



# Hands Across History



A joint newsletter for the White Sands Historical Foundation and the White Sands Pioneer Group.

Volume XII, Letter IV

November 2016

## Chief of Army Military History Visits WSMR

By Eddie Kennedy  
WSMR Historical Foundation President

Charles R. Bowery, Jr., Executive Director and Chief of Military History for the U.S. Army Center of Military History (CMH) met with the WSMR Historical Foundation on July 28, 2016 as part of his tour of Army museums. Bowery is new to the job. He was selected for the Senior Executive Service in December 2015 and was recently appointed to direct the management of the Army's 57 museums and more than 30 historical centers. Also he has overall supervision of historical matters throughout the Department of the Army.

The objective of his visit was to discuss the future direction of Army museums and areas where the WSMR Historical Foundation may contribute towards advancing that effort. The principle agenda item was the Foundation's effort to help fund construction of the WSMR museum upgrade.

Also discussed was the Foundation's support of

STEM-related initiatives, building docent programs, and increasing the museum's access and connectivity with the local community. STEM refers to Science, Technology, Engineering, and Math and is associated with promoting student interest in following careers in those areas.

Bowery noted the WSMR museum documents are a rich history of scientific and technological achievements that is unique to the Army and can be found nowhere else. The Army wishes to showcase such achievements as it tries to develop a technological sophisticated fighting force. Bowery noted that the WSMR museum is very much in alignment with that objective.

Accompanying Bowery was Ephriam Dickson, Deputy Chief of the Field Museums Branch, CMH. Dickson invited the WSMR Historical Foundation to participate with CMH in a stakeholder's meeting at a future date to strategize on what might be the best of many possible paths forward to preserve WSMR's history.



**Left to right are: Ephriam Dickson, Deputy Chief of Field Museums Branch CMH; Frances Williams, Vice President WSMR Historical Foundation; Charles R. Bowery, Chief of Military History; Mary Beth Reinhart, member of Historical Foundation board of directors; Jon Gibson, Treasurer Historical Foundation; Eddie Kennedy, President Historical Foundation; and Darren Court, Director WSMR Museum. This group met to discuss the WSMR museum and the Foundation's role.**

# New Museum Exhibit Under Construction

By **Darren Court**  
WSMR Museum Director



“Wow, this is different!”

“I thought you guys were all about rockets!”

Those are only a couple of the comments that we have received about the new exhibit – The Frontier Army in New Mexico – we are currently developing in the space formerly occupied by the gift shop.

When museum staff first began looking at writing a new comprehensive storyline for the facility almost two years ago we realized that, while we did tell the story of the Hembrillo battle, there was a lot regarding the Army in

New Mexico that we did NOT discuss. As the only “official” Army museum in the state, we believed it was our responsibility to tell that story. We included it in the proposed storyline which was sent up to the US Army Center of Military History (CMH) in Washington. They agreed and approved the storyline.

The Army has played a role in New Mexico since before the opening of the Santa Fe Trail in 1821. The museum will tell the story of the first travelers on that journey and their protection by the Army, as well as the use of military officers such as Zebulon Pike as expedition leaders.

We then move into the war with Mexico (1846-1848) and the military occupation of Santa Fe. Then it’s a push south into Mexico, focusing on the Battle of Brazito where a group of Missouri Volunteers defeated a professional Mexican Army. After that, a period of exploration and fort building occurred, and then we move into the Civil War.

We have determined that a great many visitors have no idea that Civil War battles occurred from Mesilla all the way up to the Santa Fe area – indeed, Mesilla joyfully welcomed the Texas Confederates! The focus will be the very local Battle of Mesilla and the retreat of Union forces from Ft. Fillmore under Major Isaac Lynde. Most of them never made it to San Augustine Springs on what is now the Cox ranch west of WSMR headquarters area.

During another period of fort building after the Civil War and the arrival of the Buffalo Soldiers, New Mexico saw conflict between the Army and native tribes such as the Apache, Navajo and Comanche. This story, focusing primarily on the Hembrillo



Mesilla Valley Civil War story under construction. Photos by Jim Eckles

see **Positive Response**, page 3

## 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 edi-

tor is Jim Eckles. He can be contacted by email at [nebraska1950@comcast.net](mailto: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.

