THE CHINA LAKER

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MUSEUM ACQUIRES WORLD WAR II PROXIMITY FUZE

BART AND CAROL BINGAMAN DONATE ARTIFACTS

During all of the wars that proceeded, and during the beginning of World War II, we needed a method for detonating a shell near the target. If we were to detonate the shell either too early, or later after the shell had passed through the target, the effect would be minimal.

In the earlier days of warfare, many of these shells had been manually timed, which gave the gunner one more thing to contend with, in addition to calculating the correct course, speed, range, bearing, and position angle. Of course, any error in calculations resulted in the target escaping damage.

Early in the days of World War II, fire-control radar was developed, which helped with many of the calculations that must be considered for a successful launch of a shell towards the target. The accepted method of shelling prior to the marvel of radar, was to saturate the area, wasting a large number of shells and most of the time resulting in the escape of the target. Fire control radar was to solve the problems of positioning the guns, but now, on to our problem of when to detonate the shell.

The burst range for a 5 inch shell is about 200 feet, and we must have our target within this region when the explosion occurs. It took the inventiveness of the Navy, and civilian American scientists to invent the technical marvel of the Proximity Fuze. It took the electronics industry in the United States to manufacture a reliable and compact system.

For a decade prior to World War II, the Navy's Bureau of Ordnance had thought of building an infrared fuze which could be triggered by the heat developed by an aircraft engine. Due to the complicated engineering problems this project was never implemented. In the summer of 1940 aircraft technology had improved by many countries, and the international situation started by Hitler's invasions made the United States take a look at developing a fuze which would detonate a projectile when in proximity of an aircraft. In July of that year, a group consisting of members of the National Defense Research Committee and the Navy Department Council for Research, decided that the development of such a fuze was possible by using either electronic or photoelectric devices. A month later, the Bureau of Ordnance gave the fuzes top priority over all projects that it had requested the National Defense Research Committee to look into.

During August 1940, Section T of the National Defense Research Committee was established under Dr. M. A. Tuve of the Carnegie Institution. Research was to be conducted at the laboratory of the Department of Terrestrial Magnetism of the Carnegie Institution, Washington.

In November 1940, the Bureau of Standards joined section T on the project and for a few months both of these activities conducted independent research, each working on a variety of devices applicable to a wide range of projectiles. Since the Navy's basic and urgent requirement was for a fuze for anti-aircraft projectiles, fired from rifled guns, the work of the two activities was separated in July 1941. Thereafter, Section T devoted its entire energies to this problem, while the Bureau of Standards concentrated on influence fuzes for non-rotating projectiles (including NOTS rockets).

In November 1941, the Bureau of Ordnance contracted with the Crosley Co. to conduct independent research in fuze construction under the technical supervision of the National Defense Research Committee. This industrial concern was expected to provide realistic engineering design rather than development. Meanwhile, the National Defense Research Committee contracted with many other companies and universities. The growth of the project was so great that it required increased administrative support. In March 1942, it was placed directly under the Office of Scientific Research and Development, which contracted with Johns Hopkins University to provide for its administration. The secret classification of the project necessitated the provision of secure space for this. The University established the Applied Physics Laboratory at Silver Spring, Maryland, a suburb of Washington D. C.

The Director of the new APL was J. A. Bearden. Recruiting for energetic members of the staff was intense, and soon joining Bearden in April 42 was S. Pierce Bingaman, the father of Bart Bingaman. Bart had inherited his father's artifacts, and brought them to China Lake in June 2008 for consideration in the Museum's collection. His materials included an original model of the projectile proximity fuze, drawings of the fuze, and detailed descriptions of the operation of the device, along with many newspaper and magazine articles published after the secrecy was lifted on the project in late 1945. Also included are the certificate awards and citations earned by S.P. Bingaman, including a certificate of merit signed by Vannevar Bush, the head of OSRD.

Bart and Carol Bingaman present Proximity Fuze and History To CLMF President Bob Campbell and Paul Homer

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President's Report By Bob Campbell

Activities are picking up. We had a very successful dinner auction fund raising event on May 31. Thanks to the crew of volunteers led by Betty Seaman and Alice Campbell, we netted over $85,000. All of the proceeds will be placed in our building fund. The dinner auction is a great display of community commitment to do what they can to support the initiative to relocate the Museum to a new facility and make it more accessible to the public.

The Navy has selected Gina Nichols as the interim director for the Museum. Gina comes from the SeaBee Museum where she holds the position of archivist. She will bring some professional Museum knowledge and we look forward to working with her. She will be acting Director until the Navy History Center is able to select a permanent Director. Gina plans to be here three days a week, as she will be commuting from the Ventura area.

Scott O'Neil, NAWC/WD Executive Director, is in the process of reestablishing the NAWCWD Museum Committee. The purpose of the committee will be to ensure that the component of the Museum Mission to reflect the rich history of China Lake is addressed. The Committee will work closely with the Museum Director, the Navy History Center and the Foundation to provide assistance where appropriate and necessary.

