

Minutes      April 11, 1997      Lightning Data Center      St. Anthony Hospital

Quote of the Month:

"Benoit Mandelbrot (b. 1924).....coined the word 'fractal' (from the Latin *fractus*, broken) in 1975, to describe irregular geometrical shapes that repeat themselves endlessly on smaller and smaller scales - a feature known as 'self-similarity.' Fractals, he found, were everywhere in nature - in coastlines, tree, mountains, forked lightning, the cardiovascular system, or cauliflowers....Fractal pictures, produced by repeatedly feeding equations into computers, became popular in T-shirt and poster design in the 1980s."

John Carey, 1995

1. Meeting began at 11:30 am and adjourned at 1:30 pm
2. Members present: Bergschneider, Breed, Cherington, Clark, Glancy, Kamin, Keen, Kimberling, Kithil, Langford, McNaught, Swanson, Toler, Watts, Yarnell.
3. Visitor and new member: Robert McNaught of Australia and Scotland.
4. I brought the following articles from the literature:
  - a. PKC Shaw, RE Brouwer, PJ Spaander, UI Tjandra: "Natures high-voltage injuries: sometimes a deadly consequence. Netherlands J Med 1996;49:153-9.  
In the Netherlands the morbidity and mortality caused by lightning are low. Authors describe a fatal lightning case - 25 year old man who was struck while jogging on the beach. Bystanders saw lightning strike the ground as he was lifted up and smashed onto the beach. On admission he was noted to have Lichtenberg figures on his skin. He died 10 days after being admitted to the hospital. Autopsy revealed a large myocardial infarction in the left and right ventricular wall with normal coronary arteries.
  - b. C. V. Wetli: "Keraunopathology - an analysis of 45 fatalities." Am J Forens Med Path 1996;17:89-98.  
The author reviewed the case files of the Dade County (Florida) Medical Examiner Department where lightning was listed as a cause of death. In 20 cases, paramedics noted ECG upon their arrival. Ventricular fibrillation was found in 10 cases; asystole in 8 cases. Cutaneous thermal injury was noted in 41 cases. Singed hair was frequently mentioned. Only two people were struck with clear skies and no signs of storms nearby.
  - c. BI Resnik and CV Welti: "Lichtenberg Figures" Am J Forens Med Path 1996;17:99-102.
  - d. M Cherington, EP Krider, PR Yarnell, DW Breed. "Bolt from the blue: Lightning strike to the head. Neurol 1997;48:683-686. Abstract of this article was included in last month's mailing.
5. The American Association of Physics Teachers (AAPT) will hold a Lightning Session in August. Several of our members will present papers including: Cherington, Foley, Holle, Keen, Kithil, Langford, Lopez, Wachtel, Yarnell.
6. Mary Ann Cooper sent me an email message with information about a meeting on Microwaves in Medicine to be held in Chicago in November 3-5, 1997. The

sponsors include IEEE and URSI (International Union of Radio Science). Interested persons can learn more about the meeting of Electromagnetics in Medicine at email: macooper@uic.edu Dr. Cooper can also be reached at Fax:312-413-0289.

7. Kevin Bergschneider reported that he will be speaking at the Rocky Mountain Golf Course Superintendent's Association on June 16 in Fort Collins.
8. Ken Langford brought a photographic print of lightning with an artifact which Ken believes is due to water on the lens. He believes this resembles the artifact on the photo by Steven Melvin that Rick Kithil brought to an earlier meeting.
9. Rick Kithil brought the March 1997 Report that is attached to the minutes. Rich has distributed materials regarding Lightning Safety to Outward Bound Meetings and also to National Outdoor Leadership Schools.

Rich will be presenting two Seminars on Lightning Safety at St. Anthony Hospital Central on April 21 and 22, 1997. The Ask-a Nurse Program is helping with registration issues.

10. Dick Reehl brought to our attention the benefits and potential problems of PCS (Personnel Communication Systems) antennae. This system will be utilized on the next generation of "cellular phones." He believes that about 100,000 antennae will be constructed in the United States. The communications industry will need to face lightning protection issues with PCS.
11. Dan Breed told us that he will be returning to the NCAR project in Mexico this Summer. His associate, James Dye of NCAR, will attend the LDC meeting in May and will speak about lightning and nitric oxide.
12. Cheryl Toler read a letter to us from Peggy Gustafson. Peggy attended a Centura Health Business and Community Relations meeting on April 4. The attendants discussed education in the schools and Centura's involvement in building healthier communities. The program will commence in September 1997. I asked who among us would volunteer to work on this project, if Peggy needed speakers for the schools. Those who said they would volunteer: Dan Breed, Rich Keen, Ken Langford, and Carl Swanson.
13. Rich Keen has been teaching a class on Climate and Weather at the Charter Middle School in the Boulder Valley School System.
14. Bob McNaught told us about a near lightning strike he witnessed in Australia. The lightning strike about 50 meters from where he was standing, was accompanied by the ball lightning phenomena.
15. Bob Glancy told us about Colorado Severe Weather Awareness Week on April 13 to 19. The National Weather Service sent out information on several weather phenomena including: lightning, tornadoes, flash floods.

