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Pasajero del Camino Real
By

J. CISTERNOS '89

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The *Southern New Mexico Historical Review* (ISSN-1076-9072) is looking for original articles concerning the Southwestern Border Region. Biography, local and family histories, oral history and well-edited documents are welcome. Charts, illustrations or photographs are encouraged to accompany submissions. We are also in need of book reviewers, proofreaders, and someone in marketing and distribution.

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Editor's Note

This is my first opportunity to review the Doña Ana County Historical Society's 2022 edition of the *Southern New Mexico Historical Review*. It would appear that the Society's Board of Directors was desperate for an editor when they selected me but I assure you I did my best when editing all of this year's fine submittals.

This edition of the *Review*, as Jim Eckles pointed out to me, heavily embraces flight. Not the fleeing kind of flight but the soaring through the air kind of flight. This year's review covers everything from pigeons to spacecraft in southern New Mexico. But that's not all as you shall see when you read through this year's *Review*.

This year's collection of history includes, "José Brito and his Rough Rider Revolver," by Frank J. Brito; "Pigeons and the Punitive Expedition," by Elizabeth G. Macalaster; "Cleared for Take Off: Aviation in Southern New Mexico," by Jennifer McClung; "Proving the Earth Is Not Flat at White Sands Missile Range," by Jim Eckles; Jennifer Olguin's book review of, *Fruit, Fiber, and Fire: A History of Modern Agriculture in New Mexico*; "A View of Turn-of-the-Century Las Cruces," by Dennis Daily; a Book Review by Jim Eckles, *One Summer: America, 1927*; a book review by Mary Kay Shannon of *I Know Where the Bodies are Buried! There are Stories to Tell; Questions to Ask*; and "The Las Cruces Murals of Tom Lea," by Dylan McDonald and Dylan's book review of *Coast-to-Coast Empire: Manifest Destiny and the New Mexico Borderlands*.

This year's Gemoets Prize is awarded to Dylan McDonald for his fine article, "The Las Cruces Murals of Tom Lea." This fascinating piece about art in Las Cruces was diligently researched by Mr. McDonald and I found it a fascinating story of relatively unknown art in Las Cruces.

I would like to thank the Doña Anna County Historical Society for the privilege of editing this year's Historical Review. It was very educational for me as I'm sure it will be for you.

Jim Eckman

Southern New Mexico Historical Review

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Contents

Articles

The Las Cruces Murals of Tom Lea

Dylan McDonald(*Gemoets Prize for Outstanding Article*) 1

José Brito and his Rough Rider Revolver

Frank J. Brito..... 19

Cleared for Take Off: Aviation in Southern New Mexico

Jennifer McClung..... 23

A View of Turn-of-the-Century Las Cruces

Dennis Daily 31

Pigeons and the Punitive Expedition

Elizabeth G. Macalaster 43

Proving the Earth Is Not Flat at White Sands Missile Range

Jim Eckles 49

Book Reviews

I Know Where the Bodies are Buried! There are Stories to Tell; Questions to Ask by Carlos Melendrez

Reviewed by Mary Kay Shannon 65

Fruit, Fiber, and Fire: A History of Modern Agriculture in New Mexico by William R. Carleton

Reviewed by Jennifer Olguin 67

Coast-to-Coast Empire: Manifest Destiny and the New Mexico Borderlands by William S. Kiser

Reviewed by Dylan McDonald..... 69

One Summer: America, 1927 by Bill Bryson

Reviewed by Jim Eckles.....71

Memorials

Compiled by Jim Eckles..... 73

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The Las Cruces Murals Of Tom Lea



