

AESS HISTORY REPORT TO THE AESS BOG SPRING 2012 MEETING

JIM LEONARD, HISTORY CHAIR

On March 29, 2012, I was contacted by the National Electronics Museum (NEM) Director, Michael Simons with the following proposal:

In December 2011 I was contacted by Al Giambalvo (senior electrical engineer with the Naval Explosive Ordnance Disposal Technology Division) and Ed Lyon, a retired electronics engineer about the remains of the Operation Moon Bounce project located at Stump Neck Annex, Naval Surface Warfare Center Indian Head Division, Charles County, Maryland. Details of the project are included below but in short the project involved the construction of a large, in ground, parabolic antenna designed to capture Soviet radar transmissions as they passively reflected off the surface of the moon (PAMOR). A number of WWII era antennas were used in ancillary roles. The site later became famous when used to transmit and receive long range communications using the moon as a relay (Moon Bounce). While the effectiveness of PAMOR was limited, the Naval Research Laboratory were the first to discover reflections from the moon could be used for communications (1951), the first to transmitted human voice signals over a satellite circuit (1954), and the first to demonstrate transcontinental and transoceanic communications by satellite (1955). The site was abandoned in the 1960's.

Al and Ed contacted NEM with the proposal that the museum undertake a recovery and restoration project. I made several trips to the site. It appears the gear at the site was abandoned in place. In addition to the in-ground parabola are four WWII era SK-3 radar antennas, including a complete pedestal, several feed horns, a partial WWII era SK-1, the boom mounted feed horn for the in-ground antenna, the boom, the control towers and winches. The condition of the antennas etc. vary but are salvageable.

The significance of the site has been recognized by the Navy and a National Register of Historic Places nomination form is in preparation. Since the Moon Bounce site is on a secure Navy facility few people will have access to it. In addition the Navy has no plans to preserve the site nor to halt or slow the eventual deterioration of the various antennas. Given its immense size it is beyond NEM's means to restore the Moon Bounce antenna but restoration and preservation of the other antennas at the site is definitely possible. The Navy has expressed an interest in allowing NEM to take the SK-3 antennas back to Baltimore for restoration and eventual display. They have also indicated that would assist in removing the antennas from the site. The smaller antennas were important to PAMOR and Moon Bounce plus they represent the only remaining examples not preserved shipboard (n=3) where they can be seen up-close.

To date NEM has recovered and repaired many historic and unique radar antennas from around the country and Canada including the SCR-270 (Saskatchewan), Giant Wurzburg (Colorado), XAF (Virginia), Nike Ajax (Connecticut), TPS-43 (Maryland), and SPG-55 (Maryland). We would like to add a SK-3 (Moon Bounce) antenna to our list. I am appealing to your societies to consider assisting NEM recovering, restoring, preserving and displaying these important pieces of American scientific history through a cash or in kind donation. Monies would be set aside specifically for this project. An estimated cost for this

project based on previous restorations is \$ **30k**. NEM, USN and Northrop Grumman Corp will supply administrative and logistical support.

I thought that this may be a worthwhile proposal and contacted Bob Rassa for his comment: He responded:

m- I agree that this is worthwhile. Further, if we (aes) were to fund one restoration on our own, it would qualify as an ieee initiative, meaning we could spend some of last year's surplus. We could get a plaque noting that the antenna was restored courtesy of ieee-aes. Shall we contact mike simons and ask the cost of a restoration? Then we can decide how to proceed.

For those of you not familiar, the ieee autotestcon permanent McGinnis Award is on display at this museum.

I noted that Mike had contacted other societies and requested details. His response was:

These guys were cc'ed.

IEEE Communications Society. Steve Weinstein, Chair, History Committee sbw@cttcservices.com ; Vijay Bhargava, president. vijayb@ece.ubc.ca

IEEE APS Karl Stephan (APS historian) kdstephan@txstate.edu , Dr. Steven Best, President srbest@ieee.org

I spoke with Richard Sparks of MTT-S. They already give us 15k although there is a quid pro quo to part of that donation so they might be good for more.

Since AESS provides an annual stipend of \$5K to NEM, it looks like we might be able to form a consortium to fund this project.

I would like th BoG to discuss this and provide direction to me as to how to proceed.