest one we brought out of the water weighed 1,031 pounds.

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Could a small 19th century fishing boat have really used an anchor weighing around 1,000 pounds?

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00:34:44,000 --> 00:34:50,000

Amateur historian Dr. Shirlangli has spent years studying the stones and he believes a far more incredible theory.

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00:34:51,000 --> 00:35:01,000

That the anchors are from a massive fleet of ocean going ships under the command of 15th century Chinese admiral and explorer, Zhang He.

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00:35:04,000 --> 00:35:14,000

I can tell you this much. Chinese knew more about the world in Zhang He's time than all the European cartographers did.

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In fact, the European world maps drawn 100 years later probably were all based on some of the fragmented information collected by Zhang He during his trips.

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Zhang He's fleet is known to have reached India, the Middle East and East Africa.

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Some scholars believe he rounded the bottom of Africa and made it to the Atlantic.

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00:35:42,000 --> 00:35:45,000

But Dr. Li believes Zhang He got even further than that.

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00:35:46,000 --> 00:35:55,000

What Zhang He did was actually going west from China through the Indian Ocean, Atlantic Ocean, Pacific and then head home.

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00:35:56,000 --> 00:35:58,000

That's the route he picked.

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00:35:58,000 --> 00:36:05,000

Li believes the Chinese landed in the Carolinas, making contact with local Native American tribes.

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00:36:08,000 --> 00:36:18,000

It's controversial, but if it's true, Li's theory would mean the Chinese circumnavigated the globe before the Spanish and beat Christopher Columbus to America.

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Can such an incredible idea be real?

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00:36:22,000 --> 00:36:27,000

One piece of evidence supports the so-called Zhang He map.

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It is said to be a copy of a 15th century Chinese sailing map which contains detailed descriptions of Native Americans.

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Does the history of America need to be rewritten?

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00:36:42,000 --> 00:36:45,000

Historian Professor Jennifer Perthel doesn't believe it.

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00:36:46,000 --> 00:36:49,000

Chinese sailors had almost no experience in open water.

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00:36:49,000 --> 00:36:56,000

We know, of course, that they have the astrolabe. They get this from the Persians during the time of Mongol rule.

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00:36:57,000 --> 00:37:06,000

We know that they know about latitude and longitude because under Mongol rule there's a globe that's made by a Persian astronomer in 1267, which is gridded with latitude and longitude.

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00:37:07,000 --> 00:37:08,000

So they know the world is round.

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00:37:09,000 --> 00:37:13,000

But what they don't really know how to do is sail across empty blue water.

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00:37:14,000 --> 00:37:19,000

Dr. Perthel doesn't think the Chinese were capable of crossing oceans in the 15th century.

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00:37:20,000 --> 00:37:23,000

They're used to sailing from one coastal landmark to the next one.

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00:37:24,000 --> 00:37:27,000

And they also don't really know how to ride currents and wind patterns.

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00:37:28,000 --> 00:37:41,000

And I would say it's significant that the first crossing of the Pacific from Asia to California or New Spain to Mexico actually starts in Cebu City in the Philippines and ends up in Acapulco in 1565.

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00:37:42,000 --> 00:37:49,000

And it's navigated by Spanish sailors who have experience sailing in open water in the Atlantic.

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00:37:50,000 --> 00:37:58,000

And they in fact apply their experience in the Atlantic to riding curved current and wind patterns to the Pacific.

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00:37:59,000 --> 00:38:03,000

They guess, literally, that the conditions might be like those in the Atlantic.

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00:38:04,000 --> 00:38:07,000

And they apply that to sailing across the Pacific.

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00:38:08,000 --> 00:38:10,000

And that's what enables the voyage to be successful.

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00:38:11,000 --> 00:38:19,000

It's hard to imagine that the Chinese, without that experience of open water sailing, would actually be able to make that crossing easily.

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But Dr. Lee claims he has more evidence that Zheng He managed to cross the Atlantic.

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00:38:27,000 --> 00:38:31,000

A mysterious brass medallion found buried in North Carolina.

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00:38:32,000 --> 00:38:35,000

Along the route Lee believes the Chinese would have taken.

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00:38:36,000 --> 00:38:41,000

I think one of the major pieces of evidence is my brass medallion.

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00:38:44,000 --> 00:38:48,000

The main thing that caught my eye was the inscription.

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00:38:49,000 --> 00:38:51,000

It says, great Ming, Xuan De.

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00:38:52,000 --> 00:39:03,000

Xuan De is the emperor who sent out Zheng He, the Ming Admiral, for the last time of his seventh trip,

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00:39:03,000 --> 00:39:07,000

to visit other foreign countries.

