

**LIGHTNING DATA CENTER**  
**Minutes**  
**December 9, 2005**  
**St. Anthony Hospital, Denver, CO**  
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Quote of the Month:

“Franklin was generally true to his word, rarely, if ever, allowing feelings of personal proprietorship to interfere with what he viewed as the overarching quest for scientific truth. Indeed, he was know to praise the experiments of others even when their conclusion threatened his own.”

Philip Dray, *Stealing God’s Thunder* 2005

1. Meeting began at 11:30 am and adjourned at 1:20 pm.
2. Members present: Barron, Cherington, Clark, C Gift, R Gift, Gahagan, Langford, McDonough, Nibbe, Sellon, Stewart, Studebaker, Wachtel, Wells, Yarnell.
3. I brought the following articles (abstracted in part here):
  - a. Maggio C, Coleman L, Marshall T, et al. Using lightning to remotely map a storm’s electric field. *Bull AMS* 2005;86:1552-3.

“The path of a lightning flash can be determined from its impulsive electromagnetic radiation by using a group of receiving sensors called a lightning mapping array (LMA). LMA data provide a method of finding locations in a thundercloud where large electric fields exist. The lightning initiation location is presumably where strong electric fields are present within a cloud. The location of strong electric fields present within thunderclouds and the direction of the electric field vector may give new information on the development and structure of charge in the cloud.”
  - b. Rees WD. Pregnant woman struck by lightning. *BMJ* 1965;1:103-104.

“The incident occurred on a Welsh mountainside on 5 July 1963. When the husband picked himself up he found his wife and father lying on the ground. They recovered consciousness shortly afterwards. She had a headache, which lasted for some hours. She had a fern-leaf pattern at the back of the neck. A few days later she complained of nausea. She was found to be pregnant. The pregnancy proceeded satisfactorily a live female infant was delivered on 26 January 1964. There were no complications.

- c. Garcia Gutierrez JJ, Torrero MJV, Obregon O, Uceda M, Gabilondo FJ. Lightning injuries in a pregnant woman: a case report and review of the literature. Burns 2005;31:1045-1049.

“a 33-year-old explosives technician in the fourth month of her pregnancy suffered burns by direct strike lightning while she was working outdoors in a quarry. She did not show neurological or cardiological injury. Fetal echography no signs of fetal distress. The patient spent 14 days in the Burns Unit. She was operated on twice: 1. Fasciotomies in right calf due to compartment syndrome. 2. Debridement of burn surface (7%) and grat coverage. A burn has two effects on pregnancy: 1. It increases spontaneous uterine activity. 2. It affects circulatory exchange in the uteroplacental unit due to volumic changes which can eventually result in the death of the fetus. Our report brings the total to 13. In all the cases reported, the mother survived. In one case the fetal outcome is normal. Of the remaining cases, 5 resulted in intrauterine fetal death, 1 died in a few hours after delivery and 6 resulted in normal viable newborns. This fact involves a maternal mortality of 0% and a fetal mortality of 50%.”

4. Chris Andrews sent an email on the subject: Panel of Experts in Electrical Injury. He hopes to set up a database of people competent in the area to examine medical-legal reports. Those interested should contact Chris for additional information.
5. Greg Stewart read CDC data on lightning fatalities during the years 1995-2000. There were 374 deaths; 25% were work related.
6. Our main speakers today: James Barron, MD and Sgt. R.Tortora of the Golden Police Department. The topic: TASERS. Sgt. Tortora asked if anyone knew why the word, TASER? David Gahagan knew: “Thomas A. Swift Electrical Rifle.” The presentation was excellent. I cannot do justice to it in these minutes. I will provide information from my notepad:
- a. TASER 50,000 volts. 5 second cycles. 5 watts
  - b. Compressed nitrogen air + two wires can produce a mark on the skin that resembles a bee sting.
  - d. X/M26 model will not cause heart or pacemaker problems.
  - e. TASER does not provide deadly force. A second officer may be ready to use deadly force if necessary.
  - f. Data from Granite City, IL show police workers compensation expenses are markedly reduced since introduction of TASER.
  - g. As of 9-2004, 100,000 volunteers have been ‘TASERED.’ No cardiac problems. Injuries may occur from falls.
  - h. TASER does not replace firearm in some situations.
  - i. Can cause injuries to eyes.

- j. Can ignite flammable liquids.
- k. Causes muscle contraction.
- l. Does not damage nerve tissue.
- m. Does not cause electrocution in wet environment
- n. Success rate = 95%

Howard Wachtel and Jim Barron discussed limited information about long-term effects. Such data may be difficult to obtain because of problems with attributing cause and effect connections after the passage of time.

The audience gave our speakers enthusiastic applause.

- 7. These minutes do not represent official positions of LDC or its members. They simply reflect the comments of members present.
- 8. Next meeting: January 13, 2006 Friday at 11:30 am in the Main Auditorium of St. Anthony Central Hospital. Howard Wachtel and a visiting professor of biomagnetics from Armenia are scheduled to speak.

Respectfully submitted,

Michael Cherington, MD