Way Back When ..... with Museum Archivist

By: Doyle Piland
From the White Sands Missile Range Museum Archives

People at White Sands today know the area out US Highway 70 to the east about 20 miles or so as the High Energy Laser System Test Facility (HElstf). People visiting there, may be puzzled by the one large dome and two small domes that are a part of that facility today. People who work there, most likely don’t give them a thought, but also may not know anything about their history.

Well, Way Back When… in early 1963, that part of White Sands looked like most any other part of the desert. Then, in March 1963, site preparation began for the Multi-Function Array Radar, commonly referred to as MAR, or since this was the first, it was also called MAR-I (one). Construction and equipment installation continued on the domes and underground complex until June of 1964, when the radar was first powered on, starting the test program.

After several years of Research and Development (R&D) testing of the Nike Zeus Anti-Intercontinental Ballistic Missile system the three different radars used with the Nike Zeus system were deemed to be inadequate. These radars were limited by mechanical rotation constraints and became obsolete as technology advanced and the ability to electronically steer the radar beam became possible.

This brought about MAR-I, part of the Nike X program, which was a follow-on to Nike Zeus that had been active at Launch Complex 38. Technological advances had made it possible to develop array radars without the normal mechanically rotating/positioning radar antennas, and MAR-

I was the Army’s first effort to take advantage of this development. The photo on page 3 shows the completed facility, with the one large dome and the two smaller domes.

In the photo, the transmitter array can be seen on the small dome at the right corner of the facility, while the receiver array is on the larger dome. The MAR-I was built with only one transmitter array and one receiver array, with the expansion capability to add a transmitter array on the other small dome with the array pointing to the left, and a receiver array in the raised portion on the left side of the large dome.

The domes were all steel and most of the equipment and facilities were under ground. There was a Nike Hercules tracking radar on top of the large dome and one on the short tower to the right of the main facility. These radars were used as instrumentation radars to verify the accuracy of the MAR-I radar.

A large outer fence was referred to as a “clutter fence.” It was called that because it blocked the radar signal reflected from the ground (called ground clutter) from being received by the radar and displayed. Some of it is visible at the edges.

An interesting thing about the MAR-I, was that it had its own electrical power line that ran all the way from the El Paso Electric Newman power plant to the substation just outside the clutter fence. There were no other customers connected to that line at the time.

As R&D testing continued, advances in technology were making even the MAR-I technology outdated. How-

Continued on Page 3

Signing for Southern N.M. History Book will be April 25

There will be a book signing at the White Sands Missile Range Museum on April 25 from 2 to 4 p.m. It will feature Dr. Jerry Cox autographing copies of his new book called “Ghosts of the Guadalupe.”

This is the perfect book for you, if you are interested in knowing more about Southern New Mexico families and their living conditions between 1905 and 1955. If you enjoy reading about old timers, murder, mayhem, and how life was in the good old days, “Ghosts of the Guadalupe” is the book for you.

The book illustrates the impact of civilization on a land area known as the Guadalupe Ranger District, encompassing Chaves, Dona Ana, Eddy, Lincoln and Otero counties. It’s arranged by land ownership and allotments in three sections - land ownership, vegetation change and livestock populations.

This 512-page book is loaded with family pictures, more than one per page. You may find your ancestors here!

Dr. Jerry Cox, a retired scientist and currently a high school teacher in Carlsbad, spent six years researching and writing “Ghosts of the Guadalupe.”

The WSMR Historical Foundation will provide refreshments during the signing party. Everyone is invited to attend.
A Letter From the Pioneer Group President

Greetings Fellow Pioneers ----

It has been both a pleasure and an adventure to serve as the President of the White Sands Pioneer Group during the last two years. The terms for the current officers expired on December 31, 2005. Since then, Dolores Archuleta has volunteered to continue as Vice President, Austin Vick has stepped up to become Secretary/Treasurer, and I am searching for someone to volunteer to become President.

In the upcoming months, the WSPG will support the Hall of Fame program by reviewing nomination packages and providing assistance for inductees and their families attending the Hall of Fame luncheon and induction ceremony. Also in the upcoming months, the White Sands Historical Foundation and the White Sands Pioneer Group will continue to partner to produce the quarterly newsletter to be mailed to the members of both organizations. The plan is to produce an expanded newsletter with more features by the end of this calendar year and maybe sooner.

