



Hands Across History



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

Volume III, Letter III

August 2007

Jake Provencio Will Enter The Hall Of Fame

Joaquin (Jake) Provencio, a major contributor to the early Signal Intelligence and OPSEC programs at White Sands, will be inducted into the missile range's Hall of Fame on Aug. 30 during a luncheon ceremony. Provencio will be the first person from the security area to be inducted.

Induction into the White Sands Hall of Fame is the highest honor the range can give an individual locally. It was established in 1980 to recognize those who have made outstanding contributions to White Sands during their tenure on the range.

Tickets for the 11:30 a.m. luncheon ceremony are available from the Public Affairs Office for \$9. The menu will be Chicken Mesilla. A hamburger plate is available for children under 12 for \$5. Call (505) 678-1134 for more information.

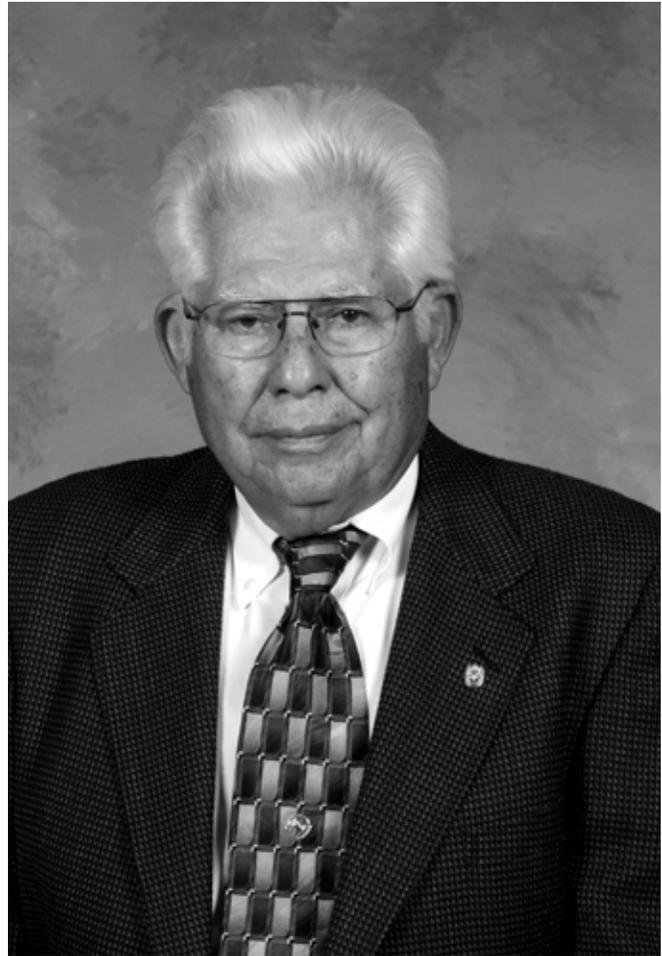
The Public Affairs staff is tired of holding the bag for no shows so you'll have to prepay for a ticket - they'll mail you your ticket or leave it at the door after they receive your check or credit card #. The deadline for purchasing a ticket is August 23.

Provencio came to White Sands in 1951 as a security guard and retired in 1985 as Deputy Director, Law Enforcement and Security. Truly a "self-made man," he pulled himself up by his bootstraps, working in all aspects of security. He achieved the highest civilian position in the Security Directorate at a time when higher grades were normally reserved for those with a college degree.

Provencio was a pioneer of range signal security during the years when many of the Cold War defensive missiles were tested at White Sands. His understanding of signal intelligence and the Soviet's multi-disciplined intelligence collection capability enabled him to develop viable counter-measures.

He established an effective range signal security program for the range which because of its clarity and detail was distributed throughout DOD as a model for other test ranges. He played an important role in preparing the security documentation submitted to the Tri-Service High Energy Laser Test Facility Site selection committee resulting in the determination that White Sands Missile Range would be selected to conduct high energy laser testing.

After retirement from federal service Provencio worked as security manager at Loral Vought, a DOD contractor, providing advice and assistance in security mat-



Jake Provencio's Hall of Fame photo.

ters especially in OPSEC and range signal security issues. Because of his expertise in signal security issues, Provencio was called upon on several occasions to participate in DOD directed vulnerability surveys. As a result of this effort WSMR received approximately \$1.8 million to address signal security vulnerabilities cited in the resulting report.

