Hands Across History

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

Volume I, Letter I — April 2005

United We Stand To Preserve WSMR's Work

As the 60th anniversary of White Sands Missile Range approaches this summer, the two organizations dedicated to preserving its past and present accomplishments are joining forces.

This newsletter is the first of many that will be a joint publication for the White Sands Pioneer Group and the White Sands Historical Foundation. According to Tomas Chavez, who is president of both organizations now, it made sense to end the duplication and just issue one newsletter. "Many of the goals of the two groups are similar if not the same. I want to maximize the effectiveness of both organizations," Chavez said.

In addition to the new newsletter, the two groups will be working together on the 60th anniversary celebration this summer. Details about anniversary events will be summarized in the next newsletter.

The anniversary will not take place during the week of July 9 because that is a Saturday and the Friday before is a regular off day for the range workforce. Instead, the celebration will be the next week and will end with a special 60th anniversary open house of Trinity Site on the 16th.

The two organizations will keep their separate slates of officers and mailing addresses. If you are presently only a member of one group you are invited to join the other.

Since the editor of both newsletters has been Jim Eckles, he is relieved to be doing only one now. If you have comments on this partial marriage or have something to contribute to the newsletter or have suggestions, contact Jim. His email address is nebraska1950@comcast.net. Regular mail can be sent to either group's post office box.

In order to have a winner, the team must have a feeling of unity.
Paul Bear Bryant

Greetings From Our Two-Hatted President

Greetings Pioneers and Foundation members. Welcome to the Hands Across History newsletter for our two organizations. My goal as President of both groups is to get the lines of communication open once again to the membership. One goal is to get out a newsletter on a more scheduled basis to everyone. We'll see if we can put one out every three months.

There has been quite a bit going on at the range and the museum during the past year. Rather than go into detail here, check out the articles in the newsletter. However, do take the time right now to mark your calendars for the second week in July (11-16). This will be the official celebration of WSMR's 60th Anniversary. There will be seminars, reunion banquets, a hall of fame induction, a Trinity Site Open House and bricks and memorabilia for sale. Full details will follow in the next newsletter.

Let me know what you think, check your membership status and send in dues if needed, and don't forget, we always welcome donations. See you in July. We will talk with you again in June.

Tomas C. Chavez - President
White Sands Pioneer Group
White Sands Historical Foundation

Today's Pioneering Effort at White Sands

Austin Vick, co-founder of the pioneer group and member of the WSMR Hall of Fame, has been pointing out for some time that pioneers are not just the now old folks who worked at White Sands in the first two or three decades. Pioneering efforts have always gone on at White Sands and continue today. What follows is an example.

The range is leading the way in switching from film to digital photography. The notes below were written in response to questions from "Advanced Imaging" magazine.

Some of the world's most sophisticated weapons systems are tested at WSMR every year. Optical image data allows system analysts to extract accurate and precise measurement information. Optical imagery is used to determine not only if a missile hit its intended target, but also precisely where on the target impact occurred.

The majority of WSMR's high-speed film based optical instrumentation inventory is over 20 years old. These film cameras are becoming difficult and expensive to operate and maintain. They are rapidly becoming obsolete.

Defense technologies have evolved much more rapidly than the instrumentation that is often used in support. As weapons systems have become smaller, faster, and much more precise, data requirements for their adequate testing have become more stringent.

Modern digital high-speed imagers are ideally suited for the data collection challenges presented now. Digital imaging technology has finally matured to a point where most high-speed film cameras can be directly replaced with digital equivalents. Commercial-off-the-shelf high-speed digital cameras presently available offer a minimum of 1,024 by 1,024 pixel resolutions and full frame rates up to 1,000 frames per second.

There are huge benefits to be gained from changing to digital imaging systems. New digital imaging systems can be used to provide more accurate test data in a timelier manner to customers, with much lower media costs and reduced environmental waste. Digital images are instantly available for viewing and analysis, and can be transmitted over networks for real-time analysis.

Digital imaging as a replacement to film-based imaging can solve a host of mechanical problems associated with film devices. Typical problems that can occur with film-based systems like film jams and breakage are no longer a factor with digital cameras. The hardware and software used in new systems is more reliable and simpler to upgrade than the specialized film transports and image processing hardware used with film.

White Sands Missile Range is looking to eventually replace all high-speed film cameras with high-speed digital imagers. Over the past five years, WSMR has reviewed and / or purchased high-speed digital imagers from many vendors. The effort will continue since the camera of choice this year, may or may not be next year.

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 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, contact the appropriate organization and we will send it via the Post Office or email.

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The Night the Sky Glowed Too Far South

By Pat Quinlan

Remember the Athena firings from Utah? That was a very exciting time for the missile range back in the 1970s.

This multistage test vehicle was used in testing nose cone materials (designed to burn away or "ablate" during reentry) and other things. After launch from Utah towards White Sands, as the missile passed apogee, the guidance package positioned the missile so when the last stage fired it was at the correct angle to send the missile to impact safely on the range.

This required precise positioning above the atmosphere. When it was correct - after a coast period - the last stage was fired.

The trajectory took each Athena over four states. The flight termination system had to be precisely managed during boost, burn, multiple staging and coast phases. The real-time data challenges for WSMR were immense.