We have all been anxiously waiting for volume 3 of the China Lake history, "The Magnificent Mavericks" by Liz Babcock to go to the publisher. Well it has happened. The Navy is currently printing the hardback cover and it will be available within the month. The Foundation is poised to print the soft back version as soon as we have the appropriate authority. Pat Connell is working with the Navy and the publisher to make this happen. I expect we should have the soft cover for sale by October. We should have a limited number of the (Cont'd Page 4)

President's Report (Continued)

hardback version available in September, for those who wanted a matched set.

I am pleased that Karen Higgins agreed to help us define the goals and strategy to better integrate the Museum into educational venues. The group working with her consists of representatives from the school district, the Navy, the Foundation, and scientists interested in education. Their efforts will help establish the corner stone for future educational out reach initiatives to grow the Museum into a more compelling learning ground for youth and adults. We briefed Assemblywoman Jean Fuller and Director of Navy Museums, Jeremy Gillespie, on our progress and they were very supportive.

Lastly, I will add that the Walleye exhibit is still in the development stages. I expect the efforts to resume after the summer hiatus. We will let you know when we have a firm date for completion.

(Continued from Page 2) **PROXIMITY FUZE**

The Office of Scientific Research and Development directed and funded the major technical projects conducted during WW –II, including the Manhattan Project (Atomic Bomb and China Lake Project Camel), the development of RADAR at MIT's Radiation Laboratory, the rocket programs of Caltech and NOTS, as well as the proximity fuze project at the Johns Hopkins Applied Physics Laboratory. All of these programs were conducted under utmost secrecy and with great urgency. With the two atomic bombs dropped on Japanese cities effectively ending the war, the contribution of the proximity fuze has been rated a close second in importance to the overall war effort, both in the European campaign and the Pacific Theater.

Components that did not exist were invented. Manufacturing at very high rates was designed. In the case of the proximity fuze, miniature vacuum tubes were designed that could withstand the naval gun setback forces of the order of 20,000 Gs. A radio transmitter and receiver with 5 miniature vacuum tubes fitted into a tiny space was developed. Perhaps the greatest achievement in the proximity fuze component development was that of a long shelf life battery, consisting of an electrolyte contained in a glass ampoule which is ruptured on launch, releasing the electrolyte which is distributed by the spin of the projectile into the plates of the battery, thus generating electrical current for powering the radio transmitter and receiver prior to target intercept.

GENERAL DESCRIPTION

The new weapon used extensively by the Army and the Navy is a radio proximity fuze generally known by the Navy as a VT fuze and to the Army as Posit. The VT fuze is a five tube transmitting radio station and home type radio receiver built into the nose of a high explosive shell. It is complete with power supply and all the necessary safety devices for handling. The smallness of the radio device is only one of the engineering requirements - it has to stand the shock of being fired from a high velocity gun and also withstand being rotated at speeds as high as 30,000 revolutions per minute.

The transmitting radio sends out a radio signal which is reflected from an airplane or, in the case of artillery shells, from the ground. When the reflected signal reaches a certain loudness in the receiver a special vacuum tube sends a large current through an electrical detonator which explodes the charge of TNT. From the time the proper signal is received the shell travels less than one foot before it is exploded into steel fragments.

The fuze's greatest usefulness to the artilleryman is in providing properly placed air bursts so that fox holes or trenches provide little or no protection to the soldier. An alert soldier does not fear artillery fire because he can hear the shell approaching and has time to duck into a ditch, fox hole, or just lie flat. The VT fuze has changed all this for it explodes the shell above ground at just the point where the artilleryman wanted it order to do the most damage. Trenches, fox holes, and ditches are of no protection when the VT fuze is used.

DEVELOPMENT HIGHLIGHTS

Earlier questions as to the affectivity of the 5"/38 shell equipped with a proximity fuze led to a test against a full-scale airplane target suspended from a balloon. This test was conducted in April 1942 at Parris Island, North Carolina, and generally confirmed the expected performance of the VT fuze on the 5"/38 shell.

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The next major test was to prove a new time delay safety feature insuring premature detonation would not occur in the near vicinity of the muzzle of the 5"/38. This development brought all of the essential elements together for a satisfactory proximity fuze. Accordingly, it was decided to conduct these tests against actual drones from a Navy ship. The test firings were carried out in August 1942 aboard the newly commissioned U.S.S. Cleveland (CL-55), a cruiser. The Cleveland was commanded by Capt. S. E. Burroughs, who became the first Commanding Officer at the newly established Naval Ordnance Test Station the following year. The results of the tests were entirely satisfactory—in fact, the tests ended early because all of the drones available were shot down.

As a result of these efforts, approval for full-scale production was given, and the Crosley Corp. began mass production in September 1942, and satisfactory units were delivered to the fleet in in November and December 1942—just one year after Pearl Harbor. This fuze, which was designated the MK-32, was first used in combat in January 1943, when the cruiser USS Helena shot down a Japanese plane with proximity fuzed 5"/38 shells.

