

Minutes Feb. 11, 1994 Lightning Data Center St. Anthony Hospital

Quote of the Month:

"Scientific revolutions are more often driven by new tools than by new concepts....In the past 500 hundred years we have had six major concept driven revolutions...associated with the names of Copernicus, Newton, Darwin, Maxwell, Einstein and Freud."

Freeman Dyson in *Physics World*

1. Meeting began at 11:30 am and adjourned at 1:10 pm.
2. Members present: Bergschneider, Breed, Cherington, S. Clark, Eitel, Humke, Kithil, Lammertse, Langford, Larson, Yarnell.
3. Rich Kithil introduced new member, Joel Humke of Broadcast and Communications Consultants.
4. I presented a sample book consisting of all our minutes since the beginning of LDC in February 1992. The pages were enclosed within a transparent front cover, 3 punch holed type notebook which I had purchased at an office supply store. The group endorsed the idea of preparing this book after we had decided on a cover page and logo. Kevin Bergschneider and Ken Langford will work on various logos and present their ideas at our next meeting. Ron Larson suggested that the logo include a symbol of lightning and medicine. Others agreed and suggested we also incorporate engineering and meteorology (MEM) on the insignia.

It was also agreed that the book contain a page with a list of our members and their phone numbers (directory).

It was agreed that a second volume consisting of the collected papers authored by our members be put together. Members are encouraged to bring copies of their articles to our next meeting.

5. I reported that Susan Knight has found 15 to 18 outpatients so far in her search of records of the major trauma hospital in the Denver metro area. One of these patients suffered a transient problem after being struck while touching the electric door button on the inside of a pizza parlour.
6. Dan Breed reported that he is communicating with Chris Andrews and Earle Williams about writing to other lightning groups. He also reported that he invited Richard Keen of Boulder to come to our meeting.
7. Rich Kithil reported that the U.S. Bureau of Mines and U.S. Army Corps of Engineers now utilize lightning protection for most of their buildings. Rich also invited a member of the Traveler's Insurance Company who is involved in collecting data on lightning loss's to come to our meeting.
8. Kevin Bergschneider attended a Golf Course Superintendents meeting. They spoke in favor of lightning protection measures for golf courses. They also discussed a golf shoe with a

nonmetallic spike. The shoe presumably prevents a condition of the grass known as "turf grass disease". He speculates that an additional benefit may be a lessening the risk of lightning injury.

9. John Eitel reported that the Denver University-Mountain Evans weather station project will be built with the help of federal grants. The project is being hampered at the moment because of bad weather-related road conditions.
10. Ken Langford reported that he arrived at Los Angeles and stayed at an airport hotel on January 17, 1994, the day of the earthquake. He was able to take pictures of the scene and will provide us with a slide show at the April meeting. He also witnessed a "green flash optical phenomenon" and This phenomenon occurs over a large body of water at twilight and requires the combination of the earth's curvature plus moisture.
11. Ron Larson's company has been studying renewable energy sources. He will be visiting Sweden in April and May to review efforts of people there working in that area.
12. Steve Clark submitted an application for grant assistance of \$100 to continue his project on studying the relationship between lightning strikes to people and time of rainfall. He is also applying the Colorado Natural Hazards Group.
13. Rich and John gave us a presentation on air terminals. I shall take the liberty of summarizing some of their material from my notes. (With apologies to Rich, John, and Kevin for any oversimplification and mistakes.)

Lightning protection consists of: air terminals; down conductors; grounding system; and surge protection on the main power entry.

Static fields in clouds result from a combination of water molecule and wind which produce a charge separation in the cloud.

As the voltage between cloud and ground increases, a point is reached when the air "ruptures" as an insulator.

Points on the ground become ionized and compete with other points from the downward leader.

The object ionizing at the highest rate and distance most likely will be struck. Different shapes of air terminals effect the ionization of the terminal.

Types of air terminals:

1. Ben Franklin -- can be brass, copper, etc.
2. Upward streamer inhibitor = brush type.
This is a "not preferred" terminal
Less force and distance of ionization.
3. Upward streamer. Under ordinary conditions - passive.
During a storm, there is a change in the potential

difference between the shell and the top spike
which creates an upward streamer.

4. Radioactive - not in favor in most countries.

14. Next meeting: Friday, March 11, 1994 at 11:30 am at St.
Anthony Central in Conference Room B.

Respectfully submitted,



Michael Cherington, M.D.
Chairman, LDC