



# THE CHINA LAKER

VOL 25 NO 3

August 2020

## President's Message

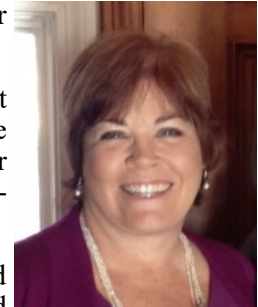
by Laura Hickle, hicklelh@gmail.com

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Well, the museum was shut down for COVID-19, reopened and then shut down again. I think we are ALL ready for these uncertain times to be over!

Our Dinner Auction, Beanster's fundraiser and Parking Lot sale all were postponed to the future. We really appreciate the responses to our fundraising appeal in May-July. Over \$20,000 in support was received and the names of our generous donors are located inside this newsletter.



Our gift shop is available online with both shipping and curbside pickup available. Many new items were received this spring. Your purchases help keep the museum going during the shutdown.

The Canopy Cargo Container project is complete. It will be great having covered space and additional storage at the museum for our exhibit materials. We appreciate the donations of artifacts that have been brought in by China Lakers and need the extra space until our 4,000 sq. ft. addition to the museum is completed. Thanks to the Kern Community Foundation for their grant support and Board members Mallory Boyd, Dennis Cott, Wayne Doucette, Art Hickle, Charlie White and Wayne Willhite for the hard work out in the hot sun getting this accomplished.

### You can find us at...

Facebook: [@ChinaLakeMuseum](#)

Instagram: [@chinalakemuseum](#)

Website: [www.chinalakemuseum.org](http://www.chinalakemuseum.org)

Unfortunately, this will be my last newsletter as CLMF President. Art and I will be moving out of state later this year for a new adventure and to be closer to grandchildren. We will stay involved from a distance. There are several openings on the CLMF Board. Fortunately we have a solid Board of Directors that works well together, we just need more help in the areas of building construction/management, STEM education, and documentation of China Lake History. Please get involved and help us grow. The Phase 2a Exhibit Hall and Connector architectural drawings are being refined before presentation to the Kern County permitting process. We would love to see you involved to move the museum forward in the future. Hope to see you soon when the museum reopens.



26 years strong

130 E. Las Flores Ave  
Ridgecrest, CA 93555  
[www.chinalakemuseum.org](http://www.chinalakemuseum.org)  
(760) 677-2866



Our New Addition: Canopy Cargo Container

## 2020 Donors– We thank you!

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## Other Project Specific 2020 Donors

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 RMH Capital Management Inc.  
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 Uptown Curls - Cindy Allred

### Canopy Structure

Bob & Alice Campbell  
 Wayne & Pat Doucette  
 Art & Laura Hickle  
 Dr. Bob & Julie Smith

### COVID-19 Compliance

Dennis & Karen Cott  
 Art & Laura Hickle

### Displays

Bob & Alice Campbell  
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### Outdoor Exhibits

Bob & Alice Campbell

### Flag Donation

Operation Family Fund, Mike Cash

### Scholarship Fund

Russ and Linda Bates  
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### STEM/Education

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### Building Fund

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### In Memory of Howard Anderson

Bruce and Ann Auld

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### In Memory of Dick Wright

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 Wesley Elmore  
 Gary & Jane Hewer  
 Mary Lundstrom  
 John Soperedellozzi  
 Vivian Wright

### In Memory of Bud Sewell

Bruce and Ann Auld

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## Winner's Choice Art Raffle

Congratulations Burrell Hays, winner of the July 3rd Winner's Choice Art Raffle.

The gift shop is conducting the next Winner's Choice Art Raffle ending August 31st.

Winner has the choice of one of three selected pieces of art. Check out this month's art selections on our facebook page.

With a gift shop purchase you get one free raffle ticket per purchased item. Tickets may also be purchased by calling the museum at (760) 677-2866. Tickets are 1 for \$5.00 and 6 Raffle Tickets for \$20.



