LIGHTNING DATA CENTER
MINUTES
JULY 11, 2003
ST. ANTHONY HOSPITAL, DENVER, CO
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Quote of the Month:

"For all practical purposes, the set of equations that {James Clerk} Maxwell came up with is valid for every electric or magnetic phenomenon that you are likely to come into direct contact within everyday life at the beginning of the 21st century..."

John Cribbin, Get a Grip on Physics, 1999

1. Meeting began at 11:30 am and adjourned at 1:30 pm.

2. Members present: Arendt, Bradley, Breed, Burrows, Cherington, Collier, Foley, Gift, Glancy, Hodge, Kozak, Lines, Mains, McDonough, Middleton, Miller, Nibbe, Olson, Paton, Russon, Rust, Sanders, Schoesson, Stewart, Swanson, Wachtel, Wallace, Wells.

3. I brought the following articles (abstracted in part here):

a. Selvaggi G, Monstrey S. von Heimburg D, et al. Ball lightning burn. Ann Plast Surg 2003;50:541-544.

"During a great storm, a 28-year-old man and his 5 year old daughter sustained burn wounds after ball lightning came from the outdoors through a chimney...He sustained superficial second-degree burn wounds bilaterally on the zygomatic area and deep second-degree burn wounds on his hand. She demonstrated superficial second-degree burn wounds on the left part of the face and deep second-degree and third-degree burn wounds on the left neck, both upper arms, and back...No complications, neither infections nor general, occurred during hospitalization...Total recovery was achieved after 43 days."

b. Cherington M, Yarnell PR. Ball lightning encephalopathy. J Burn Care Rehabilit 2003;24:175.

"Patient 2 was a 41-year-old woman who was speaking on a cordless telephone during a thunderstorm. A small melon-sized yellow plasma ball traveled several feet from the base to the telephone that she held to her ear. Patient 2 was a 47-year-old construction worker. He was inside a building. He suddenly found himself in a sitting position and his heart was pounding. Others observed that he had a blue corona around him and he "lit up like a 'Christmas tree.' Both these patients had a chronic syndrome...including memory loss, irritability, and depression. These symptoms interfered with their ability to return to work."

c. Goldman RD, Einarson A, Koren G. Electric shock during pregnancy.
Canad Fam Phys 203;40:297-8.

"Injuries from electric shock account for about 1000 deaths annually in the United States...1% of household accidental deaths are caused by electrical injuries. More that 60% of reported electrical injuries are due to electrocution with 110 or 220 V current and most commonly result from failure to ground tools or appliances properly or from using electrical devices near water...There are conflicting reports on how harmful electric shock is to a fetus. The clinical spectrum of electrical injury ranges from...no effect to fetal death either immediately or a few days later...Recommendations for fetal monitoring...have been published."

d. Scott G. Flash back: did the events of September 11 change the lightning landscape in New York City? Weather wise July/August 2003;20-25.

"On a sultry August night in 2002, a young rock musician stood on the rooftop of a building in Manhattan. Suddenly, the storm unleashed a bolt of lightning that struck and killed {him}. The roof a six-story building less than a mile north of the former site of the World Trade Center. 'As soon as I heard about it, my first thought was it wouldn't have happened if the World Trade Center were still there,' says Jack Buchsbaum, chief electrical engineer of the Port Authority of New York and New Jersey. Once the tallest structure in Manhattan, the towers were hit by lightning so regularly that they drew, and safely detonated, bolts that now strike the city more randomly. A skyscraper's protective effect on a neighborhood may be an unintended benefit .according to Uman Vaisala manager Cummins says research validates the observation that tall buildings reduce the likelihood that other structures will be hit."

4. Mikhail Shmatov sent an email with information about an article by MT Dmitriev et al. on "Specific features of the globe-lightning injury." Mikhail reports that "this article describes the accident that resulted in the death of one sufferer and injuries of several others due to ball lightning." He will send a full translation of the paper in the future.

Gene Lines, Gil McDonough, Bill Sanders, Greg Stewart, Howard Wachtel, Carl Swanson, and others discussed the still controversial question about the possible hazards of ball lightning. Gil mentioned an anecdotal case of ball lightning fatality in a teen-ager years ago. The consensus was that there are few, if any, well documented cases of ball lightning fatalities. Greg and Howard speculated that if ball lightning touched a patient during the patient's cardiac hyperpolarization period that might be dangerous. On the other hand, Howard pointed out that it is the current flow that is the cause of lethal damage in lightning strikes, and that there may be minimal current flow with ball lightning (a plasma phenomenon). Conclusion: There are no definite conclusions. More needs to be learned on the subject of ball lightning.

5. Robert Gift played a taped program of a recent Paul Harvey radio broadcast. Mike Foley invited the members to supply them with their thoughts about the lightning safety recommendations made on that program. Mike will review these comments and then communicate with the Paul Harvey Radio Group.

6. Robert Wallace and Vicki Middleton spoke about early plans for an International Lightning Conference sponsored by St. Anthony Hospital. They ask for ideas from our members. The group is enthusiastic about a conference. Ideas to be studied include:

a. Should conference be attached to another meeting.
b. Sources of funding: Hospital, registration, vendors/booths, etc.
c. Invited speakers.
d. Papers published in a major publication.
e. LDC format - participation by an eclectic group.

This project is an enormous undertaking and a committee was established to work with the Hospital in moving forward. The members of the committee are: Mike Foley - Chair, Tamara Arendt, Gene Lines, Bruce Paton, Bill Sanders, Howard Wachtel.

7. George Hodge gave a fascinating presentation of a positive lightning strike causing major damage to a house in the Genesee/Loveland area. He demonstrated the unusual path of the lightning current, and grounding problems that added to the problems. The damaged house had a good lightning protection system and major surge protection for the extensive home automation equipment. However, an adjacent tree, house, gutter system that had grounding problems was the source of some the problem. Current apparently traveled via telephone cables from the neighboring house. George's analysis was exhaustive. I cannot summarize it in these minutes. Those interested in learning the details should contact George (g.hodge@mindspring.com <mailto:g.hodge@mindspring.com>).

8. These minutes do not represent official positions of LDC members. They reflect comments of members made at the meeting.

9. We are fortunate to have two outstanding guest speakers scheduled for our next two meetings. Please mark your calendars and note that in September, we shall meet on the first Friday of the month rather than the second Friday.

August 8, 2003 Speaker: Mary Capelli-Schellpfeffer, MD,
University of Chicago

September 5, 2003 Speaker: Raphael Lee, MD, University of Chicago

Respectfully submitted,

Michael Cherington, MD