



THE CHINA LAKER

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President's Message

by Bob Campbell

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We are anxious to get the work started on our 7,200 sq ft exhibit building, so we can move the exhibits off Base to provide a more comprehensive view of China Lake legacy and accomplishments. The committee met with the local Contractor (BZ Construction) and agreed on the design details that will be submitted to the County for permitting. Once the County approves the building permit, the real work begins!



Hopefully the State will permit the opening of the Museum sometime this month. Dr. Bob Smith has been working with representatives of the original Weapons Department (led by Frank Knemeyer) to capture the early history of laser programs at China Lake. Leonard Haugen, Ike Fujiwara and Gary Ozunas shared the history, and were all members of the Laser Systems Branch led by Conrad Neal. The new exhibit should be operational when we reopen the Museum.

We slipped the originally scheduled article on the A-7 WSSA to the next newsletter and replaced it with two timely articles - China Lake's involvement in the Mars lander project, and an article highlighting the accomplishments of Leroy Stayton who passed last month. Both articles reflect the notable diversity of China Lake accomplishments.

You can find us at...

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Instagram: [@chinalakemuseum](#)

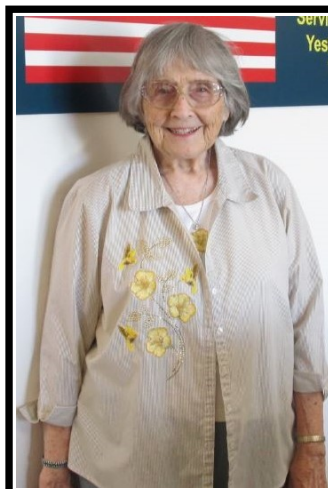
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27 years strong

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chinalakemuseum@mediacombb.net
(760) 677-2866



Thank you!

Joy Young, who has volunteered her time with the Museum for a number of years, is finally retiring! True to her name, Joy always served with a smile and a good attitude. She was always willing to work hard. We will miss you Joy! We hope you enjoy your time off.

Thank you Joy!

Phase II Building Progress ~ How Can You Help?

With design details being finalized and plans being submitted to the county, our dreams of moving more exhibits to our Ridgcrest Museum complex are close to becoming a reality!

You may be asking yourself, "How can I help?" We have an answer for you! Join our Founders Building Program or make a contribution to your existing Founders account. With our Founders program, you can donate any amount at any time.



The Contribution Levels are as follows:

| | |
|-------------|--------------------|
| Contributor | \$100 - \$999 |
| Supporter | \$1,000 - \$4,999 |
| Founder | \$5,000 - \$5, 999 |
| Benefactor | \$6,000 - \$9,999 |
| Patron | \$10,000 and Above |

When you reach Founder Level or above, you will receive benefits such as having your name displayed at the Museum and/or in the Newsletter as a Founder and invitations to special events. Patron donors of \$10,000 or above are awarded Lifetime Membership status! You can contribute regularly to your Founder's account and watch your impact *grow* as we expand our Museum!

This is YOUR Museum and we can't do this without you! WE NEED YOU to make this happen. Donate today using the form on the back of the Newsletter and choose Phase II Building/Founder.

News from the Gift Shop

The Gift Shop is and has been up and running. Through everything that the world has brought us, we have kept the Gift Shop OPEN. There are over 206 items currently on our website. You can check out the website at www.chinalakemuseum.org. If you find something that you want, we also have curbside pick-up available.

Make sure that you follow us on Facebook [@ChinaLakeMuseum](https://www.facebook.com/ChinaLakeMuseum) to see when new things are happening in the Gift Shop!

Do not forget to stop by for our monthly raffle. What will this month's raffle be??? Maybe some pieces of art from our display case. You'll have to see what we have in store.