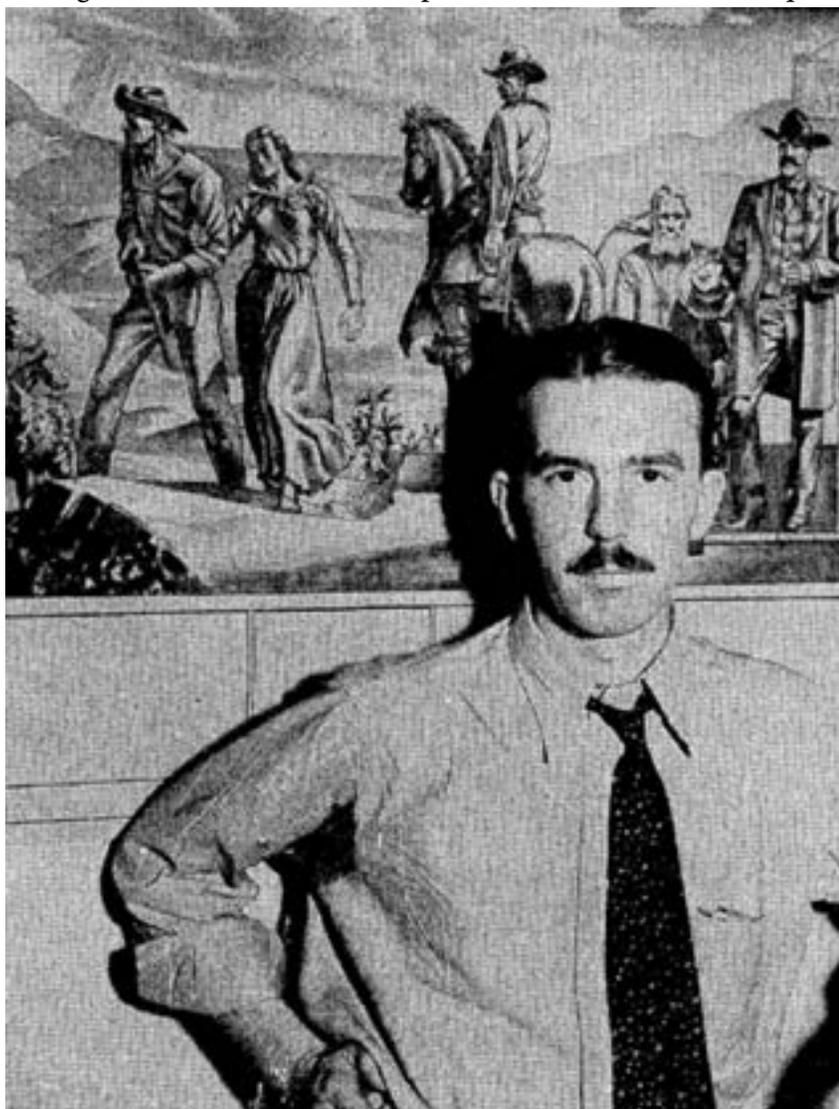
By Dylan McDonald

Las Cruces is home to three murals by the celebrated artist, illustrator, war correspondent, and writer Tom Lea.¹ A native of El Paso then in his late-20s, Lea earned public art commissions during the midst of the Great Depression for two

recently completed library buildings just across the state line in New Mexico. The three paintings represent Lea's earliest solo mural work, as he had only recently completed his formal schooling and requisite apprenticeship. Although no longer

occupying places of prominence, as the buildings where the murals were originally placed no longer serve as libraries, these art pieces continue their lifespan within the public view. Indeed, the posthumous "Tom Lea Trail," a figurative route for those wishing to traverse the breadth of the artist's creative output, includes the three murals.²

Yet, if one desires to learn more about the provenance of these Las Cruces murals and their place in the artist's canon, there is little scholarship or published material to provide this information. Despite the abundance of data concerning Lea and his prodigious work, these three murals are rarely mentioned, briefly discussed, and hardly ever detailed by art historians. Even with archival collections in El Paso and Austin, a lengthy oral history with the artist, a published biography, multiple exhibition catalogs, an illustrated bibliography, several published compilations of his work, and a non-profit institute to promote his legacy, scholarship about these Las Cruces murals goes begging.³ Why? This paper attempts to shed light on the history of the murals – *Conquistadores*,



Artist Tom Lea standing before his preliminary drawing of the Pass of the North mural in his El Paso studio, 1937 (El Paso Herald-Post, June 23, 1937).

Old Mesilla, and *The First Books Brought to New Mexico by Franciscan Friars in the 17th Century* – by discussing the context of their creation and their subsequent legacy as public art.

Public Works of Art Project (PWAP)

With the financial panic in late October 1929, the world plunged into an economic depression, the largest financial crisis of the 20th century. As thousands of banks failed and business ventures folded in the subsequent years, many Americans found themselves out of work and in the bread line. With consumer confidence low, credit restricted, and buying power focused on daily necessities, the voting public turned to New York Governor Franklin Delano Roosevelt in the 1932 presidential campaign to cure the nation's economic woes. Within the first one hundred days of his presidency, Roosevelt implemented the "New Deal," a series of relief, recovery, and reform actions by the executive branch and Congress aimed at jumpstarting the economy with a massive infusion of federal funds and the founding of governmental programs, many with a promise of employment for the jobless.

The collapse of the stock market brought about an end to the excesses of the "roaring 1920s" along with a withering of the nation's art market. With fewer wealthy patrons to rely on and a surplus of talented individuals seeking work, many artists found themselves forced to leave the creativity they loved in order to make ends meet. George Biddle, an American painter and muralist, as well as a childhood friend of President Roosevelt, advocated for government funding of artistic endeavors as a way to employ painters, illustrators, sculptors, and other creatives.

Inspired by his travels to Mexico and the work of muralists Diego Rivera and José Clemente Orozco, Biddle felt artists could be put to work to express the ideals of Roosevelt's New Deal.⁴ Wanting to incorporate art into the daily lives of the nation's populace, Biddle suggested placing murals in public buildings to ensure a large viewing audience with a hope that the art would

inspire and "improve the quality of American life."⁵ Roosevelt agreed and on December 8, 1933, the Treasury Department's Advisory Committee on Fine Arts established the Public Works of Art Project (PWAP). With an initial allocation of over \$1 million from the Civil Works Administration and direction by art collector Edward Bruce, the PWAP divided the country into 16 regions with New Mexico and Arizona making up Region 13.⁶

The PWAP served as a New Deal pilot program aimed at encouraging a particular style of art – focused on realism and backed by historical and social subject matter.⁷ Additionally, the art created by PWAP "should make people happy, not be solemn or intellectual, but in a language understandable by most, a simple content, visual freshness and realism were the guidelines set by the program's administrators."⁸ Thus, PWAP was far from just a dole program; in fact, the 2,500 artists identified nationwide by the Treasury Department to participate were viewed as the best available, competent in their own right, and ultimately selected in a juried process.⁹ With a wealth of talent concentrated around Taos and Santa Fe, New Mexico proved uniquely positioned to affirm the PWAP goal of producing "a lasting record of the aspirations and achievements of the American public."¹⁰

Under the leadership of chair Jesse Nussbaum, the director of Santa Fe's Laboratory of Anthropology, and secretary Kenneth Chapman, a curator and Indian arts specialist at the laboratory, Region 13 moved quickly to select sites and commission themed work in New Mexico and Arizona.¹¹ A volunteer committee made up of U.S. Senator Bronson Cutting, architect John Gaw Meem, and writers Mary Austin and Caroline Thompson, made final decisions regarding acceptance of artist proposals.¹²

To oversee projects in New Mexico, Gustave Baumann, a printmaker and painter who founded the Santa Fe Art Club, was hired as regional coordinator. The German-born Baumann came to New Mexico in the late teens from Chicago, where he had been at the city's famed Art Institute.

