PROJECT RAINHAT
by Anthony L. Tambini II, Commander, USN (Ret.)

High in the northern Mojave Desert of California, in what is known as the Indian Wells Valley, sits Naval Ordnance Test Station, China Lake. Bordered by the High Sierras on the west, Death Valley to the east, Mount Whitney to the north, and Edwards Air Force Base on the south, N.O.T.S., as it was then known, shares with Edwards Air Force Base a huge chunk of California air space reserved for military flight testing. China Lake, the dry lakebed for which the station is named, held water just once in the four years that we were stationed there. The water lasted for a little over two weeks before it once again dried up.

I had spent weeks preparing my wife, Angie, for her first look at the upper desert we would be calling home for the next four years. Crossing the Sierras from Bakersfield and driving north from the town of Mojave, the landscape was everything that I had promised her the sandy, dry desert would be. We crossed through Red Rock Canyon and over the rise that was the El Paso Mountains south of the base. As the valley spread out below us, she got her first glimpse of China Lake and the little town of Ridgecrest just outside the gate.

The base is a lush, green oasis amid the sand and rocks of the desert. Deep, artesian wells provide an abundant source of water. Homes, laboratories, and recreation facilities are all furnished with underground sprinkler systems. In the desert it seems that, with water, you can grow pretty much anything.

Above it all that day, was a huge thunderstorm pouring buckets of rain down on everything below. It was a surprise that neither of us expected. I don't remember it raining again for the whole four years we lived there. But boy did it snow once. That's another story.

For me, my first shore duty was as close to heaven as an aviator can get, especially if you were flying “Projects.” The naval ordnance test station had been commissioned during World War Two to design and test new weapons for use in naval and air warfare. Unlike any other military base that I had ever seen, it consisted of laboratories, engineering spaces, manufacturing facilities, and test ranges. More like a college campus than a military base, the scientists and engineers outnumbered naval personnel by a factor of more than ten to one.

Also within the confines of this sprawling complex in the middle of nowhere was a naval air facility, which existed for the sole purpose of supporting the scientists and engineers in putting their ideas and contraptions into use on board actual aircraft. At the time, the station's most noteworthy accomplishment was the “Sidewinder” air-to-air missile, a heat seeking, guided missile with a deadly, expanding-rod warhead. Versions of this missile are still in use by our military and our allies; and every nation, friend, or potential foe all over the world copies them.

Note: This article was written for the 50th Anniversary Reunion of AOC 10-56 in 2006, and appeared in the Journal of the SKYHAWK ASSOCIATION, fall 2007 issue.

About the Author: CDR Tony Tambini entered the Navy through the NAVCAD program in 1956, then flew the F-9F Cougar and FJ-4 Fury prior to transitioning to A3D-2s in VA-56. He deployed in Skyhawks on Thunderway and later on Coral Sea with VA-153 before his assignment to China Lake. Following the China Lake tour, he served with the ship’s company on Coral Sea, flew A-7s with VA-37, and completed Navy Command and Staff Newport, R.I. His final assignments were in nuclear weapons safety and readiness at COMNAVALANT and OPNAV.
When I arrived in the early 1960s, emphasis was on lessons learned from the Korean War and the problems presented to weaponizers that appeared with the introduction of jet aircraft in ground-support combat roles. The old “iron bombs” of World War II didn’t exactly go together with faster, sleeker aircraft, and making weapons into lower drag shapes often resulted in bombs that sailed along beneath the airplanes after release and reached the ground at about the same time and place as the releasing aircraft flying overhead. At lower altitudes above the ground, this was a situation that could threaten the longevity of pilot and aircraft.

Also, at that time, the predominant thought was to deliver weapons low and fast to escape detection by enemy radar. A whole new batch of weapons to be carried and released from jet aircraft was being designed. These would become the “Eye” series weapons. The first to be successfully built and tested was a simple retarded device consisting of four folding fins that, when opened, acted much like an umbrella; they slowed the bomb down in order to allow for separation between the airplane and the bomb. This device would become the “Snakeye,” a reliable, predictable fix that is still in use in the fleet today. Others would follow on in rapid succession, all of which would prove to be safe, reliable, or effective. Some, in fact, were truly menacing to the pilots who would attempt to fly and test these devices. One of these pilots was to be me.