## China Lake Pave Knife Program

In July, 1972, RADM Moe Wittman, Commander Navy Air Pacific (AIRPAC), requested China Lake to recommend a Quick Reaction Program to provide the fleet with a self-contained capability for airborne delivery of the Navy inventory of laser guided bombs (LGB)s in Vietnam.

The Air Force had Pave Knife pods on their F-4 Phantoms and were realizing great success with the precision LGB delivery in hostile environments.

The Pave Knife pod consisted of a low light level TV, Laser Designator, Laser Range Receiver, video recorder, and stabilized sight permitted lower hemisphere coverage and provided aircraft flexibility to continue lasing when egressing the target area.

Phil Arnold was assigned the job, and teamed with Chuck Smith, Arnold's Division Head, to assess the options. China Lake had already deployed handheld laser designators that were developed under the leadership of Conrad Neal and Leonard Haugen in Code 4051, of the Weapons Department led by Frank Knemeyer. Arnold recommended the quickest solution would be to acquire three Pave Knife pods and adapt them to the A-6A aircraft. The A-6 aircraft equipped with Pave Knife could designate and deliver LGBs and designate targets in support of other aircraft armed with LGBs.

China Lake was tasked to lead the Quick Reaction Capability effort.

Attack Squadron VA-145 was designated to provide three aircraft and a special detachment to El Toro Marine Air Base and work with China Lake to integrate, evaluate and deploy the Navy Pave Knife system using the Quick Reaction Capability (QRC) priority. Commander Rupe Owens, Attack Squadron VA 145 Skipper (RADM, USN retired) led the VA-145 contingent.

China Lake led the effort to acquire three Pave Knife pods from Philco Ford (later Aeronutronic-Ford) in Newport Beach. The VA-145 aircraft already included upgrades in support of the Condor program (which had been cancelled) that mitigated major aircraft changes to adapt to the Pave Knife pod interface. The effort included establishing carrier suitability, addition of the necessary ship-board support facilities on the USS Ranger (CVA-61) and the test and evaluation of the integrated system on the China Lake ranges.

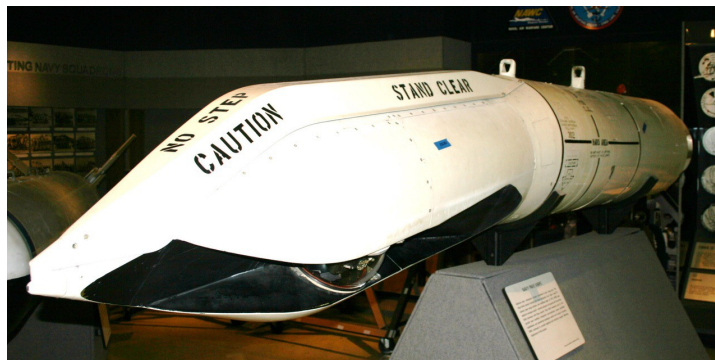
The required Pave Knife instruments were integrated into the cockpit. The bombardier navigator (BN) in the right seat was provided the hand controller for the laser designator, and a combined radar/TV display previously developed for the Condor program. The pilot displays in the left seat were upgraded to include laser range display and sightline indicators. In operation the BN lined up the camera and designator and tracked the target. The pilot used the sight-line indicators to maintain a heading that would not exceed the gimbal limits of the pod's optics.

Within five months, VA-145 was flying combat missions in Vietnam providing precision attacks on strategic targets. In one mission a coordinated strike involving several squadrons from the USS Ranger destroyed 16 bridges in less than three hours with other aircraft delivering the LGBs on the Pave Knife designated targets. VA-145 flew 85 successful Pave Knife sorties before the USS Ranger returned to their home port in June 1973.

