



THE CHINA LAKER

VOL 22 NO 2

Spring 2016

Special points of interest:

- Who was: Dr. William A. Fowler
- President Lyndon B. Johnson
- Public Relations Corner

Newsletter Editor - Bettye Moody

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WHO WAS: Dr. William A. Fowler

by Jack Latimer

Lost now to newcomers at NAWCWD China Lake, is four-block long Fowler Street running through the sage brush in what used to be a busy housing area until the houses were all torn down when the Navy demolished most of its civilian on-base housing. Named after CalTech/NOTS China Lake pioneer Dr. William "Willie" A. Fowler, it ran from Richmond Road west and terminated at Groves Street. Who was Fowler?



Early Years. Fowler was born in 1911 in Pittsburgh, Pennsylvania, and was raised from the age of two in Lima, Ohio when his father, an accountant, transferred there from Pittsburgh. President of the Senior Class, Fowler graduated from high school in 1929. He entered Ohio State University in Columbus, Ohio majoring in ceramic engineering and, as a sophomore,

changed to engineering physics when he became fascinated with physics. On graduation from Ohio State he entered the California Institute of Technology (CalTech) graduate program studying physics under Dr. Charles Lauritsen. He studied nuclear physics under the prewar influence of Lauritsen, J. Robert Oppenheimer, Richard Tolman and other outstanding physicists of the day. He earned his PhD and taught and applied his knowledge at CalTech.

Rocket Developer. As World War II intervened, Fowler became involved in the Navy's program to develop rockets, and became second-in-command to Dr. Lauritsen, who ran that project. Early on, Fowler helped develop, produce and test the first rockets ever fired from an aircraft. These were retrorockets fired backwards from the aircraft flying at the same velocity as the rocket, so that, in theory, it would drop directly to the ground from over the spot on the ground where it was (con't page 2)

President's Message



Everything is moving along well, and Board Members are working hard with their respective committees. We always need more help, so if you would like to volunteer, just give me a call and we will see what task/committee would fit your needs the best. Committees consist of Daily Operations/Gift Shop (Pat Doucette), Public Relations/Advertising (Dr. Tony Damiano), History and Docent Training (Jack Latimer),

Artifacts/Exhibits (Dr. Bob Smith with Historian Paul Homer), Education (Dr. Bob Smith), Museum Building/Construction (Wayne Doucette), Fundraising Events (Pat Connell, with this year's Dinner Auction led by Paul Homer), Corporate Fundraising (Bob Campbell and John Freeman), Finance (Chris Toftner), and Planning (Alice Campbell with help from Bob Campbell). Laura Hickel heads Grant Writing and although doesn't have a committee yet, will be ramping up this June, and is an excellent (con't page 8)

WHO WAS: *Dr. William A Fowler*

(con't from page 1)

fired. They would be fired from an aircraft equipped with the newly developed magnetic anomaly detection (MAD) equipment designed to detect submerged submarines. On detection of a magnetic anomaly a retrorocket would be fired, and impact the water directly over where the MAD signal was obtained. About 50,000 of these rockets were eventually produced.

At first, test rockets were fired at Goldstone Lake at the Army's Camp Haan, near Barstow, California. By 1943 it became apparent that the Navy needed a larger area where they could test rockets, as rockets with a range of only 8 miles could be tested at Goldstone. After a search of the California Mojave desert area, land was observed near Inyokern, California for a possible test area. Fowler, along with two others, conducted the first ground survey of the desert area near Inyokern. They mapped out a proposed test area. Based on their survey a new ordnance proving ground was accepted and the Navy proceeded to acquire the land in the area for what became the Naval Ordnance Test Station, Inyokern. On November 8, 1943 the station was formally established.

As the newly developed rockets reached the stage of fleet introduction, Fowler conducted a three month tour of the Pacific combat theaters to determine how the rockets were being used in battle and to determine what the rocket program could do to aid weapon introduction into the Fleet. The problems the fleet was experiencing with the new weapons were not the fault of the theater commands, but rather lack of operating manuals and procedures. He pushed for better documentation and for civilian scientific advisors on rockets to be assigned to the Pacific Theater – a practice still used today at China Lake and other Navy laboratories. He made specific recommendations for fuzing of the rockets, depending on the targets they were to be used for.