The MK-32 was designed specifically for the top priority shell, the US Navy 5"/38 naval gun. Other models were developed for other gun and artillery pieces, which required additional miniaturization, and adaptation to lower launch set-back forces. The MK-33 was built for the British 4".5 gun used on aircraft carriers, the MK-41, smaller still, used with the British 4" gun on destroyers. The later development stimulated the design of the "reserve battery" - the stored electrolyte in a glass ampoule—because the dry cell used in the MK-32 could not be made small enough to fit in the MK-41.

A smaller still model, the MK-45, was developed for use in Army field artillery and the Army 90 mm anti-aircraft gun. Initially, for security reasons, it was decided not to use the proximity fuze in areas where the enemy possibly could recover a dud round and thereby compromise the design. Consequently, fuzes were being stockpiled with the intent of committing these fuzes at a later time. Finally in December 1944, a decision was reached to release proximity fuzes for unrestricted use and these fuzes were committed to use in Europe with outstanding effectiveness.

Another model, the MK-40, was developed to gain better performance against very low-flying torpedo bombers. The MK-32 had exhibited premature detonation by detected sea water waves before intercepting a low level target. The MK-40 incorporated a automatic volume control (AVC) circuit to lessen this problem, and also added the more reliable reserve battery.

Modified MK-45 fuzes were redesigned to fit the Navy 3"/50 gun round, incorporated the reserve battery and improved wave suppression, and then was designated the MK-58. Similarly, the advanced features of the MK-45 were incorporated in another design for the Navy 5"/38, and this model became the MK-53.

Similar improvements to the MK-45 design for British gun platforms resulted in two more models, the Mk-56 and MK-60. Finally, two additional designs for the Navy adapted the MK-53 design to the Navy 6"/47 gun and another to the 5"/54 gun—the MK-47 and MK-59.

PRODUCTION

By the end of the World War II, the Army and Navy had spent over $1,000,000,000 on the proximity fuze efforts. By the end of 1944, 87 contractors, operating 110 plants, were manufacturing parts of fuze which at time were being delivered at the rate of 40.000 per day. On V-J Day, the production rate of fuzes was more than 80,000 per day from five major factories. The tiny radio tubes used in this fuze were produced at a rate greater than 500,000 per day. Procurement contracts increased annually from $60 million in 1942, to $200 million in 1943, to $300 million in 1944, and were topped by $450 million in 1945. Of course, as volume increases cost decreases, and the cost of the fuze that had started at $732 in 1942 dropped to $18 in 1945. This permitted the purchase of over 22 million proximity fuzes of all models.

PERFORMANCE

In 1943 a convoy in Mid-Pacific escorted by destroyers only was attacked by 27 Japanese planes. The destroyers, firing 5" guns with VT fuzes, shot down all 27 planes and not one bomb reached the convoy. All Japanese planes sighted were shot down. A task group in the Pacific reported shooting down 91 of 130 attacking Japanese planes.

It was reported that the VT fuze saved the battleship Missouri more than once for the signing of the peace treaty. For example, on one occasion there were two kamikazes coming in and there was only time to fire three rounds. Two rounds burst on one plane, one on the other and both kamikazes went down in flames.

General Patton reported that the forward observer in his Army saw a German battalion attempting to cross the Ruhr River in rubber boats. A concentrated VT artillery fire was laid down over the area and when our troops advanced, 702 Germans were found dead in the river.

A German division was observed on its way to the front lines going into bivouac at sunset in a pine forest just back of the front. After all men were out of their armored cars and tanks, a VT barrage was laid down. The area was overrun by our troops the following day and over 2000 dead were counted. When the 101st Airborne Division was surrounded at Bastiogne, General Patton blasted through a narrow corridor to bring aid to the important base. The Germans concentrated six divisions to close this relief corridor. General Patton ordered the whole area plastered with a VT artillery barrage and the Germans were so demoralized that there attack never materialized.

On 12 June 1944, just six days after the allied invasion of Normandy, the first V-1 "buzz bomb" fell on London, marking the start of Hitler's effort to level the city. The attacks by the pulse jet powered V-1 were so numerous that the Royal Air Force was not able to devise a good defense against the weapon. The highest levels of command reluctantly agreed to use the proximity fuze in the defense of London. Large numbers of artillery anti-aircraft guns were moved to the channel coast so that the units could fire at the V-1s over water. Success in destroying the V-1 by gunfire increased proportionately with the increase in use of the VT-fuzed projectiles. In the last month of the terrifying 80 days, 79 percent of the V-1s engaged were destroyed as compared to 24 percent destroyed during the first week of the attacks. On the last day of large-scale attacks only 4 of 104 V-1s succeeding in reaching their target. Some of the 100 bombs destroyed were credited to the Royal Air Force and to barrage balloons, but the majority of the V-1s were victims of proximity fuzed projectiles.