The Navy Pave Knife was a China Lake success story. It was a quick reaction program completed within budget, that provided a vitally needed capability for the Navy's forces at war. By 1977, the Pave Knife system had been installed on Fleet A-6Es as well. It provided the only stabilized airborne laser designation capability for the Navy until 1980. In 1980 the A-6E Target Recognition and Attack Multisensor (TRAM), in which China Lake was also significantly involved, was introduced to the Fleet as the replacement technology in a much smaller package, fully integrated into the A-6E avionics suite.

Portions of this article were lifted from draft notes by Cliff Lawson that will be included in Volume 5 of China Lake History "Holding the Course", scheduled for release in 2020.

Bob Campbell  
China Lake Pave Knife Project Engineer



## News from the Gift Shop

130 E. Las Flores Ave., Ridgecrest, CA 93555

760-677-2866

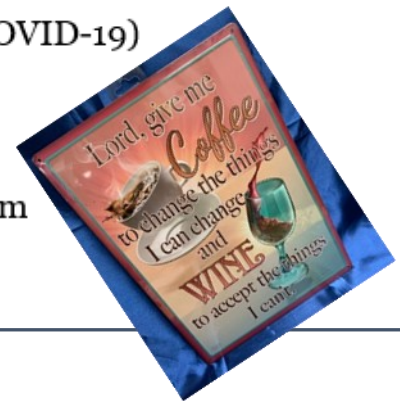
Hours: Tues – Sat 10 AM – 4 PM (Currently Closed for COVID-19)

Website: [www.chinalakemuseum.org](http://www.chinalakemuseum.org)

Facebook: @ChinaLakeMuseum

Instagram: @chinalakemuseum

Email: [chinalakemuseumstoremanager@gmail.com](mailto:chinalakemuseumstoremanager@gmail.com)



### Curb-Side Pick-Up

Local to Ridgecrest?? Find something on our website you want for yourself, your kids or need for a gift??

Curb-Side Pick-Up day is Wednesday.

Here's how to place your Curb-Side Order:

1. Visit [www.chinalakemuseum.org](http://www.chinalakemuseum.org) and decide what item or items you would like to purchase from our on-line Gift Shop.
2. Email what you would like to purchase to [chinalakemuseumstoremanager@gmail.com](mailto:chinalakemuseumstoremanager@gmail.com)
3. Pay the Invoice you receive for your order.
4. Receive the email with the date, time and location for Curb-Side Pick-Up.

### Home-made Play Dough

You'll Need:

- 1 C. Flour
- ½ C. Table Salt
- 1 Tbsp. Oil
- 2 Tbsp. Cream of Tartar
- 1 C. Boiling Water
- Food Coloring

Instructions:

1. In a bowl, combine the flour, salt and cream of tartar. Mix well.
2. Add the oil.
3. Mix a few drops of food coloring into the boiling water and add to the bowl.
4. Mix everything very well and massage with your hands until it is no longer sticky.
5. Once it has fully cooled, wrap in plastic and put in an airtight container. Store at room temperature for up to 6 months.

## Board of Directors

### CLMF OFFICERS

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Co-VP Membership	Alice Campbell Megan Rawson
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VP Curation/Exhibits	Dr. Bob Smith
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CDR Stu Witt, Test Pilot, USN (Ret.)

A BIG *'Thank You'* to Our Museum Greeters who returned upon reopening in June: Mark Andrews, Russ Bates, Karen Bruno, Rose Davis, Dolores Di Pol, Lela Herigstad, Elaine Jones, Linda Pruitt, Barb Tunget, and Joy Young.



### Lecture Series Available for CLMF Members

We have begun the process of posting our CLMF Lectures on-line for members as part of our membership benefits. The first lecture to be posted is Elsa Henning's talk *Navy/NASA Synergy in Parachute Development*. You may access the lecture at:

<https://tinyurl.com/HenningLecture>

How parachutes are used in space travel is especially timely if you recently watched the SpaceX splash down on August 2, 2020. Keep watching for other lectures to be posted.

CHINA LAKE MUSEUM FOUNDATION

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**Or call (760) 677-2866 to make your credit card donation**

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