In 1944 the rocket program was developing spinning rockets as opposed to finned rockets. A spin-stabilized rocket could be much smaller in diameter and shorter than a fin-stabilized rocket. However understanding the ballistics of spin stabilized rockets was much more complex. The first tests were a disaster as the rocket would start out spiraling in an ever-increasing diameter and then begin to tumble as the rocket grain burned out. They became known as "Willie's Whirling Wockets," named after "Willie" Fowler. However, problems were solved, and by the end of the war a 5-inch spinner had been developed that was as accurate as the forward firing fin-stabilized rockets, but launcher problems had not been resolved, and jet aircraft

were beginning to be used that required smooth aerodynamic configurations not compatible with spinning rocket launchers.

Post WWII. After the war Fowler helped Dr. Lauritsen restore CalTech's Kellogg Lab as a nuclear laboratory and concentrated on nuclear reactions that take place in stars, terming the scientific area Nuclear Astrophysics. In 1954 Fowler took a sabbatical year as a Fulbright Scholar at Cambridge, England to work with Fred Hoyle, followed by Hoyle spending a year at CalTech. Their joint efforts, together with others, culminated in the publication of "Synthesis of the Elements in Stars," which showed that all of the elements from carbon to uranium could be produced by nuclear processes in stars starting with the hydrogen and helium produced in the "big bang."

Hoyle became the Plumian professor at Cambridge, was knighted by the Queen and founded the Institute of Theoretical Astronomy at Cambridge, where Fowler spent many summers. In 1983, Fowler was awarded the Nobel Prize in Physics "for his theoretical and experimental studies of the nuclear reactions of importance in the formation of the chemical elements in the universe."

Fowler mentored some 50 graduate students who each contributed to his field of study. In 1982, when Fowler turned 70, Cambridge University Press published "Essays in Nuclear Astrophysics" that presented the research studies of Fowler's colleagues and former students. In 1991 when Fowler turned 80 his birthday was celebrated at a Nuclear Astrophysics Symposium, that was part of the CalTech Centennial Year events.

Fowler was awarded many honors during his career in addition to the Nobel Prize. These include Medal for Merit (presented by President Harry Truman), the Sullivant Medal (from the University of Ohio), first recipient of the William A. Fowler Award for excellence and Distinguished Accomplishments in Physics (American Physical Society), and the Legion d'Honneur (awarded by President Mitterrand of France). Fowler died on March 14, 1995.

PUBLIC RELATIONS CORNER

by Dr. Anthony (Tony) Damiano



This month our planning is moving forward to take the China Lake Story to the 150th Anniversary Celebration in Bakersfield California on Saturday, April 16, and then to the 29 Palms Film Festival. Both events will allow us to show and tell our story of the Center of Excellence for research, development, test, and evaluation in technology and armament development from World War II to the current War on Terrorism. These events will help us reach-out to Kern County Residents and Veterans attending the film festival. Alice and Bob Campbell and Pat and Wayne Doucette are attending both events, others are welcome to attend and help man the booth and share your stories. The China Lake story will be told both verbally and with computer videos.

The "Give Big Kern" non-profit organization had a kick-off meeting in Bakersfield on March 3, 2016. We had representation at this meeting to help promote and encourage giving to support the move of the U.S. Naval Museum of Armament and Technology off the China Lake Navy base, and to share our story with the world.

Publicity was started March 1st for the China Lake Museum Foundation's Annual Dinner Auction, which is June 4, 2016. I believe this will be our biggest year for bringing funds for the museum relocation. This will give us room to bring existing displays, with additional room for more interactive educational displays depicting the past, present, and future.

Semper Fi,

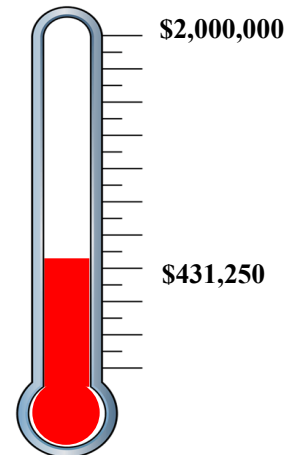
Tony

Join the China Lake Family! Build Yourself a Legacy



Phase 2 - Museum Building

GOAL!



Become a Founder today for \$5,000! Or a Benefactor for more than \$5,000 with naming rights!