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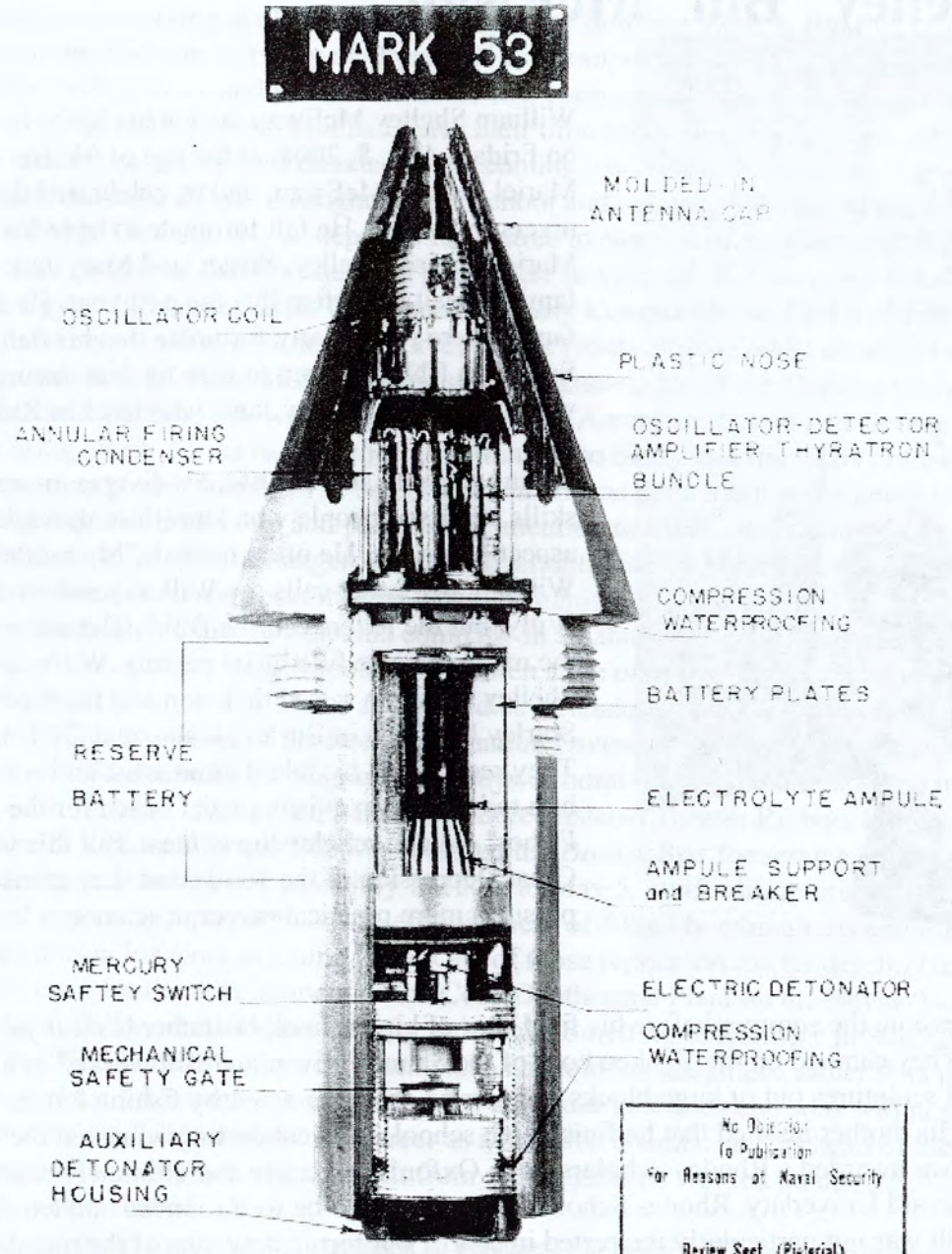
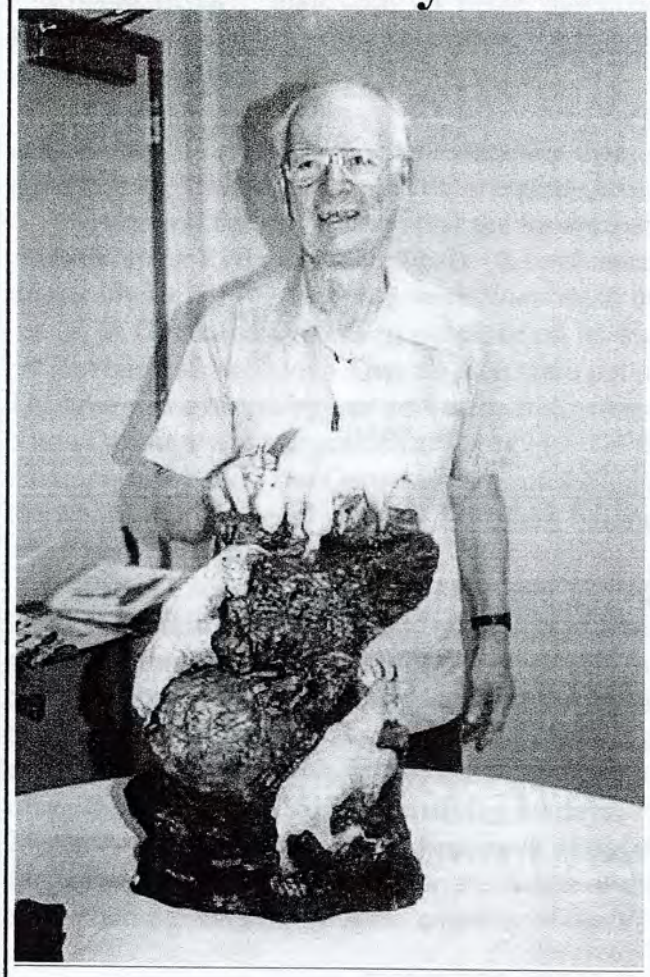


