

Mystery Behind Franklin's Electrical Kite

The most famous single kite flight in history is unquestionably Ben Franklin's successful attempt to draw lightning from a cloud. Firm and fixed in legend, the episode turns out to be dim and mystifying in fact.

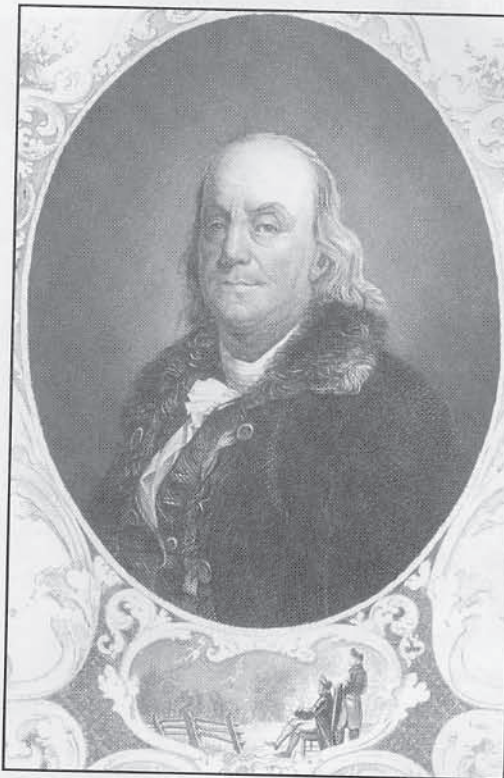
A voluminous writer all his life, Franklin himself never wrote the story of the most dramatic of all his own experiments. All that is known about what he did on that famous day in Philadelphia, of no known date, comes from an account by Joseph Priestley, published 15 years later.

The account though was read by Franklin and it is surmised he must have given the author the precise, familiar details.

As recorded by Carl Van Doren in his definitive volume *Benjamin Franklin* (Viking Press), Franklin theorized that lightning could be grounded, and thus neutralized, by use of what is now commonly known as a lightning rod—a metal pole stuck high into the air to attract electricity and conduct it by wire to the earth, thus 'grounding' the lethal charge. While awaiting construction of the spire of Christ Church in Philadelphia, Franklin conceived the use of a kite in 1752 to get his metal contraption high into the air and, tapping a thunder cloud, successfully brought electricity from the sky—feeling the electrical charge with his own knuckle from a key attached to the kite line. (Had Franklin's kite or rod drawn a heavy bolt of lightning, he would have been electrocuted, as happened later to a Swedish physicist emulating the experiment).

Now the mystery.

Franklin understood immediately how startling his discovery was and had a life-long genius for making drama out of news, yet he kept the electrical kite a secret for some months. It is not known how many, since the date of the original experiment has not been pinned down, although it evidently occurred in June. Moreover in describing his epoch-making discovery in two separate publications later that year, he did not reveal he was the author of the experiment, saying only it had taken place in Philadelphia.



Courtesy of The Skinner Collection

Franklin as depicted in an old etching

Author Van Doren theorizes Franklin's strange modesty may have been occasioned by the knowledge the French were conducting similar experiments with electricity and with his desire to keep his own dramatic news for his own pending publications, the *Gazette* and *Poor Richard's Almanac*. In any event, his achievement in inventing a viable lightning rod was quickly recognized in Europe via correspondence and major honors were soon bestowed on him there.

As Van Doren points out, the important thing about Franklin's recollection 15 years later to Priestley is not that he flew the kite in June (or possibly later), but that he flew it before he knew of similar, successful experiments in France. After that, there was no need for Franklin to verify an experiment which he himself had already successfully verified.

Franklin made one of the most dramatic guesses in the history of science, and he was able to verify his guess with a boy's plaything—a kite. He applied his knowledge to making men's houses, barns and ships safe from an incalculable



Detail from picture on left

danger. With what seemed the simplest key, he had unlocked one of the darkest and most terrifying doors in the unknown universe. Franklin, said a philosopher, was a new Prometheus who had stolen fire from heaven.

Perfectly willing to have his contributions to the study of electricity absorbed in the enlarging science, Franklin never patented the lightning rod, often called the Franklin rod, or

financially profited from it. But in one discoverable respect, notes Van Doren, he still survives where electricity is spoken of. Franklin appears to have been the first to use, at least in print in English, these electrical terms: armature, battery, brush, charged, charging,

condense, conductor, discharge, electrical fire, electrical shock, electrician, electrified, electrify, electrized, Leyden bottle, minus (negative or negatively), negatively, non-conducting, non-conductor, non-electric, plus (positive or positively), stroke (electric shock), uncharged. "The Philadelphia Prometheus with his kite," sums up Van Doren, "was also an American Adam in his electrical garden." ♦

Flying From a Balloon

Can a kite be successfully flown from a hot air balloon, since there is no wind as the balloon moves in its own pocket of air?

Stafford Wallace, one of England's premier fighter kite experts, attended a balloon festival in Northampton a while back, obtained a ride in a balloon, and just before launch got his fighter flying about 150 yards outward.

As the airship rose, Wallace found the kite dipping well below the gondola. Using skills learned while flying from house terraces in his native Bombay, Wallace, now living

in Empingham, Rutland, was able to keep his little purple kite flying by means of sharp tugs on the line. One tug proved too strong though and the bridle broke. Wallace was forced to haul in his damaged little fighter.

But he felt he proved his point about flight feasibility under difficult conditions. And he had dozens of witnesses, aboard the balloon and on the ground, who applauded his pioneering effort.