Questions? Call John Freeman (760) 382-7776 or Bob Campbell (760) 377-0056



COMMANDAR - IN - CHIEF SUPPORT
FOR
LYNDON B JOHNSON
1963 - 1969

**Conflicts**

Cold War, Vietnam War

Major Contributions of the Naval Ordnance Test Station (NOTS) China Lake*:

Problem: Soviet Surface-to-Air missiles (SAMs) became a significant threat to U.S. Strike air-groups attacking targets in Vietnam. A method of suppressing or destroying enemy SAM sites was needed.

Solution: The **Shrike** anti-radiation missile (ARM), which had been under development at China Lake, was released to the fleet giving the U.S. the world's first mass-produced ARM. Shrike homed on the radar signals from the enemy SAM sites and was able to suppress or kill these sites, allowing the U.S. Strike groups to penetrate to attack their targets. The guidance systems employed in Shrike provided the basis for guidance in follow-on ARM missiles: Standard ARM, HARM and AARGM. HARM and AARGM are still in use today.

Problem. The major air-delivered ground-attack conventional weapons used well into the Vietnam War were unguided bombs and rockets. Bombs and rockets were notoriously inaccurate and required the delivery aircraft to fly close to their targets, thereby endangering them to enemy air defenses. Weapons that were more accurate and had greater standoff ranges were required.

Solution: Walleye, the first precision guided air-to-surface glide weapon, employed a China Lake-developed television seeker small enough to place in a weapon. It homed on light-dark contrast areas of a target (such as a window in a building). Walleye I (1000-lb warhead) and Walleye II (2000-lb warhead) proved very effective against soft and hard targets, respectively. Later versions provided longer standoff ranges and built-in data links allowed the pilot to designate the aim-point after weapon release.

Problem: Weapons were needed to attack targets distributed over large areas from the air (tanks, trucks, rail cars, fuel farms, personnel, etc.).

Solutions: Rockeye, a free-fall cluster weapon that delivered small sub-munitions over a large area was developed to attack formations of tanks and trucks, or vehicles in large parking areas. The sub-munitions contained a shaped-charge warhead that could penetrate the top armor on a tank. This weapon proved effective against tank formations and truck convoys, as well as train cars and engines in railroad marshaling yards and other distributed targets. A similar cluster weapon **APAM** was also effective against troop formations and light armored vehicles. **Gator**, a similar cluster weapon was used to deploy anti-tank mine fields. These weapons are still in the inventory and an amazing 27,987 Rockeyes were dropped in Operation Desert Storm in 1990-1991.

* In 1967 the Naval Ordnance Test Station was renamed Naval Weapons Center

HELP WANTED! HELP WANTED! HELP WANTED!

Do you have time on your hands? Want to volunteer? Can you spare 3 hours a month?
Areas that need your help as a volunteer:

Greeter: No specific skills required. Just be your friendly self. One day (or two) a month on a Friday or Saturday afternoon from 1:00 pm – 4:00 pm. What ever fits your schedule. We will train you.

Artifact Inventory Updating: Must have a working knowledge of Microsoft Excel. Database already exists, but must be kept up to date. May take 2-3 hours per month.

Dinner Auction Team: Get involved.... Our meetings are on Flex Fridays (11:30 – 12:30). The next scheduled meeting is March 25th, and then on April 8th.

Your Museum needs YOU! If you would like to help, please call either Nancy Kiren, CLMF Office Manager, at (760) 939-3530 or Pat Doucette at (760) 384-8443.

Spotlight: Business Membership in CLMF

BUSINESS \$1000

Altaone Federal Credit Union
The Boeing Company
Coldwell Banker Best Realty
Raytheon Company
Jacobs Naval Systems Group

BUSINESS SPONSOR \$500

The Swap Sheet

BUSINESS CONTRIBUTOR \$100

Ashley Furniture Homestore
Cosner-Neipp Corporation
Daily Independent
Desert Valley Federal Credit Union
Electric Motor Works, Inc
IYW Insurance Agency
Lone Star Aerospace

McDonald's
Ridgecrest Area Convention &
Visitor Bureau
Ridgecrest Automotive, LLC
SpringHill Suites and Hampton Inn
TOSS and Service Master
Vincent Avalos, Edward Jones
Investments



Member Agency 13086

Combined Federal Campaign

The newsletter is sent via USPS.

If you wish to receive the quarterly newsletter via email, please call (760)939-3530 or email us at chinalakemuseum@mediacombb.net. Place "Electronic Newsletter" in the subject line.