MK-53 Proximity Fuze
Advanced model of the original MK-32 Proximity Fuze
For use on the 5"/38 Naval Gun Projectile
Equipped with the Molded in Antenna and the Reserve Battery

William Shelley "Bill" McEwan



William Shelley McEwan died at his home in Ridgecrest on Friday, Aug. 8, 2008, at the age of 93. His wife, Mariel Faucett McEwan, and he celebrated their 67th anniversary in July. He felt fortunate to have his daughters, Mariel Louise, Shelley, Susan, and Mary Jane and their families visit him often this the past year. He and his family were particularly fortunate that his daughter Susan, an RN, came out to care for him during his final weeks along with Mary Jane, who lives in Ridgecrest.

During his long and full life, his diverse interests and skills surprised people who knew him through just one aspect of his life. He often recited: "My mother calls me William, my father calls me Will, my sister calls me Willy, but the fellers call me Bill." The old poem reflects the many roles he filled. His parents, William and Louisa Shelley McEwan raised their son and his brother John Shirley McEwan in Burley, Idaho, and Ogden, Utah. They recognized his talent as an artist and encouraged him to build an exquisite model coach for the "Body by Fisher" college scholarship contest. But this was in the Great Depression of the 1930's and they advised him to pursue a more practical career in science.

During the depression, the summer before his final year of high school, his father lost his job and the family lost their home. They camped on the Yankee Fork of the Salmon River, and Bill worked as a fly fishing guide and carved animal sculptures out of large blocks of quarried chalk for a nearby fishing lodge. The guide wanted him to stay on. His mother insisted that he finish high school. He went on to graduate at the top of his class at Utah State and was awarded a Rhodes Scholarship to Oxford University and ultimately received his PhD in Chemistry at Harvard University. Rhodes Scholars are required to be well rounded and excel in sports as well as academically. Bill was not particularly interested in sports; but fortunately, one of the members on the Rhodes Committee was a fisherman and appreciated Bill's experience as a guide on the Salmon River.
In Oxford, England, Bill met his future wife, Mariel, at a tea at the Rhodes House. Although Mariel's mother was born in London and her mother was English, she had dual citizenship. Her father, Lawrence Faucett, had also gone to Oxford to study as a Rhodes Scholar from Tennessee in 1918.

During the summer of 1939, Bill and fellow Rhodes Scholar, Charles Jelinek, traveled on a motorcycle across Europe as far as Yugoslavia. With the advancing war, they raced back, barely catching the last ship from Belgium and arriving back at Rhodes House to hear Winston Churchill declare war. After the British evacuation from Dunkirk in 1940, all the Rhodes Scholars were called back to the United States. His fiancé, Mariel, was able to join Bill in 1941, sailing on one of the last ocean liners that left from the neutral port of Lisbon, Portugal. They married in Cambridge, Mass. Mariel Louise, their first daughter, was born in 1942, after Bill had been called to duty. Bill did not get to see her until he returned after VE Day in 1945.

Bill completed his PhD at Harvard University in June 1942, where he worked as a Research Assistant for Dr. G. B. Kistiakowsky. The precise measurements required for his thesis project were made on a calorimeter he built himself, using the soldering skills he developed as a boy building models. But this project was much more serious. His thesis on the Thermochemistry of Organic Nitro Compounds was funded under contract with the National Defense Research Service and was the basis for two confidential reports. Bill dedicated it to "those men of foresight who, in the face of blind isolationism, gave their time and skill to initiate a research program that the strength of their country might be well directed in the coming war."

Bill had served in the ROTC throughout high school and college, and entered the war as a commissioned officer on July 9, 1942. On Sept. 21, he departed for Eritrea in North Africa, where someone had requested a chemist, only to find on arrival that the chemical plant there had closed. Bill was reassigned to work on munitions for the British in Egypt. Bill served as an Ordnance Company Commander and led a company of men, following the British Eighth Army as it drove Rommel's forces across North Africa. While clearing battlefields, Bill collected German munition manuals in abandoned tanks and used his knowledge of the German language to translate them: By the time he reached Tunisia, Bill was an expert in British, American, Italian and German ordnance.

After crossing North Africa twice by jeep, he went on to Sicily and Italy. His ordnance company continued to clear and defuse unexploded bombs. The safety of his men was paramount — he never let them down and never forgot them. His discipline, leadership and painstaking attention to detail resulted in all of his company making it across North Africa alive, in spite of dangerous work in ammunition and bomb demolition and coming under fire in Libya. In Italy, Bill faced potential court martial when, recognizing an unnecessary hazard to his men, he defied a senior officer who had ordered him to billet his company in an abandoned chemical plant. The charges were dropped when the chemical samples Bill took were proven to be ones used in chemical warfare.