Barnstorming around the state in December 1933, Baumann, accompanied by fellow artist Theodore Van Soelen, scouted locations in public buildings to place murals and easel paintings. Covering forty towns and cities in an old Ford, they visited libraries, courthouses, post offices, and universities in their search for suitable sites. After returning home, Baumann worked with artists in their studios in Taos, Santa Fe, and Albuquerque regarding their PWAP contracts through the winter months.¹³ During the seven months of the PWAP program, Region 13 employed 97 artists, with 51 in New Mexico, and completed 866 works.¹⁴

When it came to the creation of public murals, the challenge for PWAP leadership was twofold. First, few American artists had extensive experience in creating such large artwork; and second, the spaces ultimately available in public buildings were complicated ones, often in lobbies, hallways, and grand rooms peppered with furnishings, existing design elements and artwork, doors, windows, and elevator entries.¹⁵ Any artist selected would have to have the training, experience, and technical skills to ensure their mural's effect on its intended audience as well as those overseeing and funding PWAP. Thus, continued public financing of art as part of the New Deal hinged on whether these initial works succeeded.¹⁶ Working diligently to make certain Region 13 lived up to the lofty national goals, Baumann relied on many talented New Mexican and regional artists, including a young Tom Lea, recently returned to the Southwest after several years study at the Art Institute of Chicago where he had apprenticed under John W. Norton, an accomplished muralist.

Thomas Calloway "Tom" Lea III

Born on July 11, 1907 in El Paso, Texas, Thomas Calloway "Tom" Lea III was raised in a bilingual culture that encouraged his artistic proclivities. His father, a successful lawyer who served as mayor of the city from 1915-1917 and later as a judge, frequently hosted political and military officials in the family home. This created a lively environment for Tom and his younger brother, Joe.¹⁷

After Mexican Revolutionary forces led by General Pancho Villa invaded Columbus, New Mexico, in 1916, Lea's father threatened to arrest the leader if he set foot in El Paso. For the next six months, the family hired a police guard after Villa threatened to kidnap the young Lea boys in retaliation.¹⁸

Displaying an aptitude for art at a young age, his parents purchased Lea oil paints to support his desire to become an artist, and during his teen years, allowed him to spend his summers in Taos and Santa Fe, surrounded by the creative work in those burgeoning art centers. Gertrude Evans, an El Paso High School art teacher, encouraged him to continue his art studies after graduating from high school, and in 1924, Lea, 17, enrolled in the Art Institute of Chicago.¹⁹ For three years, Lea underwent rigorous schooling and at 19, married fellow student and writer, Nancy Taylor.

After the completion of his formal studies, Lea began a six-year apprenticeship under muralist John W. Norton, his former professor. Amid their work together, Norton encouraged the young couple to spend time in Europe, where Lea would deepen his connection to the Italian Renaissance masters, whose style he admired. Lea shared their attention to natural and human forms, detailed brush strokes, and a desire to reflect reality.²⁰

In early 1933, Norton told Lea he was ready to become his own artist, and the young couple left Chicago bound for Santa Fe with his apprenticeship completed. A return to the Southwest suited Lea, as he loved the art, symbolism, and mythology of the region's indigenous population.²¹ The city also proved attractive because of its art scene, beautiful environs, and rich history. Lea built a small one-room adobe house on land purchased from artist Fremont Ellis, a former El Pasoan, and began house-painting jobs in the area for a dollar per day.²² He soon found more stable work when Jesse Nussbaum hired him as an illustrator for the Laboratory of America. In a job he later described as a "life saver" and one that "put bread and butter on the table," Lea illustrated scholarly publications on Pueblo pottery. Working for Dr. Harry P. Mera,

he copied native designs and drew maps and charts.²³ For supplemental income, he contributed story illustrations for *New Mexico Magazine*.

Living and working in Santa Fe doubtlessly brought Lea into contact with those setting up the PWAP Region 13 efforts. Jesse Nussbaum, the director of his place of employ, the Laboratory of Anthropology, served as chair, and one can imagine many conversations likely took place about the opportunities participating in the program could offer. Lea would later recall, “I remember Gus Baumann most vividly. He was instrumental in signing me up for the WPA paintings that I did for the New Mexico Fine Arts Museum and which they still have. Initially I thought [the WPA] sounded like charity, and I was not going to do that. But Baumann told me, ‘You’re crazy. You need the money. Why don’t you do it?’ We were paid by the week regardless of what we did, and it gave me the opportunity to do anything I wanted to with southwest material.”²⁴ It is likely that Baumann coveted the experience Lea had gained working under Norton in Chicago, knowing that such training and practice would be crucial to the success of the PWAP mural projects. Even though Lea was only 26 at the time, Baumann felt sure of his talent and eagerly recruited him to the cause.

Even still, employment on a funded project was not guaranteed, as many talented artists eagerly submitted their ideas. Lea’s first proposals to the Region 13 Committee, a nine-panel mural to adorn the New Mexico exhibit at the 1933-34 Chicago World’s Fair was rejected, leaving him “sore as hell.”²⁵ Success soon followed, however, as he completed three oil paintings for the Health and Human Services Division in Santa Fe.²⁶ As the year 1933 came to a close, he received his first major government commission – the contract to paint a mural for the New Mexico College of Agriculture and Mechanic Arts in Las Cruces.