The Pioneer Group was formed with the express purpose of preserving the history of White Sands Missile Range through interchange among its members without formal schedules, goals or dues. Those members who were employed at WSMR during the days it was known as "WSPG" have lifetime memberships. Those members who have been employed since the days of "WSMR" pay dues of $10 per year. Officers are elected for two-year terms.

In order to continue the support to the Hall of Fame program and to continue to send out the quarterly newsletter, the WSPG needs funds! We have not had a “Call of Dues” in some years, and the funds are very low. Please mail in your dues and/or donations to the White Sands Pioneer Group, Post Office Box 318, WSMR, NM 88002.

Tomas Chavez
President

Editor’s Note

As we try to make the joint newsletter a regular quarterly publication with more content, we will make some changes. To try to make room for more stories, I have reduced the size of the type from 12 point to 10 point. This is in line with most books, magazines and newspapers.

Also, we want to run more photographs. We will experiment to see how they turn out on regular paper but we may have to go to better paper to get quality reproductions.

Many of you contributed stories about White Sands in years past. Thanks you for sharing.

We would like to bring that quality back to the newsletter so we would like to see more people contribute. Personal stories have always been the best liked part of past newsletters.

Please take some time and write up one or two of your memories and send them to me so we can share them with both organizations. Or, maybe, you have a comment on current affairs at White Sands - send it.

You don’t have to send complete or polished stories. Just give us few lines and I’ll use them as filler - an editor’s best friend.

Your photographs would be appreciated as well. You can send them via email or let us borrow them until we can scan them.

Send your stuff to me via regular mail at the Foundation address in the box below or by email to:

nebraska1950@comcast.net.

Jim Eckles
HAH editor

Statement of Purpose and Membership

The "Hands Across History" newsletter is published by the White Sands Missile Range Historical Foundation and the White Sands Pioneer Group (WSPG). Both nonprofit organizations aim to preserve the accomplishments of White Sands Missile Range.

The newsletter is intended to keep members of both groups informed about current events and share information of common interest. The editor

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P.O. Box 318  
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White Sands Historical Foundation  
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is Jim Eckles. He can be contacted by email at nebraska1950@comcast.net or at either address below.

Membership to either organization is open to anyone who shares their goals. However, details of membership (dues, etc.) differ between the two groups. For more information, please contact the appropriate organization and we will send it via the Post Office or email.
Foundation President Welcome Message

Hello to all of you…. and welcome to this year’s first quarterly joint newsletter, “Hands Across History.” Our goal is to expand the format to include current as well as historical articles, and your membership in the Historical Foundation or the Pioneer Group ensures you will receive these quarterly newsletters.

I want to thank all of the members and officers of the Historical Foundation Boards of Directors since inception in 1992 for their work to support the White Sands Missile Range and The Museum and Learning Center at White Sands. We have included donor recognition charts for the fund raising activities for 1992-1999 and for 2000-2005, and you will see there has been a lot of hard work in fundraising!

The current Board is made up of the following volunteers:

Pamela Vick, President
Tomas Chavez, Vice President
Jon Gibson, Treasurer
Frances Williams, Secretary

Other Board Members: John Bayer, Jim Eckles, Pamela Hoscheit, Doug Messer, Bob Lipinski, David Soules, Len Sugerman, Jerry Tyree, Margaret Tyree, and Austin Vick.

Dolores Archuleta, Ex Officio (voting) board member representing the Pioneer Group.
Terrie Cornell, Ex Officio (non-voting) board member as the Museum Director.

If you have any questions, comments or recommendations relative to this Newsletter or the activities and operations of the Historical Foundation, please contact me through the Foundation post office box - PO Box 171, White Sands, NM 88002. Call me at (505) 522-4179 or email me at pvick@zianet.com.

I welcome your suggestions.

Pam Vick
President

Go to pages 6 & 7 to see the donor charts

Way Back When

ever, there were many things to be learned from the MAR-I testing and it remained operational until 1969.

The technology advances had made it possible to consolidate the transmitter and receiver function into one array. So, at Kwajalein Island in the Pacific, construction had begun on the R&D Common Aperture Multi-function Array Radar (CAMAR).

Eventually, as the technology settled out, the Nike X system concept, which included the Spartan and Sprint missiles, was replaced by the Sentinel system (later renamed Safeguard), which also included the Spartan and Sprint missiles along with two phased array radars called the Missile Site Radar (MSR) and the Perimeter Acquisition Radar (PAR) and one site was eventually built in North Dakota. The CAMAR building was completed, but never populated with equipment and was turned into an environment-controlled warehouse.