ENDOWMENT FUND DONORS

Phil and Nancy Arnold
**Dr. Jan and Dr. Cornelia
Butler**
Wayne and Pat Doucette
Les and Nancy Saxton
Anonymous (1)

NEW FOUNDER'S CLUB MEMBERS

FOUNDERS

Eva Bien and Arold Green
Wayne and Pat Doucette
**RADM Thomas and Caroline
Maddock, USN (Ret.)**
Ridgecrest Regional Hospital

FOUNDER'S CLUB

by Alice Campbell

The below listed Founder's Club Members were invited to a special "Wild Eats Dinner" at Bob & Alice Campbell's home in Inyokern this past Saturday evening to celebrate our progress. There were 29 in attendance and a great time was had by all. The Campbells supplied salmon & halibut from Alaska and elk from Bob's hunt in New Mexico. Wayne Doucette supplied the venison, and he and Pat did most of the cooking, with some help by Dee DiPol's lovely granddaughter Molly, who was visiting during her Spring Break from college in Arizona. Dee and Dr. Bob Smith made cakes for dessert, and Paul Homer donated his delicious pecan pies. There was lots of great conversation and a new enthusiasm generated at the showing of a newly produced marketing video (easily viewed online at <https://vimeo.com/157082309>). A quote heard often was "it was so great to talk with all the old timers." Yours truly was very happy to get one more recording of WWII and China Lake history from special guest Dick DeMarco.

Frank and Terry Bellino	Julie and Cecil Hawkins
Al and MaryAnn Brown Benton	Elsa and George Hennings
Stephen Benson	Arthur and Laura Hickle
Kristin Berry and Ray Butler	Luverne Hillyer
Eva Bien and Arold Green	Edward and Carol Jeter
Thomas Boggs	Jack and Joanne Latimer
Karen Bruno	RADM Thomas and Caroline Maddock, USN (Ret.)
Curt Bryan	Kevin and Judy McCarthy
Alice and Bob Campbell	Don and Patricia McLean
Eleanor Campbell	C.W. "Zip" and Mary Mettenburg
Stephen Chapman	Greg and Teri Morrow Jr.
Jim and Joy Colvard	Nicholas Schneider
Kristina Cook	Samuel Schoenhals
Thomas and Teresa Cooper	LeRoy and Julie Stayton
Dee Di Pol	JD Williams
Wayne and Pat Doucette	Bob and Julie Smith
Hubert and Sondra Drake	Ann and Burt Wagner
Jean Harris	John and Judith Ward
Dr. William A. and Maria Eugenia Haseltine	



Left to right: Al Green, Eva Bien, Jack & Joanne Latimer, Hugh & Sondra Drake, Carol & Ed Jeter.

GIFT SHOP NEWS

By Mary Lattig



Mary has been shopping and the result is new merchandise in the gift shop! Stop by and see the wonderful new jewelry. Copper, turquoise, opals and more. Plus, new flight jackets for kids, new glassware and Growler F-18 T-shirts. A great place to shop for all your gifts!

Dinner with Founder's Club Members at the home of Bob and Alice Campbell



Left to right: Nick Schneider, Virginia Wirtz, President Alice Campbell, Special Guest Dick DeMarco, Burt & Ann Wagner, Tom Boggs and Karen Bruno.



Campbell's living room conversation, taken from upstairs' balcony.

President's Message

(con't from page 1)

leader with lots of experience in most all the above areas. The most fun I've had in a long time was hosting the Founders Club Dinner at our home. Although the weather was too chilly for us to enjoy the patio, we had a great time in our home which is set up with tables everywhere just for this purpose. We always love socializing with "China Lakers" and those who appreciate the China Lake history and contributions to our great nation, and we hope to expand this great group so we can have another dinner party for 30 or so!

FOUNDER'S CLUB DINNER



Foreground: LeRoy & Julie Stayton; L to R: Greg & Teri Morrow, Dee DiPol and granddaughter Molly.



L to R: Directors Pat & Wayne Doucette, Dr. Bob Smith, Bob Campbell and Dick DeMarco's daughter Linda Wilson.

BOARD OF DIRECTORS

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Pat Connell

Vice President Public Relations

Dr. Anthony 'Tony' Damiano

Vice President Building

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MajGen Jon Gallinetti, USMC (Ret.)

