

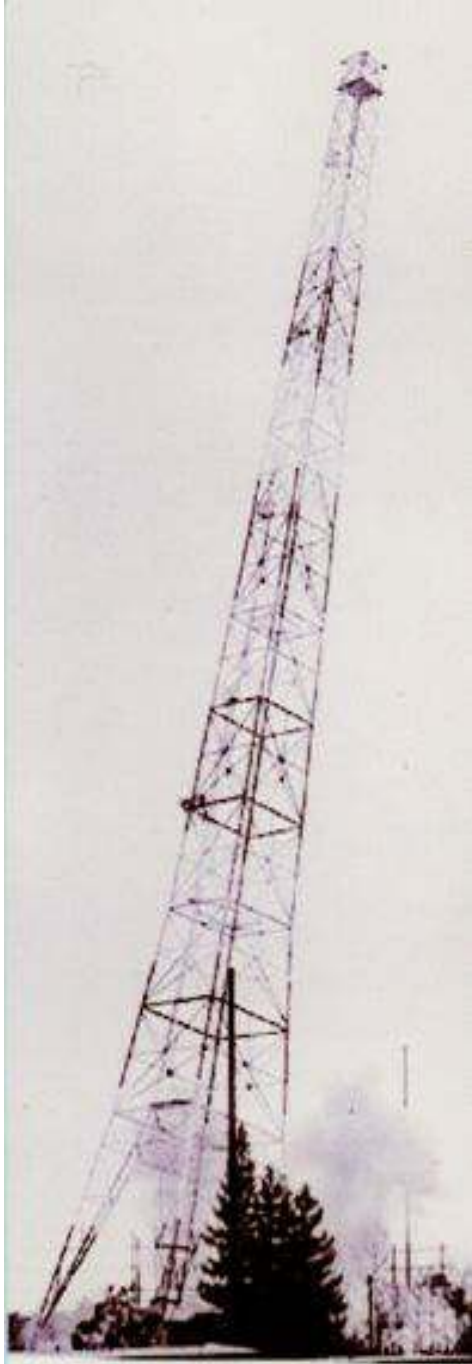
Radio Archeology

A Call to Action

An AWA Presentation by Bart Lee, K6VK, CHRS, ARRL;
Fellow of the California Historical Radio Society, in History

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Correspondence is invited: KV6LEE@gmail.com



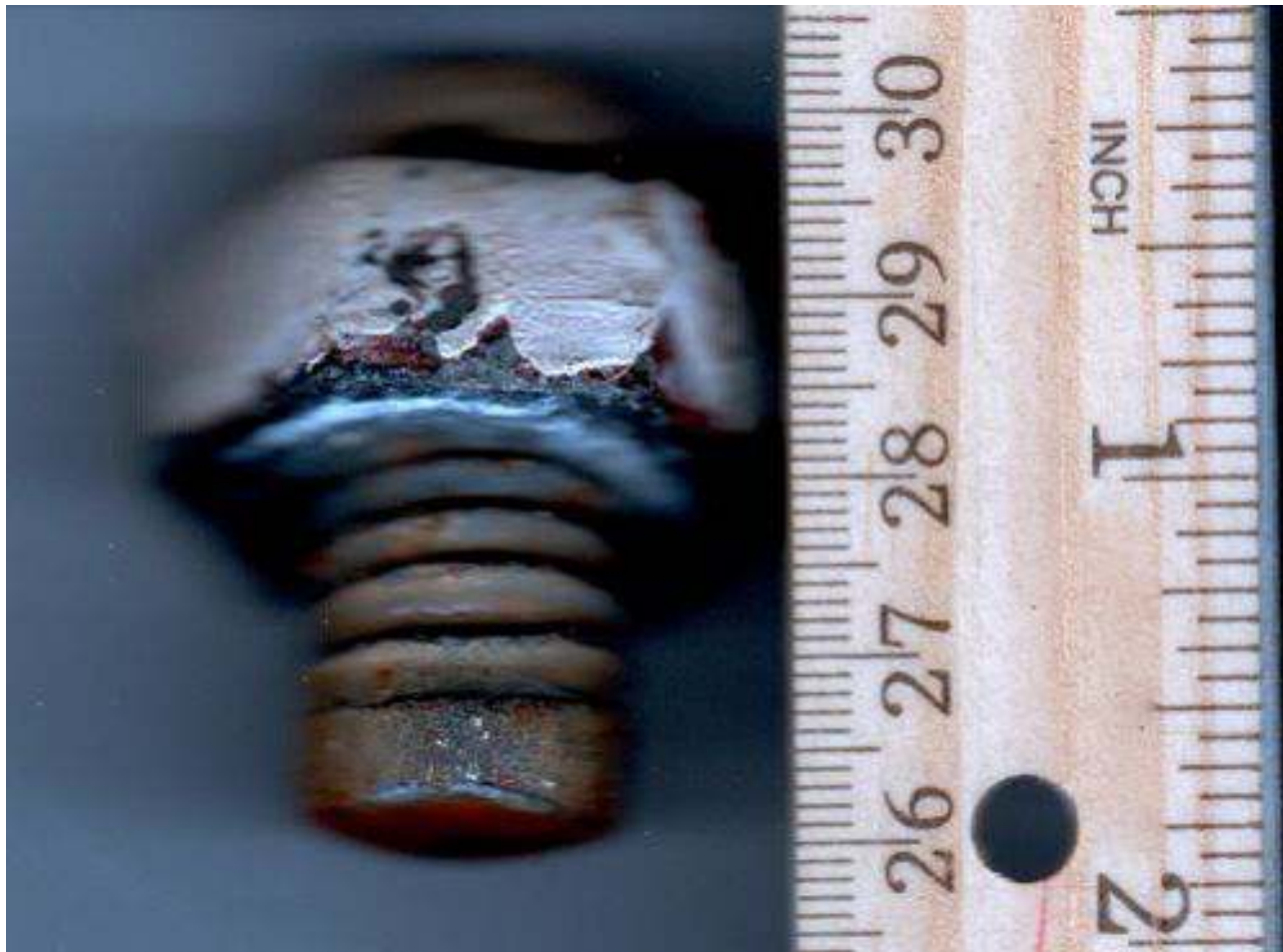
Down It Goes!!

The Last RCA Radio Central Tower
--Dynamited; Long Island,
New York

– What's Left?

Photo from John M. (Marshall) Etter, W2ER,
The Last RCA Radio Central Engineer.

A Nut & Bolt from the Last Tower



Artifact From
John M.
(Marshall) Etter,
W2ER,
The Last RCA
Radio Central
Engineer.