For the very reason that testing some of these early, and sometimes questionable, new weapons required more than a willing pilot and a compatible airplane, the Projects Department of the naval air facility was born. Commander Larry Walker, a graduate of the first class of the Navy’s Test Pilot School, and formerly my commanding officer, was asked to form the department, select the pilots who would be assigned to testing, write the job descriptions, and develop a program to ensure logical and safe progression of airborne test work. A close coordination between laboratory, engineering, the civilian Aviation Ordnance Department, and the Projects Office of the naval air facility was developed. Test plans were written, followed, and reviewed on a regular basis.

My first Projects Office assignment would prove to be the defining program of my entire tour. I was the “Shrike” missile program pilot. Still in its infancy, the Shrike program had been without a pilot for a while. The pilot previously assigned, Wally Schirra, had been detached early so that he could report for duty in the Mercury program pilot. Still in its infancy, the Shrike program had been without a pilot for a while. The old “iron bombs” of World War Two didn’t exactly go together with faster, sleeker aircraft, and making weapons into lower drag shapes often resulted in bombs that sailed along beneath the airplanes after release and reached the ground at about the same time and place as the releasing aircraft flying overhead. At lower altitudes above the ground, this was a situation that could threaten the longevity of pilot and aircraft.

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MEMBERS MEETING RESULTS

The annual Members Meeting of the China Lake Museum Foundation was held in October 2007. A slate of eight directors of the Foundation were elected, with incumbents Bob Campbell, Dot Cronin, Dale Gates, Jim Seaman, and Paul Valovich being re-elected to three-year terms. Newley elected to three-year terms as directors of the Foundation are Pat Connell, Craig Porter, and Scott Smith.

WELCOME ABOARD TO ALL!

ELECTION OF OFFICERS

The election of officers of the Board of Directors of the China Lake Museum Foundation was conducted during the November board meeting. Bob Campbell was re-elected to serve as President of the Board, along with Vice Presidents Jim Seaman (First Vice President), Paul Homer (Operations), Bob Peoples (Public Relations), and Pat Doucette (Membership). Jack Latimer was elected to continue as the Secretary to the Board, and new Director Craig Porter was elected to serve as Treasurer of the Foundation.

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WELCOME ABOARD TO ALL!
One Monday afternoon in October 1962, after flying the late Shrike test flight on Charlie Range, I walked into the wardroom for a cup of coffee before getting out of my flight gear and into the working uniform. The wardroom television was turned on, a rare occasion on a working day. A group of officers had gathered and were watching. As I got closer, I realized that the President was speaking. I found a chair, dropped my gear, got a cup of coffee, and began to watch. This was national television, and there seemed to be a full-scale briefing going on. We were being told that the Russians were putting long-range, ballistic missiles into Cuba, and they were beheading up Cuban air defenses to screen surface-to-air SAM sites.

This looked like serious stuff. Almost as soon as I sat down, the squawk box by the steward's head came on. It was the commanding officer's voice. He asked the steward if I was in the wardroom. Oh, God. What did I do this time? He was telling the steward to let me finish watching the President speak, but as soon as the briefing was over, I was to report directly to his office.

The briefing didn't exactly hold my attention; I wondered what I might have done that would command my presence at just this time. After changing into my uniform, I nervously walked the hallway to the captain's office. When I entered, his civilian secretary ushered me in without delay. The captain sat behind his desk in his great big office. He looked more serious and worried than I had seen him in a while. I didn't have to wait long to find out what he wanted me for. His opening words were, "The President wants you in Washington—now."

My travel had already been arranged. The secretary brought in my tickets and handed them to me. I was booked on the TWA "Redeye Special" out of Los Angeles that very night to Baltimore—Washington International Airport. There was a commuter flight from Inyokern Airport just a few miles from the test station that would connect with the TWA flight. I had about two hours to pack and catch the plane.

The captain had arranged for a car to pick me up at my house and take me to the airport. There was one catch, it was the day before payday, and there wasn't time to go to disbursing for advance travel pay. I called Angie and told her that I had to go, and to get me some clothes together. I also asked her if she knew where we could get some cash quick. I couldn't tell her where I was going, or for how long I'd be gone, or even why I was going. Hell, I didn't even know myself. I had an open return ticket. I just had time to go home, change into a dress uniform, grab my bag, and kiss Angle and my son, Tony III, goodbye. My car and driver were at the front door.