And, that’s the way it was, Way Back When…..
By Tom Starkweather

Historians agree there were three pioneers of space travel. The potential of the rocket was realized by these three giants of their time. They were born in different countries and never saw each other.

The Russian school teacher, Konstantin Eduardovitch Tsiolkovsky, was born on 17 September 1857 in Izhevskoye. Of humble origin, he studied mathematics and physics on his own, teaching himself everything he ever learned. In 1878 he became a “people’s school teacher” and moved to Borovsk. There he began to experiment in a home laboratory and to write reports on his findings. On the basis of his papers he soon was elected to the Society of Physics and Chemistry in St. Petersburg. And then, in 1883, he made the discovery that was to lead the world into the space age. He not only understood reaction flight, he refined the idea in the years that followed and in 1898 he published “Exploration of Space with Reactive Devices.” Tsiolkovsky worked alone with little equipment and no funding. In 1903 he described liquid fueled rockets and later a multi-stage rocket as being the only feasible means to escape the earth’s gravitation. Once he had worked out the basic principles of rocket dynamics, he devoted his time to space flight itself.

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From 1925 to 1932 alone, he published some 60 papers on astronautics, astronomy, mechanics, physics and philosophy. Tsiolkovsky passed away in Kaluza on 19 September 1935, two days after his 78th birthday.

The second great pioneer of rocketry and astronautics was Hermann Oberth. He was born in Hermannstadt, Transylvania, on 25 June 1894 to a German family although Transylvania was then part of Hungary. Like others, his interest in space was triggered by the science fiction writers of the 19th century, especially Jules Verne. He too read such classics as Wells’ “War of the Worlds” and Verne’s “From the Earth to the Moon” and – like Tsiolkovsky before him and Oberth after him – was inspired. He received his doctorate in 1911 from Clark University in Worcester and became a professor of physics there. While a student and a professor at Clark, he made detailed studies of liquid-propellant engines. He was soon convinced he was on a path that would one day lead to the stars.

In September 1918 Goddard showed two Signal Corps officers several rockets that were ready for production. One could be fired by a doughboy in the trenches. The larger could carry an 8-pound payload three quarters of a mile. These were demonstrated at Aberdeen Proving Ground on 7 November 1918. With Armistice, the Army lost interest only to re-discover the technology a whole war later with the Bazooka.

Robert Goddard experienced disappoint-
ments that would have felled a lesser man. He once ob-
served “God pity a one-dream man.” In 1919 he published a
paper entitled “A Method of Reaching Extreme Altitudes.”
In it he concluded that a rocket would perform better in a
vacuum than in our atmosphere. This was contrary to
common belief. He also suggested that a multi-stage rocket
could not only reach very high altitudes, but could reach
escape velocity from the earth’s gravitational pull. The press
and the public laughed. The prestigious New York Times
observed that Goddard lacked even “the knowledge ladled
out daily in high school.” (Forty-nine years later with Apollo
11 circling the moon, the Times ran a correction, “It is now
definitely established that a rocket can function in a vacuum.
The Times regrets its earlier error.”).

Goddard went on experimenting and on 16 March
1926 he flew the first liquid-fueled rocket. When Massachu-
setts authorities declared his experiments a public hazard,
Charles Lindbergh came to his rescue by assisting him in
obtaining a grant from the Guggenheim Foundation, and
with it Goddard moved his operations to Roswell, New
Mexico in 1930. There he developed the first gyro-con-
trolled rocket guidance system and eventually fired rockets
faster than the speed of sound and at altitudes up to 7,500 ft.

With World War II on the horizon, Goddard met with a
joint committee of the War Department and presented
information on both solid- and liquid-fuel rockets. There
was little interest in either Army or the Navy. Goddard
ended up working on rocket-assisted takeoff for bombers and
other aircraft. In 1941 the mood of the Government
changed. Goddard’s group
began work in September under
contracts with the Navy and the
Army Air Corps. In July 1942
the personnel and equipment
were moved to the Naval
Engineering Experiment Station
at Annapolis, Maryland, where
they continued until July 1945.
During this time a liquid
propellant, jet-assisted takeoff
unit for flying boats was
developed and tested. Goddard
died on 10 August 1945.