At 80, Provencio is still an active and avid horseman, rising early to rope cattle with his many friends. Jake and his wife Kay live in Las Cruces.

Don't forget to make time after the luncheon ceremony for the reception in the Museum. Jake's photo will be hung and coffee and cake will be served.

Museum Volunteers Have Been Outstanding

By Terrie Cornell, Director
White Sands Missile Range Museum

Your Museum is having a busy and productive summer. Darren Court, the new registrar, is rapidly learning the ropes and working through the backlog of donations that awaited his arrival. Rebecca Balizan, our summer hire for the third summer, is hard at work on the computer, entering into our archival database all sorts of photos and documents that accumulated in our storage area. Darren, Rebecca and our volunteers are doing a great job of organizing the WSMR Archives. You can check out the database yourself on line at www.wsmr-history.org.

Museum volunteer Terry Chappell won WSMR's Volunteer of the Quarter for January to March, selected by the volunteer coordinator Anna Maria Vestal and the Volunteer Advisory Council. Way to go, Terry!

In July, George Helfrich donated 500 pounds of papers, pictures and films to our archives. He even comes out on Thursdays to process and identify items in his collection.

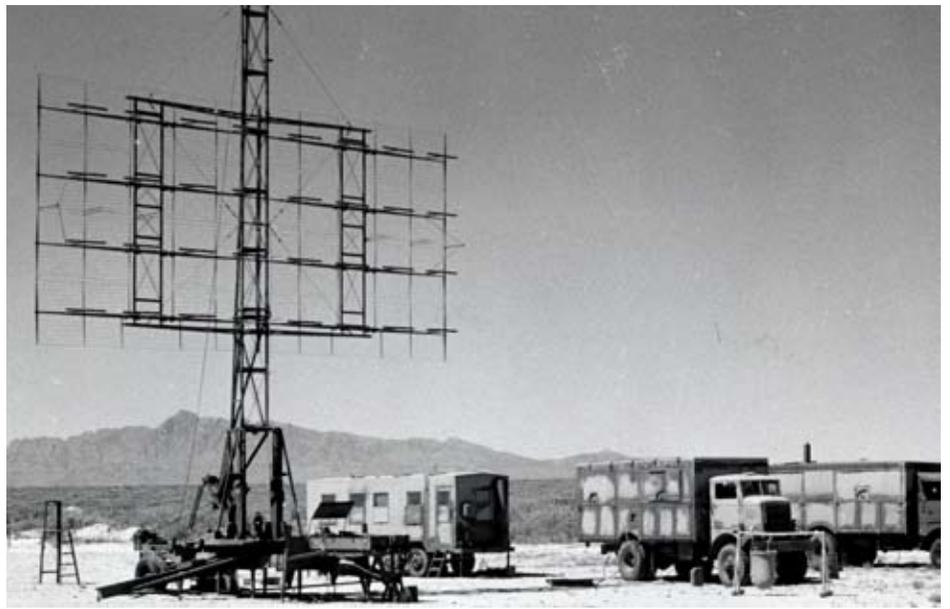
George is retired from Johns Hopkins University's Applied Physics Lab and worked here at WSMR for 40 years. We are fortunate to be the repository for his extensive collection detailing the history of the Navy at WSMR. (see his article on page 4)

Museum volunteer Fred Walters arranged for the Alamogordo Amateur Radio Club to set up a special event station in the Museum on July 14 and 15 to celebrate WSMR's 62nd anniversary. He reported a good response from visitors that weekend.

The Museum's storage area in Building 1833 was open for WSMR employees during Organization Day in July. The Open House allowed us to show off the artifacts that are not on exhibit but are being saved for a new museum building in the future. Our devoted Thursday volunteers greeted visitors and gave tours of the area to the 100 folks who visited. The Army Blockhouse and V-2 Gantry were also open for two busloads of employees on Organization Day. It was a good day for all of us!

Mystery Photo Can You Help??

This photo from the Museum's Col. Harold Turner Collection appears to be a SCR-270 Radar. Turner was the first commander at White Sands and served from July 9, 1945 to Aug. 3, 1947. The Museum archivist has several questions about the radar: Where was it located? What was it used for? When was it used? If you have answers, contact Doyle Piland at archivist@wsmr-history.org or (505) 523-7034. His mailing address is: 1910 Camelot Dr., Las Cruces, NM 88005.