Bob read to us an interesting AP bulletin of April 2 regarding the approximate 700 fatalities in the Chicago area due to summer heat in the recent past. The Cook County Medical Examiners and others are developing criteria for the diagnosis of heat-related deaths. Bob anticipates that Storm Data will soon see an increase in the reported cases of heat-related deaths.

16. Barry Kamin reported that he met recently with John Robinson, Director of Networks regarding a web page for Centura. Barry believes that it may be a good idea if LDC has a web page. The members present agreed with this idea. If our minutes become part of the web, we shall need to study how the minutes should be organized and submitted.

We agreed to look at our Mission Statement at the next meeting and decide if any changes are required.

Rich Kithil suggested we look again into the possibility of developing a support groups modeled after The Lightning Strike and Electric Shock, International headquartered in North Carolina. George Rossie did contact Steve Marshburn about this in the past. We decided to ask Peggy Gustafson about this when she returns to Denver.

17. Alan Watts observed that when flying a small airplane along the western part of the Continental Divide in Colorado, the weather is usually placid. At the same time, he is likely to encounter down slope winds along the eastern slopes of the mountains. He asked why is that so? and why is there so much lightning near Fort Carson in the front range. Rich Kithil pointed out that lightning detection devices are available for small airplanes. Dan Breed, Bob Glancy, and Rich Keen pointed out that the answer resides in the microphysics of our region. Thunderstorms are more frequent in the higher elevations of the foothills (eg. near Castle Rock and Palmer Lake) than on the eastern planes. The Monument region is the target of weather descending from Pikes Peak.
18. Carl Swanson told us about two upcoming events that our members may want to participate and attend: 1. New Member Night at the Denver Natural History Museum; and 2. the Boulder Creek Festival. Bob Glancy suggested that the National Weather Service poster might be displayed at each event.
19. Phil Yarnell discussed two cases: 1.) a man who believes he was struck by lightning. He lost consciousness briefly and he noticed that his watch had melted. Steve Clark will look into the possibility of finding data from GAI to confirm that lightning was in the vicinity; 2.) A man who contacted an electrical outlet and immediately developed chest pain. This was followed by the recurrence of a seizure disorder.
20. Ken Langford provided us with a remarkable lightning slide show. One of his slides clearly demonstrated an upward streamer.
21. Then, Rick Kithil provided us with another remarkable show of electrical equipment including: Leyden jar; van de Graff generator; and a Faraday Cage.
22. Next meeting: Friday, May 9, 1997 at 11:30 am in the Main Auditorium of St. Anthony Hospital Central.

Respectfully submitted,



Michael Cherington, MD

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## March 1997 Report

### Lightning view point from the victim's perspective...

**Subject:** LigHtnig Strike Survivor

**Date:** Tue, 8 Apr 1997 03:15:05 -0400

**From:** "Dave Smith" <~~ds@ix.netcom.com~~>

**To:** <rich@lightningsafety.com>

I am a lightning strike survivor, who was DAMN lucky to survive it. I was a 911 dispatcher taking a structure fire call (during bad storm)...After all you got to answer a 911 phone call no matter what, so as the primary call taker at a FIRE/AMBULANCE 911 center, which also served as our EOC, I took it.....Then while taking the call, I felt like a "spark plug" INSIDE my left ear (my phone was on that ear), deep inside my head...I was tossed across the room 15 - 20 feet..Witnesses x 2 Supervisor included....I then tasted a "metal taste in my mouth".....Since then it's been hell.....2 other people got struck at the same building.....Due to the fact they didn't keep up the maintenance, or what ever...I never found out.....There was NO grounding on the system.....There is NOW, but my life and I know of 1 of the other ones' have been hell too....I urge the media, andyone in your profession, to INSPECT these 911 Centers and PROTECT the people you trust your lives to. I worked 5 years at a job that was going to be my retirement, until one Saturday afternnon when hell became a reallity.....911 Dispatchers ( I was a Communications Training Officer, Nationally Certified Emergency Medical Dispatcher, CPR Afilliate Faculty that managed 3 Training centers (for free)).....All thats gone now....I have no company to think of...I walk with a cane, fall alot, throw up alot, and on, & on, & on it goes.....Urge these Municipalities to protect the people who answer your calls of emergency.....

They are are unsung "Heroes" who shouldn't be tossed on a shelf...

Thank you and Sincerely yours;

Dave Smith