

Quote of the Month:

“Programmed cell death (apoptosis) was unknown to William Osler and Paul Dudley White, but physicians today must grapple with the uneasy knowledge that all of our cells actively maintain the machinery of self-destruction and must continuously hold it in check to avoid that fate. Apoptosis was first observed as a driving force that shapes the structure of tissues during embryonic development. A familiar example is the separation of the digits of our hands and feet from the blunt ends of the fetal limbs. Today, we also recognize apoptosis as a mechanism whereby damaged cells are removed from the body during adult life, a process in which individual cells sacrifice themselves to enhance the overall health of the organism.”

R. Sanders Williams, *New England J Med* 1999

1. Meeting began at 11:30 am and adjourned at 1:15 pm.
2. Members present: Anderson, Barron, Bergschneider, Breed, Cherington, Gray, Hodge, Huntsman, Kamin, Kummerfeldt, Lines, Smith, Yarnell.
3. I brought the following articles from the literature (parts abstracted here):
 - a. Smit HJM, Deville WL, Schramel FRMH, et al. Atmospheric pressure changes and outdoor temperature changes in relation to spontaneous pneumothorax. *Chest* 1999;116:676081.

“Idiopathic spontaneous pneumothorax (SP) is defined as ‘air present in the pleural cavity, without any known underlying disease.’ It is thought to result from rupture of the alveolar structure with an air leak into the pleural space through the visceral pleura...In summer and autumn, there are strong relationships between the SP clusters and lightning occurring the day before...Asthma exacerbations have also been reported in association with thunderstorms...Atmospheric pressure differences do not seem to influence the chance of developing SP.”
 - b. Shearman KM, Ojala CR. Some causes for lightning data inaccuracies: the case of Michigan. *Bull AMS* 1999;80:1883-91.

“Government death statistics were underreported by 17% over a 17-yr period by Storm Data. Conversely, the Michigan Inpatient Database underreported injuries by 1 5% over a 14-yr period.”
 - c. Cooper MA, Holle R, Lopez R. Recommendations for lightning safety. *JAMA* 1999;282:1132-3.

“New analyses of storms in many states and terrains show that interstrike distances can be 2 to nearly 5 times longer than previously documented. The Lightning Safety Group...met at the American Meteorological Society’s annual meeting to discuss revisions of safety recommendations based on this new analysis. New Lightning Safety Recommendations {are} summarized.”
4. Jim Barron and Dan Breed commented on the article above regarding the apparent relationship between asthma and spontaneous pneumothorax and lightning. They wondered about ozone and/or pollen as the causative irritants.
5. I asked Bruce Huntsman of United Airlines and Jim Barron, MD (who is a pilot) to comment about an email message sent from William Roerder regarding an old

policy that copilots wear sunglasses to protect one of the people at the controls from the temporary blindness from a lightning flash that has been reported in the literature and has been the subject of discussion here in the past. Both stated that sunglasses would not be worn by pilots at night when the problem of blindness from lightning was most likely to happen. They stated that the flash from lightning (like that from a flashbulb) would have less effect during daytime.

6. Much of today's discussion centered around the phenomenon of Ball Lightning.

Phil Yarnell presented a case of "ball lightning" (BL) causing symptoms (headache, tinnitus, cognitive changes) in a flight attendant. He was in an airplane (777) that had departed from DIA when it was struck by lightning. Jim Barron asked:

"is there a change in electromagnetic fields inside a Faraday cage (e.g. airplane)?"

Leland Anderson commented that there was no charge inside a closed conductor.

The electrical charge was on the surface of the Faraday Cage. Leland speculated that the windows of the plane act as a perfect capacitor and could explain the presence of a charge inside the airplane. The glass windows with metal on each side were capacitors and the internal current was induced current.

Gene Lines brought much information that he found on the internet (see below) as well as telling us about a book by Mark Stenhoff entitled: Ball Lightning - an unsolved problem in atmospheric physics. (1999).

There was much discussion among the members present about BL.

It seemed to those present that BL did not have enough energy to produce major damage to tissues in most cases. BL is not sustained and dissipates in a short time. George Hodge summarized the situation by stating he was aware of no fatalities from BL, that BL was a low energy phenomenon. It is characterized by a high field potential with little or no current.

We briefly looked at a book by Leland Anderson entitled: "Ball Lightning & Electric Fireballs" published in 1997. We plan to bring the book to next meeting so that members might have more time to review it. Tesla's month's

We were pleased and honored to have Leland, a new LDC member, present to speak to us about his book and BL in general!!!

Gene Lines found several remarkable anecdotes about BL and how it reportedly produced symptoms in people.

Gene also distributed fascinating correspondence by Leland Anderson and response by Mario Rabinowitz in the November 1999 issue of IEEE Power Engineer Rev. The letters are entitled "Little Black Holes (LBH)." Leland said in his letter that "what caught my attention in the article was a hypothesis that LBHs in proximity of the earth manifest themselves as ball lightning."

Leland and Gene told us that BL not uncommonly was observed in submarines in the switching room when sailors would open a DC switch.

7. These minutes reflect the comments of members present and do not represent official positions of LDC.

8. Next meeting: Friday, December 10, 1999 at 11:30 am in the Main Auditorium of St. Anthony Central Hospital.

Happy Thanksgiving, everyone.

Respectfully submitted,

Michael Cherington, MD
Chair, Scientific Committee, LDC