The Electrical Age – What is the Science of its Beginnings?

- **Four Ages of Man:**
- Stone Age – **Fire** and the First Tools;
- Bronze Age – The First Use of **Metals**;
- Iron Age – Strong **Metals**, leading eventually to the Use of **Steam** and the **Railroad**;
- ***Electrical Age – since the telegraph, 1833+-CE, now we enjoy electronic communications and electrical power.***

Radio Freed Communications from Long Wires, 1890s on...

- **Radio**, “Wireless [Telegraphy]” as it was initially known, required:
- **Stations**, places from which to transmit and to receive the signals;
- Stations required **Buildings** to house Equipment and **Antennas** for signaling;
- **Buildings and Antennas** may still exist, or
- They have left **Traces** and **Remains**.

Industrial Archaeology

- “Industrial archaeology is the recording, study, interpretation and preservation of the physical remains of industrially related artifacts, sites and systems within their social and historical contexts.”
- “The study of Industrial Archaeology adds to our understanding of this significant change in the human condition by
- [1] adding a tangible dimension to technical studies, by
- [2] providing technical information on obsolete processes not obtainable from other sources, and by
- [3] supplying useful reference points of economic growth and social change.
- “A research focus on change reflected in production systems, transportation systems, and communities will enhance our knowledge of the complex relationships that link cultural elements and on an understanding of the mechanisms that produce change in those relationships.”
- Robert A. Clouse at <http://www1.umn.edu/marp/indus/indus.html> (1995)

Prime Directive:

- 1) **Take Nothing But Pictures**; and
- 2) **Leave Nothing But Footprints.**
- But with appropriate permissions, artifacts can be salvaged and documented for museums or a landowner or an agency.
- **Work with the Authorities** – they are usually happy to help.
- Digging should be left to professional archeologists with permits and good counsel – the applicable **laws are strict and complex.**

The First U.S. Receiving Site, 1899

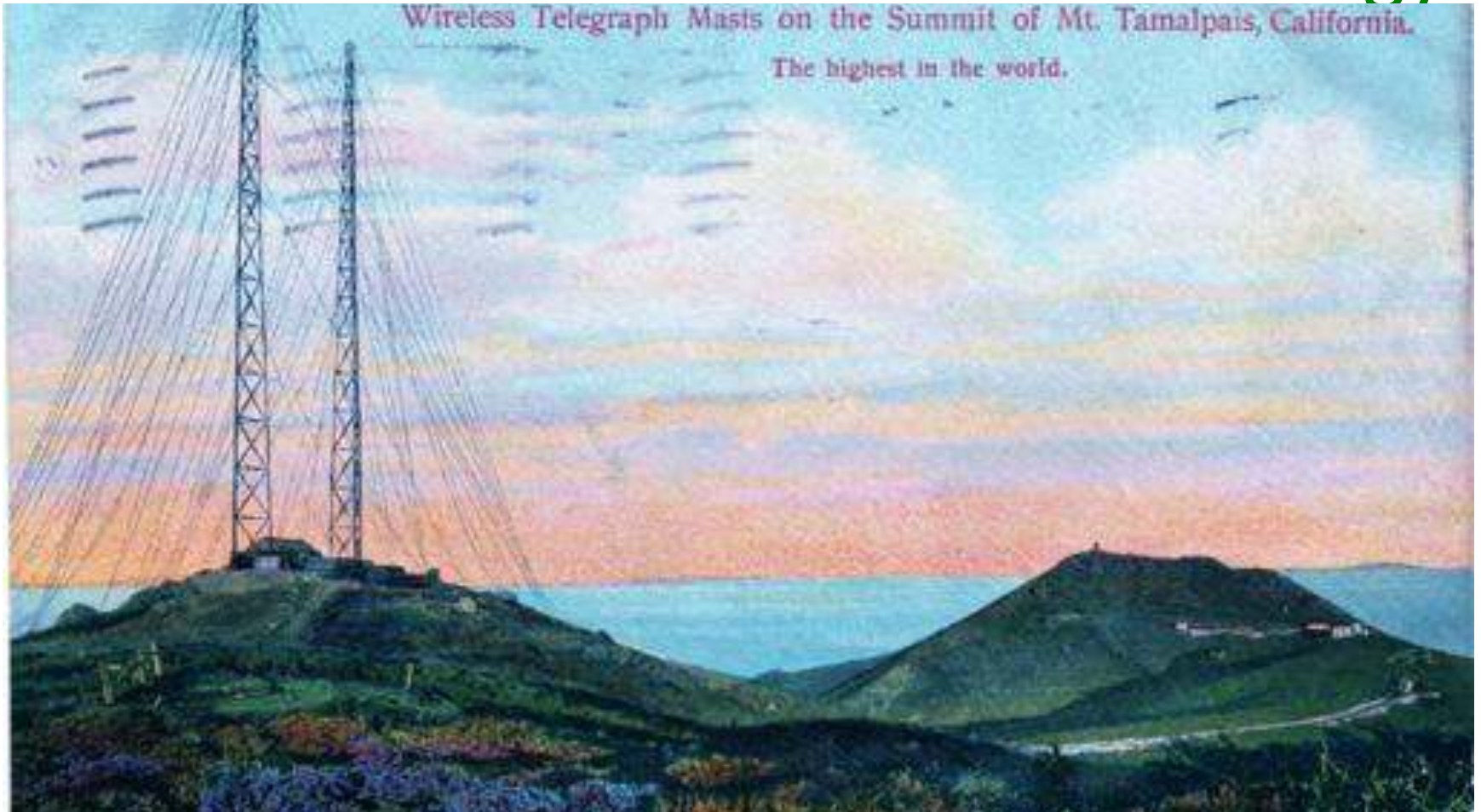
-- A Candidate for Industrial Archeology?



San Francisco's fabled Cliff House,
as it appeared around 1900

The Mt. Tamalpais Antenna, Sabotaged, December, 1906

-- A Candidate for Industrial Archeology?



