



Hands Across History



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

Volume II, Letter IV

November 2006

An X Prize Cup Booth & Elections Highlight the Last Quarter of 2006

The White Sands Foundation, led by the efforts of Frances Williams, tackled the difficult task of selling souvenir goods at the X Prize Cup to raise money for the WSMR Museum. The X Prize Cup was held at the Las



Volunteers Amy Apodoca and Pamela Hoscheit man the Foundation's booth.

Cruces airport on Oct. 20 and 21.

Frances procured a variety of off-the-shelf t-shirts and other items related to space and rocketry. In addition, some items, like hats and visors, were custom made with the Foundation logo stitched into them.

The booth was then manned by teams of volunteers, some of whom, like Amy Apodoca, were not

even members of the Foundation. Since the event opened so early the volunteers pulling the first shift each day had to be on site around 6 a.m.

According to the Foundation treasurer Jon Gibson, gross sales amounted to \$5,269.

The Foundation's return was maximized by previous work done with the X Prize organization by the late Len Sugarman. Because of Len, registration fees, booth fees, passes, etc. were all free for the Foundation.

There are items left from the event. For instance, if you want to buy one of the Foundation baseball hats, they will be available soon along with other items.

The Foundation's presence at the X Prize Cup was useful because White Sands did not have a booth of its own there. Much of the video of rocket launches and the flyovers was provided by WSMR optics for the huge JumboTron video displays on site and the live feeds over the

internet. Also, the range had an optics mount on static display that was manned by a briefer at all times and a video van to interface with the X Prize video feeds.

Volunteers at the Foundation booth were able to answer many of the basic questions about the range and the museum that visitors had.

In discussions afterwards, the board felt the effort was worth while and will lean toward doing it again next year. More volunteers from the Foundation would be useful in the effort however.

On Nov. 8, the Foundation held its annual meeting of members at the missile range Frontier Club. During the meeting, elections were held for three vacancies on the Foundation's board of directors.

Jon Gibson, Frances Williams and Eddie Kennedy were elected to the positions.

It was reported at the meeting that during 2006 the museum recorded about 49,000 visitors. That is 20,000 more than the average museum in the Army system. Congratulations to Terrie Cornell and all of you supporters.



Hall of Fame Induction a Success Thanks To the Foundation and Pioneer Group

By Jim Eckles
Editor

On Sept. 18, White Sands Missile Range inducted three men into the Hall of Fame. It was a great ceremony for the inductees - Joe Gold, Mel Lux and Moises Pedroza - and their families. Much of it was quietly made possible by your Historical Foundation and Pioneer Group.

First of all, new medals were procured for this induction. The original batch from 1980 ran out last year. In buying 100 new medals, the missile range's lawyers ruled that medals purchased with official government funds could not be given to contract employees.

Since the Hall of Fame is open to all military, civilian and contractor personnel who have made significant contributions to the White Sands mission, this created a bit of a problem. The Historical Foundation quickly stepped in and offered to buy a percentage of the medals so there will always be a reserve ready to award to anyone outside "official" team channels.

As it turned out, this was quite fortuitous since Mel Lux made his contributions to White Sands as a contract employee. His medal was paid for by the Foundation.

This year the Public Affairs Office added a new feature to the ceremony. They arranged for an American flag for each inductee to be flown from the pole in front of Headquarters Bldg. and then presented during the ceremony. Using official money for such "gifts" was, however, ruled inappropriate by missile range lawyers.

The Foundation again stepped in and bought the three flags. The board has made a pledge to continue to buy the flags in the future to honor the great Americans who are honored each year in the Hall of Fame.

Finally, the Pioneer Group again fulfilled its commitment to buy the lunches for current and past inductees and a guest each. The government cannot buy these lunches and the Pioneer Group came forward years ago so people like

Patsy Tombaugh and Jim Scott wouldn't have to buy their own lunches to attend the annual ceremony. I'm sure they wouldn't mind but there is the principle of it. It is hard to imagine a large company giving an employee its highest award and then asking him or her to buy their own lunch.

Depending on how many past inductees attend, this expense is usually a couple hundred dollars.

The money to pay these bills obviously came from the members of our two organizations. There are many times when your dues and contributions quietly accomplish what is needed and right to do.

Just thought you ought to know. Thank you.

Rules for Entering WSMR

If you don't have a recognized government sticker on your car or a special pass, you must pull over to the side parking area at either gate and acquire a vehicle pass.

