



Hands Across History



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

Volume VI, Letter II

May 2010



Invitation

FOR: All members of the White Sands Pioneer Group
And the White Sands Historical Foundation

WHAT: A reception to thank museum supporters

WHEN: June 8 at 3 p.m. (1500 hours)

WHERE: The White Sands Missile Range Museum

Please join the White Sands Missile Range Commander Brigadier General John Regan and the Foundation Board of Directors as we thank you, our members, and our many corporate donors.

If attending, please RSVP to Sharon Reese before June 3
By phone at (575) 532-9422 or email at: nmreeses@msn.com

First Foundation Golf Scramble Succeeds In Raising Cash

On April 30 the Foundation held a golf tournament at the White Sands Missile Range course. The event was played as a scramble with four-person teams.

According to Doug Messer, the Foundation board member who organized the event, 10 teams signed up. The tournament began with a sack lunch at the golf course clubhouse and was followed by a shotgun start. The weather was cool with blustery winds.

Team Morse with members Jim Morse, Ralph Aegan, Robert Sturtz and Roger Essary were the winners at 10 under par. The team of Charlie Castillo, Louie Sosa, Matthew Delgado and Jerry Macias actually tied the Morse foursome

at 10 under but lost in a scorecard playoff to finish second.

Jim Morse also won the prizes for closest to the pin and longest drive.

The corporate sponsors for several holes were Newtec, DMC, Caleum-Unitech and Wyle.

When it was over, Foundation treasurer Jon Gibson totaled the income and expenses to find we made \$1,400 for the Museum.

The volunteers who supported the event were pleased and are talking about another fundraising tournament toward the end of summer - look for the end of August. If you didn't get a chance to play, there will be more opportunities.



Golfers at the Foundation's tournament gather to listen to Doug Messer and Sharon Reese, board members, thank them for attending. Note all the hands in pockets - an indication of what the temperature was like.

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 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 318
White Sands, N.M. 88002

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

White Sands Pioneer Group Is Looking For Help

Austin Vick, who started the Pioneer Group decades ago, is looking for a little assistance.

Currently the Pioneer Group shares in the publication costs of this newsletter with the White Sands Historical Foundation. The printing and mailing costs for the 700 copies each quarter is hovering around \$400. More than three quarters of those copies go to WSPG members.

That is the biggest expense for the Pioneer Group. The other is the continuing commitment to pay for Hall of Fame inductee lunches at the annual inductions. If it wasn't for the

Pioneer Group's efforts, inductees might have to pay for their own lunches. HEAVEN FORBID!

So, Austin is asking for a little extra financial support. The treasury is getting low and the group would like to continue its support of the *Hands Across History* newsletter, the Hall of Fame and other events like the "then and now" luncheon series.

If you can spare a few dollars, mail your checks to the White Sands Pioneer Group, PO Box 318, White Sands, NM 88002.

Transitioning To An Electronic Newsletter Would Save \$\$

By Jim Eckles
Editor

I have been editor of the Foundation's newsletter since 2002. In 2005 we married that pub with the Pioneer Group's newsletter and started with a new publication - *Hands Across History*. That ended a lot of duplication especially in the expenses category.

It was a bit of relief for me because, for a while, I was editing both newsletters.

With the Pioneer Group now having trouble with its funding and the newsletter being the biggest regular drain on the Foundation's treasury, it is time to start thinking of an electronic version of the newsletter.

The main advantage to the two organizations is that an electronic newsletter costs NOTHING to print and NOTHING to mail.

The advantages to you, the members, are: 1) color images, when available, instead of black and white; 2) unlimited pages instead of being locked into eight; 3) the possibility of including short video files in the newsletter; 4) being able to quickly email the whole newsletter or a single article to

your friends and relatives.

I already produce a PDF version of the newsletter for Doyle Piland to post on the Foundation's web site. It is a low-resolution version and can be easily emailed. You can now download past issues from the web site.

I don't bother putting color images in it because I need black and white for the printing process. Also, it is only eight pages because that is what we are locked into for limiting our printing and mailing costs.

I know some of you don't want to deal with an electronic anything and still want a printed copy. So I see us going through a transition period where we email a few copies and still snail-mail most. But we have to start sometime and it might as well be now.

NOTE: To be able to view an electronic version, you will need Adobe's Acrobat Reader. It is a free piece of software that runs on Windows based machines and MACs and is downloadable from the web.