We had Radar tracking systems and Telemetry tracking and data systems in Utah and at WSMR all churning during the test. Utah data came to WSMR via microwave relay and standard telephone communications circuits. WSMR data arrived by microwave relay and via hardline.

If something happened when the last stage was firing it was tough to see. As the vehicle entered the atmosphere, plasma developed around it causing a blackout of radar and telemetry data.

We have all seen this phenomenon with Shuttle reentry. Simply stated, you have a blackout, and with Athena, we had the same thing. There was no radar position data as the transponder signal was blocked. Also, there was no telemetry data to validate missile condition or the internally measured orientation of the final stage.

We were blind until the plasma began to dissipate. Problem – how do we see again in time to influence what is going on? How would we pick up the signals when the missile had moved many miles since last contact?

We had talented people and they had a plan! During the moments leading to blackout we would provide a best estimate of trajectory based on the data and run a prediction as to where to reacquire the vehicle as it emerged from the plasma.

There are some problems with this however. I won't bore you with the technical details. Suffice it to say we pulled some tricks with the telemetry and radar information to get everything pointed correctly when the missile emerged.

So what happened the night the sky lit up – too far south?

WSMRites were scattered all over the range and in the corridor to Utah to support the test. Some, me being a lucky one, were in Bldg. 300, watching telemetry and radar data. Flight safety was manning the plotting boards watching the instantaneous impact prediction.

We had become accustomed to running outside to the north fire escapes at reentry to watch the glow from the nose cone and then running back inside to complete the mission. Reentry was normally around 45 degrees elevation to the north.

About a dozen of us on the fire escapes watched quietly. The countdown went five, four, three, two, one, then zero. It then went, plus one, plus two, plus three, plus four.

Suddenly we saw the reentry glow and plasma overhead instead of uprange. We saw that the reentry streak trailed south, nowhere near where it was supposed to be. That's a problem.

Telemetry data emerged from the plasma; telemetry pointed the radars; radar position data built the track. Everything worked. The missile was pointed a little high, burn was fractionally longer than planned. We tracked it perfectly as it rushed to Mexico.

Then the telephones began to ring.

But, that's another story. Jim Eckles, Public Affairs, is working on a more detailed story about this Athena from July 1970. It will appear in the Missile Range in the next few months. We'll let you know where you can see it.

Perhaps you readers will chime in with your memories of that night and correct mine (which are fading now) and add to the story, that all might enjoy. The sky glowed that night - but too far south - about 500 miles too far.

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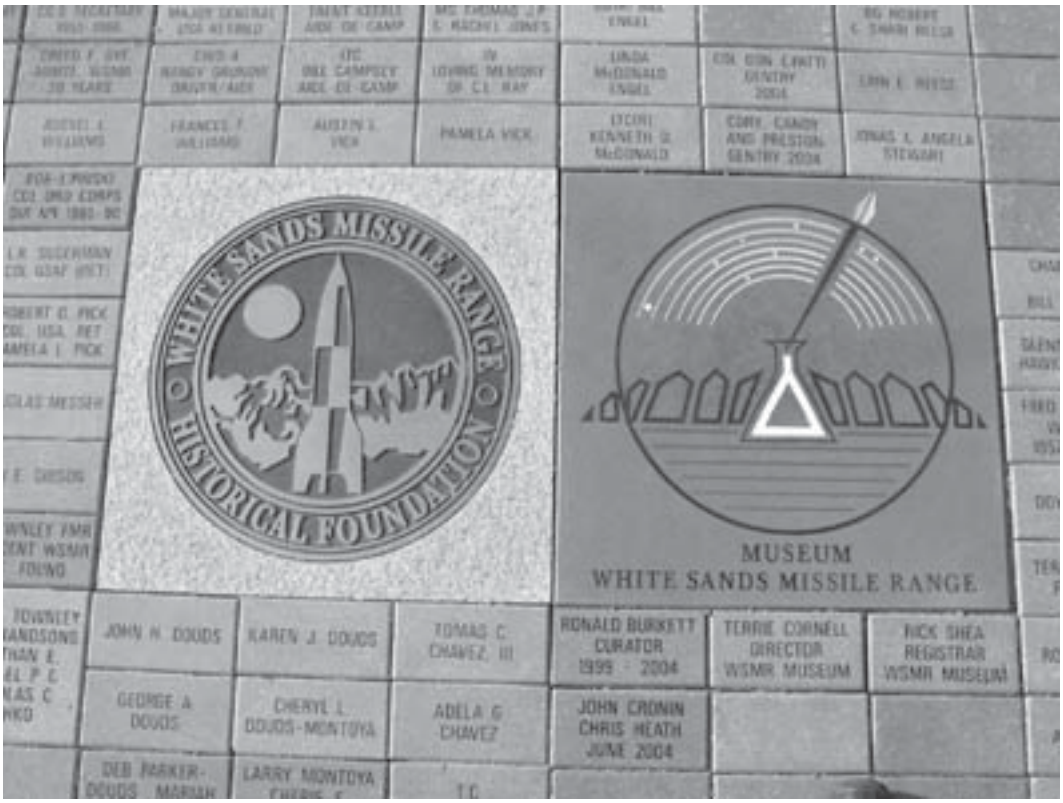

Brick sales for the Signature Plaza between the museum and missile park have been brisk. Hundreds are in place. For more information contact the Foundation.