White Sands Pioneer Group  
P.O. Box 171  
White Sands, N.M. 88002

White Sands Historical Foundation  
P.O. Box 171  
White Sands, N.M. 88002

# Positive Response — CONTINUED FROM PAGE 2

battle between Victorio's Warm Springs Apache and the 9th Cavalry, will end the exhibit. Mention will be briefly made of the removal to Ft. Sumner of the Navajo and the struggle against the Comanche and Kiowa on the eastern plains.

The response to what we have done so far has been great. When we read on-line travel resources and reviews, as well as our own surveys, visitors are quite pleased to have something other than rockets, missiles, and Cold War technology and weapons to look at.

Of course, those remain our focus and the new facility, when built, will showcase post-1944 WSMR. However, we believe giving the visitor a greater opportunity to learn about the Army in the history of New Mexico overall will provide a broader appreciation of Army and WSMR history. That, in turn, will make us a much better and popular educational attraction.



**Buffalo Soldier mannequin. There are many of these planned to display clothing and equipment.**



**Native American olla or water jug found out on the missile range.**



**Artifacts from the 1880 battle between Victorio's Apache warriors and U.S. Army Buffalo Soldiers in the WSMR Hembrillo Basin.**

# Apollo Moonsuit Tested In Dust Chamber

By Jim Eckles, Editor

On Feb. 25, 1971 White Sands Missile Range personnel put a man wearing the latest in moon wear, an articulated moonsuit, into the range's dust chamber, something never done before. In fact, they did it four times, each session lasting about 30 minutes in clouds of dust as fine as talcum powder. The man in the suit was David Burris and while in the grimy little room he simulated movements the Apollo 15 astronauts might make on the moon later that year.

Before we get started, one obvious question is, "Who knew the missile range had a dust chamber and that it was used for more than three decades – right in the old Tech Area?"

Most non-test people scoff at the idea of a dust chamber for Southern New Mexico because all you have to do "is wait and Mother Nature will supply a free sandstorm." Of course, waiting on Mother Nature and then getting the right kind of grit to test your equipment could be a long, expensive and tiresome wait. Wouldn't it be better to be able to call up a dust storm whenever you wanted it, even on a rainy day? Also, you could use the size of sand or dust called for by the project engineers and you could even vary the wind speed for delivering the dust - if you had a dust chamber.

see **Constructed in 1958, page 5**



**David Burris after his third session in the WSMR dust chamber. Technicians checked the suit's joints and fabric after each 30-minute period in the test room.**



**The White Sands Missile Range dust chamber today. Photo by Jim Eckles.**

# Constructed in 1958 — CONTINUED FROM PAGE 4

To go along with other kinds of environmental tests conducted on missiles and their components at White Sands, the missile range set out in the mid-50s to build a state-of-the-art dust facility. First there were three years of planning, designing and engineering that went into the facility. Then, after funding, ground was broken for construction on May 12, 1958 with Paul Hardeman, Inc. of Los Angeles building the metal structure.

When completed later in the year, the dust facility was 69 feet long, 56 feet wide and 15 feet tall. The test chamber itself, where the subject was placed, be it a missile component or a man, was only 8 feet by 8 feet and 8 feet tall. The White Sands newspaper *Wind and Sand* ballyhooed the facility as the “first of its type in the country” and possibly the world. The newspaper also said the facility could save millions of dollars in time, manpower, and better missile components.

The dust chamber was constructed outside the southeast corner of Bldg. 1544. It hasn't been used in something like 25 years but still sits there slowly rusting away.

To create a sand or dust storm, the facility was

equipped with a blower to circulate the desired material into the test chamber. This was accomplished with an airplane propeller attached to a big electric motor. For the NASA spacesuit test, they used a P-51 prop on a 75-horsepower motor.

In other words, the interior of the facility was very similar to a wind tunnel and was sometimes mentioned in those terms. I remember receiving a query or two in Public Affairs from people who had seen the term “wind tunnel” mentioned at White Sands. That was all they remembered and they wanted to know if they could use it for aerodynamic testing of their missile or vehicle. Not exactly.

Originally the chamber was designed to use sand with a range in size of 400 to 800 microns which is about the size of medium beach sand. The dust on the moon is much finer. To simulate it, the missile range acquired 200 pounds of specially treated dust from Ottawa, Ill. In Jim Lovelady's summary of the test for the *Missile Ranger* newspaper on March 5, 1971, he wrote the powder was “of 140-mesh silica “flour,” pulverized almost as fine as talcum powder.”