Please take the time to fill out the form below and mail it to me or, better yet, email me with your preference. My email address is: nebraska1950@comcast.net

Electronic Newsletter vs Printed Newsletter

Please check the box that applies, offer your comments, and mail. Be sure and include who you are and please make sure your email address is legible.

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Comments or Suggestions: _____

Mail to: Jim Eckles, c/o White Sands Historical Foundation, PO Box 171, White Sands, NM 88002
Email preference to: nebraska1950@comcast.net

How A Sonic Boom Study At WSMR Helped Kill Supersonic Transports

By Jim Eckles

Editor's Note: I wrote this as part of my history of White Sands that may someday be completed.

During the first couple of years I worked at White Sands, I experienced my first sonic boom. I was driving Uprange in our office station wagon when, out of the blue, I heard and felt a loud boom.

My immediate reaction was to grab the steering wheel and hang on because the sound was very much like the time I blew a tire while driving down the highway. As my heart raced, I waited for the car to veer to one side or the other as the tire would go flat almost instantly – long before I would be able to slow down.

But nothing happened. I stopped and got out to inspect the tires. They were fine.

However, in the distance I could hear a jet flying away. It then dawned on me what had happened. I got back in the car and said to myself, “That was pretty neat.”

Since then I experienced many sonic booms over White Sands. Most were in association with Air Force training flights in the airspace over the missile range. Over the years it was common to see two or more jet fighters engaged in mock dogfights high above us. Sometimes these engagements would produce a whole series of booms spread out over several minutes.

Sonic booms continue to be heard over the missile range, still mostly during Air Force training. There is an area in the heart of White Sands where low-level (down to 300 feet off the ground) supersonic flight is permitted. Higher altitude sonic booms are allowed outside this area all the way into blocks of airspace off the missile range to the west and east. Here the jets are supposed to be at least 10,000 feet above sea level for breaking the sound barrier.

For the communities around the missile range, residents don't normally experience that sudden jolt provided by a supersonic plane directly overhead. Instead, it is more of a distant rumble, like an approaching summer thunderstorm that may or may not make it to your backyard.

Such blocks of air for supersonic training are relatively rare inside the United States. Restrictions drive much supersonic flight out over the oceans so there is little impact on communities.

Young people today might well ask, “Why did the French and British have the Concorde, a supersonic airliner, and the U.S. nothing similar?” Part of the answer happened at White Sands Missile Range.

In the mid 20th century, commercial aviation transitioned from piston driven airplanes to jets. It was an age of rapid technological advances and many people assumed the next step for the airline industry was supersonic flight.

During the 1950s and 60s, our country's ego and self-

esteem were tied to our technology and industrial might. When the Soviets were first to launch an earth-orbiting satellite in 1957, Americans ran into the streets with their hair on fire. In reality it meant very little. It certainly didn't prove the Soviet's crude efforts were superior to Western developments but the perception was grim.

In the early 60s airplane companies and government agencies were proposing various designs and strategies for what became known as the Supersonic Transport or SST. Most of the buzz was positive as people speculated on how short the flight from New York to Los Angeles would be.

The U.S. government held a competition with three manufacturers to select the best design. The Boeing 2707 won. When the program was finally scuttled in 1971, Boeing had over 100 orders on the books for the new airliner.

Of course, one of the side effects of any SST is the sonic boom created whenever the plane is flying in excess of Mach one. Based on experience with supersonic military aircraft, proponents knew they had to address a couple of sonic boom issues. One was the possibility of property damage and the other was the impact on humans experiencing repeated sonic booms.

To answer some of the questions, the FAA, NASA and DOD teamed up to run two significant tests in 1964 and 65. At White Sands Missile Range a study was conducted to examine structural response to sonic booms.

The study area was the Oscura Range Camp on the east boundary of White Sands, a little over 20 miles southwest of Carrizozo. According to a paper entitled “Sonic Boom Research and Design Considerations in the Development of a Commercial Supersonic Transport (SST)” by Thomas Higgins, 21 structures were observed during the study. Nine of the buildings were already at Oscura and seven new ones were constructed at the site. The other five were older ranch houses and other missile range buildings located nearby.

A couple of the ranch houses were off the missile range and occupied. The government met with these people and wanted to evacuate them for the tests. The ranchers refused and, instead, a deal was struck to monitor the houses for damage with the residents in place.

The old Oscura structures included a barracks, a warehouse, a radar building, a radar shop and a communications building. On one side of the sheet metal warehouse, they installed “three representative glass store fronts having nine panes of glass. Included were two 8-foot by 10-foot glass show windows.” Also a greenhouse was constructed on site.