China Lake's Role in Mars 2020 Parachute Development

By Elsa Hennings

Many individuals in Ridgecrest breathed a sigh of relief on February 18th as the Mars 2020 mission successfully landed the Perseverance rover gently on the Red Planet, not only because this mission moves the United States one step closer to human exploration on Mars, but because they were involved in making the landing a success. The very thin atmosphere on Mars makes landing spacecraft very difficult; there's not enough air to allow parachutes to slow them down completely but enough air to cause significant heating as the spacecraft passes through it. Since 1976, parachutes have been used on larger and larger payloads to land on Mars, with the payload for Mars 2020 being the heaviest, weighing in at close to 4000 kg, similar to a large SUV. Unfortunately, this parachute must be deployed at close to two times the speed of sound in the ultra-thin atmosphere, which makes it very difficult for us Earthlings to test the parachute in a realistic environment. As the parachutes have become larger, the scientists at the Jet Propulsion Laboratory (JPL) have reached out to the parachute experts at the Naval Air Warfare Center Weapons Division in China Lake for help.



ASPIRE Sounding Rocket Test

Around 2016, JPL started up the Advanced Supersonic Parachute Inflation Research Experiment (ASPIRE) program to learn more about supersonic parachute inflation at the speeds and atmospheric conditions that the Mars 2020 parachute would be expected to survive in order to determine the best parachute design for that mission. To test the parachute at these conditions, several sounding rocket tests were performed at the NASA Wallops Flight Facility in Virginia, launching the payload to around 32 miles above the Earth, where the atmospheric conditions are similar to Mars, and deploying the parachute at about Mach 1.8. The payload and 70 ft. diameter parachute would then drop into the Atlantic Ocean for recovery and inspection. The size of the parachute made it fairly complicated to recover, so personnel at China Lake designed and fabricated a test parachute and deployment bag to train the recovery team prior to the actual sounding rocket tests. One experienced China Lake employee went out on the recovery boat for each test to ensure that the parachutes were recovered properly, and was also in charge of rinsing and drying the very large parachutes after each test. The parachutes were then sent to China Lake for inspection by other China Lake personnel. In addition to the

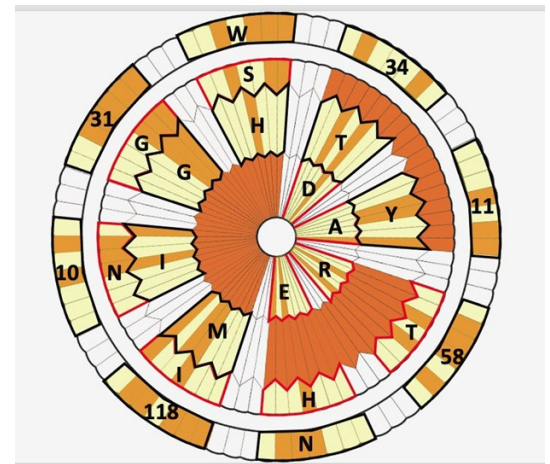


Sounding Rocket Parachute Recovery in Atlantic Ocean

The team at JPL put some hidden messages on the parachute gores and other parts of the rover. On the parachute, the code was 7-bit binary (counter clockwise from LSB) representing either a number or a position of a letter in the alphabet. However, the difficult part was determining where the seven segments began and ended. Here is what someone figured out after seeing it. The expression "Dare Mighty Things" is credited to Theodore Roosevelt, who was the first American to receive a Nobel prize.

sounding rocket test support, additional China Lake personnel were involved with parachute design and packing support, as well as testing the effects of parachute cloth permeability on parachute drag in the Martian atmosphere.

It takes many different areas of expertise to pull off such an amazing landing witnessed via on-board cameras for the first time on February 18th, and many China Lake parachute experts were part of that incredible team!



***Remembering LeRoy Stayton,
A Modern China Lake Pioneer
and Ardent Supporter of the Trident Program***

by Ed Jeter, One of his "Team" of Many

A China Lake pioneer has passed on and will be missed. I first "met" LeRoy while interviewing for a summer job at NOTS China Lake in the spring of 1962. LeRoy was the spotlight employee described on the back page of a China Lake recruitment pamphlet. I got the job, as I'm sure did many others who viewed this great description of LeRoy and his work as a JP (Junior Professional) at NOTS.