New Mexico College of Agriculture and Mechanic Arts

In late 1933, Gustave Baumann spent time in Las Cruces scouting potential locations to emplace

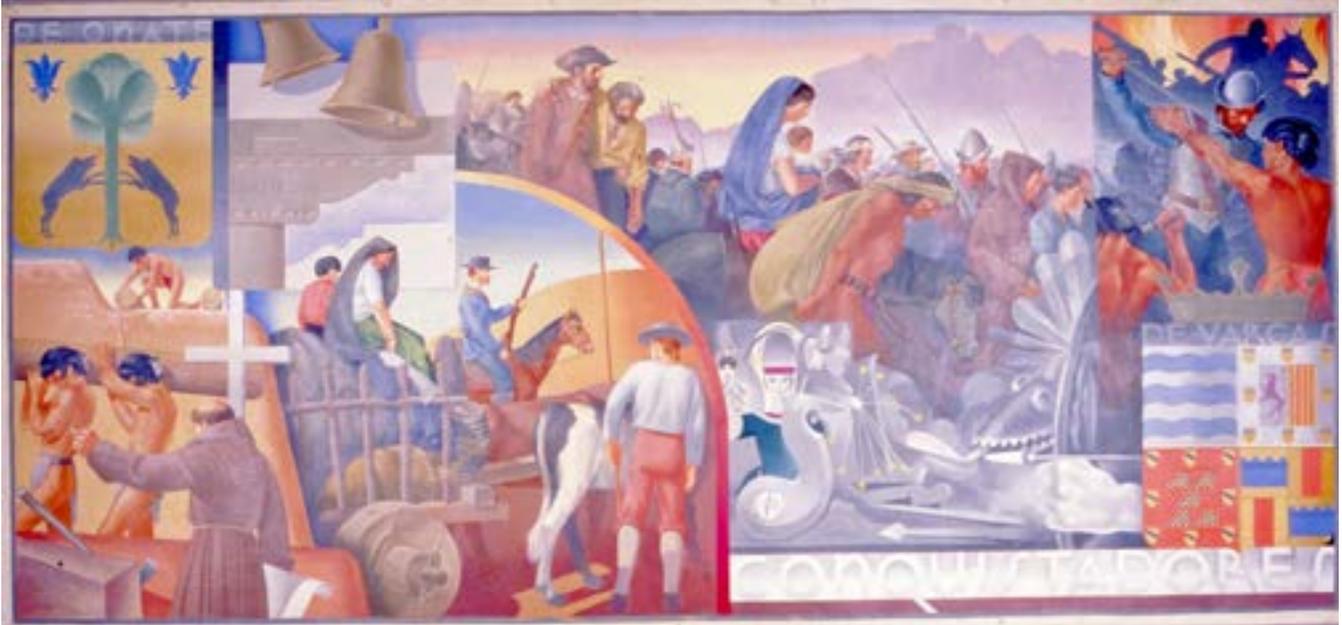
PWAP art, likely guided to suitable buildings on campus by college officials. Young Hall, the college’s first stand-alone library, completed in 1930, fit the bill. Named after a former president of the college’s Board of Regents and designed by the El Paso architects Trost and Trost, its Spanish Renaissance architecture matched the neighboring buildings along Horseshoe Drive. The building’s second floor included the main reading room, which extended the full length of the structure, offering a large space ideal for a PWAP mural. Awarded the contract to provide the college with a mural, Lea visited campus, likely sometime in December 1933, selected the location for the mural in the reading room, and submitted preliminary sketches for approval to the Region 13 committee.²⁷

Lea’s proposal called for two murals with one on each side of the reading room’s charging desk and focused on New Mexico history – *Conquistadores* would portray the first hundred years of Spanish colonization attempts in the region beginning in 1598, while *Old Mesilla* would depict 19th century events around the Mesilla Valley, the geographic location of the college itself.



Exterior of Young Hall, the first stand-alone library at the New Mexico College of Agriculture and Mechanic Arts, c.1928 (UA03390011, Hobson-Huntsinger University Archives, NMSU Library).

In early February and in accordance from direction of Jesse Nussbaum, the college’s Board of Regents unanimously passed a resolution releasing the wall space in the library for the murals and agreeing to “protect and preserve” them for as



Conquistadores by Tom Lea, 1934 (UA98-062 Slide 47, Hobson-Huntsinger University Archives, NMSU Library).

long as the Treasury Department desired.²⁸ Over the next three months, Lea painted the approved murals in his Santa Fe studio, receiving \$40.00 a week for his efforts.²⁹ Lea spent time researching at the archives of the Palace of the Governors hoping to ensure the scenes he was painting were historically accurate.³⁰

Lea's creative process would later be described as:

He began with number 12 cotton duck canvas which he purchased in Santa Fe and primed and sized himself. The canvas was wrapped around oversized plywood sheets which had been previously primed



Old Mesilla by Tom Lea, 1934 (UA98-062 Slide 50, Hobson-Huntsinger University Archives, NMSU Library).

*and finished. The color came from pigments prepared by Raymond Johnson, an abstractionist painter living in Santa Fe, who was willing to provide paints to Lea on credit. To achieve the vibrant colors of the paintings, Mr. Lea used the paint straight out of the tube with no medium.*³¹

With little fanfare in June 1934, Lea rolled the ten-foot-long and four-and-a-half-foot-tall completed murals around a cardboard carpet roller, placed them in his 1926 Dodge with its broken windows, and drove the six hours to Las Cruces to install them next to the circulation desk in Young Hall.³² The murals remained in place until 1951 when, because of a pending move of the library to neighboring Branson Hall on Frenger Mall, they were moved to Milton Hall. At an unknown later date, the murals were transferred to the care of the

University Art Gallery's permanent collection and placed in storage until funding for restoration saw them reinstalled on October 25, 1996. Reuniting with the university's library collection in their current location, the murals now grace the western wall of the Branson Library lobby.³³

Thomas Branigan Memorial Library

While not a federally funded art project, the mural painted by Lea for the Thomas Branigan Memorial Library likely owes a debt to the era's national push to expose the citizenry to public art, indeed the timeframe for his Las Cruces mural commissions overlap. The residents of Las Cruces had initiated several efforts to support a library, both subscription and free models, but it was not until the mid-1930s that a library supported by local tax funding came into existence.³⁴



View of the murals, Old Mesilla (left) and Conquistadores, and the library second floor in Young Hall, c.1935 (UA03390023, Hobson-Huntsinger University Archives, NMSU Library).



The Round-Up, September 12, 1934 (Hobson-Huntsinger University Archives, NMSU Library).