Dust that fine is pretty nasty and can easily be inhaled deeply into the lungs. The photos of personnel assisting in the NASA test show them wearing fancy dust masks for protection and jumpsuits to keep the dirt off their clothing.

Normally, the larger grains of sand used in other tests had “sand blast” effects on pretty much everything, from the test item to the inner workings of the facility. In fact, in 1958, the facility was touted as a place to do experiments with “sand and sand blasting.” At the same time, the designers and engineers had to come up with ways to mitigate the sand's effects on the facility so it wasn't eaten away from the inside out.

see *First Lunar Rover*, page 6



This photo by Robin Broun ran in the March 5, 1971 *Missile Ranger* along with an article about the NASA moonsuit, pictured here, being tested. Shirley Wells, left, Data Collections Directorate stenographer and Bob Kopernick of ILC Dover, hold it up. Of course, this was a time of “cute” so Shirley was posed as if she was dancing with the suit.



# First Lunar Rover — CONTINUED FROM PAGE 5

NASA came calling in 1971 because Apollo 15 was going to be the most ambitious mission to the moon yet. Astronauts Dave Scott and Jim Irwin were going to spend almost three days on the moon's surface living in their landing vehicle dubbed "Falcon." During their stay, the plan was for them to use the Lunar Roving Vehicle – the most expensive dune buggy ever built - to drive around and cover as much ground as possible. In the end they drove more than 17 miles exploring much more than the acre or two of walkable real estate around the Falcon.

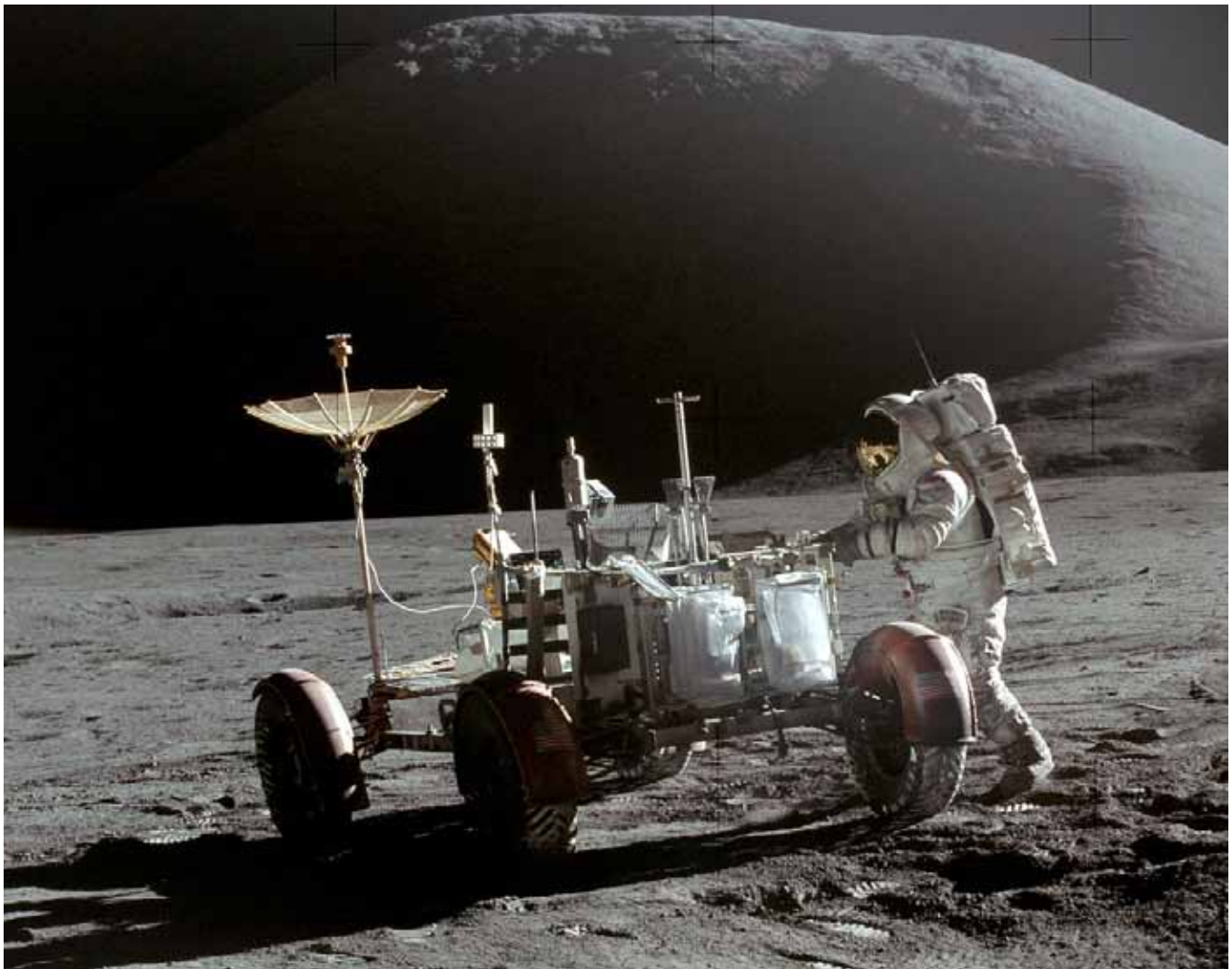
This was the first Apollo mission of three to use lunar rovers to extend astronaut exploration. A total of four were built at a cost of \$38 million. The fourth was scavenged for spare parts. The first three are still up there.