The Oscura flights were done in two phases – Nov. 18 to Dec. 15, 1964 and Jan. 15 to Feb. 15, 1965.

Higgins reported two kinds of aircraft flew the sonic

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boom missions over Oscura. They were an Air Force F-104 stationed at Holloman Air Force Base and a B-58 stationed at Edwards Air Force Base in California. The F-104 flew 1,433 runs and the B-58 flew 61 runs over the small, simulated town. On average about 30 flights a day were conducted during six-hour periods.

SIDEBAR: *Sonic booms and how they are created was intensely studied during these years as well. One thing learned was that a larger airplane like the B-58 creates less intense sonic booms than the small fighters. Also, a jet maneuvering creates isolated intense booms where the shock wave is focused over a small area. On the other hand, a high-flying plane traveling in a straight line creates a sound wave that can be audible for dozens of miles on either side of the flight path. The intensity of the sound diminishes the farther the listener is from the flight path.*

At Oscura, in addition to numerous instruments to measure the strength of each sonic boom and the stresses exerted on the structures, observation teams visually monitored the buildings each day. According to Higgins, the observers were “from the National Bureau of Standards, Boeing and Lockheed aircraft companies, USAF, England, France, Federal Aviation Agency and the technical contractor.” He added that, “All of the cracks, even those which required a magnifying glass for identification, were observed daily, marked as appropriate, and recorded.”

During the scheduled flights most of the sonic boom overpressures were between 1.6 and 19 pounds per square foot (psf). The maximum overpressure recorded during daily operations was 23.4 psf.

The results of the test were probably reassuring to SST proponents. Generally, low pressures caused little damage. As the pressures went up there was more chance for glass breakage, plaster cracking, nails popping in gypsum board and damage to bric-a-brac. Since the SST was projected to create sonic booms with overpressures in the neighborhood of 1.5 to 2.0 psf, officials generalized the impact as insignificant.

Of course, this wouldn't be reassuring to those few who actually had windows broken because of the sonic boom. Because the government had generalized the impact as insignificant there would be a built in bias to make victims absolutely prove that a sonic boom broke their window. How do you do that?

There was one slight hiccup however. On Dec. 2, the

FAA brought the news media to Oscura to watch the day's series of flights. *Time Magazine* was there and filed a story in their Dec. 11, 1964 issue.

The magazine said, “In all, the FAA put their manufactured desert town through 15 sonic booms over a three-hour stretch. So well did the buildings bear the booms that a disappointed CBS camera crew left before the show was over.”

What CBS missed was a final, low-level flight at subsonic speeds to provide a photo opportunity for the media. Somehow the pilot miscalculated and came over very hot.

Time said, “A heavy ruby-glass ashtray flew off a desk and sprayed shards over the floor. Outside, both panes of a mock-up storefront were smashed, a glass window in a trailer caved in, and 16 out of 90 panes in a small greenhouse were shattered.”

Years later in the April 1970 issue of *American Heritage Magazine* a very negative article appeared about the SST. Describing the White Sands incident, the author said, “Gordon Bains, then director of the S.S.T. program, is at White Sands Missile Range explaining to reporters that persons who claimed their property was damaged by sonic booms often were victims of their own imaginations. “I believe,” he is saying, “that there's a great deal of psychology in this.” Suddenly, five hundred feet overhead, an F-104 punctures the sound barrier. Two plate-glass windows blow out, canceling Bains's banter.”

The tests at White Sands certainly didn't kill the SST but they did demonstrate that sonic bombs can cause damage. It just depends on their intensity.

But how do people respond? Military aircraft had been

producing sonic booms in some areas of the country for over a decade already. In fact, military and airplane companies, probably because of their isolated experience, were fairly cocky about the whole issue.

The same article in *American Heritage* mockingly summarized, “Yet the Air Force has called the boom “the sound of progress,” just as early industrial air polluters announced that “smoke means jobs.” The Boeing Company, manufacturer of the S.S.T. airframe, has described the boom as the sound

of the twentieth century. And Major General Jewell C. Maxwell, the Federal Aviation Administration's former director for S. S.T. development, once predicted that people could learn to live with the boom—and maybe even love it.”

In hindsight, those attitudes were wishful thinking on



Stock Photo Of F-104

see OK Human Tests, page 6

OK Human Tests ——— CONTINUED FROM PAGE 5

the part of the Establishment. A series of tests conducted over Oklahoma City earlier in 1964 turned out to be an early indicator of where citizens were headed on this issue.

