# Lightning

In 1752 Benjamin Franklin did an experiment with a kite to determine if lightning was a form of electricity. Since then it has been found the over 90% of lightning strikes are negative, the rest being positive. Had a primary discharge struck the kite with 50,000 Amps or more, it is likely that Benjamin Franklin would not have survived. So, what is an explanation for this.

The charge in the cloud generated by upward winds in the cloud of 24 km/h or more take negative charge away from raindrops by triboelectric effect. The rain falling on the ground leaves a positive charge there normally. Conducting materials above the ground gain a positive as a result. This may be an AM radio antenna. When the main strike hits an elevated object, e.g. a tree on a hill, then lower objects, e.g. the radio antenna at a house somewhat lower, have their positive charge loose attraction to the cloud and go to ground. After such a storm when a tree uphill was truck, I observed that a tube AM radio no longer functioned, though turning up the volume produced some white noise. I found that the antenna winding of the radio had been vaporized. I was some fine wire. I replaced the wire and the radio functioned normally. Considering the wire size and short likely duration of the positive discharge being likely less than 50 A for 0.02 seconds, this makes 1 Coulomb. It seems quite possible that Benjamin Franklin had observed such a discharge. Other people have such sparking inside radios during a lightning strike, one being my grandmother. So, the observation by Mr. Franklin is explained here by F. Bell. I highly recommend that such experiments in the future not be performed in such a risky manner.

For connecting electronics to exposed conductors I therefore recommend that protection be provided for positive currents exceeding 50 A, with a voltage drop as needed, which may be more than 15 volts drop (e.g. for a signal voltage), and if practicable for a spark gap rated for 100,000 A with protection for the voltage across the spark gap exceeding 150v for short durations. An application for this is an electric fence telephone. Other situations may require other appropriate measures. A name for this phenomena could be the Benjamin Franklin – F.Bell phenomena.

Electrons have spin, as if a single point can have a magnetic field. A better way of visualizing this is described as being a kink in the magnetic field and a kink in the electrostatic field at a point in space.

# Antibiotic Resistant Bacteria

This is a serious health problem. During the wars of the ancient Greeks their military medicine was also ancient. Examinations of ancient Greek soldier skeletons by an Oxford University research team were made into a video on youtube. It is apparent that skeletal damages were sustained, but the soldiers survived for some time and their bones recovered for some time before the fatality. This is not observed in other soldier fatalities in ancient times. Medical documents from those referred to a particular honey being used available in Greece then, and perhaps now also.

While there are some forms of honey promoted as having medicinal antibacterial properties they are in the category of dietary supplements and not promoted for topical use. There is one form, a gel in a tube, that is sold through CVS pharmacies for topical use and is sold in a tube and not to be taken orally. This is Manuka (Mānuka) Honey Gel, which has some appropriate additives. It may not be available locally. Other products may not have a medical analysis performed.