From the previous three moon landings, NASA knew the environment was very dusty. Driving the Lunar Rover around was expected to seriously increase the astronauts' exposure to that flour-like dust. In fact, Dave Scott's moon suit, which was once white, is on display at the National Air and Space Museum. It is very grey now.



**Apollo 15 crew: David Scott, Alfred Worden and James Irwin. NASA photo.**

see [Dust A Safety Hazard](#), page 7



**Astronaut Jim Irwin and the lunar rover on the moon's dusy surface. NASA photo.**

# Dust A Safety Hazard — CONTINUED FROM PAGE 6

The new spacesuits for Apollo 15 had to be more flexible in the middle so the astronauts could bend. The idea was to make it easier to bend for picking up equipment and samples and to be able to sit in a vehicle like a moon dune buggy. Also, the metal hinges at the joints, hidden under the

spacesuit's fabric, had to be resistant to that fine dust and keep on working – no jamming. Not being able to flex joints and freely move in an environment like the moon could have been a recipe for disaster.

The new suits for Apollo 15 were designed and built by ILC Dover. They built all the suits for the Apollo program. Every American who walked on the moon wore one of their spacesuits. Since then, the spacesuits worn by astronauts on the Space Shuttle and International Space Station for outside work have come from ILC Dover.

In Lovelady's article, he says the test on Feb. 25, 1971 was delayed for six hours because humidity was unusually high. The testers waited for it to drop and then proceeded. Then they ran the series of four exposures in the test chamber with temperatures ranging from 70 degrees to 140 degrees.

Between each 30-minute session the suit was examined, with experts looking for damage to the hinges and the fabric itself.

Prior to the tests at WSMR, the suit had undergone extensive unmanned tests at NASA's White Sands Test Facility. Afterward, the suit went elsewhere for different kinds of testing.

Eventually the final moonsuits were assembled and placed aboard the Apollo 15 vehicle. The Saturn V rocket ignited at 7:34 a.m. Mountain Standard Time on July 26, 1971 to start the mission. Scott and Irwin landed on the moon at 3:16 p.m. Mountain Standard Time on July 30. The third astronaut, Alfred Worden, orbited the moon in the command module during the mission.

During their time on the moon, Scott and Irwin collected 170 pounds of lunar rock/soil samples for the return. The mission was completed when the crew splashed down in the Pacific at 1:45 p.m. Mountain Standard Time on Aug. 7. They were picked up by the USS Okinawa.

This may seem like dust trivia but remember what Gustav Flaubert said: "I feel myself a mere speck of dust lost in space, yet I am part of that endless grandeur which envelopes me."



**Current Dust Chamber Images**



**White Sands Missile Range Historial Foundation**  
**Hands Across History**  
**P.O. Box 171**  
**White Sands, NM 88002**

NONPROFIT ORG.  
U.S. POSTAGE PAID  
EL PASO TX  
PERMIT NO. 429

## **The Back Page**



**Astronaut James Irwin, a Lt. Col. in the Air Force, salutes after planting the American flag on the moon. NASA photo.**