

Quote of the Month:

"Science has revolutionized the twentieth century; no less surely the twentieth century has revolutionized science. Probably the public esteem for science was highest at the end of the nineteenth century, at a time when it promised peaceful communication between nations and the conquest of disease. At that time there were millions to whom a lecture on paleontology or the stars gave a glimpse of the sublime vistas into space and time...Everyone believed that in physics at least the major discoveries had all been made, so that further research would be a matter of refinement and consolidation."

A. Rupert Hall and Marie Boas Hall
"A Brief History of Science"

1. Meeting began at 11:30 am and adjourned at 1:50 pm.
2. Members present: Bergschneider, Breed, Cherington, Collier, Fischer, Foley, Gustafson, Keen, Kithil, Langford, Rossie, Shaver, Wachtel, Yarnell.
3. New members were introduced:
 - Peggy Gustafson -- St. Anthony Central
 - Laura Shaver -- St. Anthony Central
 - Howard Wachtel -- University of Colorado (Electrical Engineering Dept.)
4. I reported that I had received a phone call from Mitchell Guthrie of the National Fire Protection Association asking that we submit two candidates from LDC to serve on their committee dealing with Lightning Protection Codes. He suggested that one of the candidates be a physician. I asked him to send us a packet of information regarding the NFPA that we could study. Rich Kithil suggested that our delegates be Phil Yarnell or me and the other delegate be Warren Simmons. We shall respond to the NFPA by the next meeting.

I distributed reprints of the article: "Death and Injuries as a Result of Lightning Strikes to Aircraft" by Cherington and Mathys in Aviation, Space, and Environmental Medicine, July 1995.

I received a phone message from a woman in New Plymouth, Idaho requesting information on lightning safety and protection that could be used for a 4-H program. Rich Kithil and Phil Yarnell agreed to respond to her request.

Finally I read from the first draft of a manuscript entitled "International Safety and Rescue Guide" that was sent from Nicolas Floret of APERI. The format of the manuscript was a question and answer format. We disagreed, unanimously, with several of the recommendations given in the answer sections. We particularly differed with the advice on the following subjects.

- a. We disagree with the advice to keep metal pieces on the body during lightning storms. Metal can be a source of upwards streamers and we have had patients who suffered burns at the site of metal jewelry and buckles. Our recommendation would be to discard metal objects.
- b. We do not agree with the categorical statement that rubber boots and vinyl rain coats do not provide protection. They might offer a

- degree of protection, if they were wet.
- c. We disagree with the assertion that trees offer a safe place against lightning strike. We suggest that one should avoid an isolated tree. A forest of trees would be safer than seeking an isolated tree.

Rich Kithil suggested that LDC members who chose to should review the manuscript further and write to Nicolas Floret. Nicolas, of course, is one of our 'out of Colorado' members who visited us last month. He and others, including Dr. Kitagawa, are very active in this International Workshop on Lightnings Safety. I am sure they will appreciate receiving input on the first draft of their questionnaire. It will be interesting to learn about other viewpoints from Nicolas.

5. Phil Yarnell provided a videotape presentation of a 16 year old patient who was struck by lightning. His baseball cap was destroyed. There was no charring of the cap material. Ken Langford suggested that the moisture on the cap was responsible for vaporization of part of the cap. Although the patient was struck in the head and lost consciousness, he quickly recovered. Howard Wachter suggested the patient suffered a concussive effect rather than a cardiac or brain electrical lesion.

Phil reported on a second case, a 24 year old man, who was struck on the western slope of the Rocky Mountains. He suffered bilateral basal ganglia hemorrhages. This type of neurological lesion has been reported in other lightning victims.

6. Dan Breed reported that the Imax theater will be showing "Storm Chaser" at the Denver Natural History Museum beginning on November 10. Dan's sail plane will be featured. Warren Simmons suggested that we might schedule a future meeting at the Museum either before or after the show.

7. Richard Keen reported that his count of thunderstorm days reveals that this has been an average year. His data include the following:

82 thunderstorm days so far this year at the Coal Creek Canyon station.
(Average year -- 86; Maximum for one year -- 101)
Average thunderstorm days per year for Denver = 43; for Boulder = 50+

Rich played a new CD recording of Thunderstorms. Rich provided the photographs and written material for this CD.