To get a temporary pass, you must show your driver's license, proof of insurance and vehicle registration. You will also have to disclose where you are going, why and provide a point of contact with phone number. Finally, depending on the day, all passengers may have to enter the Reception Bldg. to fill out a form that will allow them to enter in your vehicle. They will have to show an ID and put on the form the name and phone number of that point of contact.

This will probably take extra time, especially when there are a lot of people entering at one time for a special event. Please plan ahead when attending a Foundation or Pioneer Group event to allow plenty of time to wait in line to get your pass. For our events, we will provide you with an appropriate name and phone number for the forms.

Also, we'll try to plan for a coffee pot to be out before an event so early arrivers can socialize before the event.

Of course, this could all change depending on the threat level the range is operating under at any given time..

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

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Joe Gold and Clyde Tombaugh -- Part 2

By Joe Gold

Editor: In part one we left Joe wondering how to fix the problem involving the quality of images of the calibration targets used in the field of view for optics. It seemed that under some weather conditions these target images were so indistinct that it adversely affected the accuracy of the reduced data. This concludes Joe's account.

It happened that there was a physicist in the organization named G. K. Neeland with whom I had had several discussions on the subject and who had given me quite a bit of training in measuring and evaluating film densities. This knowledge was very useful in working on the problem. I undertook the self-assigned task of improving the situation, and designed and field-tested several types of targets. As a result of this investigation, all the targets then in use were replaced with the design that in my tests had shown the best overall performance.

A few months later, I was assigned to one of the five tracking telescopes as station chief. My own telescope! (Well, mine to be responsible for and to operate) But, because it had a much longer focal length than other instruments, it was located farther from the launcher than my previous job so the near-launch missile failures we sometimes had were less exciting.

But that was all right by me. Clyde was a frequent visitor to my telescope station on firing days involving high altitude missile flights. There were reasons other than his early association with telescopes; my station was one of the closest to his office on the main base and also it was favorably located considering the opportunity for collecting valuable data.

On those days, when there were delays in firing time of the missile (of which there were many), we would have impromptu astronomy lessons from Clyde. It was what he liked to do and was always ready when the opportunity presented itself. I learned to be prepared with plenty of questions. These sessions were very enjoyable as well as educational and I probably didn't realize how fortunate I was to have these sessions in which I and one or two others were the only "students" present.

Clyde arranged with the Physics Department of my college to offer a course called the Physics of Optics. Several of us took advantage of this opportunity and for a semester we traveled the 30 miles to school two evenings a week. I thought it was a good course.

Focusing the telescope was a critical part of the operation because of its long focal length, and varying atmospheric conditions, and at times we would use the brighter stars for this purpose. Finding even a first magnitude star in the daytime is no easy matter, but using a technique that Clyde taught me it can be done. Essentially, the method is to use data from an ephemeris, and knowing ones location on the surface of the earth, to calculate azimuth and elevation angles for a given time.

After several months with the telescope, Art and Clyde asked me to come to Clyde's office. They explained that because of a new missile program coming to the range, a group of new telescopes to support the data requirements was being constructed at the Aberdeen Proving Ground in Maryland. They desired to have someone familiar with data collection at the missile range to go to Aberdeen to serve as a liaison between the instrument builders and our range and asked if I would be available for the assignment. Of course I was!

So off to Aberdeen. It was supposed to be an assignment for about two months but turned out to be closer to three months. There I met the Drs. Del Sasso and Reuyl who were the directors of the laboratory and they introduced me to Sid Lipton, the chief engineer of the new telescopes.

Although assigned as a liaison to his organization, in effect I became one of his workers while there. This situation allowed me to become intimately familiar with the design and construction of the instrument. One small change was made to the design as a result of my input based on observation in the field and gave me some small feeling of usefulness. The design of the whole system I thought was rather ingenious; the way I came to understand it was, the optical system was designed by Clyde and the mechanical and electronic portions were designed by personnel at Aberdeen Proving Ground, notably Sid Lipton and his electronics chief, Al Wolfe.

There were five instruments being built with the first four to go to White Sands as a group, with the fifth one coming later. White Sands (probably Clyde) had selected sites for the instruments based on the geometry of the proposed flight path of the missiles we were to support.

Finally, the first four telescopes were complete and ready to go to White Sands. When they were packed for shipment, I left Aberdeen and returned to White Sands. Sid and his crew, who had built the instruments followed and were at the Missile Range when the instruments arrived. Sid's crew, besides himself, consisted of Al Wolfe, John Collins, and Bill Terry.