Later, in the early 1970's, I actually met LeRoy and was recruited as one of his team members to support the Trident missile effort underway at China Lake. It was one of the most interesting jobs I've had at China Lake, and was made possible by the way in which LeRoy managed the Trident effort and coordinated the work with the Strategic Systems Program Office, or SP, as they were referred to by the team.

LeRoy had gotten involved in the Trident Program when they first began utilizing the China Lake facilities in the early 1970's. During development and testing of the Trident I (C-4) motors, the propulsion contractor had a motor detonate and destroy their test stands at the Hercules Bacchus Works plant outside of Salt Lake City. The program was in an accelerated engineering development phase, and this was a great blow to their effort. The head of the SP propulsion group in Washington D.C., Roy Kinert, had been employed by China Lake in his early career, so he approached China Lake to see if we could help. Not surprisingly, the China Lake "Can Do" attitude came through, and when the Lake said: "Sure we Can Do it," the Trident Program effort was started here.

In the beginning, there was no single person at the Lake who was in charge of the effort, and LeRoy, who was a Branch Head at the time, was involved in those early efforts. LeRoy could see that the various tasks needed coordination, so he became involved in providing that. As the tasks became more consuming, LeRoy gave up his Branch Head position and began supporting SP full time. What made this decision work so well was the trust and support that developed between LeRoy and Roy Kinert. It was this strong relationship between these two individuals that led to a long succession of supporting tasks at China Lake to assist the Trident Program in other phases of development, in addition to just providing facilities to fire their motors. Some of these tasks included supporting design reviews with technical experts and performing other types of testing, such as rocket sled tests to investigate Trident I (C-4) propellant detonation sensitivity and propellant aging studies of the Poseidon (C-3) missile.

One of the more complex projects that was developed at China Lake by the Trident Program is the Trident Motor Vertical Test facility at Salt Wells, a scale model of which is on display in the China Lake Museum on Base. This facility resulted from an anomaly that occurred during an early (~1979) test launch of a Trident I (C-4) missile. Something caused an unexplained pressure rise in the first stage motor just as the missile was being launched vertically. Since all previous engineering development motor tests had been performed using horizontal test stands, it was postulated that something might have broken loose from the forward end of the motor and passed through the nozzle causing the pressure rise. As a result of that concern, the Trident Office procured the development of the one-of-a-kind vertical motor test facility that now resides at Salt Wells. Although this facility cost around \$4 million at the time, it was just one of several major improvements to facilities at China Lake that have been made by the Trident Program over the years.

Many of these developments and the success by which they were achieved can be mainly attributed to the abilities of LeRoy to manage and coordinate these efforts, along with the strong bond of trust and friendship he developed with Roy Kinert in the Trident Program Office.

~In Memory of LeRoy~

A memorial fund has been started at the Museum in memory of LeRoy. If you would like to donate in his memory, please fill out the form on the back of the letter and state "In Memory of LeRoy Stayton." You can also contribute by calling the Museum at (760) 677-2866, stopping by to see us Tuesday through Saturday 10am to 4pm, or on our website www.chinalakemuseum.org

representative of NOTS

LeRoy Stayton, mechanical engineer in the Propulsion Development Department, came to NOTS immediately after graduation from Kansas State University in June of 1958.

The work he had done in college in stress analysis led to his first assignment in the professional development program in the Weapons Development Department, assisting in analyzing the load capability of a missile launcher. His second assignment was in the Aviation Ordnance Department, in armament-control work, where his problem was to assemble, test, and redesign as necessary a high-vacuum system for testing the electronic circuits of a special research project.

He next joined a group in the Propulsion Development Department. In this assignment, he cooperated with engineers and scientists engaged in analytical and experimental studies of a solid-propellant rocket motor. He became acquainted with the static-firing facility, learned about data analysis, and supervised draftsmen and machinists.