I arrived in Baltimore—Washington Airport the next morning at about 0630. A car was waiting to take me into D.C. The Naval Air Systems Command project officer for the Shrike Missile Program met me at the old Main Navy building on Constitution Avenue, and we rode over to the Pentagon. There, we went to the office of the Assistant to the Secretary of Defense, Deputy Director, Research & Engineering (ATSD DDR&E), a position then held by Dr. Harold Brown. Apparently, in the course of the events of the previous day, the President had expressed a thought that it might be a good idea to have me close at hand should the need arise to take out one of Castro's SAM sites in Cuba. The President's thought became an urgent need, followed by the rush to get me to Washington. The Cubans had already shot down one of the Air Force U-2 reconnaissance airplanes as it made a photo pass over the island, and President Kennedy had warned Castro that, if he should attempt to shoot down another of our airplanes, we would take out the SAM site that did the shooting. We could have launched a large-scale air strike, but that would result in a lot of collateral damage to the surrounding countryside. The President wished to be very precise because of the heavy Russian presence in the form of military advisors to the Cuban military.

At the time, there was only one Shrike-qualified pilot in the world, and I was he. So, here I sat, cooling my heels in the Pentagon. "Ground Zero" for those Russian missiles in Cuba. When I realized why I had been summoned, I decided that some logical and rational thinking was appropriate. In order for me to be able to do as the President might wish, I would first have to fly back to California and get a Shrike-configured airplane—which didn't exist except for a couple of A-4 prototypes, and only one of these had a complete system. Furthermore, the missiles were hand-built in the laboratories at the Ordnance Test Station for specific tests, so a full-up warhead round would have to be assembled and loaded on the airplane.

What a beautiful airplane. It was silver and sleek, about the same size as the Skyhawk, and probably as ma-

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Our two aircraft were parked on the far side of the field inside a restricted area with a twenty-four-hour armed guard for protection. The other only aircraft within our perimeter was an intelligence-gathering A-3 Skywarrior.
he was practically in parade formation with us.

When we came to them along our course. The SAM sites along the Cuban coast were easy to spot. They were laid out with four-hour guard and into the restricted area, had stolen my fuel cap, and had flown away without getting caught.

In a vivid reminder of my past experience with Marine aviation, one day a Marine A-4 landed at Key West because he was streaming fuel from his fuselage. It turned out that he had lost the fuel cap to his fuselage fuel tank, and fuel was being siphoned out as he flew. There were no A-4 fuel caps in the supply system at Key West, so he appeared to be stuck until a new fuel cap could be ordered and delivered to Key West.

As we drove onto the air station the next morning, we saw the Marine A-4 taking off from the airstrip. It looked like he had found a fuel cap on the base after all. When I preflighted my aircraft before the day's operations, I discovered that my main fuel tank cap was missing. Somehow, the Marine had managed to get past the twenty-four-hour guard and into the restricted area, had stolen my fuel cap, and had flown away without getting caught.

We would eventually fly fourteen missions over Cuba. The intelligence that we gathered through the onboard instrumentation was a real boon to our engineers and scientists who excitedly listened each night to the tapes that we made during our passes over Cuba that day. We were able to provoke the Cubans into turning on their surface-to-air missile guidance radars, but they didn't fire at us.

The first day, the Joint Air Reconnaissance Command Center (JARCC) duty officer almost had a heart attack as he watched the progress of our flight over Cuba. He had been under the impression that we wouldn't fly over Cuba unless provoked. Actually, we were the provokers; we wanted actual SAM radar signatures to be sure that we had the right info to feed the Shrike missile, so it would home in properly. He was quick to inform us that we had created a real problem.

When the Cubans fired at us, we turned our A-4s away from the SAM site, and we flew toward the island, and I began watching it. It was on what seemed to be an easterly course like we were, and it held position right off our starboard point. Every site looked like all the rest.

On the third day, I saw a glint on the horizon to the south just as we started our track from the west end of the island, and I began watching it. It was on what seemed to be an easterly course like we were, and it held position right off our starboard beam, but it slowly grew larger. It wasn't long before I was able to make out the unmistakable shape of the Mig-21 Russian fighter. Slowly and carefully, he approached us as we flew our planned track toward Havana. The pilot never pointed the nose of his aircraft at us, but he kept closing the distance between us until he was practically in parade formation with us.