Upon arrival at White Sands, I discovered that in my absence a reorganization had taken place and the older telescopes and the new ones we were about to install, would be combined into one section. Art and Clyde informed me that the chief of this new section would be me. So now, to my surprise, I had nine telescopes, all of the ones at the Proving Ground, under my supervision. When the fifth IGOR arrived from Aberdeen we had ten.

I haven't mentioned what name was given to these new telescopes. The five original telescopes were named, very simply, T-1, T-2, T-3, T-4, and T-5. The numbers assigned were in the order in which they had become operational on the Proving Ground. T-1 had also been called "Little Bright Eyes."

see CLYDE & JOE, page 6

Way Back When

Big, Bad Zeus was Third in the Nike Family

By Doyle Piland

From the WSMR Museum Archives

Drive east on Nike Avenue from Headquarters about 20 miles, passing Launch Complex 33 (LC-33), on past the Navy blockhouse, you will come to a road to the left marked LC-38. As you approach this road, you will see a large water tower by the side of a large hanger type building. About a mile farther east, there is another road to the left. For discussion, I'll call the first road the west road and the next one the east road. LC-38 was originally called Army Launch Area Five (ALA-5) *Way Back When*.

The story of LC-38 is extensive and continuing, thus it will be broken into three or more segments. This segment will provide an overall description of the Zeus system and details of the launch area.

LC-38 was originally built for the Nike Zeus Anti ICBM System. The Zeus system was the most elaborate, as well as, one of the most complex systems ever tested at White Sands.

The system consisted of two R&D launch cells and one tactical launch cell in the launch area as well as five radar buildings scattered over the complex. Additionally, there was the large hanger building mentioned above, which was known as Missile Assembly Building Sixteen (MAB-16) where much of the Zeus assembly and checkout was done.

About a quarter mile north along the west road on the left, is a semi-bunkered facility where the explosives were handled and final assembly took place. Just before the road to the bunker building is a road to the right, which goes past three radar buildings and terminates at a complex housing two radar buildings at the north end of the east LC-38 road.

The Nike Zeus launch area was located about one half mile north of Nike Avenue at the end of the west LC-38 road. The photo below is an aerial view of part I of the launch

area, looking north toward U.S Highway 70. The word ZEUS is on the south end of a berm separating it from the launch control building shown on the left side of photo. Near the left edge of the berm is one of the two R&D launch cells. You can see the launch rail protruding upward and to the north without a missile on it. At the left edge of the photo is another berm, which has another R&D launch cell, not shown, just to the left of it.

There were two versions of the Zeus missile fired at White Sands. The first version, referred to as Nike Zeus "A," is described as a "winged configuration." The photo on



Part II of the Nike Zeus launch area at LC-38.

page 5 shows a Nike Zeus "A" just after launch. It resembled a supersized Nike Hercules missile and is sometimes misidentified as a Hercules. The photo below it shows a Nike Zeus "B" on the R&D launcher at LC-38. This version is described as the "canard configuration."

In the launch area photo above with the launch control building at the left center, there is a berm located to the right of the building. Then, farther to the right, there are two dark patches, some equipment right of these, and another dark strip. The equipment is around the tactical launch cell, the edge of which can be seen protruding into the dark strip. At this time, we aren't sure if the tactical cell was under construction or if they were in the process of loading a missile in preparation for launch. The photo on the next page, right, shows a Nike Zeus "B" after launch from the tactical launch cell during the visit of President John F. Kennedy on June 5, 1963.

The launch control building was an ordinary building above ground, used for ancillary equipment and workspace. It had a basement, which had an entrance vestibule, restrooms, a fairly large briefing room, a control room with



Part I of Nike Zeus launch area at LC-38.

see ZEUS, page 5

Zeus

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communications equipment and control consoles, a viewing area where the control room could be viewed during missions, and another smaller meeting room. There were underground tunnels running to left to the areas of both R&D launch cells and right to the tactical launch cell.

The berms have all been removed, as have the two R&D launch cells. In their place, are a building and a parking lot. The launch control building and the tactical launch cell are still there.



Nike Zeus "A" just after launch at LC-38.



Nike Zeus "B" on the R&D launch rail at LC-38.

The Nike Zeus project was authorized in February 1957. The first Zeus "A" missile was fired in August 1959 and the first Zeus "B" Missile was fired in August 1960. There were a total of 72 Nike Zeus firings at White Sands. It should be noted that there were an additional 19 firings from Point Mugu, California. There were also firings from Kwajalein Island in the Pacific.

LC-38 remains an active test area, mostly dealing with the Patriot Air Defense Missile System.