8. Kevin Bergschneider returned from a trip to Scotland where he visited several golf courses. He reported that he has found several poorly grounded old shelters on local golf courses. He has advised the owners of those golf courses to improve the air terminals and grounding systems on those shelters.

9. Rich Kithil presented parts of a videotape which showed events surrounding two tragic lightning strikes:

- a. Frisbee tournament in Nashville, TN in April 1994. There was one fatality and one patient with neurologic damage.
- b. Haseltine Golf Course in Minneapolis, MN in 1991.

The tape is 3 hours long and is available for Lightning Safety Seminars. Some of the tape contains material from "Fire in the Sky" from the Weather Channel. The tape contains information on the Lightning Support Group at Tampa General Hospital.

Rich reported that he has started an organization called, National Lightning Safety Institute. Dan Breed, Rich Collier, and Rich Keen are members of NLSI. Their missions include certifying Lightning Safety Professionals and Lightning Systems.

Rich had prepared a computer disk on Lightning Protection which he provided for our members to view on their home computers.

10. Rich Collier reported that he and Garland Thomas of NASA will be presenting data on their lightning simulation experiments at the Lightning Conference in Williamsburg later this month.
11. Howard Wachtel reported on his studies on the relationship of EMF and childhood cancers (leukemia and brain tumors). His studies showed some statistical correlates with these cancers and exposure to power lines. However, Howard was quick to point out that he is a skeptic about the risks related to EMF. He points out that power line locations raise other questions such as neighborhood traffic, night light (?melatonin effects). He believes that exposure to EMF is "one of life's lesser hazards."

Howard asked the question: what can one do to lessen exposure to EMF? Answer: "install non-conductive plumbing sections in pipes of the house. Mike Foley pointed out that that would violate electrical codes. Mike stated that, in general, lightning protection systems may compromise electrical systems in the house.

Howard also spoke about the similarities between electrical trauma cases and whiplash cases. He suggests that there may be a common molecular abnormality triggered by the trauma. I pointed out that repeated head trauma in boxers has been responsible for a progressive encephalopathy that worsens even after the boxer's career is over.

12. Warren Simmons reported that the US Open Golf Tournament was delayed several times by lightning.
13. Ken Langford reported that he recently travelled to Iceland. While there he visited the photographer who took pictures of the lightning flashes over the Surtsey volcanic eruption in December 1963. Ken brought some of these photographs to the meeting.

Ken discussed his investigation into the Moro Rock lightning event. He has been reluctant to report his findings about the injuries associated with this event because of possible confidentiality legal concerns. George Rossie stated that if the case has been the subject of a court proceeding in the past, the materials are in the public domain.

Ken also presented an article from the Hartford Courant (7-23-95) which dealt with the subject of lightning rods of earlier days.

14. Rich Kithil wondered if St. Anthony Hospital could be the site of a local Lightning Victim Support group. Peggy Gustafson said she had been thinking about the same possibility. George Rossie agreed to work with Peggy on developing such a program.

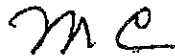
- 15. Michael Foley reported that he had just had a meeting with Jim Barber of Provenant Health Foundation. Jim stated that it may be 2 months before and new plans or positions could be adopted regarding LDC. Michael apprised Jim about our projects, missions, etc.

Michael, an Electrical Engineer who does failure analysis, discussed a case that he is investigating:

35 year old women with a past history of seizures reported that her car was struck by lightning in May and she was thrown out through the window on the driver's side. The only damage Michael found was evidence of a broken window. The patient was seen in a hospital emergency department where she was found to have abrasions. Michael has GDS data which revealed a lightning strike (1/2 mile radius) and 20 minutes later. He will report further details when available.

- 16. Next meeting: Friday, the thirteenth, October 13, 1995 at 11:30 am in Conference Room B at St. Anthony Central.

Respectfully submitted,



Michael Cherington, MD
Chairman, LDC