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
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White Sands, N.M. 88002

White Sands Historical Foundation
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Thanks For Your Help



A few months ago, just as the last newsletter went to press, Clay Doyle (left), Vice President of New Mexico Affairs for El Paso Electric, handed Jon Gibson, Treasurer for the White Sands Historical Foundation, a check for \$25,000 to support the missile range's museum. With a large percentage of El Paso Electric's customers in New Mexico and the museum's visitation rate at close to 60,000 people per year, Doyle said it made sense to help the museum. He said tourism at the range is good for Las Cruces and the surrounding area which, in turn, is good for El Paso Electric.



Bob Lipinski (Chairman), left, and John Douds (Volunteer) of the Foundation's Brick Committee finish installing additions to the Raytheon Brick Constellation. Established for Raytheon's celebration of 50 years at WSMR, the constellation is the first extension of Signature Plaza into Missile Park. It is in the shadow of the Patriot launcher display (a Raytheon system). Bricks in Signature Plaza and its extensions recognize and pay tribute to the personnel, contractors, and organizations making White Sands a success. The Missile Park extensions provide opportunities for group recognition relative to particular systems tested on Range. All proceeds from the Signature Plaza Project go the WSMR Historical Foundation's Capital Fund for expansion and development of the Museum and Learning Center.

Way Back When

The Navy Blasted Off At Launch Complex 35

By George Helfrich

From the WSMR Museum Archives

Editor's Note: This quarter's article from Way Back When...was written by Mr. George Helfrich, who worked at LC-35 for many years as a part of the Johns Hopkins University Applied Physics Lab supporting the Navy at White Sands. Thus, he most likely has the most knowledge of the continuous history of LC-35. Photos and some derived information are from the Museum Archival Holdings.

LC-35 has been Navy territory since the very early days of White Sands Proving Ground. Situated approximately 10 miles east of the Headquarters Area, it is ideally located in the center of the launch areas along Nike Ave.

The Navy came to White Sands in 1946, a year after WSPG was established. Although there was no specific Navy program requiring launch support facilities, Captain Robert McLaughlin told me the Bureau of Naval Ordnance recognized that guided missiles were going to become a vital part of Navy fleet air defense in the future and he was ordered to develop a testing capability.

Another reason for creating a Navy presence in the desert actually started in 1945 with the creation of the V-2 panel that was established to develop scientific payloads, replacing the one metric ton explosive warheads of the V-2s being tested by the Army to gain experience in rocket launching and operations. The V-2 panel consisted of members representing a number of Army and Navy laboratories along with a number of universities interested in atmospheric research.

Primary leadership of the Panel was to rest in both the Naval Research Lab (NRL) and the Johns Hopkins University Applied Physics Lab (JHU/APL).

While the V-2s were launched from LC-33, the Navy did perform a V-2 firing from the USS Midway and two at LC-35. On September 6, 1947 the Navy launched a V-2 from the deck of the USS Midway, in what was known as Operation Sandy. This was not a resounding success, as the V-2 veered off course immediately after launch and flew into the ocean not far from the Midway.

Apparently this raised concerns related to the possibility of a launch mishap resulting in the V-2 falling on the deck after ignition. Two tests called, Operation Pushover, were conducted in late 1949 to determine the damage such a mishap would do.

First, a simulated deck was built laying flat on the ground just north of the Navy blockhouse. A fully fueled V-2 was erected on a specially built pedestal with four legs, which had two of the four legs rigged with explosives so they could be blown away just after ignition of the rocket motor. When the two legs were blown away, the V-2 tipped over and exploded.

The second test, called Pushover No. 2, was conducted in the same manner, except the deck was elevated several feet above the ground as shown in the photo above. The photo at the top of the next page shows the damage to the simulated deck. This photo was taken in 2002. The debris



The V-2 rocket used for Operation Pushover No. 2 in 1949 sits ready to be erected on the simulated ship deck just north of the Navy blockhouse at LC-35.

and damage around the outer area is the result of activities since Operation Pushover.

As the limited V-2 assets were expended, it became clear that a follow-on research rocket was needed. NRL was responsible for development of the Viking program and APL was responsible for development of the Aerobee. Both of these research rockets would be tested from LC-35.

Construction of the Navy Blockhouse, virtually identical to the Army Blockhouse at LC-33, began in 1946. The initial Viking launches were conducted at LC-33, but on December 15, 1952 Viking S/N-9 was launched from the Navy Blockhouse at LC-35.