As a memorial to her husband, Captain Thomas Branigan, Alice M. Branigan donated \$35,000 and land for a library, along with \$10,000 for book purchases, at her passing in 1932.³⁵ El Paso-based architect Percy Wear McGhee, Jr. turned to Lea to create one of the few adornments for the new building, a partnership that grew into a friendship, spawning further collaborations.³⁶ The structure transitioned to the Branigan Cultural Center in 1981, and began hosting historical and cultural exhibitions instead of library patrons. The edifice,

now on the National Register of Historic Places, still features Lea's frieze, *The First Books Brought to New Mexico by Franciscan Friars in the 17th Century*.³⁷

The Branigans were an influential couple, active in Las Cruces' business, civic, political, and religious circles. Alice Montgomery, a native of Illinois, came to the Southwest in pursuit of better health. The schoolteacher and accomplished musician married Captain Branigan in 1897. An active participant in the Women's Club of Las Cruces and the state federation, she championed the effort to bring a library to the city.³⁸

During the Civil War, the 14-year-old Thomas Branigan served in the 103rd Ohio Volunteer Infantry for three years. Upon discharge, he ventured west, first to Kansas and then to New Mexico where he earned his captaincy while serving as head of the Mescalero Apache Indian Scouts during the campaign against Chiricahua Apache leader Geronimo. A staunch Republican, he was elected Doña Ana County Assessor, served on the local school board, and was twice appointed as Las Cruces Postmaster.³⁹

With the bequest in hand, Las Cruces-elected officials appointed an ad-hoc library committee in 1934 to draft a wish-list for the city's first library building, including aesthetic, style, lighting, and featured spaces. After reaching out to all practicing architects in New Mexico and neighboring El Paso for proposals, the committee selected Percy McGhee to design a library to meet their wishes. McGhee's plan called for a multipurpose build-



The First Books Brought to New Mexico by Franciscan Friars in the 17th Century by Tom Lea, 1935 (Courtesy of author).



View of the frieze, The First Books Brought to New Mexico by Franciscan Friars in the 17th Century, and the interior of Thomas Branigan Memorial Library, c.1935 (A74-061-0029, Archives and Special Collections, NMSU Library).

ing in the Spanish-Pueblo Revival style with a white cementitious stucco exterior. In addition to the library stacks and workrooms, the structure included a 300-seat auditorium, gallery space, and manicured grounds. Built by Edward Lembke & Company of Albuquerque, the library quickly rose on the corner of Main Street and Hadley Avenue in downtown Las Cruces.⁴⁰ The Las Cruces City Commission officially organized the Library Board in March 1935, and that spring the newly empowered board hired Mrs. Effie Carmichael, a New Mexican then working in Dallas, as the city's first librarian.

While the focus of the building remained on housing the collection and affording space for patrons, McGhee included some decorative features for the library. The architect hired fellow El Pasoan

Tom Lea to create a work of public art to be placed above the "charging desk" with an early Southwestern theme.⁴¹ From his home in Santa Fe, Lea began with figure studies before completing the frieze and installing it in June, months before the dedication of the library.⁴²

Also commissioned for use in the library were individual portraits of the Branigans and a Thomas Branigan Memorial Library bookplate, all three done by artist Aileen Shannon of Las Cruces. Additionally, in the Children's Room McGhee added leaded glass with Mother Goose-inspired art in the window casements, while in the Lecture Room he incorporated a native thunderbird design in the wainscoting Nu-wood tile.

On the evening of Thursday, November 7, 1935, the City of Las Cruces celebrated the open-

ing of its new library. The program from the dedicatory service noted, “The mural above the charging desk, depicting the Franciscan friars bringing the first books into New Mexico early in the seventeenth century, was painted by Tom Lea, Jr. of El Paso.”⁴³ The next day, the library opened for business, and thereafter the structure began receiving visits from librarians, writers, and architects, who came to admire the building’s design, workmanship, and efficient layout.⁴⁴ With its prominent placement, the Lea mural demanded the attention of anyone entering the edifice, thus providing another reason for the growing prominence of the Branigan Library.⁴⁵ The building became a downtown landmark and received universal praise for its charm and style.⁴⁶

A Gap in the Archival Record

For Lea, the years before and after the painting of these Las Cruces murals were ones of extreme artistic pressure and personal anguish. Leaving the cocoon of an apprenticeship and beginning to make a name for oneself was fraught with doubt, second-guessing, and economic hardship – doubly so during a bad economy. Lea learned he had to apply his artistry to what his clients, often committees, wanted, something that left him frustrated and unfulfilled.⁴⁷ Experiences such as these refined and matured the artist’s approach, and he leaned on Baumann for support.⁴⁸

Perhaps most critically, though, were the jarring deaths of his mentor and multiple family members. First, John Norton, Lea’s teacher and supporter, passed from stomach cancer on January 6, 1934. Lea’s wife Nancy died on April 1, 1936, the result of a two-year battle with an infection that set in following surgery for an acute appendicitis. His maternal grandmother then passed in June after a three-week illness, and the brutal year closed when his mother, diagnosed with cancer, passed on Christmas Eve.⁴⁹

This period of his life proved so emotionally and artistically traumatic for Lea that he rarely spoke about it, even going so far as to discard and destroy most of his sketches, studies, and designs

from his time in Santa Fe to seek relief from the pain.⁵⁰ Following his wife’s passing, Lea took action, “I went to Santa Fe with a friend in a pickup truck, up the hill to this little house and picked out some stuff I wanted to take – drawings, sketches, old letters, and papers. The last thing was an oak easel, a gift from John Norton’s wife, which John had used for most of his life. The rest I left, left the key in the door, and never went back. I just forgot Santa Fe... I started over.”⁵¹ He chose to make this new start in his native El Paso.

