

## Quote of the Month:

:

“ ‘What is the meaning of it, Watson?’ said Holmes solemnly... ‘It must tend to some end, or else our universe is ruled by chance, which is unthinkable. But what end? There is the great standing perennial problem to which human reason is as far from an answer as ever.’ ”

Sir Arthur Conan Doyle in *The Adventure of the Cardboard Box*

1. Meeting began at 11:30 am and adjourned at 1:45 pm.
2. Members present: Breed, Cherington, Clark, Fischer, Foley, Glancy, Kamin, Keen, Kithil, Larson, Simmons, Toler, H Wachtel, T Wachtel, Yarnell.
3. I brought the following articles from the literature (parts abstracted here):
  - a.) McIvor ME, Sridhar S. Interactions between cardiac pacemakers and antishoplifting security systems. *New Eng J Med* 1998;339:1394-5.
 

“The acoustomagnetic electronic article surveillance system is one of several types of antishoplifting gates that are now ubiquitous at the exits of retail stores. These systems emit a magnetic field that can interfere with cardiac pacemakers..{They} cause four types of interaction with pacemakers under controlled conditions: asynchronous pacing (reversion to noise mode); tachycardia (atrial oversensing that drives rapid ventricular pacing); inhibition of the pacemaker (ventricular oversensing); and system-induced pacing (direct induction of a current in the pacemaker lead by the magnetic field, resulting in extrasystoles).”
  - b.) Santucci PA, Haw J, Trohman RG, Pinski SL. Interference with an implantable defibrillator by an electronic antitheft-surveillance device. *N Engl J Med* 1998;339:1371-4.
 

“Implantable cardioverter-defibrillators have an important role in the treatment of patients with ventricular arrhythmias. Electromagnetic interference with permanent pacemakers and implantable defibrillators may have deleterious effects. Electronic antitheft-surveillance devices, which are widely used in stores, libraries and other places..are a potential source of electromagnetic interference...A 72 year-old man with an implantable defibrillator..had complete atrioventricular block in the absence of antecedent symptoms. He received a shock from his defibrillator...A quick-thinking bystander, who was a registered nurse, noticed that he was standing next to the store’s electronic antitheft-surveillance equipment and pulled him away..He soon recovered.”
  - c.) Johansen C, Olsen JH. Mortality from amyotrophic lateral sclerosis, other chronic disorders, and electric shocks among utility workers. *Am J Epidemiol* 1998;148:362-8.
 

“The authors conducted a nationwide mortality study in Denmark of 21,236 men employed in utility companies between 1990 and 1993...A twofold increase in mortality from ALS and a tenfold increase in mortality from electrical accidents were seen on the basis of 14 and 10 deaths respectively.”

"Residential and occupational exposure to 50- to 60-Hz..EMFs is suspected to have various negative effects on health. Most epidemiologic studies have focused on cancer, but some have suggested an association with ALS."

4. Howard Wachtel reported that he recently returned from China and HongKong. He attended a Biomedical Engineers Conference on the Effects of EMFs. According to Howard, many of the Chinese engineers were concerned about the possible health risks associated with the exposure to power lines. Howard observed that he believes the health risks associated with the polluted air in the Chinese cities he visited present a more serious problem. Rick Kithil asked Howard what were the sources of the pollutants. Howard answered that coal furnaces and heavy industry contributed to the problem.

Howard also attended meetings on the possible therapeutic effects of magnets. He qualified his remarks by saying that this is a controversial subject, but there is some anecdotal data that magnets have been useful in the treatment of pain. He quoted some physics experiments that application of sharp high gradient fields (1 Tesla to 0 Tesla) has effects on cell membranes.

5. I brought a copy of an article from the JAMA that was brought to my attention just as the meeting started. Phil Yarnell is a co-author of the article:

High-Altitude Cerebral Edema Evaluated with Magnetic Resonance Imaging, by PH Hackett, PR Yarnell, R Hill, et al. *JAMA* 1998;280:1920-5.

