Ben Franklin Kite Experiment

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The Ben Franklin Kite Experiment is one that most of us have heard something about.

The most common belief is that he flew a kite into some storm clouds and received an electric shock, discovering electricity. Whilst this is not strictly true, this experiment was a major contribution to physics, increasing our knowledge of natural phenomena.

Benjamin Franklin was one of those rare men who excelled in many fields of expertise, as a politician, journalist and author. He is regarded as one of the major contributors to American culture and science, the only non-president to appear on dollar bills. He was a notable inventor, creating bi-focal glasses and made some interesting discoveries about how ocean currents and winds worked.

The Real Facts

The first thing to note is that Benjamin Franklin did not discover electricity - the principle was known long before that and primitive capacitors and batteries were already in use by researchers.

Static electricity had been known about for thousands of years, although never fully understood, with most scientists believing that it was an 'invisible liquid'.

Franklin's contribution was that he believed that lightning was a form of static electricity on a huge scale, and designed a number of experiments to try to ascertain the truth.

After designing experiments [1] with conducting lightning rods, which proved dangerous, he settled upon using a kite.

The idea was to fly the kite into the storm clouds and conduct electricity down the kite string. A key was then attached near the bottom, to conduct the electricity and create a charge.

The kite was struck by lightning and, when Franklin moved his hand towards the key, a spark jumped across and he felt a shock, proving that lightning was electrical in nature.

Whilst this seems like a stupid method, the evidence showed that he actually intended for the electricity to jump into a primitive form of capacitor known as a Leyden jar, and that touching the key was purely accidental.

After the experiments with lightning conductors, it would appear that he knew enough about grounding to insulate himself from serious harm.

He was also the first scientist to use the terms positive and negative charge, possibly the basis of the myth that he discovered electricity. His discoveries in this field led to further research into the nature of electricity, influencing the invention of batteries by Volta, and the electric motor by Faraday in the early nineteenth century.

Links
[1] https://verify.explorable.com/design-of-experiment