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When the Soviets introduced new radars for controlling their surface-to-air missiles we were faced with a problem. These radars were significantly different than any we had tested against. We were uncertain if the Shrike guidance receiver could track their signal strength dynamics. The intelligence community could not provide us with the information necessary to make a determination. We needed a way to test the Shrike receiver against the actual radar signal.

As the design of the guidance system progressed on the first Shrike missiles, it was repeatedly tested against our target radars on the China Lake ranges. At that point in time the primary target was the SCR-584 gun fire control radar. The United States had exported these radars to third world countries in the years following WW-II and now they might be used against our aircraft. Fortunately, we had some of these radars at NOTS that we could test against.

As we knew these radars were deployed in Cuba as well as other Soviet early warning radars of interest. We found a specialized recorder that could record the radar signal dynamics of interest and mounted it into an empty aircraft fuel pod. A flush antenna was mounted to the surface of the pod. When mounted onto an A-4 aircraft, it appeared to be a normal fuel tank. China Lake Shrike project pilots, LT Tony Tambini and CDR Jack Sickel, flew two specially configured A-4s to Key West, Florida, along with the pod. They were joined by myself to oversee the data collection and a technician to maintain the pod. I believe G. O. Miller was also involved. This plan to covertly record the Soviet radar signatures while flying at the edge of Cuban airspace had to be blessed from the highest levels of the Navy and DoD.

With the help of the air controllers at the Naval Air Station at Key West, the A-4 carrying the pod was flown to the edge of the Cuban airspace. Our pilot flew close enough to provoke the Soviet radar systems. The Cuban air defense system tracked our A-4 with a variety of warning radars and, in particular, the surface-to-air missile radars. After gathering all of the data, he got the hell out of there. As I watched one of the flights on radar from the Naval Air Station control tower, it was apparent that our A-4 was dangerously close to crossing into Cuban airspace. The air controller kept saying, "Wow, that pilot sure has balls!"

D. J. (Jack) Russell at the time of these events was Head of the Design Branch (Code 4021) that built the Shrike guidance section. Russell retired at China Lake as a member of the Senior Executive Service, and served on the China Lake Museum Foundation Board of Directors, and now is a Director Emeritus.
The China Lake Museum Foundation now has a process by which you can include consideration of the Museum as a part of your will or estate. It is a fairly simple and straightforward process which involves adding a sentence stating your attention to your will or trust with an appropriate witness (not a Foundation officer or staff member). Please consider providing a gift to the China Lake Museum Foundation in your will and/or estate.

Gifts can include monetary (fixed dollar amounts or percentage of residuary estate), property items, artifacts. Tax benefits can be realized through the reduction of the size of your taxable estate. Family needs are met first. Special instructions can be stated. Otherwise the donation will be applied to the general fund, which can be used to support new facilities, exhibits, operations and education initiatives. If you have any questions, please call the Foundation office. The process was provided courtesy of the law office of Steve Boster.
Jacobs Engineering—Naval Systems Group
Makes Major Annual Donation

Dale Gates, General Manager of the Jacobs Engineering—Naval Systems Group, a major support contractor to the Naval Air Warfare Center Weapons Division, presents a donation of $5,000 to Bob Campbell, on the left, China Lake Museum Foundation President.

Campbell noted that Jacobs Engineering—Naval Systems Group, (formerly Sverdrup Corp.) has made an annual contribution of $5,000 or more each year since the U.S. Naval Museum of Armament and Technology was established by the Secretary of the Navy.

DCS Corporation
Makes Major Contribution

CAPT Paul (Booger) Valovich, USN(Ret.), representing the DCS Corporation, left of center, presents Paul Homer, China Lake Museum Foundation, a donation of $5,000 to support the development of a new, enhanced exhibit on the Walleye. Looking on, left side is David N. Livingston, the first Walleye Project Manager that introduced Walleye to the Fleet, and Marc Moulton, one of the Walleye inventors.

Valovich said that he did lots of training with Walleye, but had delivered only one in combat. “That day,” he stated, “the bad guys weren’t shooting back, so I followed the weapon in and watched the impact directly on the intended target, a fortified facility. Great weapon.”

The CLMF is assisting the Navy in showing the great history and effectiveness of Walleye, the first real precision guided weapon.