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00:39:08,000 --> 00:39:13,000

And then the last two words mean delegated to gift.

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00:39:14,000 --> 00:39:25,000

The word delegated is the key, because the emperor could not present a gift to the head of state.

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00:39:26,000 --> 00:39:32,000

So he delegated an important person to present this gift.

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00:39:33,000 --> 00:39:38,000

And this one must be a representative of the emperor, and he must be a very significant person.

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00:39:39,000 --> 00:39:41,000

And this is only an ambassador.

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00:39:42,000 --> 00:39:49,000

At that time, Zheng He is not only an admiral, but he also acts as the ambassador to visit the

foreign countries.

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00:39:50,000 --> 00:39:53,000

No one knows for sure how old the medallion is or where it came from.

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00:39:53,000 --> 00:40:08,000

But to Dr. Lee, the exposure to Chinese culture and technology left other indelible echoes on the Native American's way of life, language, and even the way they wore their hair.

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00:40:10,000 --> 00:40:14,000

It is interesting, but Dr. Lee's theory is not supported by most experts in the field.

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Dr. Pertle thinks it's strange that there are no Chinese records of Xuan He's alleged discovery.

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In a culture that was so good at documenting, recording not only text but pictures.

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So one would think that if the Ming had managed to reach North America, we would have some kind of textual record, and that that record would have been transmitted either in manuscript copies or in

print.

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One also might think we have an extraordinarily strong tradition in China also of printing not only text but images, so one would expect to find perhaps printed maps.

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So perhaps it wasn't the medieval Chinese who came to our shores and left these great stone anchors.

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00:41:00,000 --> 00:41:14,000

But new evidence from scientific dating done on a stone similar to that found by Bob Musterl suggests the answer to this mystery may be even more incredible than anyone could ever have imagined.

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00:41:15,000 --> 00:41:23,000

Down in San Diego, they brought a stone anchor, a round stone with a hole in it, up from very deep depth.

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00:41:24,000 --> 00:41:30,000

It had magnesium nodules growing on it, so they dated those magnesium nodules and it was 4,000 years ago.

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00:41:31,000 --> 00:41:41,000

Now the Chinese had huge boats in those days. The boats were so large they had 1,000 crew members, and they had sail and paddle wheel and oars.

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00:41:42,000 --> 00:41:52,000

The implications are enormous. An ancient civilization reaching America's west coast 4 millennia ago.

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00:41:53,000 --> 00:42:02,000

People in Europe didn't even know the existence of Pacific Ocean, so this has to come from Asia and most likely from China. That's my conclusion.

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00:42:03,000 --> 00:42:06,000

And that's amazing. I think it's really, really fantastic.

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00:42:09,000 --> 00:42:17,000

We discovered these stones. We're inquisitive about it. I've always been that way in my life and I want to find out what they are before I pass on.

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00:42:18,000 --> 00:42:19,000

And we got a hurry.

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00:42:20,000 --> 00:42:29,000

The origins of the huge sunken stones remain a mystery. Are they discarded anchors? Did they belong to 19th century fishermen?

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00:42:30,000 --> 00:42:39,000

Or did a medieval Chinese admiral set foot on American soil generations before the Europeans? Weird or what?

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00:42:49,000 --> 00:42:51,000

The World of the Dead

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00:43:02,000 --> 00:43:07,000

So three bizarre mysteries, each with several possible explanations.

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00:43:10,000 --> 00:43:17,000

A man is struck by lightning a world record six times. Is he just the world's unluckiest man?

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00:43:19,000 --> 00:43:28,000

Can mathematics explain his run of doomed luck? Or is there something special about his body that might actually attract lightning?

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00:43:32,000 --> 00:43:41,000

A child freezes almost solid on a harsh Canadian winter night. She is clinically dead for hours, yet survives.

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00:43:42,000 --> 00:43:50,000

Did her body go into some form of human hibernation? Did the fact she was just a tiny toddler actually help save her?

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00:43:54,000 --> 00:44:00,000

And in America's coastal waters, huge sunken stone objects suggest the extraordinary.

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00:44:02,000 --> 00:44:06,000

Are they anchors left by a fleet of medieval Chinese ships?

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00:44:07,000 --> 00:44:15,000

Is this proof another civilization reached California before the Spanish? You decide.

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00:44:16,000 --> 00:44:23,000

Join me next time for more stories that will undoubtedly be weird or what.

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00:44:36,000 --> 00:44:41,000

The World of the Dead