The destruction and loss of much of the source material from the beginning of Lea’s career, a loss initiated by the artist himself, is undoubtedly the significant reason for the gap in his archival record. Additionally, a lack of sound records management practices by those institutions receiving the murals and Lea’s employers, including the outright destruction of Region 13 PWAP records, further contributes to the dearth of scholarship regarding his earliest solo murals.⁵² Further, it can be argued that the muralist’s earliest efforts do not measure up to his later work, likely diminishing scholarly inquiry when compared to his more famous works, *The Nesters*, *Pass of the North*, *Stampede*, and *Southwest*. Yet these Las Cruces murals are still in place waiting for their story to be analyzed with more detail, particularly when examining their effectiveness as works of public art.

Interpreting Lea’s Public Art

While no formal ceremony of the murals’ 1934 placement on campus took place, likely because its summer installation fell in a time with few faculty and students present, the college nevertheless valued Lea’s public art contribution to the library. The school insured the works and specifically cited them in published reports and recruiting material as contributing to the environment of learning and scholarship in Young Hall.⁵³ The student newspaper, *The Round-Up*, noted that the murals met the two requirements of the Board of Regents, first that the art be suitable for the space, and second that they draw on the history of Mesilla.⁵⁴ Lea’s paintings also pleased his employers, as Baumann

reported to Nussbaum that the murals were “very well done” and “a major project.”⁵⁵

If murals are “a wall that talks,” then what is it that Lea’s campus murals are attempting to communicate?⁵⁶ As *Conquistadores*’ title suggests, the mural depicts the military and religious conquest of New Mexico by Spanish colonizers. In March 1598, forces led by Juan de Oñate, whose name is seen in the upper left corner of the mural, crossed the Rio Grande south of present-day El Paso and claimed the river valley by force. Oñate is infamous for his brutal war against Acoma Pueblo, where an estimated 1,000 people were killed and the survivors subsequently forced into servitude.

The other prominent name in the mural’s lower right corner is of Don Diego de Vargas, who led the 1692 re-conquest of New Mexico after the Pueblo Revolt of 1680. Besides the coat of arms of the two conquerors, the mural depicts the arrival of Spanish settlers under armed protection. Colonization efforts are portrayed in several sections.

Two examples of these scenes are bells ringing in 1608 to celebrate the formal establishment of Spanish political power, and Franciscan friars using native labor to build Catholic missions. Lea includes the flight of the Spanish following the 1680 Pueblo Revolt and the return of Spanish soldiers after twelve years of exile to recapture the territory by force. Finally, in the section painted in muted gray and fraught with cultural homogenization, Lea juxtaposes Spanish steel and the Archangel Michael, Christendom’s spiritual warrior, against the flint and plumed serpent of the indigenous population.⁵⁷

The mural titled *Old*

Mesilla captures scenes of arguably the most important 1800s southern New Mexico locale. The painting similarly uses adjoined sections and leads viewers through the numerous scenes of Mesilla’s history. During the Mexican-American War, Col. Doniphan’s mounted Missouri Volunteers bested the Mexican infantry at the Battle of Brazito on Christmas Day, 1846. Settled in the late 1840s next to the Rio Grande River, Mesilla relied on agriculture – fields of corn, wheat, and grapes – and stock raising, to sustain its economy. Ongoing Apache raiding, particularly along transportation routes, saw the establishment in 1851 of Fort Fillmore, seen in the mural’s center, though skirmishes with the native population would continue for nearly forty years.

Because of a surveying error following the Treaty of Guadalupe Hidalgo, the Mesilla Valley found itself claimed by both Mexico and the United States. The settling of the border dispute with the Gadsden Purchase in 1853, symbolized



Tom Lea (left) and M. Randall Ash, art conservator, looking over the murals after their conservation treatment, September 1996 (UA2021, Hobson-Huntsinger University Archives, NMSU Library).

by soldiers lowering and raising their respective country's flags in the center of the painting, confirmed Mesilla as an American town. However, during the Civil War, Mesilla served briefly as the Confederate capital of the Arizona Territory after it fell to Texan cavalry. As the century closed, Mesilla saw a much quieter existence.⁵⁸

In one of the rare published descriptions of the murals, art historian Patrice LeBovit described key aspects of their composition:

*The panels are divided into sections, the format of which is reminiscent of medieval manuscripts and murals where several episodes of an event are incorporated into a single composition. Each scene is compositionally independent, yet the continuity of the whole is not interrupted. Architectural forms separate and compartmentalize the canvas but these forms also serve to unify all sections into the patterning of the whole. An example of this is the arch form used in both paintings. The action of one scene visually moves the eye into the next. The panels are meant to be read from the top left in a clockwise motion. Lea also employs various ways of visual storytelling combining symbolic elements that signify the attributes involved in the subjects with scenes conveying the activity and participants as they might have looked. Simple scenes of daily life stand next to symbolic emblems of deeper meaning.*⁵⁹

How did the college audience of the 1930s interpret the murals "deeper meaning?" In several articles, *The Round-Up* described the murals by employing the words "conquest," "colorful," "development," "Spanish steel meeting Indian flint," and used the term American to the exclusion of New Mexico's native population.⁶⁰ The school's yearbook, *The Swastika*, similarly used "conquest," "development," "settling," and "white man," in describing the library murals.⁶¹

While Lea wished to be as historically accurate as possible with his murals, consulting archival and printed sources as well as employing models to pose for him, audiences viewing the art today

will notice a one-sided version of events that reduces indigenous people to largely faceless, servile roles in the Manifest Destiny trope.