In Italy, Bill was promoted to Major and served as a Headquarters Staff Ordnance Officer with the U.S. Army, Twelfth Air Force. As chief of the Bomb Evaluation Division, Bill served as an instructor at the Air Force Ordnance School and did extensive photographic surveys of bomb-damaged railroads and industries throughout Italy. Bill received the EAME (European, African, Middle Eastern) Theater Ribbon, the American Theater Ribbon, and the World War II Victory Ribbon. Bill was awarded the Bronze Star for service in direct support of combat operations in the Mediterranean Theater from July 1, 1944, to May 5, 1945. Bill returned to the United States Sept. 2, 1945. The detailed reports Bill prepared on the effectiveness of Allied bombing runs and bombs in Italy were later used as references during his work at China Lake. One of those reports on the Larderello Geothermal Electric Plant was used as a reference for the development of the Coso Geothermal Plant on the Naval Weapons Center.

After the war, Bill worked a short time for American Smelting & Refinery in Salt Lake City, Utah, before coming to work at China Lake as a Physical Chemist. As he told his daughters, rather than pursuing a career in industry, Bill dedicated his life's work to our country "so that your husbands and sons will never have to go into battle as ill-prepared as we were." Throughout his career as a research chemist, and as head of the Chemistry Division, he kept that goal foremost and did not seek to profit from the projects he worked on directly, or to claim credit for those he inspired or encouraged.

Bill continued to do fundamental research in physical chemistry, designing equipment and instruments for research into high temperature thermodynamics and kinetics of liquid and solid propellants and explosives. Along with Dr. Sol Skolnik, Bill invented the first analog computer on the base, which they used to do flame gas equations. He was an outstanding authority on propellant systems, combustion and ballistic modification of solid propellants and the initiation and propagation of detonation in explosives and propellants. In short, as he told his great granddaughter Erica, he was a rocket scientist.

Bill participated in a variety of other research projects including chemiluminescent formulation, measuring water vapor particles and designing a cloud chamber related to research in weather modification, and scanning electron microscopy studies of dental enamel, pollen and even moon rocks. During his last months, Bill spoke with great respect of his many colleagues on these projects.

In recognition of his outstanding contributions to the mission of the China Lake Naval Ordnance Test Station, he received the L.T.E. Thompson award, as well as the Superior Civilian Service award.

He also received the Technical Director's Award, along with Dr. Taylor Joyner, Howard C. Shafer, and Jack M. Pakulak, Jr., for their investigations and participation as expert witnesses, successfully proving that the bombs that were being shipped by the U.S. Army were not responsible for the Roseville and Benson rail car explosions. Throughout his career, he continued to emphasis the safety of those who worked under him and received a Certificate of Commendation for 20 years of supervision without a lost-time accident.

When asked recently what his favorite project was during his 30 years of civil service as a chemist, Bill said, "that would be like naming his favorite daughter." He was interested in and enjoyed all of them. His varied interests and ability to build virtually anything enriched his life and his family's. In the 1960s, he learned to fly with the China Lake Soaring Society, competed in long distance glider meets and built three sailplanes. Later Bill also built two sailboats and a rowing skull — not because he liked to sail, but because he liked challenges. Surprisingly, since he was not a musician, Bill built two harps, one with his friend Carol Rorex.

His daughters, grandchildren and great grandchildren enjoyed his abilities as a toymaker, playing with gifts he made — marionettes and dolls, rocking horses and hobby horses, blocks, swords and shields, bows and arrows, castles and forts, panda bears and dragons. His greatest gifts to them included his curiosity, imagination, and his belief in the scientific method, his appreciation of wildlife and nature, his interest in world cultures and lack of prejudice, and a love of books. Most of all he believed girls can do anything and supported his daughters in their varied interests and careers.

After Bill's retirement, most people knew him as an artist and sculptor. He was member of the Wayfarers Art Group, the Desert Art League, the Sierra Art Guild, and California Carvers Guild. Through the Mentor program of the Desert Art League, Bill shared his skill and knowledge of carving. He showed annually with the Sierra Art Guild, for many years, at the Carriage Inn. He won numerous ribbons at shows in Alaska, Canada and Iowa. Bill enjoyed working in a variety of media — exotic woods, steel, stone, and bronze. As he said himself, he had "an enormous curiosity as to the hidden potential in a piece of material."

His interest in Native Americans, the American West, wildlife, and birds was evident from his prolific work. His respect and interest in the arts and cultures of other countries was also reflected in his sculpture. In the early 1950s, Bill, Mariel and their two young daughters, Louise and Shelley, drove to Mexico City, inspiring their interests in orchids and archeology. Bill and Mariel made several trips to Baja California and later to Tepatitlan as members of the Sister Cities program, making close friends in both our communities.

