

LIGHTNING DATA CENTER MINUTES
March 14, 2014
ST. ANTHONY HOSPITAL WEST, LAKEWOOD, CO On the Web at:
www.stanthonyhosp.org/ldc

Monthly Quote: "If we could tinker with the nerves so that exciting the ear, activated the brain center concerned with vision, and vice versa, then we would 'hear the lightning and see the thunder.'" William James, cited in Jeffrey Schartz's book: [The Mind and the Brain](#).

1. Meeting began at 11:45 PM and adjourned at 1:05 PM. Members Present: Collier, Yarnell, Elder, Claus, Swanson, Nibbe, Wells, Gift, Cui-Gift, Coplin, Stewart, Wachtel and Clark. Clark moderated the meeting.
2. The Department of Engineering Professional Development, University of Wisconsin-Madison, will offer this important course in May: Analysis of Transients in Power Systems (PDH/CEU: 30/3.0), on May 5-9, 2014 in Madison, Wisconsin. Their website is: <http://epd.engr.wisc.edu/webP017>
3. The ICLP 2014 (International Conference on Lightning Protection), will be held in Shanghai - China, October 13-17, 2014. The call for papers has been extended to April 1, 2014. For more information, visit them at: <http://www.iclp2014.net/>.
4. Last month's minutes reported that Carl Swanson recommended a lightning strike survivor contact the Lightning Strike Survivor's List (LSSL), an Internet lightning discussion group, at lightningstrike@yahoo.com. Following the broadcast of the minutes, there was some concern and possibly confusion as to whether or not she should have been referred to the Lightning Strike & Electric Shock Survivor's (LSESSI) group instead. Carl stated he recommended LSSL due to them not having annual dues and having heard the survivor's financial hardships. Some LDC members said we might have been confused and sent the survivor to the wrong place. To close, there are two known lightning survivor groups. They are:

1 - Lightning Strike & Electric Shock Survivors International, Inc.
They have a website at: www.lightning-strike.org. Annual dues are due January of each year and are viewable on their website. From the homepage, mouse over "Member Services" and click on either of the online membership applications to view the fee schedule, which is identical on both application forms.

2 - Lightning Strike Survivor's List.
They do not have a website. Instead, this is a moderated Internet chat room aimed at lightning strike survivors. To get into this group, send an introductory e-mail to the group at lightningstrike@yahoo.com. There are no annual fees for this group.

Note the e-mail address and the website address are similar. Thank you to Dr. Mary Ann Cooper, Greg Stewart and Carl Swanson for clarifying this.

5. Phil Yarnell introduced us to our newest member, Dr. William Coplin, who is the Director of Neurocritical Care at St. Anthony Hospital and Centura. As a trained neurologist, he was curious about the impacts of lightning injury on people after they were presented at the burn units in hospitals in Detroit and Seattle. His initial interest in lightning came after a friend of his was struck by lightning two times while rounding up animals at an animal sanctuary. He has been treating lightning-injured patients since 1990. In addition, we were supposed to have met a registered nurse, Tova Adler, but she had prior commitments to tend to. Her area of interest lies in the effects of lightning on neurotissue. We look forward to seeing both of them in future meetings.
6. Carl Swanson told us a film crew wants to screen lightning survivors on the LSSL (Lightning Strike Survivors List) for evidence of PBA (PseudoBulbar Affect), a medical condition that can affect people with neurological conditions and stroke survivors. One of the symptoms of the disease is bouts of uncontrolled laughter and/or crying that is either not related to patient's emotional state, or, is only weakly in proportion to their emotional state. Phil Yarnell urged caution and said any such screenings should be done as part of a visit with a physician, as only a medical doctor is qualified to diagnose the condition.
7. Greg Stewart reexamined the possible under-reporting of lightning fatalities. He cited a recent example of this type of discrepancy in another area of medicine to highlight the mechanism. A new study in the journal *Neurology* revises the annual death toll figures for Alzheimer's from approximately 85,000 to 500,000. Dr. Bryan James (Researcher at Rush University Medical Center, Chicago) explained in a recent interview: "When people are filling out death certificates they usually focus on the more immediate causes of death...Alzheimer's disease is usually left off." Many don't recognize the disease as fatal. People know it affects thinking and memory. What many don't realize is that "...over time it slowly spreads to the parts of your brain that control your more basic functions like swallowing, breathing and your heart rate. This can lead to pneumonia and heart failure." Greg said this recent study underscored the same type of issue as it affects lightning death statistics. Physicians may indicate cardiac failure on a death certificate as immediate cause of death, whereas initial electrical insult may be the underlying cause. A LDC paper titled: "The Underreporting of Lightning Injuries and Deaths in Colorado" also addressed this issue, concluding that NOAA's *Storm Data* likely underestimated lightning deaths by at least 28%. A subsequent report titled: "Closing The Gap on The Actual Numbers of Lightning Casualties and Deaths" reiterated those findings. Links to the *Neurology* abstract and the interview with Dr. James are listed in the Lightning Links below.

