

Minutes Aug. 14, 1998 **Lightning Data Center Centura Health-St. Anthony Hospital**

Quote of the Month:

"On March 26 the Viennese heavens were split with lightning and growled with thunder. It was almost as if the city were giving voice to grief. A peals of thunder rumbled in Beethoven's death room. Ever the rebel, Beethoven feebly raised a defiant fist toward the heavens. The he fell back, and died."

Phil G. Goulding in *Classic Music*

1. Meeting began at 11:30 am and adjourned at 2:00 pm.
2. Members present: Bergschneider, Cherington, Drotar, Foley, Glancy, Heath, Kamin, Kearns, Langford, Myers, Olson, Swanson, Tierney, Toler, H Wachtel, T Wachtel, Yarnell.
3. I distributed the following articles:
 - a. Braune S, Wrocklage C, Raczek J, et al. Resting blood pressure increase during exposure to a radio-frequency electromagnetic field. *Lancet* 1998;351: 1857-8.

"With the increasing use of cellular telephones, the potential influences of EMF on human well-being are a focus of public interest. Seven healthy men and three women volunteers aged between 26 and 36 years underwent a single-blind placebo-controlled protocol to investigate the influence of the EMF of a mobile telephone... on blood pressure, heart rate, capillary perfusion, and subjective well-being... Absolute BP values were significantly higher under EMF exposure."
 - b. Van Zomeren AH, ten Duis HJ, Minderhoud JM, Sipma M. Lightning stroke and neuropsychological impairment: cases and questions. *J Neurol Neurosurg Psych* 1998;64:763-9.

"A series of six cases of lightning stroke were studied...It is concluded that lightning stroke can result in subtle cognitive impairments. It is speculated that most complaints of these survivors are caused by a vegetative dysregulation... Such a dysregulation might cause both the main complaint of fatigue and the mild cognitive impairments identified with the present test battery."
4. David Kearns described the rescue efforts on the past Saturday afternoon following a lightning strike at the Gore Range in Rocky Mountain National Park. The strike occurred at about 2 pm and the Flight for Life crew arrived at about 2:45 pm. There were six people in the vicinity. Their hair stood on end. A 54 year old woman lost consciousness and was found to be apneic and pulseless. On awakening she had retrograde amnesia. She was taken by helicopter to the St. Anthony Hospital. She had no burns. She was examined by Dr. Phil Yarnell the next day and her neurologic examination was normal. She was discharged from the hospital.
5. Sheryl Olson told us about a tragic lightning event on the same day near Colorado Springs. Lightning struck at about 3:30 pm near Rampart Range Reservoir. Just prior to that it began raining. A family were fishing at the Reservoir. The parents instructed two children, aged 10 and 5, to go to the car. The older boy took an

umbrella from the car, and the brothers stood under the umbrella. Lightning struck the umbrella and the boys. The younger boy had burns on his scalp and abdomen. He lost consciousness. CPR was given. When Flight for Life arrived, he was found to be in ventricular tachycardia and the ventricular fibrillation. He was pronounced dead. The older brother suffered burns on his hand and foot. He recovered.

John Myers told us that he knew of another umbrella-lightning case. It happened in the past in Sante Fe, NM. A patient, holding an umbrella, was struck by lightning while turning his key in the car door.

Ken Langford pointed out that this tragedy brings up issues related to umbrellas. Umbrella issues include: 1.) Metal may be a lightning attractor; 2.) People using an umbrella may chose to stay out in the rain longer than those without an umbrella. One of the most dangerous places to be during a storm is standing outside a car.

6. Mike Foley relayed the events of a fatal lightning strike in Garfield County on the evening of July 23, 1998. A young man was struck while in his tent. His partner reported that there were 2 lightning strikes. Mike suggested that evidence regarding two strikes might be established by GAI data.
7. Gary Drotar stated that in his career as a helicopter pilot for Flight for Life, he never experienced a lightning strike to the helicopter. These recent rescue events reveal both the skill and courage of the people who answer these calls. Flight for Life crew members must be aware of the weather conditions when flying to an accident site.
8. Cheryl Toler informed us that when we meet in October (2 months from now) we will meet at the 1st Floor Auditorium of the Kuhlman Building (located just east of here). However, in September (next month) and November, etc. we shall meet in our usual place (Main Auditorium of St. Anthony Central Hospital).
9. Howard Wachtel brought a photograph from a National Geographic Magazine of 1968 taken in the laboratory of Dr. William Hanna of Colorado University. The laboratory contained a 1 million volt lightning simulator. The photograph revealed the flow of current over the surface of water in a tank. It showed the current dissipates on the surface. Howard believes that the current does not travel too far below the surface of the water. The region effected is smaller in sea water than in fresh water. John Myers asked if the photograph showing lines of current (like bicycle spokes) indicate that there is less current between the "spokes"? Or does the current travel over the surface of the water as a wave?


Howard asked if anyone present ever heard "crackling of rocks" similar to "bacon frying in the pan" during a lighting storm. Sheryl Olson confirmed that she had heard this crackling sound during a storm.
10. John Heath, Carl Swanson, and Bob Glancy addressed issues relating to the effect of high altitude on lightning density and intensity. Carl made two assertions: 1.) at high altitude, there is less air insulation effect; 2.) He observed that most cloud to ground lightning occurs when ground temperatures are between 70 to 90 degrees Fahrenheit.

Bob Glancy stated that our lightning clouds have more ice particles, therefore more charge differential. In our mountains, almost every storm has ice and hail. This is

not so in Florida.

11. John Myers has been teaching Survival Training at the Air Force Academy. Soon, however, he will be assigned to Langley Airforce Field in Virginia. We wish him bon voyage and plan to keep in touch via email and regular mail.
12. Ken Langford took pictures of an Oklahoma lightning storm in May 1998. Holding a camera in his hand while moving, he was able to capture on the photograph a four stroke lightning flash. He will bring this photo to our next meeting.
13. Phil Yarnell reported that he has been in contact with the Colorado Coroner's Association. This will facilitate his obtaining information regarding future cases. Phil reported the details of two patients. 1.) A man presented with bipolar disease 8 years after being struck by lightning. Phil wondered if the manic/depressive condition could be casually related to lightning after an 8 year delay. 2.) Another man was struck by a "bolt from the blue" in Phoenix in 1996. He suffered 3rd degree burns over much of his thorax. This type of burn is unusual in lightning cases.
14. Carl Swanson, while taking pictures of lightning from his home in Aurora on July 10, 1998, captured the lightning flash that struck the Natural History Museum. Carl reports that the Museum has been struck 3 times within a month's time. Prior to that it was last struck 17 years ago. Carl informed us that he will be interviewed on Channel 7 during the 11 to noon hour on August 19, 1998.
15. Earlier this morning the Administrative Committee (AC) met at St. Anthony Hospital. Members present were: Cherington, Foley, Glancy, Kamin, T Wachtel, Yarnell. The members elected the following AC officers for the next year: Chair, Phil Yarnell; Vice Chair, Michael Foley. The committee discussed our continuing efforts to set up LDC web page with Centura Health. Barry Kamin and Michael Foley will manage these efforts. Hopefully, the web page will be up and running by October.
16. These minutes reflect the thoughts and comments of the members present and do not represent stated positions of LDC.
17. Next meeting: 11:30 am, Friday, September 11, 1998 in the Main Auditorium of Centura Health-St. Anthony Central Hospital.

Respectfully submitted,



Michael Cherington, MD
Chair, LDC Scientific Committee