Recognition came late for
Goddard. At the end of the war
in Europe, the Peenemunde team
was asked how they obtained the
foresight and technology to be
so far ahead of this nation and
their reply was, “Why ask us?
Ask you own rocket pioneer,
Goddard. We learned from
him.” The American public had
barely heard of Goddard. This is not surprising. More than
half of his 214 wide-ranging patents were granted posthu-
mously. In 1959 he received the first Louis W. Hill Space
Transportation Award. A year later, the Smithsonian Institu-
tion bestowed on him the coveted Langley Medal. One of
NASA’s major facilities, the Goddard Space Center, was
named after him on 1 May 1959. In 1960 the United States
Government finally compensated him for infringement of his
rocket patents, dating from 1914, in building the Jupiter,
Redstone, Vanguard, Atlas, Thor and other rockets.

Esther Goddard, by then 15 years a widow, was
awarded $1 million and she immediately gave half to the
Daniel and Florence Guggenheim Foundation. In the
National Air and Space Museum, you can see the rocket
Goddard flew in May 1926. You can also view a full-scale
replica of his first rocket which on its pioneering flight rose
41 feet in the air and landed 184 feet from its launch frame
just 2.5 seconds later. There are several other Goddard
rockets in the museum. Several of those who worked with
Goddard during his last years at Roswell and the war years in
Annapolis later worked at White Sands Missile Range. The
best know of these co-workers, at least locally, is probably
Lowell Randall who is now retired in Las Cruces.

One of Dr. Goddard’s biographers said, “It is virtually
impossible to design, construct or launch a rocket today
without utilizing some idea or device originated by
Goddard.” Certainly, in my opinion, Robert Hutchings
Goddard deserves to be listed as one of the lateral roots of
White Sands Missile Range: Birthplace of America’s missile
and space activity.
Hall of Fame Member
Joy Arthur Interviewed

The young lady being interviewed is Joy Arthur. The photo was found in the Public Affairs archives. The photo caption reads:

“12 March 1965 – “Joy Arthur, Electronic Engineer, ERDA, White Sands Missile Range, New Mexico, is interviewed by Major Vincent D’Angelo, Dept. of the Army Radio Correspondent for the Army Hour/Monitor Radio Show in an ERDA Laboratory. The photo was taken by Sp5 John Roemer.”

The White Sands Missile Range Historical Foundation
Thanks the Following Individuals and Companies for Their Generosity During the Years 1992 Through 1999

$25,000 or More
Citizens Bank of Las Cruces

$15,000 to 24,999
DYNCORP
Sunset Bank of Las Cruces
Lockheed Engineering & Science Co.
Cortez III Service Corporation

$1,000 to 4,999
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Irving Rubenstein
Helen Rubenstein
NCO/EM Wives Club
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MG (R) Niles J. Fulwyler
COL (R) Leonard Sugerman
BG Richard W. Wharton
Robert Lechtenberg
National Range Employees Golf
Orion International Technologies
First National Bank Las Cruces

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Clyde & Patricia Tombaugh
Coworkers of Charles Welch
Fred Whipple
White Sands Pioneer Group
William & Linda Shepard
The White Sands Missile Range Historical Foundation
Thanks the Following Individuals and Companies for Their
Generosity During the Years 2000 Through 2005

$25,000 or More

Lockheed-Martin (In memory of) Mary Bochmann

$15,000 to $24,999

COL (R) Leonard Sugerman

$10,000 to $14,999

NEWTEC MG (R) Niles J. Fulwyler

$5,000 to $9,999

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Mr. & Mrs. Alex Paczynski
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Raytheon
James & Janie Hollingsworth
LTG (R) Ronald V. Hite
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BG (R) Robert & Shari Reese

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Raymond Rommel
Vickie Reynolds
Joe Marlin

Marie Southworth
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Solar Electric
Lovelace Sandia Health System
WSMR Navy
William Jones
LTC (R) Kenneth McDonald
Bus Service Returns to WSMR ---
In this photo, taken in 1953, White Sands Proving Ground personnel queue up to board the Army-provided buses for a ride home. It looks like close to two dozen buses are in the yard ready to go. At one time this service connected Las Cruces, El Paso, Alamogordo and many outlying communities to the installation. The service died in the 90s. Bus service for missile range personnel just returned with two buses provided by the State of New Mexico. The buses only run to and from Las Cruces but employees once again have the opportunity to read, study, knit, work or sleep during the commute to and from work.