The Viking program transitioned into the space program with the application of several Viking rockets utilized by the Vanguard program at Cape Canaveral. The gantry crane from LC-35 was disassembled and moved to Florida. The blast deflection pit was filled in around 1960 as it attracted too many snakes. In addition, Navy personnel on

see Navy at LC-35, page 5

Navy At LC-35 — CONTINUED FROM PAGE 4

guard duty would back their jeeps down the inclined ramp then come roaring out, a practice that killed many a clutch.

The Aerobee program had a much longer life lasting from late 1947 to early 1985. Of the 1,250 Aerobees launched worldwide, 675 took place at White Sands with



The gaping hole in the simulated ship decking, just north of the Navy blockhouse at LC-35, was a result of Operation Pushover No. 2

many launched from LC-35.

Especially spectacular were the synchronized dual launches of Aerobees made possible after a second launch tower was installed (see photo at right).

Today, there is little evidence of the research rocket launches from LC-35 as operations were moved east to LC-36. The dual launch towers have been dismantled and only the silent blockhouse remains.

Five years after the arrival at White Sands, the name of the Navy organization was changed from the Navy Unit to the Naval Ordnance Missile Test Facility. This coincided with the beginning of Talos missile testing from LC-35 and also marked the beginning of construction of the Desert Ship (see photo at top of next page).

There is a long-standing misconception that the Desert Ship is or was a commissioned U.S. Navy ship but it never was. The contractor crew, upon completion of the building, did conduct a mock christening. Congressional approval was, however, required to name it the USS Desert Ship. It is also known as the LLS-1 or Land Locked Ship Number One.

Talos was one of the first Navy guided missiles developed for fleet air defense and was developed as part of the Bumblebee program in response to the Japanese kamikaze threat. During the twenty plus years of Talos testing at White Sands, there were 523 flight tests conducted. The missile progressed from a beam-riding

weapon with 10-mile capability to various models including semi-active homing, nuclear warhead capability, and anti-radiation versions with range exceeding the north boundary of WSMR.

A structure adjacent to the Desert Ship, completed in 1954, was a replica of the deckhouse of a CG-10 class cruiser, from which production missiles could be received, tested and fired entirely by Navy crews under shipboard conditions.

In 1961, testing of the Typhon missile began from the Desert Ship and initiated the beginning of the shift from analog to digital processing techniques. The traveling wave tube and other advances in radar electronics were also introduced but it would take another ten years before these new concepts became achievable in production.

Testing of the two other Bumblebee program missiles, the Terrier and Tartar, was moved from China Lake California to LC-35 when the Navy consolidated Surface Missile System testing at White Sands in

1966. As Talos was gradually being phased out, Terrier and Tartar missiles evolved into the Standard Missile that took

see Navy Desert Ship, page 6



A spectacular synchronized dual launch of Aerobee rockets from the two launch towers at LC-35. Photo from the Jerry Crouch Collection.

Navy Desert Ship

CONTINUED FROM PAGE 5

advantage of the commonality of the two missiles.

In the mid 1960's, development of the Advanced Surface Missile System began and evolved into the Aegis Combat system. The Standard Missile-2 (SM-2) and the basic software needed for the Aegis fleet fire-control system development was tested at LC-35 prior to entering U.S. Navy fleet service in 1983.



Part of the crew from the USS Desert Ship pose in front of the building. *From the Jerry Crouch Collection.*

As the first Aegis ships were being introduced into the fleet, testing of the new Vertical Launching System (VLS) was taking place at LC-35 (see photo right). These systems replaced the trainable, above decks, dual-missile rail launchers with a below deck modular system containing multiple canisters capable of storing and launching missiles at a greatly increased firing rate.

Many improvements to the various versions of Standard Missile have been tested at LC-35 since the advent of Aegis and the VLS.

Two recent additions to the WSMR Museum Missile Park are the Navy's MK-5 Rail Launcher and the MK-39



The projectile is captured just as it leaves the 5-inch gun at LC-35 in this high-speed photo. *Photo from the Jerry Crouch Collection.*

5/54 Gun, both tested at LC-35 (see photo below left). The 5-inch gun was used to support the 5-inch Guided Projectile Program.