Marin County, just North of San Francisco, projected Hawaii Circuit – Bart Lee Collection

Mt. Tamalpais 1906 Antenna



Barry McMullan, CHRS, Suggests this is the Place to Start (postcard from his Collection)

Marconi's 1901 Transmitter Site, POLDHU, CORNWALL, UK



Aerial Photo Courtesy of Poldhu Amateur Radio Club, 2007

Marconi Poldhu Site by Google Earth



Marconi Poldhu Ruins



A photo from Google Earth, by G3ZZP, pinned

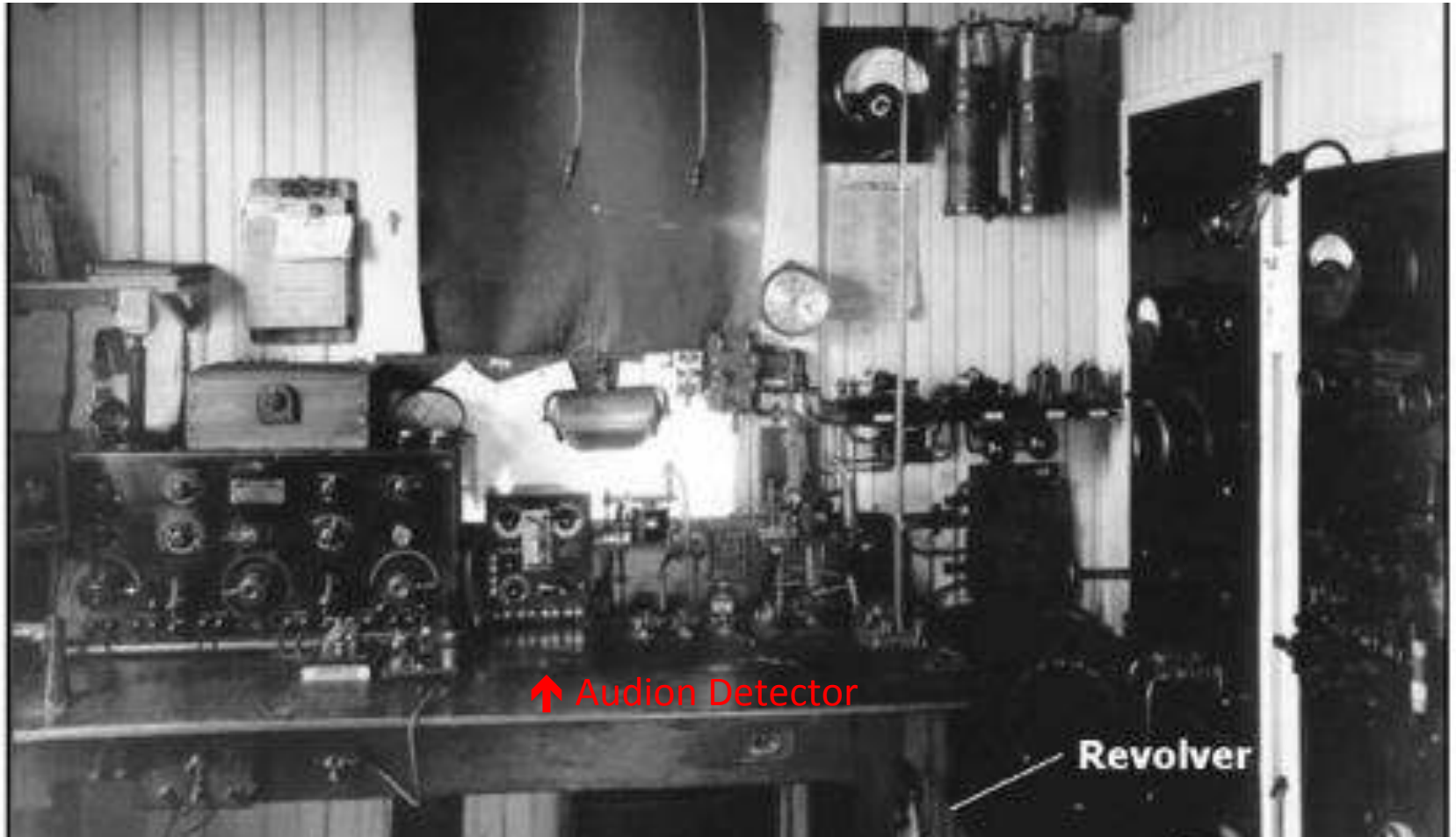
KPH, 1916 -- San Francisco



KPH Hillcrest ca. 1916, located in a depression dug from the side of the hill. Note Lake Merced just above the roof line and to the right of the antenna mast and the Pacific Ocean in the background.

In service
circa 1912

KPH, interior, 1919; Audion, center



MRHS Radio Archeology

- The [Maritime Radio Historical Society](#) has restored, preserves and operates the Bolinas, and Pt. Reyes Marconi/RCA sites in California.
- Principals Richard Dillman (RD) and Mike Johnson set out to find the original Daly City, CA [KPH](#) site.
- They got to it, found the foundations, and photographed the site.
- They published in MRHS Newsletter No. 12.

MHRS Explores the 1912 KPH Site, 2012



Mike Johnson, MRHS on the KPH site; photo Richard Dillman.

Bolinas, Marshall & Pt. Reyes, CA – Marconi and RCA Radio Sites

- Marconi Installed a 300KW Spark Transmitter (Long Wave) at Bolinas for Trans-Pacific traffic, operational *circa* 1914, A.A. Isbell Chief Engineer.
- Marconi Built a Receiving Operation including a Hotel at Nearby Marshall, CA, across a Bay.
- RCA absorbed Marconi *circa* 1919 and put in an Alexanderson Alternator in Bolinas (KEI/KET @ 26 KHz +/-) and brought KPH up to Marshall, 1919.
- Pt. Reyes, a little North, became the main Point to Point receiving site.

Finding Another Antenna's Traces Marconi Marshall, CA Receiving Site



Antennas were on the Hills; 1914 Marconi Operators Hotel (“de Gink”)

Nuts from the Marconi/RCA Marshall Receiving Antennas, saved 1992.



Otherwise, only concrete tower bases and guy-wire stanchions remain.

Marconi Marshall CA Tower Base, and a
Trans-Oceanic enjoying a spectacular receiving site:



Set –up and Photo, Paul Shinn, [MRHS](#), on Marconi Day.

