

## Quote of the Month:

"...the nobility of Man, acquired in a hundred of centuries of trial and error, lay in making himself the conqueror of matter, and that I had enrolled in chemistry because I wanted to remain faithful to this nobility. That conquering matter is to understand it, and understanding matter is necessary to understanding the universe and ourselves: and that therefore Medeleev's Periodic Table....was loftier and more solemn than all the poetry."

Primo Levi in The Periodic Table

1. Meeting began at 11:30 am and adjourned at 2:00 pm.
2. Members present: Bergschneider, Breed, Breggin, Cherington, Fischer, Foley, Keen, Kithil, Langford, Romig, Simmons, Wachtel, Yarnell.
3. New member, Joe Romig, PhD, was introduced by Howard Wachtel. Joe is a consulting engineer with Ponderosa Associates Limited of Lafayette, Colorado. His phone number is 666-8112 and his fax number is 666-4169. Howard stated that Joe was a varsity football player at the University of Colorado. Joe stated that his interest in lightning was fostered by his thesis adviser, James Warwick of Fresno, California. Jim Warwick had been working on the Voyager Mission.
4. Phil Yarnell reported on a lightning fatality that occurred on July 9, 1995 at 5 pm on Pikes Peak. Two hikers were struck. The man died and the woman survived. They were hiking at about 12,000 feet when the lightning hit. Phil had composed a letter to send to the survivor to obtain data regarding the events surrounding that tragic event. The group agreed that Phil should try to obtain that data. We also agreed that we compose a formal letter followed by a formal questionnaire to lightning survivors in the future. Howard Wachtel suggested that we look at a form that he and his associates composed when they were collecting data for an epidemiology study of leukemia in children exposed to low frequency EMF. Phil, Howard, and Ken Langford will compose a formal letter and questionnaire which they will submit for our review at the next meeting.
5. Richard Keen brought the following materials:
  - a. A fulgurite specimen, several years old, from New Hampshire.
  - b. Lightning article from Reader's Digest August 1987. Author: John Sedgwick.
  - c. A 1990 Time-Warner book entitle, Forces of Nature, which contains a picture said to show ball lightning.Rich disclosed the final figures of thunderstorm days (TSD) from his Coal Creek Canyon Observatory. There were no thunderstorm days in October. The total number for 1995 was 91 TSD. The 14 year average is 87. The maximum was 101 in 1992; the minimum was 69 in 1985. The peak month this year was August. This is later than the usual year.
6. Kevin Bergschneider reported that he continues to work with Golf Courses to improve their lightning protection. He advises the installation of disipation type terminals with down conductors and grounds for satellite golf shelters.
7. Michael Foley brought an article from the September 1995 issue of IEE by Mary Capelli-Schellpfeffer et al. entitled, "Advances in the Evaluation and Treatment of Electrical and Thermal Injury Emergencies." Michael will continue his

discussions with James Barber of Provenant Health Partners regarding the rationale of forming a non-profit corporation.

8. Dave Breggin brought a trophy in his name that was constructed by his boy scout troop group. The trophy is made of a fresh pine cone that Dave found in 1994 under a tree in the mountains after a lightning storm. No one was injured at that time. Phil Yarnell made several efforts to contact the Boy Scout Leader to learn more about the event in 1994 but did not receive any return information. Dave is also working on an article dealing with LDC for a future issue of the AT&T Newsletter. Rich Kithil and I have submitted preliminary drafts for that article. Dave indicated that he will prepare the article for an issue to be published in the Spring of 1996.
9. I distributed copies of the article, "Central Nervous System Complication of Lightning and Electrical Injuries" which I had written for the Seminars in Neurology, September 1995. I also reported on information I learned from a patient and doctor who had called me from out of state. The patient is a lightning survivor. Six other members of her family have been struck by lightning, some fatally, at different times and at different sites. Her grandfather was killed while standing in the door of his barn. Howard Wachtel discussed the statistical variation of random clustering. This phenomenon is seen in other settings such as clustering of cancer patients. The group did not know of any evidence that suggests certain people are biochemically more prone to being struck by lightning. They did suggest that people with a history of frequent lightning strikes take additional lightning protection measures and try to avoid being in a high risk environment.
10. Rich Kithil introduced Richard Hasbrouck, PhD, of Lawrence Livermore National Laboratories who is visiting Denver. He will speaking to the Department of Energy Natural Phenomena Hazards Mitigation Symposium on Tuesday. His paper is entitled, "Development of a Guidance Document for Lightning Protection of DOE Facilities." He said that his interest in lightning started in 1983 when he learned that "lightning is a transient phenomenon but being interested in lightning is not a transient phenomon." He has worked at the Nevada Nuclear Test Site and has been involved in rocket triggered experiments at the Kennedy Test Site in Florida to evaluate protection. The DOE Symposium in Denver next week will focus on ways to mitigate damage from natural phenomena (e.g. earthquakes, lightning, etc).

Rich brought new Global Atmospheric Maps showing lightning density for the state of Vermont for a 7 year period. He also brought a page from the Internet on powerlines and cancer.

Rich proposed that the LDC consider ways we may show our appreciation to Provenant Health Partners such as providing pro bono evaluation of the lightning protection system, etc. We agreed that our members think about this and bring their ideas to our next meeting.

The question of what type of involvement, if any, we should have with NFPA was deferred until the next meeting as well.

11. Ken Langford distributed an article by Ferrett and Ojala entitled, "The Lightning Hazard in Michigan." It was published in the 1992 issue of Michigan Academician. Ken also brought a news report of a golfer who was struck but was protected in part by his rain gear. He raised the question of how much protection does a wet surface provide. Dave Breggin suggested that a good combination
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might be waterproof clothing which is wet on the outside.

12. Howard Wachtel, Joe Romig, and Phil Yarnell are designing a course for biomedical engineering students at the University of Colorado dealing with "closed head injuries." Their course will focus on biomedical and engineering concepts to better understand cerebral concussion. Howard stated that he has two subjects which he will discuss further at our next meeting:
  - a. Use of magnetic fields to overcome gravity.
  - b. Electrophosphenes and subliminal electrical shock phenomena.
13. Dan Breed reported that the documentary, "Storm Chasers," is now playing at the Denver Natural History Museum. It will be showing until March 28, 1996. The show lasts for 38 minutes. Dan and his colleagues at NCAR have collaborated in this production. Dan mentioned that he was contacted by FEMA (Federal Emergency Management Administration) regarding how to protect the AM civil defense radio transmission system. Rich Kithil will respond to their request for information.
14. Dick Fischer reported that there will soon be a publication covering 18 years of mining accidents (including lightning) in the USA.
15. Warren Simmons just returned from the USGA (US Golf Association) meeting in Orlando, Florida. He reports that the Orlando lightning detection and protection systems seem to comply with state of the art technology.
16. Next meeting: Friday, December 8, 1995 at 11:30 am at Provenant St. Anthony Central Hospital in the ONE EAST CONFERENCE ROOM.

Happy Thanksgiving everyone.

Michael Cherington, MD  
Chair, LDC