You can see photos of the MK-5 Rail Launcher at the Missile Park on the Museum Website at URL: www.wsmr-history.org/MK5GMLauncher.htm and of the MK-39 5/54 Gun at URL: www.wsmr-history.org/MK39_5in_54Gun.htm



A Standard Missile Vertical Launch with the Navy yard-arm flying the U.S. flag along with signal flags. *Photo from the George Helfrich Collection.*

Navy Trivia

It is commonly believed that bell bottom trousers were introduced in 1817 to permit men to roll them above the knee when washing down the decks, and to make it easier to remove them in a hurry when forced to abandon ship or when washed overboard. The trousers may be used as a life preserver by knotting the legs and swinging them over your head to fill the legs with air.

The U.S. Congress bestowed the title "Admiral of the Navy" upon just one person -- George Dewey.

How To Become A Broomstick Scientist

Editor's Note: No, we are not talking Harry Potter here. During the early 1950s the military drafted many young men with technical and professional degrees to help conduct missile and rocket research at places like White Sands. They dubbed themselves "broomstick scientists" after a captain made disparaging remarks about them and said he was no more impressed with them than he would be with a bunch of broomsticks. He did not approve of the ease that they climbed the promotion ladder due to their civilian experience. They worked on the V-2, Loki, Nike, Corporal and other systems.

Arnie Crouch has organized them and publishes a periodic newsletter containing their memories. This is one such article.

By William (Bill) Mead

I was strictly Bell Labs, but the route there was a wandering one. I was drafted the middle of January, 1951, much against my wishes, and shipped to Camp Chaffee, AR for basic training with the 542nd Field Artillery Battalion. After 8 weeks I was notified that I was being sent to Fort Myer, VA. The C.O. had no idea why.

There were five of us, and the logical surmise was that we were the only ones with a college degree. A mixed group--one biology major, one chemistry major, one math major, one civil engineer, and one journalism (!) major. We were loaded on a train for the trip to D.C., under the watchful eye of our sergeant escort (I don't know why he was along; probably so we wouldn't escape or get lost, being dumb privates). We got there late a night and the night duty sergeant assigned us a bed, and answered our question as to why we were there, and I can still quote him: "so you can be shipped somewhere else." He also told us to be at the morning formation in our Class A uniforms, and we would learn more.

Being reasonably bright, we learned quickly from the old-timers, those who had been there 3 or 4 days. We were to be set up for an interview and until then we were to wear our Class A uniforms. Once the interview was done, we were to wear fatigues until we got assignments and shipping orders. The advice from the old-timers: never wear your fatigues. Anyone in fatigues will be assigned whatever chores they can think of. I followed that advice, and got away with it.

We were also issued a Class A pass, and I took full advantage of it. I, and one of my Camp Chaffee companions, spent every day in D.C., sightseeing. Neither of us had ever been close to the National Capitol.

The interview was interesting: I was told I could make a first and second choice out of four options and I would be certain to get one of them. The choices were Aberdeen, White Sands, Red River Arsenal, and Redstone. I ranked them 1)Red River Arsenal (only 150 miles from my home), 2)White Sands, 3)Aberdeen, and 4)Redstone. Guess what I got? Right. I got lucky, though--turned out Redstone didn't have anything for me to do for a year, and I immediately asked to be transferred. However, while I was being interviewed by Dr. Debus, one of the German rocket scientists,

his office door flew open, and in came Von Braun talking excitedly in German. I had no idea what they were talking about, but I was certain I was present at a great breakthrough! Then I picked out the words "Plymouth" and "Studebaker." What a let-down.

In only a couple of days I was on my way to White Sands. I was one of the later arrivals--about the middle of April, 1951. No one seemed to know quite what to do with me, either. I was sent to radar school for two weeks, and then assigned to a group of leftovers, with the task of updating the manual on Magnetrons.

In a few days, the sergeant came into the room and asked if anyone there knew anything about statistics. My hand went up immediately. I didn't know anything about statistics, but I knew a statistician--one James R. Duffett. I was told to report to the Bell Labs office, where I was given a pile of data relative to the Nike guidance system, with the request to see if I could find any reason why the missiles weren't going exactly where they were supposed to go. I took this mass of data directly to Jim's office, regurgitated what George Head had told me, and said "now what?"