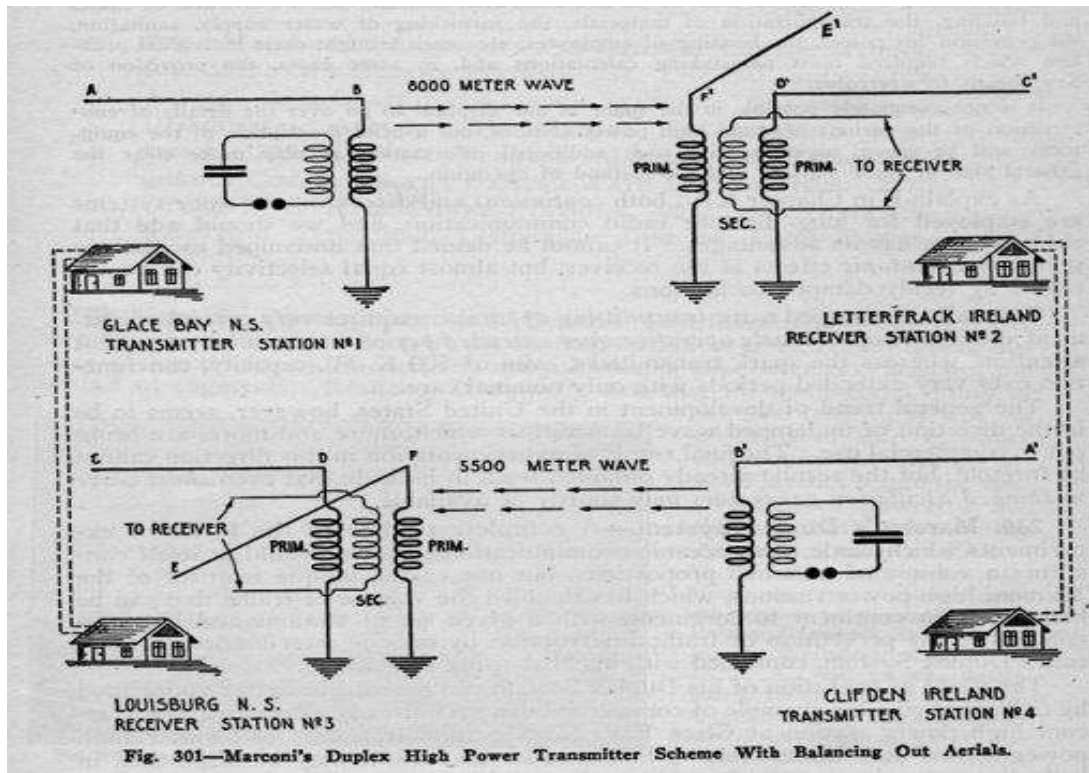
RD (Richard Dillman) Finds a Mystery

- RD went exploring in the Marshall antenna field.
- He found indications of another long antenna crossways to the well known main antenna run.
- He asked around as to what it could be...

Marconi Engineer Elmer Bucher wrote:

In the same manner, station No. 4 would induce oscillations in the receiving aerial at No. 3, setting up no small amount of interference, were it not for the use of the balancing out aerials, E, F, and E¹ F¹ at stations No. 3 and No. 2, respectively.

These balancing aerials are generally located at a right angle to the main receiving aerial in such a way as to receive the *maximum induction* from the nearby transmitter and the *minimum induction* from the far distant transmitter.



RD discovered a
Balancing Antenna at
the Marshall
Receiving site,
hitherto unknown.

Note Illustrative Use of the
Clifden and Letterfrack,
Ireland Sites by Bucher.

Marconi & RCA at Bolinas, CA



Bldg. 1, Home of the 300 KW 'Rock Crusher' Spark and then the Alternator for 26 KHz.

Photo Bart Lee, 2012

Bengt Svensson of SAQ Identifies an Inductor Base for the Alternator Antenna



Photo Bart Lee, 2012

Identical Base at SAQ:

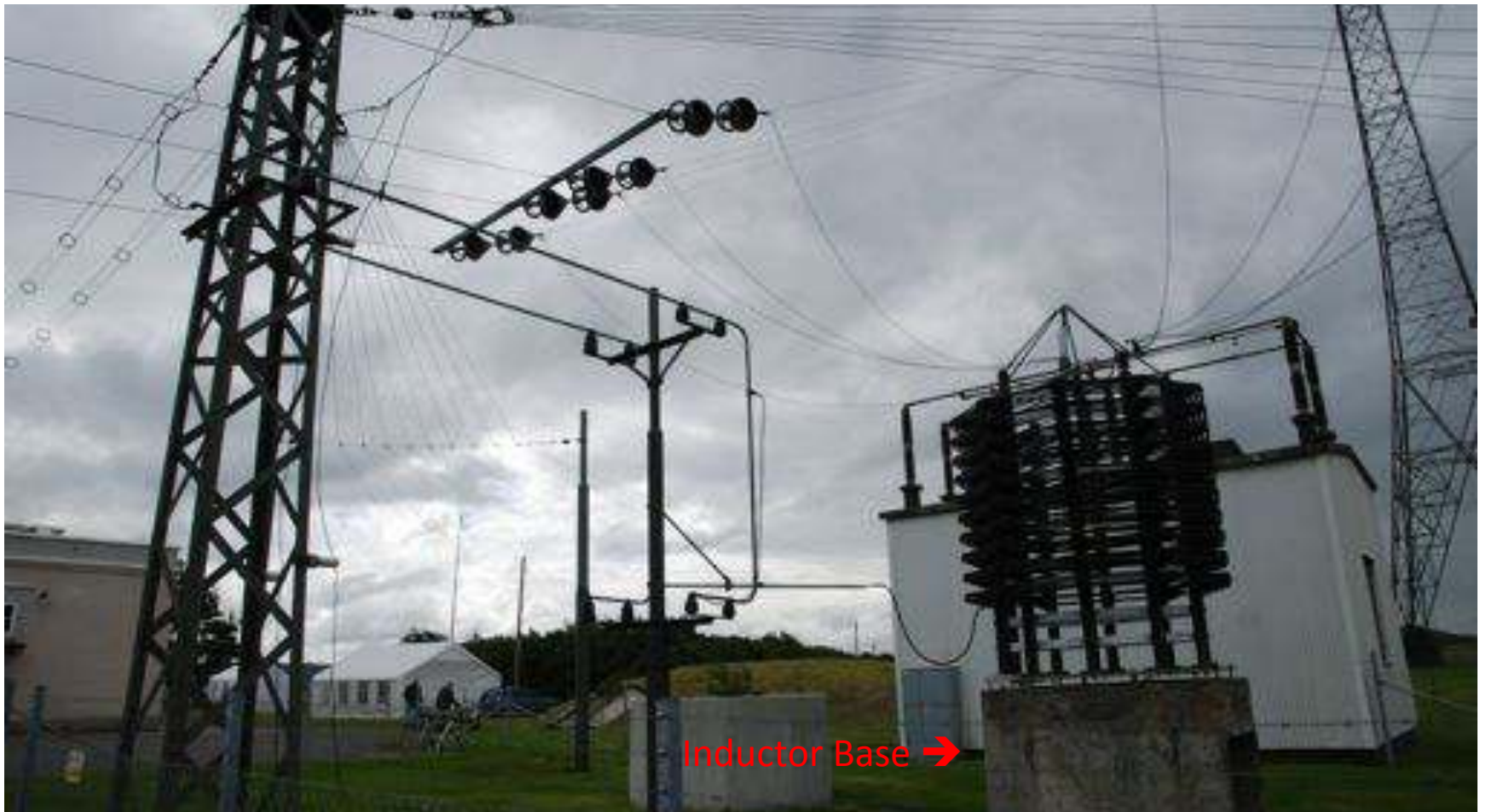


Photo Anders Widdell, Sweden, at SAQ

Bengt at the Riggers' Shack near Bldg.1 at the Marconi/RCA Bolinas Site (2012)



