

Quote of the Month:

"Fireflies and lightning bugs are neither flies nor bugs--they are beetles, members of the family, Lampyridae.....Most North American species are luminescent, with a luminescent larva that is commonly known as a glowworm....The light organ of the firely contains cells storing a compound known as luciferin...When oxygen... comes in contact with the luciferin, an enzyme called luciferase (named for Lucifer, the rebellious archangel who was a bearer of light before his expulsion from heaven) is released...and produces the "cold" light....It is one of the most efficient light sources known, converting almost 100% of its energy to light. An incandescent lightbulb, in contrast converts 90% of it energy into heat and only 10% into light."

Jerry Dennis 1992

1. Meeting began at 11:30 am and adjourned at 1:15 pm.
2. Members present: Breed, Cherington, Hodges, Keen, Lammerste, Langford, Larson, Simmons, Yarnell.
3. I reported on the December 2, 1994 meeting on preparing for Grant and Funding with Mr. Ronald Mirenda and Ms. Melanie Fenema-Joneker. Ron Larson, Terry Rudolph, and I were present at that meeting. We suggested that funds would be devoted to 1) continued clincical research by Phil Yarnell and me; 2) basic research undertaken by Ron Larsen and Terry Rudolph. Ron and Terry are undertaking experiments of simulated lighting using computerized models; 3) education efforts will be expanded to reach the public and these efforts will be undertaken by many members of LDC. Ms. Melanie Fenema-Joneker attended the beginning of our meeting. She will speak with those who suggested agencies that might be interested in our efforts.  
Warren Simmons mentionned the US Golf Association and the Golf Supervisor's Association of America.  
George Hodges mentionned members of the Insurance industry.  
Dan Lammerste mentionned the CDC and other Federal Agencies.  
Dan, also, suggested that lightning injuries should be "reportable" to the CDC if that could be arranged.
4. I mentionned that I shall be meeting next week with Mr. Randy Shook of the Provenant Foundation Public Information Department. We agreed that LDC should have a Speaker's Panel to be available for educational seminars. The following panel was established by those present. This is a preliminary list will be augmented with additional speakers and topics. Members who were not present today will be added at the next meeting.

Dan Breed

Research Scientist at NCAR

Topics: Electrification of clouds, thunderstorms.

## Lightning Safety

Michael Cherington, MD  
Neurologist, Chairman LDC

Topics: Lightning injuries -- medical and neurological aspects  
Lightning safety; How to reduce risks

George Hodge

Topics: Lightning damage to electronics  
Lightning safety to firefighters

Richard Keen

Meteorologist, author

Topics: Lightning and thunderstorms; Lightning safety.

Ken Langford

Video Technologist Specialist, Natural Phenomenon Photographer

Topics: Lightning photography technique; Lightning safety

Warren Simmons

Executive Director, Colorado Golf Association

Topic: Golf and Lightning

Philip Yarnell, MD

Neurologist

Topic: Lightning injuries

5. Ron Larson reported on his experiments with Terry Rudolph. They are performing modelling lightning studies on a 2 dimensional model. They are having trouble with non-linear effects. Linear effects relating to ground experiments are found a distance of 100 yards. They cannot yet make a definite statement without non-linear problems. They are also working on a protective garment. I believe the word "pioneering" can be used to describe these studies.
6. Ken Langford commented that we suggest to the Boy Scouts of America that they introduce a Lightning Safety Merit Badge. Phil Yarnell has been in contact with Dave Breggin who is associated with the Boy Scouts. We suggested that Dave and Phil will contact the National Organization so that this can be discussed. On another matter pertaining to the Boy Scouts, if the National Organization approves, they can develop a plan for medical follow-up by Phil Yarnell for those who might become lightning victims or who witness lightning phenomenon similar to the event described by Dave Breggin.
7. Richard Keen reported that the Coal Creek Canyon Station recorded the last thunderstorm of the season on October 4, 1994. He also reported that he and Ron Holle have co-authored a book, soon to be published, entitled: "Audobon

Society Pocket Guide to Clouds and Storms."

8. Dan Breed and Richard Keen announced that the American Meteorological Society meetings are held at NCAR in Boulder.

December 15 @ 7pm

Topic: Comet activity on Jupiter

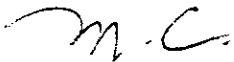
January 12 @ 7 pm

Topic: Sprites. Speaker: Walt Lyons

Dan also brought a letter he had received from Ya Shvarts of the Main Geophysical Observatory, 7 Karbyshev Str., St. Petersburg, Russia, fax: 812 2478661. Dr. Shvarts stated that he will supply information about the LDC to Russian journals and scientists.

9. Dan Lammerste provided a clinical follow-up on the patient who was struck from "a bolt out the blue" in Vail. The patient was struck while watching the World Mountain Bike Championship Races.
10. George Hodge reported that there has been a high incidence of lightning damage to well pumps because of the dry soil this year. The spark gap protection device failed to protect many pumps. The air gap between the coil and the steel casing has been tested for 15,000 Volts.
11. Phil Yarnell brought a book by Stephen Kramer entitled "Lightning". Phil also discussed a recent article from the J Trauma in which a patient suffered a cerebral lesion contralateral to the side of the strike.
12. I asked our members to consider undertaking yet another task: putting together a book in which each of us provides a chapter on our special interest. Warren suggested that title might be: "The Many Aspects of Lightning."
13. Our next meeting: Friday, the 13th of January 1995. Conference Room B at St. Anthony Hospital Central at 11:30 am.

Happy Holidays,



Michael Cherington, MD  
Chairman, LDC