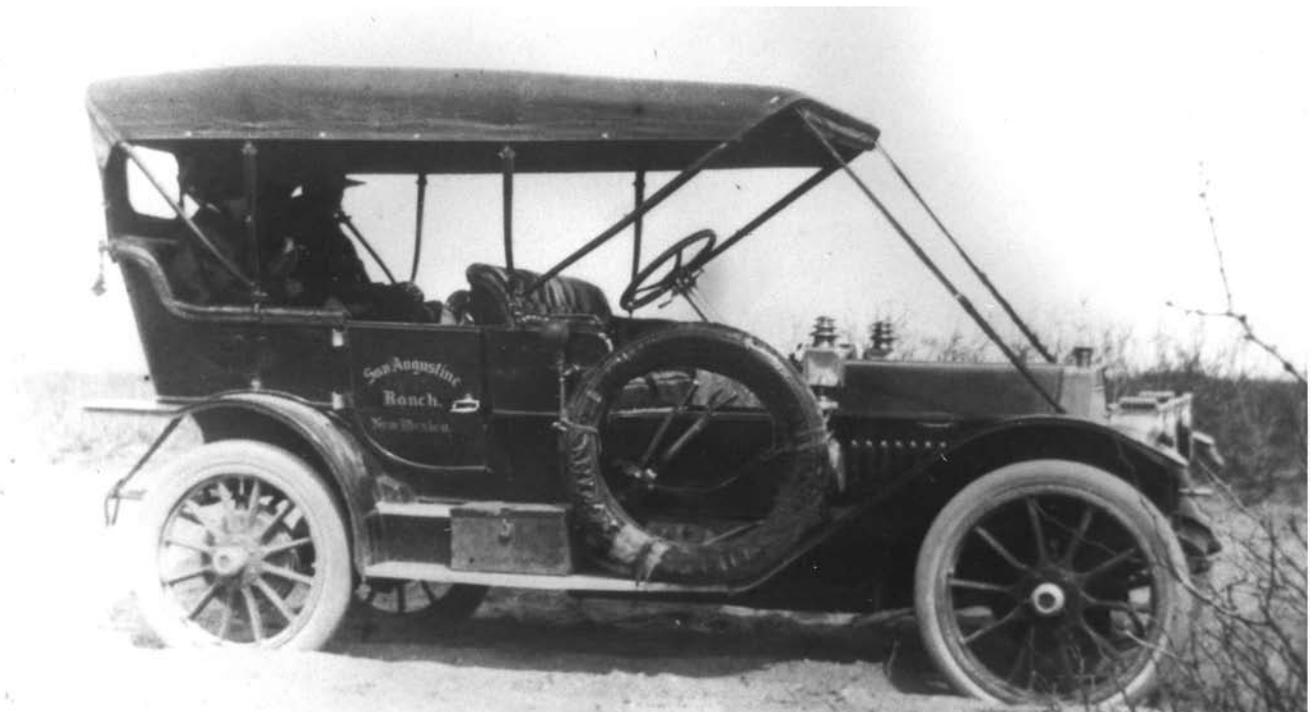
Turned out it required a relatively basic statistical procedure, so Jim gave me a textbook, pointed to an example, and told me to do it like that. I won't bore you with all the details, but there was an easy fix, and I was a hero with an immediate assignment full time to Bell Labs.

I really didn't do much more for them, but I did serve a purpose. They had some office space they weren't using, but didn't want to lose. So, I was assigned to use it and not let any interlopers try to take it over. It became a hideaway haven for Broomsticks. It also got me acquainted with Col. Pohlman. One morning he stuck his head in the door and wondered who I was and what I was doing there. I explained that I was with Bell Labs, and this was their office, which he seemed to accept. Also, I had the coffee pot on, the morning paper, and an extra cup! It became almost a daily ritual; he'd show up a little after eight, get his coffee and read the paper. Now and then it was helpful to know people in high places!

Bell offered me a job when I got discharged, but I was so fascinated with statistical analysis, my mind was set on going to graduate school to learn more. After finishing up there, I went to work for a small, but growing, manufacturing facility in Lynchburg, VA. They really needed a statistician, and I had found my home! Before long, it became obvious we needed a computer, and since I was the only one in the place who had ever seen one, I was elected to select, get installed, and staff the thing. Those things grow, and soon I was spending almost all my time managing the computer (and not having much fun). Then I took my seven person statistical analysis group and moved to another part of the building. That was about 1982. I stayed there, playing with numbers, until I retired in 1992. Simply sticking up my hand and volunteering for something I didn't know anything about really changed my life for the better. It would be a real understatement to say "I've never regretted it."

Hands Across History
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This Cox family photo was taken around 1906 and shows the family car, reportedly the first Oldsmobile in Las Cruces, in the desert probably near the ranch house just west of the WSMR mainpost. The sign on the door says, “San Augustine Ranch, New Mexico.”