Photo Bart Lee, 2012

Clifden, Ireland is a Radio Archeology Site Now Being Investigated

- Considerable Literature Helps.
- Easy Access out on the Peat Bogs – But Don't Fall In!
- The Local Population Celebrates its Marconi Connection and Marconi's Irish Ancestry.
- Real Radio Historians Drink **Jameson's Irish Whiskey** in Honor of Marconi's Mother, **Annie Jameson**, who believed in him and introduced him to the family fortune **£££** in England.

Historian Michael Gibbons, standing like some stout Cortez on a peak at Darien, surveying the Clifden, Ireland Marconi site with a centenary tour 12 October 2007:



Photo © Bart Lee 2007, reproduce for any proper purpose ##

The Clifden Site, Commemorated



A Stairway Now to Nowhere:



Photo Bart Lee, 2007

Then Signals, Now Sheep:



Photo Bart Lee, 2007

Some Foundations Remain:



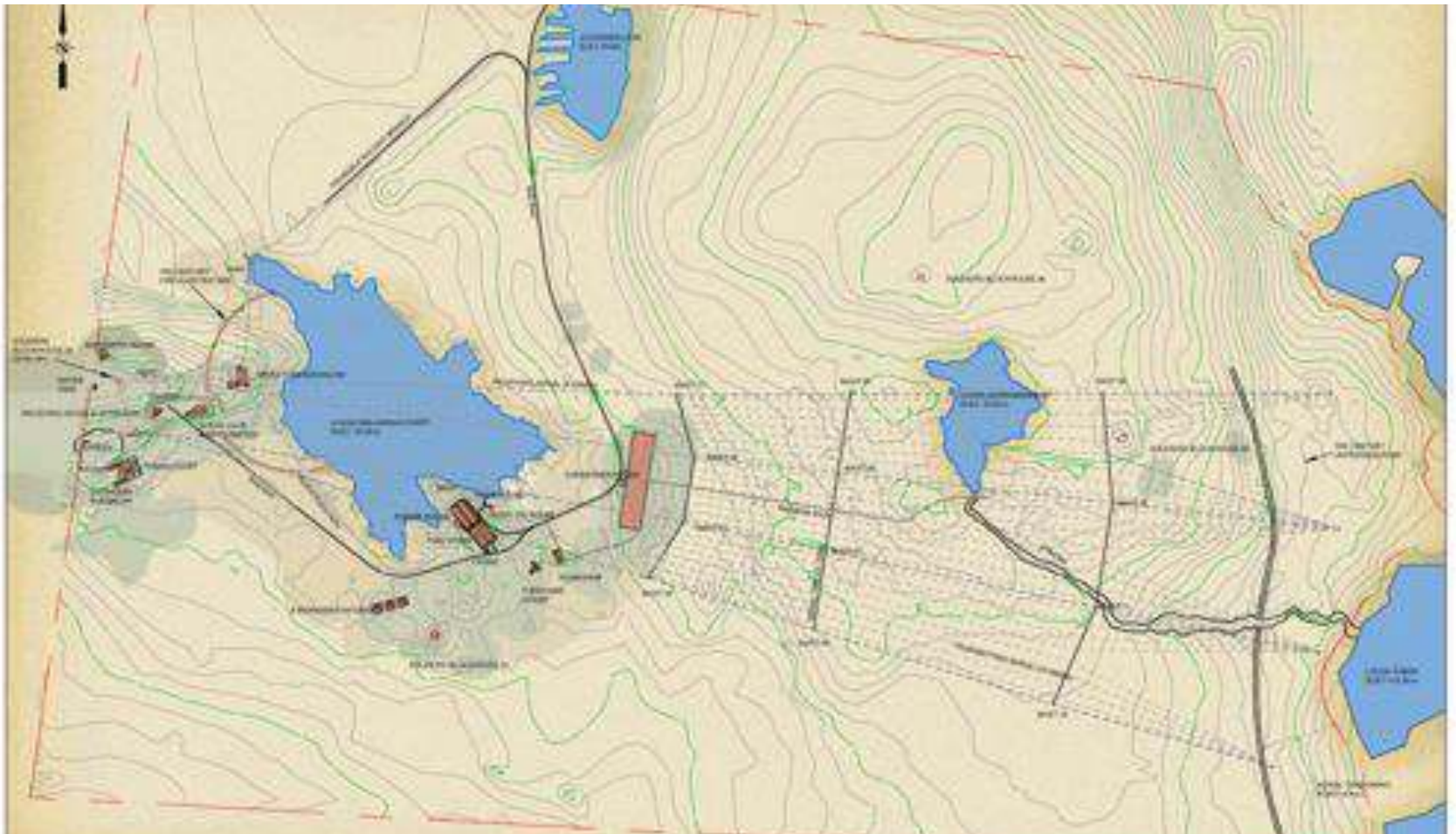
Photo Bart Lee, 2007

Clifden Bits, 2007 & Earlier



Bolts and Insulator Saved by an Unknown Enthusiast, now Destined for the CHRS Museum;
Graphic Bart Lee, 2013

Marconi Clifden Site, Archeologists' Map, 2012



Survey and Map by Michael Gibbons and Shane Joyce, Galway, Ireland.

Documenting Old Radio Sites

- Existing Histories – *e.g.*, *AWA Review*
- Old Station Lists – Since at least 1907
- Local Knowledge – Antique Radio and Amateur Radio Clubs
- Local Academic and Government (NPS) Archeologists – What's been done?
- Tools of the Trade – GPS, Markers, Measurers (Rods and Tapes), Cameras, Inclinoimeters, Maps, Surveying Instruments & [Google Earth](#)

Tools: An Illustrative Example in the Microcosm

A Two Conductor
Shielded Co-ax
Large Aperture
Vertical Loop Antenna,
Oriented North –
South (for reception of
SAQ), 33 meters
by 1.7+- Meters, =
60+- Square Meters
Aperture. Note The
Pulley by the Base of
The **North Arrow Stick** >>



Two One-Meter Sticks,
North Arrow, (& Sign),
Photographed; A GPS
-Enabled Camera Will
Record the Exact Location;
here:
 ϕ 37°55' N, λ -122° 1' W.