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RADM Bert Johnston, USN (Ret.)

RADM Mike Mathis, USN (Ret.)

Don McLean

VADM David Nichols, USN (Ret.)

VADM Mark Skinner, USN (Ret.)

CAPT Glenn Tierney, USN (Ret.)

CDR Stu Witt, Test Pilot USN (Ret.)

Future Museum Facility Status by Director Wayne Doucette and Laura

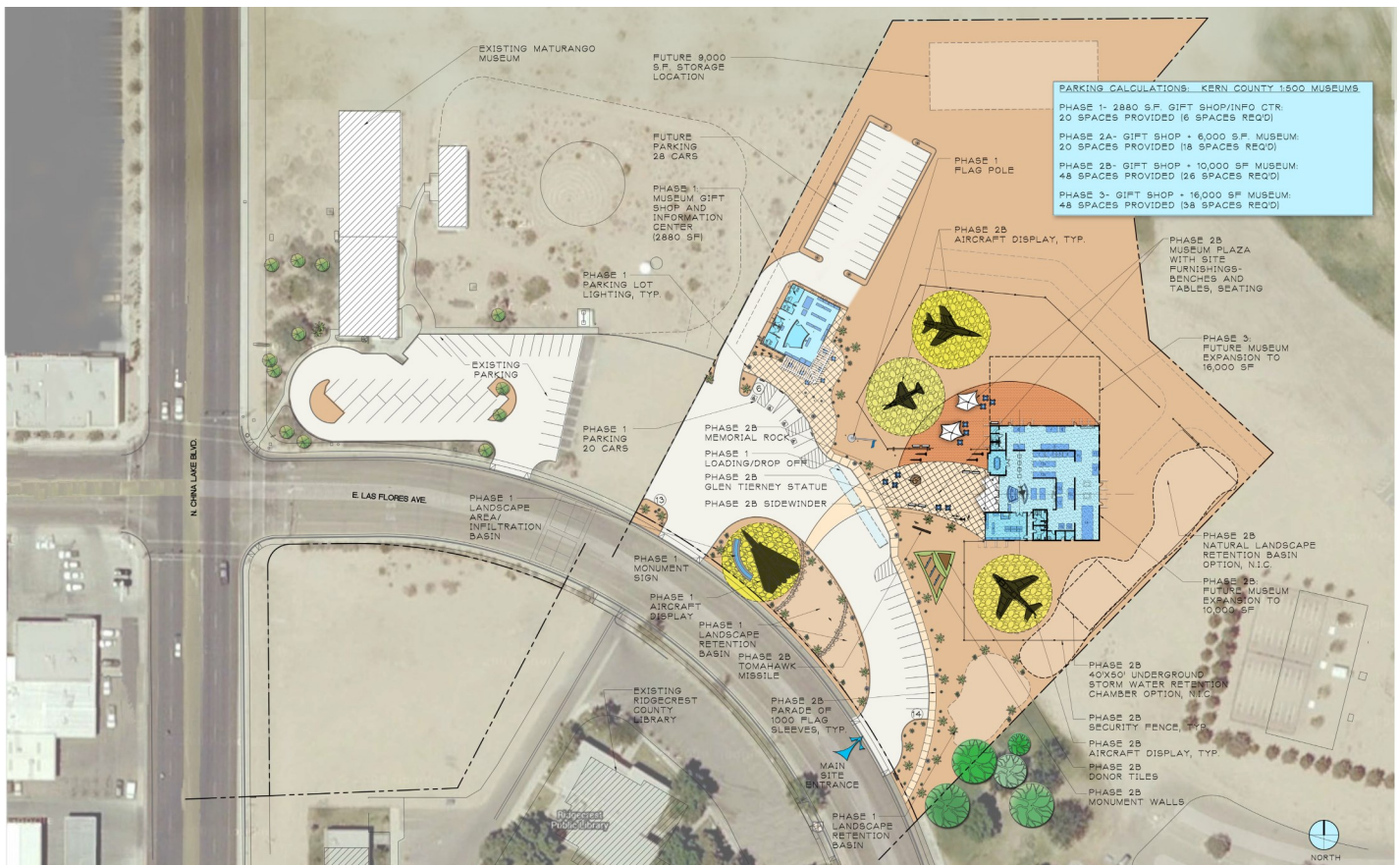
We continue to make progress on our Phase 1 development.