The Nike Zeus radars will be discussed in the next segment and later some coverage of follow-on uses to include the Patriot System in our discussion of the way it was *Way Back When*.



The Nike Zeus "B" launched from the tactical launch cell at LC-38 during President Kennedy's visit. Six other missiles were fired for the president's visit to include Honest John, Little John, Sergeant, HAWK, Nike Hercules and Talos.

The new instruments were primary to record target intercepts of a new generation of air defense missile called Nike and the telescopes were known as Intercept Ground Optical Recorders (IGOR). The installed instrument sites were named for the location; Nan IGOR, Oboe IGOR, Don IGOR, Nick IGOR, etc. The fifth instrument became Seehorn IGOR.

Clyde would make trips to the new IGOR stations as he did to the telescope sites and generally hold discussions of astronomy in the field when the operations permitted, and now that I was not assigned to any specific station, I was free to escort him to one of "my" stations. Many of these station operators remember with pleasure Clyde's astronomy seminars.

One thing about Clyde I haven't mentioned is his sense of humor. One didn't stay in his company long without discovering that Clyde was a great punster. One soon realized that for Clyde to pun was expected rather than unusual. It seemed that if a pun had ever been invented he knew it and was always inventing new ones of his own.

Clyde would slap his knee and laugh at his own joke. One of the IGOR stations chiefs Joe Marlin, invented a means of evaluating the quality of Clyde's puns as a "one knee slapper", "two knee slapper," etc.

Many of us tried to match "pun" wits with Clyde and came off a poor second. But I like wit and even after Clyde and I were retired there would occasionally be an opportunity to have a pun session.

Clyde's jokes were mostly "one-liners" or puns. Some of them I'll repeat here:

****What Makes crows black?**

Clyde: Their crow-mosomes.

****When a crow goes berserk, what does he become?**

Clyde: A Raven maniac.

****Where does a crow keep his money?**

Clyde: In escrow.

****How does a crow keep time?**

Clyde: With a crow-nometer.

****Who was the first man to see a crow?**

Clyde: A crow-magnon.

****My car has a sick battery.**

Clyde: Is it a terminal illness?

****Do you object to living so close to the University horse farm?**

Clyde: No, they make good neigh-bors.

****And once when telling Clyde about our house I had built, I admitted that I hadn't laid the bricks myself.**

Clyde: Oh, I'm mortar-fied!

About 1955, Clyde joined the faculty of New Mexico State University to direct a program to determine if there were any natural earth satellites in an orbit that would endanger the proposed space flights of NASA. Upon reading his proposal for the project one statement stood out; he predicted that his proposed method of search could detect

a "clean, white, tennis ball at a thousand miles."

Joe Marlin saw this also and a couple of times, we asked Clyde if he had found any "clean, white, tennis balls." I think we realized that Clyde didn't see the humor as we did, and we stopped asking.

About the same time, I had an opportunity to transfer into the missile program and it so happened that Clyde and I left the optical measurements organization about the same time. But I had enjoyed the work there and I'm sure he did.

From then on our contacts were less than the almost daily exposure it had been for the preceding five years. I would see Clyde when I occasionally went to visit, and when I would provide transportation to the White Sands Pioneer Group meetings.

Then in 1989, I received a call from David Levy, himself an astronomer and a friend of Clyde's, who explained that Clyde had agreed that he, David Levy, was to write Clyde's biography. He asked if he might come interview me. While he was visiting I suggested that he also interview two of my friends who had also worked in Clyde's organization, Joe Marlin and Austin Vick.

Joe had been a station chief of one of the IGORs and had won the Ernie Pyle Award for photojournalism for pictures he made with his IGOR of a Nike missile intercepting a droned B-17.

Austin had come to White Sands, also from my college, a few months after me and had worked for Clyde for several years. Later Austin was to become Chief of the Data Collection Division of the Missile Range. So David got three interviews with the effort of one.

Later I received a letter from David, dated Aug. 15, 1989, thanking me for "the enormous help you have been with the biography of Clyde." The flyleaf of my copy of Clyde's biography is autographed by Clyde, "To my White Sands Colleague, Joe Gold, with best wishes. Clyde W. Tombaugh, June 13, 1991."

The next time David came to visit I made a picture of Patsy, David, Clyde and me, which we all signed. My copy is attached to the inside cover of my copy of Clyde's biography. David also added an endorsement to Clyde's comment, "For Joe Gold, with thanks for all your help with this book. All the best, David Levy, Dec. 10, 1992."