Distance Measured
with a Tape Measure
In Meters, not Feet.

North End of Large Loop



<< A Standard
Meter Stick
For Scale.

Measuring Small Artifacts with a Centimeter Ruler



Tools, An Illustrative Macrocosmic Example: Google and Google Earth



That Was Then:



Post Card, Bart Lee Collection

Closing in on Marconi Cape Cod



A Photo from **Google Earth**, pinned at the Marconi Site; This Is Now:



Photo by Jim Harrison

Using Google Earth to Find a Site: NCZ on Hog Island, VA, as of 1919



NCZ Ruins?

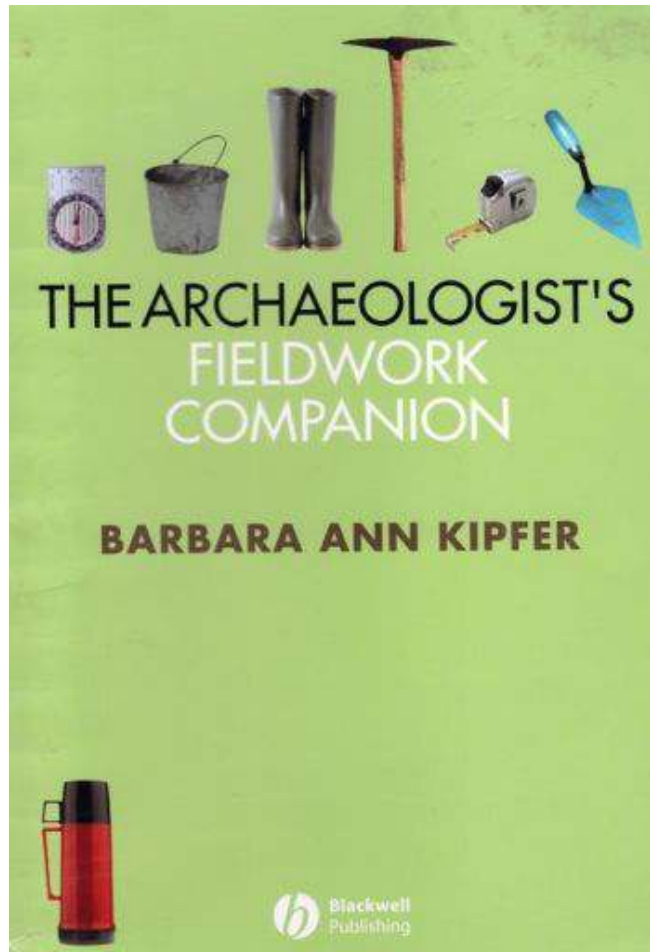


← Ruins North of Tower

Photo by "jhp7E" pinned by Google Earth

The Best Guidebook

Very Good on
Forms and
Records



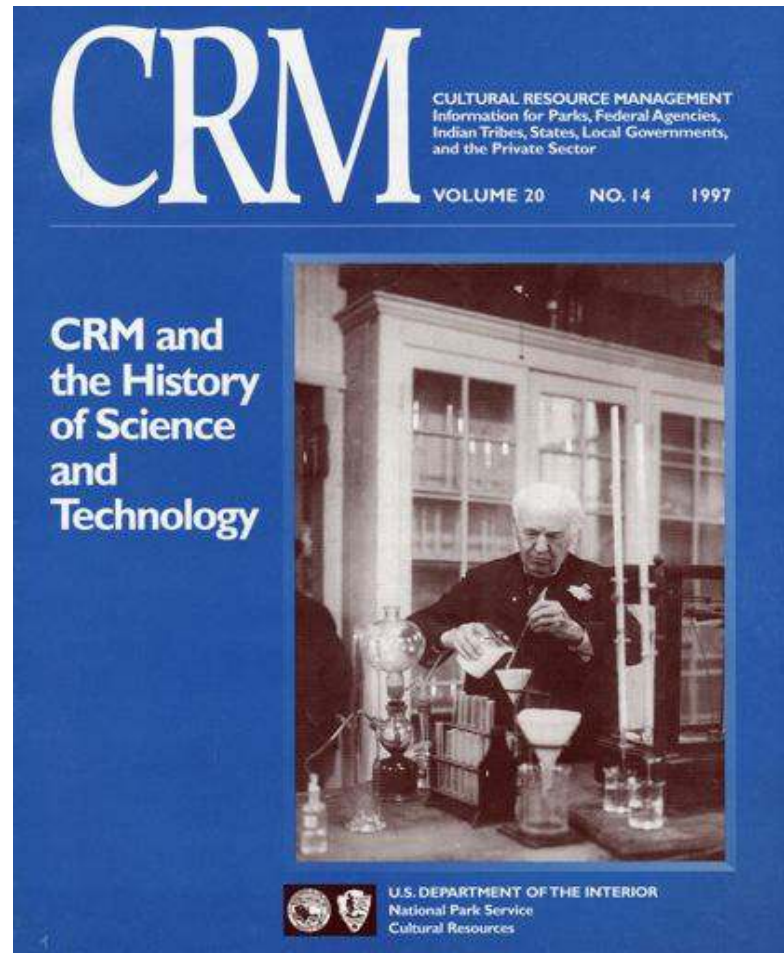
Books and Tools
are easily
available from
[Amazon.com](https://www.amazon.com)

<http://www.siahq.org>

SOCIETY FOR INDUSTRIAL ARCHEOLOGY

“The Society for Industrial Archeology was formed in 1971 to promote the study, appreciation, and preservation of the physical survivals of our industrial and technological past. The word "archeology" underscores the society's principal concern with the physical evidence of industry and technology -- the study, interpretation, and preservation of historically significant sites, structures, buildings, artifacts, industrial processes, bridges, railroads, canals, landscapes, and communities.”

“Cultural Resources Management”



A National Park Service Publication

A CRM Report: History and Archeology

Stephen A. Haller and Bartholomew Lee

Resurrecting the Presidio's Historic Radio Network

The "penthouse" message center at the Fourth Army Headquarters, the Presidio of San Francisco, just before World War II. The men at the typewriters are transcribing Morse code radio messages and routing the hard copy to staff departments

A small, unassuming concrete building lies abandoned behind a chain link fence on a windy hill overlooking the Pacific in a remote part of San Francisco's Presidio. The hill was the site of the antenna farm for the Presidio's World War II radio transmitters, and the building was the Coast Defense Radio Station. The Perham Foundation and the California Historical Radio Society are working with the National Park Service to research the history of the Presidio's military radio network and preserve its associated artifacts and structures.