Although universally praised at the time of its unveiling, the mural in Branigan Library proves equally problematic to modern audiences. In a letter, dated November 2, 1935, to the city's mayor, J. Benson Newell, Lea spelled out the details of the mural's subject matter. The artist described his work as follows:

*We decided that the most congruent subject matter to be depicted would be a painting of the Franciscan missionaries of the early Seventeenth Century in New Mexico. For these friars not only brought the first books into New Mexico, but they were also partly responsible for the creation of the style of architecture from which the library building was derived. Hence, a painting of this subject related both to the books and the architecture of the library. As the most fitting manner to present this subject, I chose to depict a Franciscan friar standing in his mission courtyard, before the mission entrance, displaying a book to his Indian converts. Spanish soldiers, symbols of the temporal power of Spain, stand in the background ready to enforce the lessons of the good friar. One of the most interesting parts of my problem was the depiction of various expressions on the stolid faces of the Indians, looking for the first time at a book, a strange piece of white man's magic.*⁶²

Lea then goes on to describe the pains he took to find native peoples in Santa Fe to serve as models to ensure an accurate representation in his mural. Additionally, he noted he used historical texts and their ornaments to guide him in creating the book the anonymous friar is holding and the decorative scrolls on either end of the frieze. The two scrolls briefly discuss the history of books and printing in New Mexico.⁶³ Lea concluded his letter stating, "Let me say that I believe the history of the Southwest has a life and color hardly to be excelled in American annals. It is a source of constant in-

terest and pleasure to me to be an humble student of this history; and if my painting makes any of it a little more vivid to those who know and love the Southwest, I shall have accomplished my aim.”⁶⁴

Again, how did Branigan Library visitors view Lea’s vivid Southwestern history? The *El Paso Herald-Post* noted that the mural was “highly effective” as it “symbolizes the beginning of culture in the Southwest.”⁶⁵ In an award-winning essay about the new library, a student enrolled at the city’s Central Elementary called the painting “an interesting mural showing the beginning of learning in New Mexico.”⁶⁶ Art critic Ina Sizer Cassidy declared the mural “a fine piece of work, of value as art and as history,” in its depiction of the coming of religion and education to the “Indians.”⁶⁷ Librarian Effie Carmichael directly pointed to the

building’s design, furnishings, holdings, and art as key features in making the library “an important and vital educational service to the community.” In fact, the institution hoped to appeal “to all classes, sects and degrees of intelligence” to become “a strong unifying factor in the life of the town.”⁶⁸

Unfortunately for today’s audience, a front-and-center mural that asks viewers to dismiss the depth and diversity of cultures found among the indigenous peoples of the Southwest directly calls into question the educational goal of the institution.⁶⁹

Conclusion

After completing his Las Cruces commissions, Lea continued as a muralist in the subsequent years, gaining both private and government contracts. In the subsequent years, his work took him to Washington, D.C., Wisconsin, Missouri, and across his native Texas. Lea went on to illustrate the Pacific Theater during World War II for *Life* magazine, risking his life to gain an authentic point of view for his illustrations and paintings. This, combined with authoring several screenplays and novels, earned Lea the distinction of becoming one of the Southwest’s most noteworthy and celebrated artists. Always reluctant to self-assess his work, Lea, upon seeing the murals at New Mexico State University for the first time in over 50 years, nevertheless quipped, “I’m thinking I was a pretty good painter in those days.”⁷⁰

While few today would quibble over the artist’s



Installation of murals in Branson Library lobby after their conservation treatment and reframing, October 1996 (UA98-062, Hobson-Huntsinger University Archives, NMSU Library).

brush strokes, many take exception to the point of view portrayed in the murals. Public art can offer communities a sense of place, identity, value, and meaning. This type of art, regardless of its form or substance, should humanize occupied spaces and embolden the built environment. While public art cannot appeal to every member of a community, it should raise awareness and challenge assumptions at a minimum.

The meaning of public art evolves over time, as does the response to it. The murals detailed in this paper reflect an exclusionary worldview that historians should challenge. While claiming to capture New Mexico's past, they instead portray a romanticized version of historical events too narrowly focused and contextually adrift. That the murals remain in place within educational institutions without proper didactic text should also spur public historians to action. A reassessment of Lea's Las Cruces murals is therefore necessary. By documenting the history and provenance of the murals, provided herein, the first step toward a needed reappraisal has been taken.

Dylan McDonald is the Special Collections Librarian at the New Mexico State University Library. He came to New Mexico in 2019 from Sacramento, California, where he had been deputy city historian and manuscripts archivist at the Center for Sacramento History since 2004. Dylan holds an MA in history from Boise State University and previously taught as an adjunct in the graduate public history program at California State University, Sacramento. He serves on the executive board of the Society of Southwest Archivists and is a Certified Archivist.

Endnotes

1. In February 2019, I began in my position at the New Mexico State University Library Archives & Special Collections. My office and its expansive windows on the second floor of the university's Branson Library afford great views of the campus and the library itself. To the south, I have a view of the buildings along Frenger Mall and the coming-and-going of students, while to the north I have a view that looks into the large four-story lobby of the library. As I settled into my new job that first week, I took notice of two large murals mounted on the western wall of the lobby, hanging just feet from my desk. Thus began my interest in the work of muralist Tom Lea.

2. "Travel the Tom Lea Trail," Tom Lea Institute, accessed October 30, 2021, <https://www.tomlea.com/the-tom-lea-trail>. Another online source of Lea information that briefly mentions the Las Cruces murals is "Mapping Lea's Murals 1931-1942," The Murals of Tom Lea, accessed October 30, 2021, <https://tomleamurals.org/mapping-the-murals>.

3. Indeed, the Tom Lea Institute's website provides very little detail on the murals, even getting the dates wrong regarding their placement, dating the Branigan mural to 1936 and providing the date of the NMSU murals with a nebulous 1930s; see <https://www.tomlea.com/the-tom-lea-trail> and <https://www.tomlea.com/timeline>. Further, the bibliography of Lea's writings and illustrations published as a companion to an exhibit at the El Paso Museum of Art and El Paso Public Library in 1971 does not include these three murals. This could be because the reproductions of the Las Cruces murals have never been printed elsewhere; see Glennis Hinshaw and Lisabeth Lovelace, *A Bibliography of Writings and Illustrations by Tom Lea: An Illustrated Catalog of the Exhibit* (El Paso, TX: El Paso Public Library Association, 1971), 1-3. Archival collections about Lea include the Tom Lea Collection (BHCA-007) at the El Paso Public Library; Tom Lea Papers at the University of Texas at El Paso (MS 476); and the Tom Lea Papers, Tom

Lea Art Collection, and the Tom Lea Literary File at the Harry Ransom Center, University of Texas at Austin (TXRC96-A15, Art Collection, and TXPH-281).