Fern and I were among the many people attending Clyde's 90th birthday party in February 1996. He died Jan. 17, 1997, just about two weeks short of his 91st birthday. Many of Clyde's admirers supported a subscription to place a "Tombaugh Window" in the church he attended. The window was to be rather impressive and the church (The Unitarian Universalist Church) built a special addition to the church building for the window.

On Feb. 17, 2001 we attended the formal dedication of the finished window that was held in the church. David Levy, Clyde's biographer, friend and Science Editor of Parade Magazine, gave the address.

Museum Is Given Maj. Gen. Laidlaw Material

Major General W. E. Laidlaw was commander of White Sands from Feb. 1956 to June 1960. He died in 1987.

Recently, his daughter Lois L. Mackintosh donated papers and photographs from his time at White Sands to the museum. This was accomplished through Lois' husband, Robert Mackintosh, a retired Army Lt. Col. who just happened to be Gen. Laidlaw's Aide-de-Camp in 1956-57. Lois and Robert were married at White Sands.

Later, Robert contributed some of his own materials from his time at the range. In addition to being the CG's aide he worked on the test side of the house in scheduling and as the Nike assembly officer.

Years after retiring, Gen. Laidlaw recorded a number of his remembrances about White Sands. Those are now on paper in the Laidlaw collection. Below are some quotes from that document.

We also tested the first anti-missile missile, the Nike Zeus. The Zeus testing was started while I was in command at White Sands and was so important that it seemed that everybody wanted to hear the results of the first firing. The Secretary of the Army, Wilbur Brucker, had a direct telephone connection from Washington to me to learn the results of the firing. Fortunately, the firing was satisfactory.

We had one very scary thing that happened to us. We fired a Nike Hercules at a B-17 which was radio controlled. We just winged the airplane and lost control of it, and it kept circling overhead. We sent up a couple of fighters, but they couldn't bring it down either. Every time that airplane circled over the housing area with its load of gas I shuddered. It circled for sometime, then much to our relief it crashed out in the desert and did no harm. The burst of flame that rose when it landed gave us an idea of what could have happened.

We had another very interesting day. We had 300 leading industrialist and senior military personnel come to view some firings. They arrived by all sorts of transportation - by car, bus, and helicopter. We had to arrange for their arrival and for a lunch out in the field, in addition to the firings. Two examples of the type of personnel we had were the Chief of Staff of the Army and the President of U.S. Steel. Fortunately, everything went off well and we had one very spectacular firing. We had a radio controlled pilotless F-80 brought in directly towards the grandstand at 500 feet off the deck. At the appropriate time we fired a Hawk missile directly in front of us at the F-80. Well, that Hawk missile apparently went in the intake of the motor of that F-80 and blew it into a thousand pieces. A movie of that firing was used many, many times. In my farewell speech to this large group, I said that we were very glad to have had them come, and we were also very glad to see them go! This remark of mine was repeated by others several times later on.

At one time, Mr. Brucker, the Secretary of the Army, paid me a visit. I picked him up with my Beechcraft airplane at the airport in El Paso and flew him out over White Sands. He wanted particularly to see the housing around the Headquarters area. I looked down on all the construction there and I said to him, "Mr. Secretary, do you think I'm building a future ghost city out here in the desert?" He answered, "Oh, there will always be a use for this place." Well, this is some years later and it is still operating.

After 4 years at White Sands I decided my time had run out, and I put in for retirement. I told the Chief of Ordnance that I didn't want any ceremony; I wanted to be like MacArthur's Old soldier and simply fade away. I took a month's leave and everybody thought I was just going on leave but, of course, I had to have the doctor give me a physical examination and I had to tell my Executive that he would take over as Commander the day I left. I did have my immediate staff in for a little ceremony the afternoon before I left. Wilma, Ma Breuer, Suzy the cat, and I started out in the morning to drive to Cincinnati. I expected no ceremony of any kind because none had been arranged, but as I drove out the gate, there lined up at about 5 pace intervals was the total Army, Navy, Air Force and Marine Corps contingent of military personnel. The line extended for quite a long ways. At the end they had the American flag, my flag and my staff there to salute me as I went out. This was all done without my knowledge or my wishes. But it certainly was a heart warming send off.



Maj. Gen. W.E. Laidlaw's White Sands command photo.

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The Back Page



The west side of Victorio Peak in 1963 after the Gaddis Mining Company and the Ova Noss family completed their two-month search for the 100 tons of gold bars supposedly buried in the peak. Nothing was found.