As headquarters of the Ninth Corps Area during the inter-war years, the Presidio was an important link in the Army's radio network from

and greatly contributed to the victory in the Pacific.

By 1941, the Presidio had an official, but secret,

monitoring station. On the eve of World War II, the Army finished a more expansive facility for Radio Station WVY and a dedicated Harbor Defense Radio Station. Testimony from the congressional investigation of the Pearl Harbor attack makes it clear that the Presidio was intercepting Japanese radio transmissions on the eve of the attack. During the war, the Western Defense



Adaptive Re-Use: An Ideal of Cultural Resources Management



Two Working
AM Stations >>

Abandoned
Studios

KRE building, dating from 1939, as of 2002; photo Mike Adams, CHRS

Adaptive Re-Use

C-H-R-S-
California Historical Radio Society

Museum, Library, Station **W6CF**, Radio Shop, Hall of Fame, *etc.*,



W6CF QSL Card Photo by Mike Adams, CHRS

Current Professional Work



British Archeology, March – April, 2013, p.65

A Call to Action

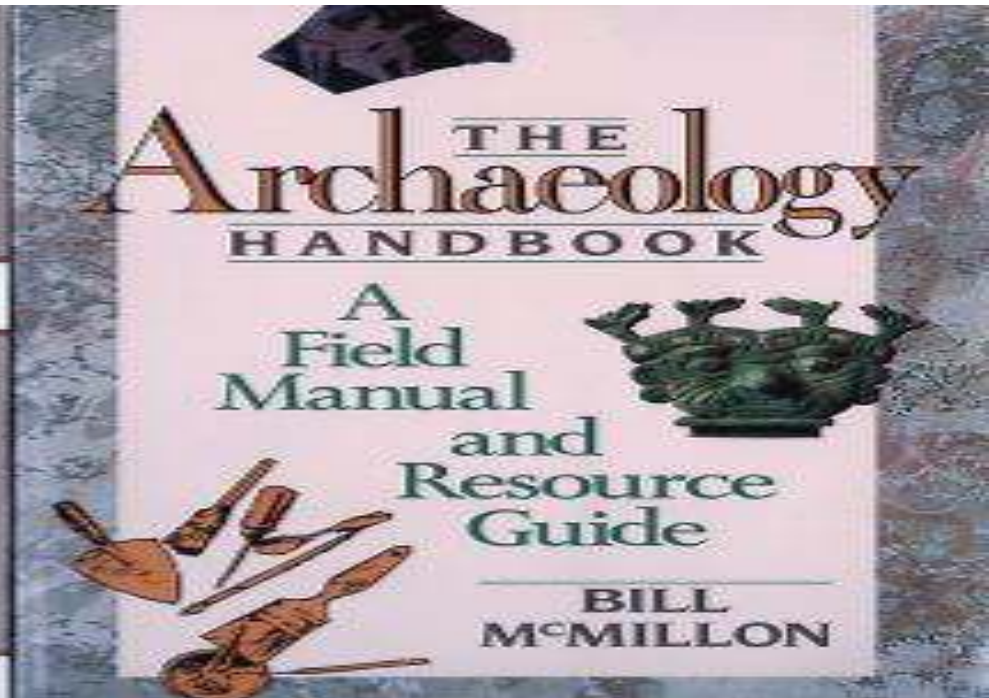
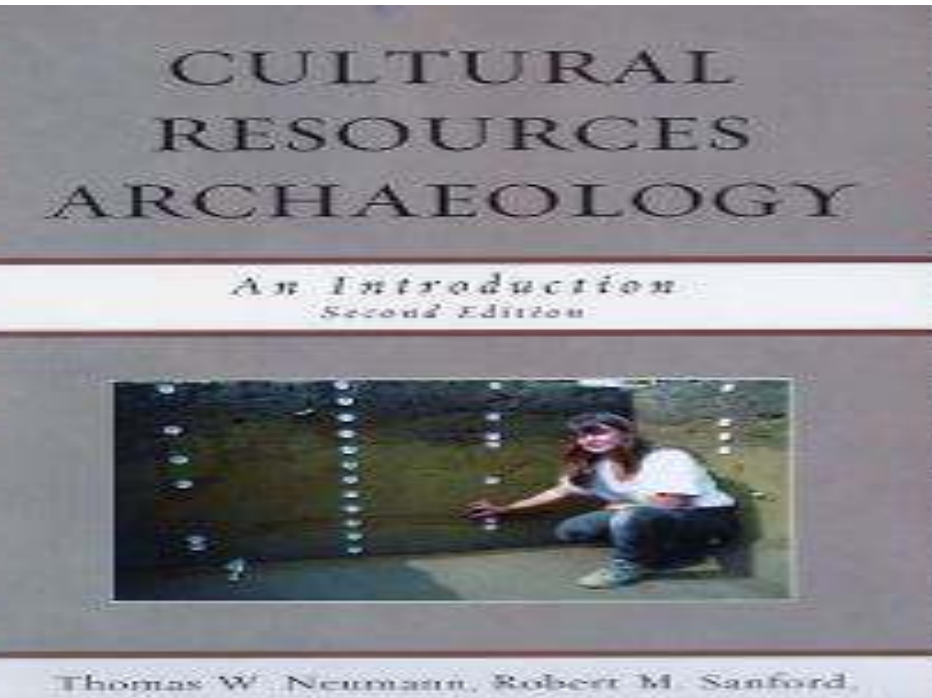
- Find and Document Old Radio Sites
- Work with Owners and Agencies
- Work on behalf of Local Organizations
- Explore and Report with full Data and Photos
- Publish Reports
- Please tell me what you have done or propose; Bart Lee: KV6LEE@gmail.com.