8. In a follow-up effort to answer the question: Is "...the surreal milky green water [in Julie Fletcher's lightning photo "Graveyard"]...a natural phenomenon caused by electromagnetic activity from lightning hitting the water's surface?" (as stated by Fletcher, 2013 National Geographic Photography Contest), Greg Stewart posed the question to Fletcher and six of the nation's leading authorities on lightning effects. Link to photo: <http://www.businessinsider.com/winners-of-national-geographic-photography-contest-2013-12>

In explaining her assertion, Fletcher cited a second-hand report of a "...show on television...something to do with electricity in the water which makes it change colour and its very rare but does happen under the right conditions...they showed a couple of places that it has happened to in the past...and realized that this was the reason it was the colour it was."

For starters, the originating source is suspect. Greg reported a largely unanimous answer to the question by those he consulted: The role of lightning in producing this effect is dubious at best. Some of the excerpted responses include:

- "[I don't] see any cause-effect relationship here."
- "Sounds like nonsense to me."
- "I find it highly unlikely that lightning hitting the water would have any perceptible effect on the water chemistry..."

Craig Bohren, Professor Emeritus of Meteorology with Penn State said: "The supposed explanation strikes me as 100% rubbish...I know of no such activity that could change the color of a large expanse of water." He also noted: "...'electromagnetic activity' is jargon, not an explanation. Everything is a consequence of 'electromagnetic activity' including you and me and everything around us. The only forces that drive all life processes are electromagnetic."

After reading all input from these qualified sources, Greg said he is comfortable with the explanation that the water color is principally a result of concentrated minerals in the shallow lakes, rather than lightning-related. He concluded by thanking the following individuals for their contributions to this query: Dr. Martin Uman, Dr. Vladimir Rokov, Dr. Earle Williams, Dr. E. Philip Krider, Dr. Bill Ryson and Dr. Craig Bohren.

9. Phil Yarnell mentioned a book titled Smarter, by Dan Hurley, which describes a push in society to avoid deterioration of brainpower, by increasing our so-called "fluid intelligence" by various training methods. This push shows up in television ads, such as those from luminosity.com, which claims to increase brainpower.
10. Howard Wachtel said he has an abstract, which addresses how rapidly changing magnetic fields in fMRI may change activity in the auditory cortex. Howard will present this in a meeting in South Africa later this year.

11. LDC Disclaimer: These minutes do not represent official positions of the LDC or its members. They simply reflect the comments made at the meeting. Furthermore, the LDC does not implicitly or explicitly recommend or endorse any product or service. Any service or product presented in these minutes is done so for purposes of discussion and analysis. The merit (or lack thereof) is open for the consideration and review by the entire membership.
12. Next meeting: Friday, April 11, 2014 at 11:45 AM at St. Anthony Hospital West. Conference Room TBA.

Respectfully Submitted,
Steven E. Clark, Consulting Meteorologist

In Case You Missed It...Lightning Links

This is a monthly listing of periodicals, websites, and videos about lightning and allied areas as reported in the media. A headline or description is listed, followed by the link. Please note that some of the links are perishable, which means you'll need to go to the source for the information. Enjoy!

Dr. William Coplin's biography, via Centura's website: <http://www.centura.org/william-coplin-md-biography>

PBA Info, per National Stroke Association's website: <http://www.stroke.org/site/PageServer?pagename=PBA>

Video Clip of Interview with Dr. Bryan James on the Alzheimer's study: <http://video.pbs.org/video/2365195067/>

Neurology article abstract with follow-up commentary:
http://www.neurology.org/content/early/2014/03/05/WNL.0000000000000240/reply#neurology_el:60612

LDC Study Articles

"The Underreporting of Lightning Injuries and Deaths in Colorado": [http://journals.ametsoc.org/doi/abs/10.1175/1520-0477\(1993\)074%3C2171%3ATUOLIA%3E2.0.CO%3B2](http://journals.ametsoc.org/doi/abs/10.1175/1520-0477(1993)074%3C2171%3ATUOLIA%3E2.0.CO%3B2)

"Closing The Gap on The Actual Numbers of Lightning Casualties and Deaths" (Abstract):
<https://ams.confex.com/ams/99annual/abstracts/35.htm>