This article was reviewed on the front page of yesterday's Denver Post. According to Phil, he and his colleagues believe that extracellular brain edema, not intracellular swelling is responsible for high-altitude cerebral edema (HACE). Over the years Phil had seen patients with HACE who had been brought to Denver from the mountains via Flight for Life. Patients treated with dexamethasone did well. Patients who develop HACE should descend or be transported from high altitudes to lower altitudes.

6. The comments on HACE, led to a round table discussion on the risks of lightning injuries to people who climb Mt. Everest. One of the SAC physicians who has climbed Mt. Everest asserted that he knows of no lightning injuries to persons who climb there. If that is true, what is the explanation? Dan Breed, Rich Kithil, and Howard Wachtel speculated on several possible explanations: 1) loss of liquid water because the cloud base is very high; 2) there are small numbers of climbers as compared with the numbers who climb in the Rocky Mountains; 3) the climbers avoid bad weather conditions.
7. Rich Kithil reported that he will conduct a 3 day workshop on lightning safety next week in Louisville, Colorado. Rich told us about new information regarding cloud to ground lightning: 50% of lightning flashes are forked and have 2 attachment points.

Rich informed us that NLSI is going to sponsor Dr. Elisabeth Gourbiere on visit to the USA in the summer of 1999. Her schedule is such that she will be able to give a presentation to LDC on the first Friday of June 1999. Cheryl, after confirming this date with Rich will then reserve the Main Auditorium. The members agreed that we also make plans for a dinner meeting later on that same day.

8. Dan Breed distributed an article from the October 1998 issue of *Physics Today* entitled, Global Electric Circuit by EA Bering, AA Few, and JR Benbrook.
9. Ron Larson brought us up to date on the situation on Lookout Mountain and the powerlines. Some residents have submitted urine samples that are being analyzed for byproducts of melatonin metabolism.
10. Dick Fischer has just returned from a Mining Industry Training meeting in Mississippi. Topics discussed included Lightning Safety and Lightning Detection.
11. Bob Glancy asked the following question: What percentage of people are struck by the first perceived lightning flash in a developing storm? No one had the answer. We believe that if this information is not known, it might be an important future project. This would require the efforts of groups such as NWS, NLDN, and Centura Health St. Anthony Hospital working together.

Bob also reintroduced a topic that evoked some discussion today as in the past. The so-called 30-30 rule safety rule might have the unintended negative effect of having people lose faith in this rule (e.g. the boy who cried wolf syndrome). If golfers, baseball officials, etc. wait for 30 minutes before returning to their activity, they may begin to ignore the rule altogether. We would be interested in any comments from our readers.

12. Rich Keen is teaching a course on Weather and the Atmosphere at the University of Colorado on Tuesday and Thursday mornings. Rich again emphasized the importance of "clues in the sky" and cloud identification: towering cumulus clouds, anvil appearance, and darkening clouds. In addition to these warning signs, Rich points out the value of an AM radio in informing one about the presence of storms.

Rich reported on the final data for 1998 from the Coal Creek Canyon Observatory. This year there were 78 thunderstorm days (average year - 86). This year had the lowest number since 1993.

13. Warren Simmons and Rich Kithil attended the Rocky Mountain Regional Turf Grass Association at Currihan Hall in downtown Denver.
14. Mike Foley suggested that members who wanted to be listed by specialty on our Web Page roster send that information via email to Cheryl at: [Lightningdatacenter@Centura.org](mailto:Lightningdatacenter@Centura.org)
15. Dan Lammertse sent a suggestion via email that we shall adopt. All those members who so indicate will receive the minutes via email. Two of the members present (Keen and Yarnell) asked that they continue to receive the minutes via regular mail, the others present asked that they receive the minutes via email.
16. LDC received an email letter from Dr. Gerard Berger of France directed to Ken Langford's discussion (last month's minutes) on "video seen on stepped leader." Dr. Berger states that he has video pictures on which a stepped leader can be seen. He kindly offered to send us the pictures, and we shall gratefully ask him to do that.
17. These minutes reflect the comments of members present and do not reflect positions of LDC.

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

Happy Holidays, everyone!!  
Respectfully submitted,

Michael Cherington, MD  
Chair, Scientific Committee  
LDC