

## ROSSOTTI'S TAVERN, THE INTERNET & I

Arguably, the most significant historic site in our Town of Portola Valley where I live is the Alpine Inn, known to most of us as Rossotti's. Most believe it owes this significance to its 150 years as a tavern which made it a State of California landmark as the "oldest, continuously-inhabited saloon in the State." But did you also know of the singular event memorialized on a small plaque above the tables inside the venerable roadhouse--an event known all over our 20th century world? . . . Bear with me as I rewind the tape about a half-century. . . .

It was 1962, in the early days of the Cold War. Scientists on both sides of the Iron Curtain were intensely worried about an as-yet unproven effect, called the Electromagnetic Pulse (EMP). The effect was a byproduct of the newly developed hydrogen bomb and could be characterized as an electronic version of a sonic boom caused by the gamma rays from such a bomb detonated at high altitude. While it does not harm life, this EMP could potentially disrupt normal electronic communications over a very large area. If true, this could render a government and its military utterly helpless if attacked by an adversary bent on its destruction (either *against us* or *by us*).

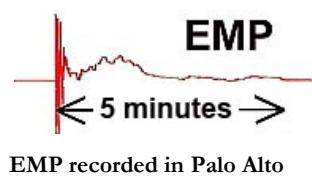
The research arm of the Department of Defense, then called Advanced Research Projects Agency, or ARPA, initiated a secret effort, called *Project Starfish*, to attempt to prove or disprove the EMP by detonating a 1.4 megaton hydrogen bomb, atop a rocket sent aloft 250 miles above Johnston Island, 1,000 miles SW of Hawaii. To hide the real purpose of this test, the government issued disinformation that they were going to create a man-made *Aurora Borealis*.

To measure this EMP, ARPA needed several robust, high-response sensors to monitor this putative magnetic pulse and selected the newly-developed rubidium magnetometer (akin to a sensitive electronic compass) to do so. The manufacturer of these magnetometers, Varian Associates of Palo Alto, was contracted by ARPA to make a half-dozen such magnetometers to be launched in rockets along with the bomb.

At the time, I was working on my M.S. in Geophysics at Stanford and temporarily employed by nearby Varian Associates to test an idea that I later patented for the company and which, unknowingly, set my course for the next 40 years. It involved an application of the same rubidium magnetometer. Familiarizing myself with my 'serial #1' prototype rubidium magnetometer, the most sensitive such device in the world, I spent considerable time testing the device in a large field at Stanford far from man-made disturbances and down the road from Rossotti's.

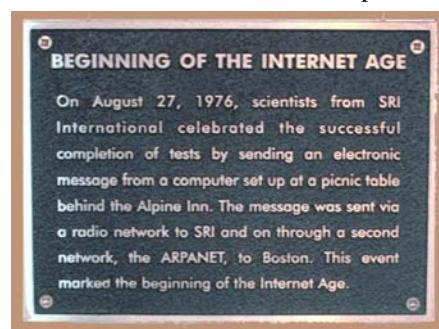


Learning about this 'secret' EMP test from engineers in Varian working on it in the office adjacent to mine, I thought I should be able myself to monitor the effect, even though I was 4,000 miles away from the detonation. I tended my instruments every night for three weeks in the field test site waiting to see the anticipated EMP signals from the blast. Finally, at 1 AM on July 9, 1962, the bomb was detonated. Lights went out in Hawaii. Communications were severely affected for hours over an area 1,000 miles in diameter. Extraordinarily large and fascinating on my recorded magnetometer records, I submitted these recorded observations as my very first published technical paper.



EMP recorded in Palo Alto

The EMP was indeed a proven phenomenon. ARPA consequently decided to initiate a nation-wide, dense network of stations to insure dependable communications in the face of such a challenge -- an array called ARPANET. Though not in the original plan, computers were introduced seven years later on the network which soon became known as -- yes, you guessed it -- THE INTERNET.



The very first transmission on the Internet across multiple networks was made by scientists operating from one of the picnic tables at Rossotti's -- marked by this plaque. In the context of today's world, a seminal *logon* to an innovative network 50 years ago may well have trumped a *lager* imbibed a century earlier.

[Epilogue: In July, a nearby Soviet trawler bristling with antennae closely monitored the American EMP test; in August, the Soviets launched their own 1 megaton bomb, 100 miles up to confirm the EMP. These events were, according to my theory, the trigger for placement, in September, by the Soviets of nuclear missiles in Cuba, to provide assurance of a retaliatory strike --their "Plan B" against the U.S. and the consequential, near cataclysm we now call the Cuban missile crisis.]