

March 13, 1998 Minutes **Lightning Data Center** Centura Health, St. Anthony Hospital

Quote of the Month:

"Ben Franklin might have had the right idea when he suggested that the turkey, not the bald eagle, should have been selected to symbolize America. What animal could better represent Americans that the wild turkey -- resistant to extermination, hard to intimidate, highly adaptable, impressionable, sociable and, yes, smart?"

Jane E. Brody, New York Times 11-25-97

1. Meeting began at 11:30 am and adjourned at 1:45 pm.
2. Members present: Blanke, Breed, Cherington, Clark, Fischer, Foley, Glancy, Gustafson, Larson, Rossie, Smith, Toler, H Wachtel, Yarnell.
3. I brought the following articles from the literature:

a. Zack F, Hammer U, Klett I, Wegener R. Myocardial injury due to lightning. *Int J Legal Med* 1997;110:326-8.

A 27 year old man was in a tent near a tree when he was injured by lightning. He lost consciousness and exhibited ventricular fibrillation. Brain death was diagnosed on the fifth day. The discrete external findings (arborescent skin marks) contrasted markedly with severe thermal damage to pectoral and cardiac muscles found at autopsy. The histologic findings revealed severe myocardial infarction affecting all parts of the myocardium.

b. Matthews MS, Fahey AL. Plastic surgical considerations in lightning injuries. *Ann Plast Surg* 1997;39:561-5.

Lightning injury is different from other more common electrical injuries. Burn injuries are usually superficial and heal without surgery.

c. Egger M, Smith GD. Meta-analysis: Potentials and Promise. *BMJ* 1997;315:1371-4

Definition..given by Huque: A statistical analysis that combines or integrates the results of several independent clinical trials considered by the analyst to be 'combinable.' Alternative terms are less specific... 'overview' and 'pooling.'... Meta-analyses continues to be a controversial technique...By integrating the actual evidence, meta-analysis allows a more objective appraisal...when the original research, classic reviews, and editorial comments disagree. Meta-analyses...has advantages over conventional narrative reviews and carries considerable promise as a tool in clinical research and health technology assessment. Meta-analysis is not an infallible tool.

d. Triskaidekaphobia. *University of California at Berkeley Wellness Letter* 1998;14 March:8.

"This year, 1998, features not one but three Fridays the 13th--one in February, one in March, and another in November--the most that can occur in a year...Triskaidekaphobia..the word for fear of the number 13..how do we learn to be afraid of things that cannot hurt us, per se..An experiment with rats recently reported in

Nature suggested that a fearful event such as an electric shock, if paired with something harmless, such as a particular sound, causes nerve cells to release "fear" chemicals."

Rich Keen observed that since LDC meets on the second Friday of each month, our meetings will always occur on Friday the 13th when there is a Friday the 13th.

e. Ban E. WHO funds mobile phone-cancer study. *Nature Medicine* 1998;4:140

"Australia has been invited by the World Health Organisation....to evaluate claims that mobile phones cause brain cancer....Concerns were ignited..by..a letter..from a Perth cancer specialist, claiming that a significant rise in brain cancers in Western Australia."

4. Mary Ann Cooper sent to me via email a set of "preliminary recommendations for the 'medical/evacuation response' for victims of lightning strike. I have brought the draft proposals to our members for their input.

The members discussed this matter at some length. Phil Yarnell suggested that the draft comment about the possibility of cervical spine injury; that the patient be viewed as possibly suffering trauma from being thrown or falling. Steve Clark said that when calling for help one should be careful about using the telephone if it is not a mobile phone. Dan Breed recommended that the items be called 'guidelines' because there are situations when it is hard to weigh risks to the rescue personnel. According to Mike Foley, the response depends on the environment e.g. rescue people should walk below a ridge rather than on top of a ridge. Gunnar Blanke reminded the group how important a role is played by those providing help. Some believe that some rescue situations, unfortunately, could be described as "a no win."