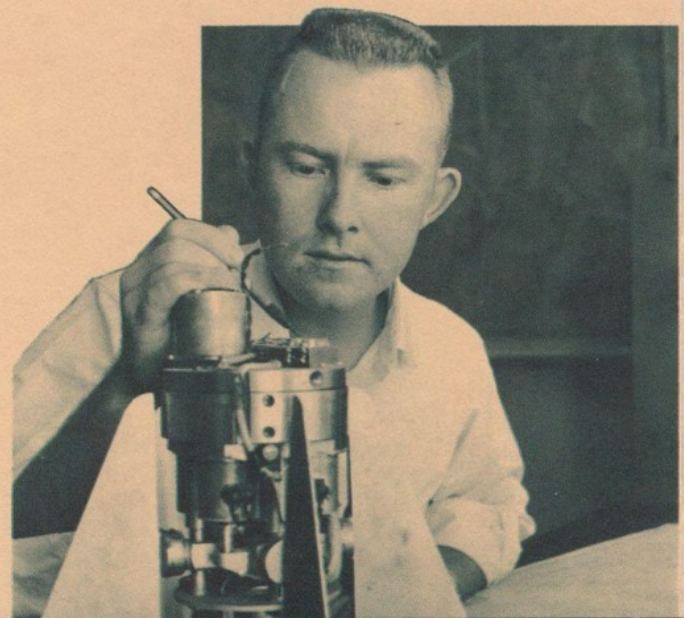
His last three-month assignment was in another branch of the Propulsion Development Department doing applied research on underwater acoustics—specifically, the effect of frequency on the range of sound in water.

At the end of his first year at NOTS, LeRoy arranged to join the Propulsion Development Branch of the Propulsion Development Department in order to broaden his experience and his acquaintance with Station projects at the level of applied research.

To round out his academic background, LeRoy has enrolled in graduate courses in the UCLA evening classes. He feels that it is a distinct advantage to be able to earn an advanced degree in mechanical engineering without leaving the Station.

LeRoy believes the biggest advantage of the Station's professional development program is the opportunity it gives the newly graduated engineer to become acquainted with work in various fields and to determine his area of greatest interest. From his own experience, he feels that new professionals have unlimited opportunities to develop resourcefulness and initiative.

LE ROY STAYTON



LeRoy Stayton is featured as a spotlight employee in an excerpt from a NOTS recruiting brochure.

Thank You to our Supporters!

The following individuals have made donations since the January 2021 Newsletter

Jeanne Backman
William Burns
Bob & Alice Campbell
Rick Corlett
Carolyn Davis
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In Memory of Bob Vargus
Marjorie Vargus

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Meet our New Volunteer!

Elder Zeik Grover



Hello, I am Elder Grover (Zeik Grover). I am currently volunteering here and other places in the community because I am on a service mission for my church, The Church of Jesus Christ of Latter-Day Saints. Here are a few things about me. I was born in Logan, Utah and my family moved to Ridgecrest when I was three months old. I like to ride dirt bikes and I am learning to program in Lua. Some of my ancestors are Swedish, so in my free time I am learning to speak Swedish. I also love to make 3-D models of old tanks from WWII. My great-grandfather was a bomber pilot in WWII, Viet Nam, and Korea, and he is the reason I like history. I am glad to be here and help in any way I can.

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Mac's
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Solomon & Hadassah Rajaratnam

*Did you know that your Membership helps
keep our doors open and our lights on? Thank You!*

Valentine's Cheesecake Raffle Winner

Congratulations to the winner of our Valentine's Cheesecake Raffle, Dr. Bob Smith! And a special THANK YOU to our very own Jenn Cobbel for cooking such a delicious and decadent dessert.



Stay up to date on our current raffles and other fun activities by following us on Facebook! @ChinaLakeMuseum

February 2021 Winner's Choice Art Raffle

The winner of our art raffle is Marnie Albrightson! Thank you, Marnie, for supporting the Museum by buying a raffle ticket! We hope you enjoy the lovely piece of art that you chose.



Thank You!

A big THANK YOU to Tom Miller for building an amazing set of shelves for our storage closet.
You're the best, Tom!

CHINA LAKE MUSEUM FOUNDATION

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Fill out the form below

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