Bill pursued his interest in orchids and built two greenhouses to raise and hybridize orchids, which Mariel used in her home business as a florist. The family traveled to orchid shows in Southern California and Hawaii, and Bill served as President of the Southern California Orchid Society. After discovering the difficulties entailed in propagating orchids, Bill invented and sold the McEwan Flask internationally. In a published paper on this flask and his propagation method, Bill expressed his analytical approach: "A physical chemist is a person who is convinced that there must be a simple way to do a thing once you get down to the basic problem."

Unfortunately, after a long and fascinating life, spanning the era of biplanes to Mars Landers, Bill was extremely discouraged about the world's current problems. Bill realized he could do nothing more and questioned the value of his life's work. In 2007, in his annual letter to the remaining Rhodes Scholars in his class, Bill expressed his dismay: "We provided the Navy with the best weapons in the world only to see them Bush-wacked." As an experienced veteran and an ordnance expert, Bill recognized "The facts are, we have no cures for guerilla warfare at the end of too-long supply lines, particularly where the enemy has plenty of sacrificial live guidance units." Bill was afraid that our leaders will not learn anything from this war: That "they will not even admit where they went wrong, but will classify everything Secret." Hopefully, Bill has underestimated the courage and resolve of our future leaders to sort through the complexities, determine the basic problems and address them realistically.

Bill is survived by his wife, Mariel, his daughters, Mariel Louise, Shelley, Susan, and Mary Jane, and their spouses; Sergio Palermo and Christine Cantrell; grandchildren, Mark Gillespie, his wife, Chris; Ewan Gillespie, his wife Yi; Andrew and Kate Mercer; and Anthony, Vernon and Carlin Pearia; and great-grandchildren, Erica and Kevin Gillespie; as well as by his long time Administrative Assistant and "Fifth Daughter," Angie Damico.

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Mammoth Snowcreek Golf Course
Janet Manning
McDonald's, Sierra II, Ridgecrest
Mickey's Pub & Grill
Mojave Air & Space Port
Jerry & Marie Morrison
Peggy Lakin Murphy
Neely Accountancy – Tom Neely
Johnnie & Toyoko Odom
Ridgecrest Regional Hospital
Daryl & Jennifer Silberberg – IWV Insurance
Sky Retail
Chuck & Donna Rouland
Saalex Solutions
State Farm Insurance Gary Charlon
Jack & Bonnie Strickland
Studio Eight
Tokyo House
Tom Wiknich, Ridgecrest City Council
Windows, Walls, 'N Floors

Business Contributor ($100-$199)

Roy Ashburn, California Senator
Baxendale's
Bishop Country Club
Daniel Kus DDS
Double Eagle Resort at June Mountain
Earth Landscaping
Evergreen Construction
EZ Rentals & Sales
Heritage Hotels Inn & Suites
Indian Wells Brewing Co.
Inyo Dreams, Downtown Inyokern
Michael's Fine Jewelry
Mystique
RC Bouncers
Ridgecrest Area Convention & Visitors Bureau
Romancing The West
Snowcreek Golf Course

New Memberships received since Winter 2008 Newsletter:

Business Sponsor Members($500.00)

The MIL Corporation - Lexington Park MD

Lifetime Members ($1,000.00)

Gould, Robert A. - Ridgecrest CA
Raglin, Dennis & Susie - Ridgecrest CA

Sponsor Members ($33.00 Annually)

Bennett, H. Dale & Elizabeth - Ridgecrest CA
Dunaway, RDML David & Sheryl-Marie - Ridgecrest CA
Flanagan, William & Toni - Littlerock CA

Enlisted Military Members ("Free" from Sponsor Memberships)

Cunnien, SPC Andrew - Ridgecrest CA
Formoso, AE2 Frank & Heather - Ridgecrest CA
Jimenez, Am2 Angel & Jennifer - Ridgecrest CA
Martinez, ET2 Ramiro - Ridgecrest CA
Mata III, LCPL Guadalupe - San Diego CA
Nicholson, CPL Stanley - Virginia Beach VA
Parks, LCPL Mathew Z. - Sacramento CA
Payne, SSGT Sean & Jennefer - San Diego CA
Peterson, ABH2 Shawn - Ridgecrest CA
Sanford, 1STSGT Damon Keith & Lailani - Chula Vista CA
Santa Maria, SSGT Jason & Holly - Oceanside CA
Schneiderwiss, AD2 John R. - Ridgecrest CA
Storz, GYSGT Wayne M. & Suzanne - Yuma AZ

Regular Members ($25.00 Annually)