5. Phil Krider sent to me 2 related articles: a) Benjamin Franklin's article on the 'knocking down of six men' using two large Leyden jars; b) Dudley SC et al. The human discharge chain. *Am J Phys* 1997;65:553. "The common classroom demonstration of a human chain, charged by a Van de Graaff generator....is analyzed as a capacitor and resistor circuit model."
6. Howard Wachtel and Ron Larson led a discussion regarding the risks of exposure to electromagnetic fields, mobile phones, microwave and broadcasting transmission devices. Ron informed the group regarding a meeting on March 18, 1998 from 2-5 pm sponsored by some citizens from Lookout Mountain region (Canyon Area Residents for the Environment) on the topic of Electromagnetic Bioeffects of Antenna Tower Siting. The featured speaker is Dr. Neil Cherry of New Zealand who, according to the sponsoring group, believes that "radiofrequency microwave radiation is a highly probable carcinogen....Placement of telecommunication transmission sites should be some considerable distance from residencies, schools, hospitals, etc."
7. Phil Yarnell brought an article by Rebecca Smith and Carl Swanson on Lightning that appeared in the Spring 1998 issue of the Denver Museum of Natural History Museum Quarterly. The article included some of Carl's photographs of lightning.

Phil brought the recent LS&ESSI Newsletter. The newsletter refers to a study being done by Dr. Primeau and Dr. Cooper that will compare the symptoms of lightning and electric shock survivors with people who have suffered head injuries. Dr. Yarnell and Dr. Rossie have written about the symptoms of brain injured patients

who have post traumatic syndrome. Their symptoms include: inattention, irritability, loss of memory, fatigue. Many of these symptoms are seen in both groups of patients. He has sent his paper via fax to Dr. Cooper.

8. Dan Breed told us that he was at the ski slopes recently. He was sitting on the chair lift when a storm moved in that included graupel or snow pellet. Dan asked: How safe was he at the time. He said that most ski operators stop the chair lift operations during such storms. Several members of the group thought that he might be safer on the chair lift than on the ground below. The safest place, however, would be in the safe shelter. We invite our members who were not present today to send us their thoughts on this subject.
9. Bob Glancy brought data on lightning fires in Colorado for a 10 year period. The average number of lightning fires per year was 229.
10. Mike Foley reported that he attended a GAI Seminar last month. Mike suggested that our Directory include our recently approved Mission Statement. Cheryl Toler will send out the updated Directory with these minutes.
11. Rich Keen reported that there was a single lightning flash at 9:50 pm on Friday, March 6 near Rocky Flats. Rich told us that from an analysis of this Thunderstorm Days from his observatory, lightning density correlates with sunspot activity. Maximum lightning occurs 2 years after maximum sunspot activity.
12. George Rossie distributed an article that appeared in the March 1998 issue of Outdoor Life. The article, written by PG Gill was entitled, 'Amidst the Sound and Fury.' The author states: "Sitting out a thunderstorm in an aluminum boat is like waiting out a forest fire in an ammunition dump. Not only are you vulnerable to a direct strike, but lightning striking the water anywhere within 100 yards of you can spread to your boat in the form of a lethal ground current. Fiberglass..is such a poor conductor..that it acts as an electrical insulator. That same quality..can transform a fiberglass boat into a giant capacitor..A thundercloud passing overhead induces a positive charge in the people in a fiberglass boat. This positive charge builds up until the..potential between the people and the water overcomes the resistance of the fiberglass."
13. Howard Wachtel was quoted in a Boulder Colorado newspaper. He was asked to comment on the theory of a Denver archaeologist who asked the question: "Is there a noticeable magnetic fluctuation at...sacred sites?" Howard is quoted as saying: "There are theories that are controversial that people can detect the Earth's magnetic field like pigeons...It is possible 'in past eons,' humans possessed greater sensitivity to magnetic fields that they do now."
14. These minutes reflect the comments made by those who participate in our monthly wide ranging discussions.
15. Next meeting: 11:30 am on Friday, April 10, 1998 in the Main Auditorium of Centura Health, St. Anthony Central Hospital.

Respectfully submitted,

M.C.
Michael Cherington, MD
Chair, Scientific Committee, LDC