Our new street address when we move will be 130 East Las Flores, Ridgecrest, CA 93555. Construction drawings were reviewed and modified as required. A set of construction drawings were sent to the Kern County General Services on March 3, 2016 for review and approval. Preliminary feedback is "They are satisfied with the drawings." Hopefully a County approval letter will be forth coming and we can start the application process for building permits. Contractor selection can also start at this time.

Word, via phone call, has been received from the California Natural Resource Agency that the China Lake Museum Foundation has been selected for a site visit on May 2nd or 3rd. This is very positive news regarding our potential \$250,000 grant.

A groundbreaking date is getting closer...

The CLMF is excited with the move ahead. Phase 1 consists of a 2,880 sq. ft. gift shop/ informational center, infrastructure and utility connections (see below picture). Relocation of the Museum will provide an important public information venue that shares the history of China Lake's role in helping to shape national defense. Location of the Museum in Kern Regional Park will establish a "museum complex" next to the existing Maturango Museum (natural science, petroglyph and area early history). This central location will be easily accessible by the general public, and will significantly enhance tourism and branding for the Indian Wells Valley and Kern County. It will also increase educational outreach opportunities in Science, Technology, Engineering and Math (STEM). Keep posted for more information about our progress with this and the next 10,000 sq. ft. building phase!



The China Lake Museum Foundation



*The Presidential Eras
Honoring China Lake's Support of the
Commanders in Chief*

16th Annual Dinner & Auction

Saturday, June 4, 2016 at 4:30 pm
Kerr Mc Gee Center

\$35 Per Ticket

\$60 Per Couple

\$250 Reserved Seating for 2

\$1,000 Family Table for 8

\$1,500 Corporate Table for 8

*Tickets sold at the Museum or
Ridgecrest Chamber of Commerce
Call (760) 939-3530*

Program Sponsors

\$500 Full Page
\$250 1/2 Page
\$150 1/4 Page
\$50 Business Card

Auction and Raffle
Donations Needed

**Live Auction
Silent Auction
Raffles**

(Winners must be present)



Franklin D. Roosevelt
1933 - 1944

The Early Years

**WWII
Atomic Bomb
Barrage Rockets
Aircraft Rockets
Korean Conflict
Anti-Tank Rocket
Anti-Sub Weapon**



Harry S. Truman
1945 - 1952

www.chinalakemuseum.org

Dinner & Auction Information Sheet

Auction Objective: The receipts of the auction will be placed into general funds and used where most needed including operations, education, exhibits, and building.

Why a New Museum? The current museum facility on station is not easily accessible. The China Lake Museum Foundation, Kern County, and City of Ridgecrest are working cooperatively to achieve a modern, easy access facility in the heart of the city.

Museum Vision: The new museum will serve as a historical resource, as well as a science and engineering educational resource for the community.

How the Community Can Help: China Lake Museum Foundation (CLMF) membership and participation in the auction are visible indicators of the community support and provide leverage for gaining outside grant support.

Opportunities to Participate:

Event Sponsor:

\$1,500 Corporate Table or \$1,000 Family/Small Business Table: Includes dinner and table for eight, dinner wine, name displayed in program, significant advertising in Newsletter for business and corporate donors, and major advertising at the event for corporate donors.

\$250 Sponsor: Includes two dinner tickets, reserved seating, and name in program.

Sponsorship in Dinner & Auction Program:

\$500 – full-page

\$250 – half-page

\$150 – quarter-page

\$50 – business-card-size

Membership:

Annually: Individual/Family \$35, Contributor \$100, Benefactor \$500

Annually: Business Contributor \$100, Business Sponsor \$500, Business Member \$1,000

The China Lake Museum Foundation is a 501(c)(3) corporation. Donations are tax deductible to the fullest extent of the law. Tax ID #77-0340083

The China Lake Museum Foundation

P.O. Box 217

Ridgecrest, CA 93556

760-939-3530



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Preserving the Legacy of Naval Armament and Technology

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I want to help support the Museum!

Please accept my payment of:

YES!

\$10 \$200 \$500
 \$1,000 \$5,000 _____

For checks intended for the new building "Founders Program", please note on your check "Founders Program"

Enclosed is my Check Visa MasterCard Other _____

Card Number: _____

Expiration Date: _____ CVC: _____

Signature: _____

Or call (760) 939-3530 to make your credit card donation.