A Bumpersticker:

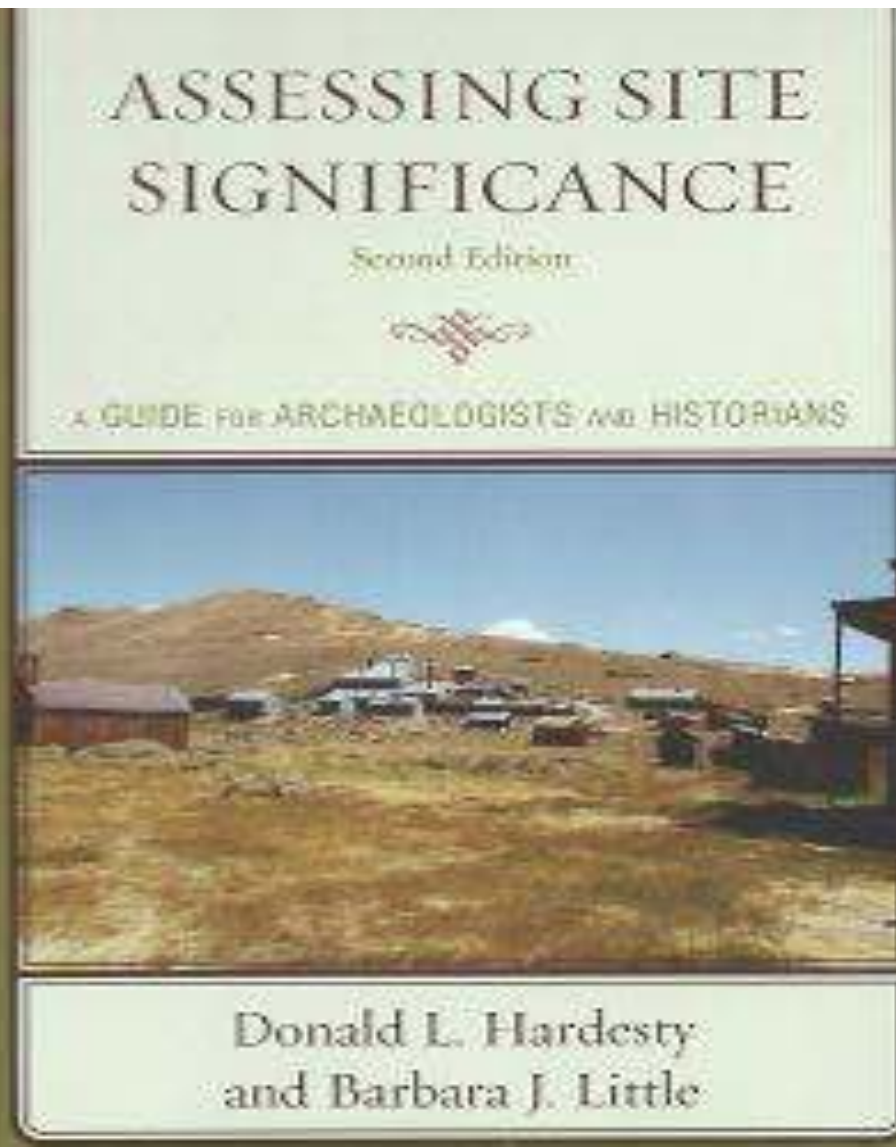
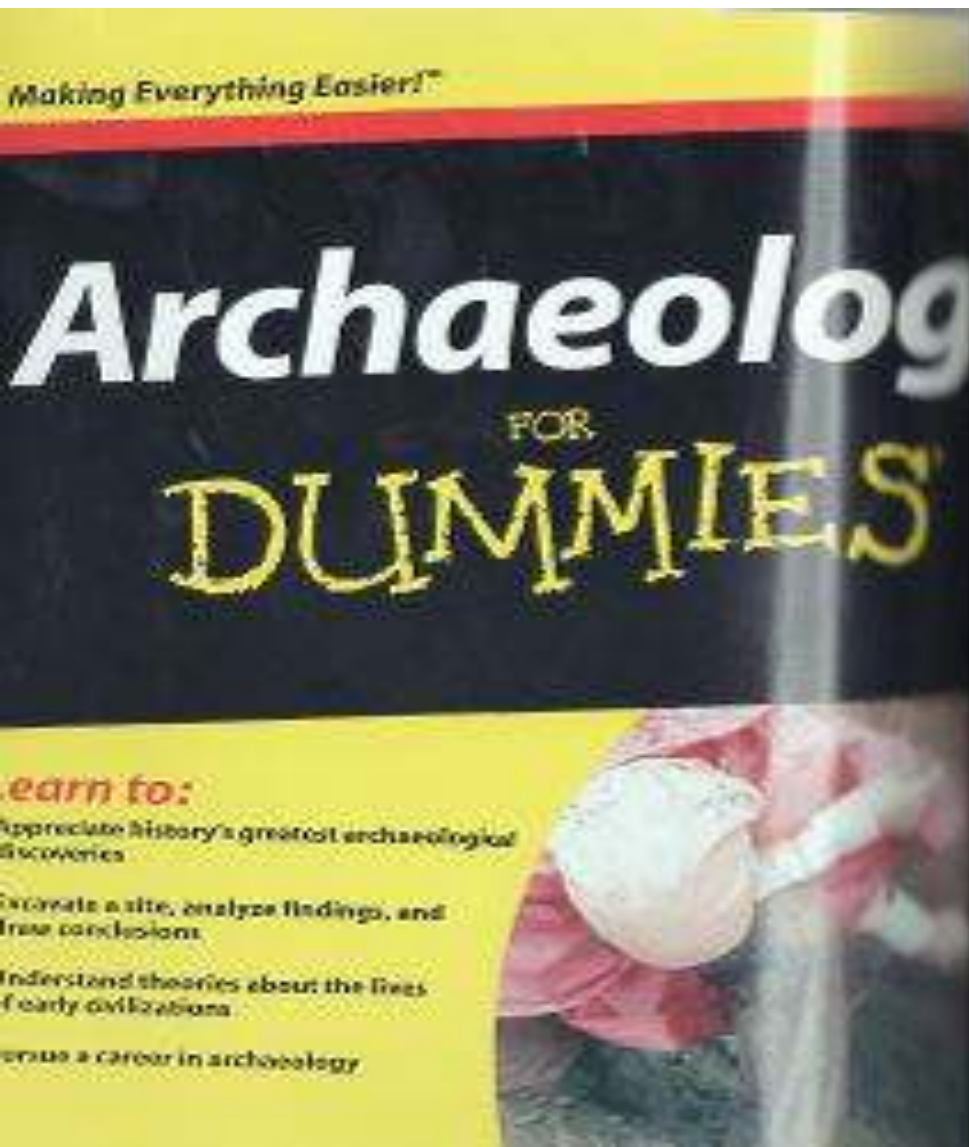
StorckBuns.org LLC 2003

Protect
Cultural Resources
Support Archaeology

Some Resources:



More Resources:



Venue Diploma



Correspondence is invited: KV6LEE@gmail.com