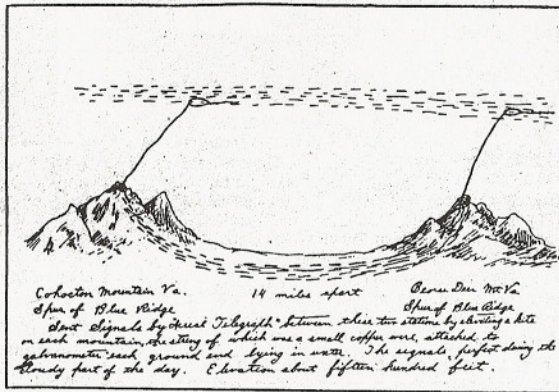


Who Said Marconi Invented Wireless?

by D.K. deNeuf, WA1SPM

Paul Swearingen is taking the month off, but will return with the October issue.

Marconi never made such a claim. He said he only took the discoveries made by Hertz, Righi, Branly, and others years before and forged them into a workable practical means of communication without wires. Yet many school and other books credit him with this feat.* He was granted a British patent in 1896 for an invention for "improvements in transmitting electrical impulses and signals."



The First Antenna: Reproduction from Loomis's sketch, 1865

Marconi probably never heard of an American Patent (#129,971) issued in 1872 to Dr. Mahlon Loomis, a Philadelphia dentist, for "a system of aerial telegraphy" (Dr. Loomis also held both U.S. and British patents on the "kaolin" process for making dentures).

And Marconi probably never saw the *Washington Chronicle* newspaper issue of Nov. 1, 1872, which reported show Loomis had conducted his experiments with fine light copper gauze kites. A sketch drawn by him in 1865 depicted his kites being flown from two mountaintops in Virginia (see sketch).

Each kite was tethered with a copper wire "attached to a galvanometer, each end lying in water." His caption says, "the signals were perfect during the cloudy part of the day."

The essential part of the patent issued to Loomis indicated "...the utilization of natural electricity... relying upon the disturbance produced in the two electro-opposite bodies of earth and atmosphere." (Ben Franklin's famous kite experiments were carried out in 1752 resulting in sparks jumping from the key attached to the tether during lightning storms.)

Congress, on May 21, 1872, listened to a long speech relative to the "Loomis Aerial Telegraph Bill" requesting an appropriation of \$50,000. Just how Dr. Loomis proposed to send telegraph signals or messages and to receive them never seemed to be fully explained.

* One of the world's greatest inventors apparently thought so, too. Note his comment written in his unmistakable "telegraphic script":

I have great admiration and high regard for Marconi the pioneer inventor of Wireless Telegraphic Communication

Thos A. Edison

It is said Loomis died in 1866 of a broken heart over his nation's failure to recognize him.

We generally think we can't transmit DC through the air without wire. But hold on--if you connect a sensitive DC galvanometer between an antenna and ground you'll see deflection from lightning flashes. Now if the impulse striking the antenna as a result of a distant discharge were AC the galvanometer should read zero; i.e., no net reaction to opposing half cycles. But that is not the case.

Dick Hilferty, W5TOS, has proven that each flash produces either a positive or negative indication - but not both and not zero.

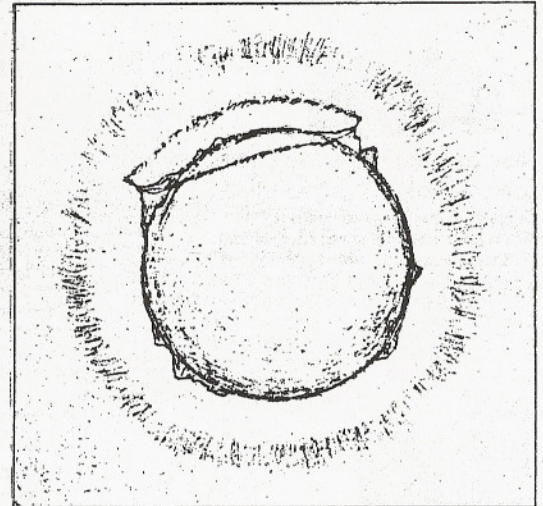
A well-elevated antenna like a kite can accumulate rather large voltages; the normal gradient is said to be about 33 volts per foot above the earth.

Could Loomis have been setting up scratchy discharges just by grounding and ungrounding the "transmitting antenna" which were detected by a DC instrument? One of Loomis' drawings in 1865 showed his idea of how setting up "disturbances in the atmosphere" would "cause electric waves to travel through the atmosphere and the ground...thus establishing wireless communications between two distant points."

Apparently Loomis did not actually transmit and receive (detect) electromagnetic waves. Eduoard Branly invented the "coherer" - the first detector of any kind to respond to wireless waves - but this was not until 1890.

The coherer, a glass tube containing a fine metal powder, operated on the principle that while many powdered metals behave as poor conductors to DC voltages they have a relatively high conductivity at high frequency voltages. When electromagnetic waves passed through the powder, the microscopic sparks bridged the interstices (gaps) thus causing the particles to adhere to each other. The powder could then be restored to its original loose state by tapping or vibrating the glass container.

Congress denied the Loomis appropriation request, allegedly calling the whole idea "absurd."



Reproduction of a drawing made in 1865 by Loomis, showing his idea of how setting up "disturbances in the atmosphere" would cause electric waves to travel through the atmosphere and the ground, thus establishing wireless telegraph communication between two distant points. The aura around the earth represents what he termed the "static sea."

This book is dedicated to the memory of Dr. Mahlon Loomis, who, in 1865, sent the first aerial telegraph messages.

A word from Dr. Rogers.

"It was my pleasure to know Dr. Loomis in the early days when he was trying to convince a skeptical world of his new and wonderful discovery. So impressed was I that I went to see Professor Joseph Henry, then at the Smithsonian Institution, and unfolded to him Dr. Loomis' plans. Time has vindicated this great pioneer in the art of wireless communication.

Very sincerely yours,

J. HARRIS ROGERS,
Hyattsville, Md.,
July 13th, 1920."

Was this the same Dr. Rogers who invented the *Rogers Underground Antenna* circa 1920?



Dr. Mahlon Loomis