The tests took place from February 1964 through July 1964. They were performed to see how people responded to sonic booms on a day-to-day basis over several months. In addition, a number of buildings were monitored to see if they incurred any damage.

Higgins stated in his report, "A total of 1,253 supersonic flights were made over the Oklahoma City metropolitan area at altitudes ranging from 21,000 to 50,000' and speeds with Mac number range of 1.2 to 2.0."

For these tests Air Force F-104, F-101, F-106 and F-58 aircraft were used. Each flight was closely monitored for altitude and speed. Also, an assortment of atmospheric measurements was taken to see how they figured into the results.

On the human side, a large cross section of the local population was interviewed at the beginning, middle and end of the testing period to measure their reactions to the booms. Also, complaints and damage claims were tracked.

Flight International Magazine, the world's oldest continuously published aviation news magazine, summarized the study in its May 6, 1965 issue. The article said, "Up to early March 1965, 15,116 telephone calls and letters of complaint or inquiry were made about the Oklahoma City tests. Of this total, 9,594 alleged damage to property. A total of 4,629 formal damage claims had been filed and processed. Following investigation and adjudication under established Air Force procedures for sonic-boom claims, the number of claims approved for payment was 229 at a total cost of \$12,845." It was mostly plaster and glass damage.

The results of the study were very informative especially since the test was heavily stacked in favor of the FAA. You couldn't have asked for a more pro-military, pro-industry and patriotic group. The counter-culture attitudes of the 60s had not yet reached Oklahoma City and much of the city was tied to the Air Force and airplane industries. In fact almost 30 percent of the original study group had to be disqualified because they felt it was improper for a citizen to complain even when annoyed. They were judged too biased to provide meaningful responses.

According to *Flight International* over 90 percent of the survey group said, at the beginning, they could tolerate eight supersonic flights a day. At the mid point, the positive respondents dropped to 81 percent and in the end it was down to 73 percent. At the very end, 25 percent felt they could not learn to accept to booms.

While monitoring showed very little significant damage to any buildings in Oklahoma

City and very few claims were paid, over 40 percent of the respondents believed their homes were being damaged.

Of the two studies, the White Sands tests probably had less of an effect on shooting down the SST. The data showed little damage was done at White Sands, but the Oklahoma City surveys showed people believed their homes were being damaged by the continuous rattling of their rafters. When it comes to dealing with the public, perception is reality.

Also, it looks like residents of Oklahoma City initially had no idea what eight booms a day, everyday, really meant. As they experienced it their agreeableness diminished. One has to wonder what it would have dropped to after a year, especially if night flights were added.

Major Richard M. Roberds in his paper "Sonic Boom and the Supersonic Transport" summarized the question when he wrote, "The sonic boom from the SST looms as a possibly serious intruder into the nation's justifiably deserved peace and quiet. The persistent lay question is simply whether the SST is worth the price of enduring its sonic boom."

Environmental concerns about noise, the ozone layer, mounting costs and the price of oil eventually terminated the SST in the U.S. One of the Oklahoma senators started out as an enthusiastic backer but as hundreds of noise complaints flooded his office, he eventually turned against the SST.

Then there was the economics of this new technology. Many pie-in-the-sky ideas are technologically possible but never show a penny of profit. For instance, two SSTs were eventually built and operated by foreign countries. The French and British (remember they were at the White Sands tests to look at structural damage) teamed to build the Concorde and the Russians built the Tu-144.

The Concorde did fly for quite a while but was mostly a trans-Atlantic limo for the rich. It simply could not provide reasonably priced transportation compared with traditional jet travel. It certainly never made money.

And the Tu-144 was a crude airplane that was built quickly and demonstrated the Soviet's serious lag in engineering behind the West. It was quickly grounded.

The bottom line is that the United States was probably very lucky it didn't build a SST. It could have bankrupted many an airline and required huge government subsidies.



Stock photo of a B-58, the world's first supersonic bomber.

The White Sands Missile Range Historical Foundation

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Hands Across History
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The Back Page



Secretary of Defense Harold Brown, left, and a rather young Senator Pete Dominici, NM, drink coffee and wait for the action at the Precision Guided Munitions Demonstration at WSMR in December 1978. Live firings of five different weapons were conducted for the VIPs and news media. The visitors watched from Cedar Site.