Armogida, Elizabeth - Ridgecrest CA
Auld, Bruce & Ann - Ridgecrest CA
Bego, Jim & Linda - Ridgecrest CA
Benton, Al - Ridgecrest CA
Blessinger, Neal - Ridgecrest CA
Bruno, Karen M. - Ridgecrest CA
Conkey, Denis & Joanne - Newbury Park CA
Driggers, Iva Jeane - Ridgecrest CA
DuMont, Bruce R. - Ridgecrest CA
Eberhart, Hank & Linda - Ridgecrest CA
Edwards, Al - San Diego CA
Erwin, Bill & Betsy - Ridgecrest CA
Flanagan, Steve - District Heights MD
Ghaleb, Sam - Ridgecrest CA
Hall, Lorna - Chattanooga TN
Haun, Kevin & Aida - Ridgecrest CA
Hunt, Richard & Tawnya - Ventura CA
Knigge, Jimmie L. - Ridgecrest CA
Lelis, John & Debe - Ridgecrest CA
Mantegani, Robert & Elizabeth - South San Francisco CA
Markota, Mitch & Gerri - Ridgecrest CA
McKearney, Terry & Gloria - San Diego CA
Meyn, Tim & Karla - Ridgecrest CA
Moore, Dan & Barbara - Tucson AZ
Roberto, Frank & Leah K. - Ridgecrest CA
Silva, Sr., David A. & Rosella M. - Victorville CA
Strutz, Larry & Cindy - Ridgecrest CA
Weddle, Dr. Barry Lee & Nancy - Ridgecrest CA
Whitnack, Gary & Cheryl - Ridgecrest CA
Wrobleski, John & Karen - Ventura CA
Zorzi, Carl & Donal - Ridgecrest CA

NOMINATION AND ELECTION OF DIRECTORS OF THE CHINA LAKE MUSEUM FOUNDATION

In 2005, the China Lake Museum Foundation adopted updated by-laws which include a provision for electing Directors of the Foundation to three-year overlapping terms of office. This year, up to eight Directors may be elected to three year terms of office. Paul Homer is leading a nominating committee, and Foundation members in good standing interested in being nominated should contact him. At this writing, the following have indicated their willingness in serving as a Director:

1. Steve Boster
2. Clint Dougherty
3. Rick Knaggs
4. Gary Parsons
5. Bob Peoples
6. Jack Latimer
7. Beth Sumners
8. Charles White

Nomination by Petition: Additional names of Candidates for Directors can be nominated by petition bearing the signatures of at least twenty-five (25) members in good standing of the Foundation. The Candidate has ten days from the date the nomination list was published to submit a nomination petition.

Election: The election of Directors shall be conducted at the Annual Membership Meeting held October 21, 2008. The Annual Membership meeting shall begin at 5:00 PM at the U. S. Naval Museum of Armament and Technology. The election and short business meeting will be followed by a program presentation for your interest and enjoyment, and refreshments will be served.

WILLS AND TRUSTS

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 straight forward 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.

The China Lake section of the American Institute of Aeronautics and Astronautics (AIAA) is conducting a dinner speaker meeting on September 18, 2008 at the China Lake U.S. Navy Museum. The meeting will start with a social get-together at 6:00 P.M. Dinner will be provided by the China Lake MWR. Tickets are $ 25.00, and may be purchased from Jeff Scott, 939-6290, Steve Goad, 939-9704, or Ed Jeter, 939-8492. The speaker will be Mr. William F. Chana discussing the world's first VTOL aircraft, the Convair/Navy XFY-1 POGO. The dinner is open to the public and details are given below.

WILLIAM F. CHANA

Biography:
Our speaker's aerospace career began in 1941 with Consolidated Aircraft in San Diego, California. He played an active role in flight-testing the XB-24, XB-32, XC-99, TBY, XFY-1 POGO, XF2Y-1 Seadart, and Convair Liners. In the early 1960s he was Convair's Base Manager for the Installation and Checkout of ATLAS operational missiles at Fairchild Air Force Base, Washington. In the 1950s he built and flight-tested three small airplanes. He is a Fellow of AIAA and SAE, and a member of EAA, Quiet Birdmen, and OX-5. He is past President of the San Diego Aerospace Museum. In 1988 he held the A. Veruille Fellowship at the National Air & Space Museum (Smithsonian). He is the National President of the Silver Wings Fraternity, an international organization of pilots.

Abstract: World's First VTOL Airplane – Convair/Navy XFY-1 POGO
In the early 1950's the Convair/Navy XFY-1 prototype fighter became the first airplane to take off vertically, hover, transition to high speed level flight, transition back to hover and land vertically. This first of a kind aircraft soon adopted the name POGO. The POGO with its stall proof delta wing had near perfect aerodynamic characteristics in hover, transition and level flight. There were no black boxes needed for stability augmentation. It can be said that the POGO was a giant stepping stone to future high speed VTOL aircraft. The pilot, J.F. "Skeets" Coleman, was awarded the prestigious Harmon Trophy in 1955 by President Dwight D. Eisenhower. This talk is illustrated with slides and a short video.

Commemorative—Memorial Brick Program

The China Lake Museum Foundation has a brick purchase program. We have several donors who have purchased bricks as part of this program. We are currently working to place our first order and proceed with the display of the purchased brick at the Museum. The bricks are an excellent way of lasting recognition. They will be moved to the new museum once it is in place. Prices for the bricks are $100 for a 4x8 brick with three lines of inscription. For $250 one can purchase an 8x8 brick with more lines of inscription. Please contact the Museum Office for details.

CHINA LAKE MUSEUM FOUNDATION
P.O. BOX 217, RIDGECREST, CA 93556-0217

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