4. Kathryn A. Flynn, *Public Art and Architecture in New Mexico 1933-1943: A Guide to the New Deal Legacy* (Santa Fe, NM: Sunstone Press), 187-188; Patrice Linda LeBovit, "Government Art Patronage of the 1930's (Tom Lea in Santa Fe: 1933-1935)" (master's thesis, New Mexico State University, 1978), 11-12, 26.

5. "WPA Art Collection," U.S. Department of the Treasury, accessed October 30, 2021, <https://home.treasury.gov/about/history/collection/paintings/wpa-art-collection>.

6. William Henry Spurlock, II, "Federal Support for the Visual Arts in the State of New Mexico: 1933-1943" (master's thesis, University of New Mexico, 1970), 6-7.

7. LeBovit, "Government Art Patronage," 2.

8. LeBovit, 19.

9. Spurlock, "Federal Support," 8.

10. LeBovit, 13.

11. "State to Become Vast Art Gallery," *Santa Fe New Mexican*, January 6, 1934, 1.

12. Suzanne Forrest, *The Preservation of the Village: New Mexico's Hispanics and the New Deal* (Albuquerque, NM: University of New Mexico Press, 1989), 119; Flynn, *Public Art and Architecture*, 187-188.

13. Gustave Baumann, *The Autobiography of Gustave Baumann* (Portland, OR: Pomegranate, 2015), 152-153; Flynn, 188.

14. Spurlock, 6-7.

15. Flynn, 188.

16. As an example of the general lack of training and experience of American muralists, Lea noted, "We were all having a pretty rough time in those days. I was trained as a mural painter, and these guys (with the federal Works Progress Administration commission) would call up and ask, 'How do you stick it to the wall?'" See Barbara Funkhouser, "Long-hidden Tom Lea murals at NMSU must be restored," *El Paso Times*, September 27, 1992.

17. Deborah Rindge and William R. Thompson, "A Tom Lea Retrospective, 1907-2001," *American Art Review* 16, no.6 (2004): 130.

18. Evan Haywood Antone, *Tom Lea: His Life and Work* (El Paso, TX: Texas Western Press, 1988), 5-6.

19. Evan Haywood Antone, *Tom Lea*, 10.

20. Deborah Rindge, "Educational Programming Guide," *Light from the Sky: A Tom Lea Retrospective, 1907-2001*, 2004, 41.

21. LeBovit, 5. In interviews with journalists and oral historians, Lea routinely spoke about his great love for the Southwest, the subject of most of his artistic output. This output has been heavily used in heritage tourism, the marketing of a region's culture, geography, and history to generate revenue streams. This symbiotic relationship between his art and subject matter, present since his earliest artistic efforts and eventually highly lucrative for his career, likely meant that Lea had numerous ideas regarding the content of his Las Cruces murals or quickly championed them once the idea had been pitched. Indeed, his father helped nurture this Southwestern art relationship. When mayor of El Paso, the elder Lea pushed for the use of local history to draw in tourists, even championing the concept of twelve travelers who represented El Paso's past eras; see Frank G. Pérez and Carlos F. Ortega, *Deconstructing Eurocentric Tourism and Heritage Narratives in Mexican American Communities: Juan De Oñate as A West Texas Icon* (New York City, NY: Routledge, 2020), 57-58. In fulfillment of his father's desire, artist Lea eventually created a calendar of these travelers in 1947 for the El Paso Electric Company, just one example of how the Southwest served as muse for his art.

22. "Village Gossip of Old Santa Fe," *Santa Fe New Mexican*, April 10, 1933, 1; Antone, 24. A one-dollar per day wage in 1933 is equivalent to \$21.28 in 2021.

23. LeBovit, 72.

24. Tom Lea, Rebecca McDowell, and Margo Adair, *Tom Lea – An Oral History*, (El Paso, TX: Texas Western Press, 1995), 40.

25. LeBovit, 74, see footnote 79.

26. These paintings, "Employment in Public Works," "Governmental Aid to the Needy," and an untitled work, are now in the care of the New Mexico Museum of Art in Santa Fe.

27. "Artistic Conception is Soaring," *Santa Fe New Mexican*, January 6, 1934, 1; "College Library Will Receive Two Mural Paintings," *Rio Grande (Las Cruces) Farmer*, January 18, 1934, 1; "College Library To Get Handsome Murals," *Santa Fe New Mexican*, January 19, 1934, 7. The January 6 article by the *Santa Fe New Mexican* stated the murals for the college would be "on the Pueblo Rebellion."

28. Minutes of the meeting of the New Mexico A&M Board of Regents, February 9, 1934, 33.

29. A \$40.00 per week salary in 1934 is equivalent to \$825.64 in 2021.

30. Flynn, 83. While admirable of Lea to consult archival records to inform the veracity of the historical scenes in his art, the general lack of indigenous sources and perspectives, along with the bias in preserving written records over oral traditions, creates an "archival silence" that inevitably leads to an incomplete view of the past. Archivists, aware of the marginalization of numerous communities in the historical record, are using several approaches in an attempt to address this silence; see Stacey R. Krim, David Gwynn, and Erin Lawrimore, "Reconstructing History: Addressing Marginalization, Absences, and Silences in the Archives through Community and Collaboration," *Diversity, Equity, and Inclusion in Action: Planning, Leadership, and Programming* (Chicago, IL: ALA Editions, 2020), 87-102.

31. Charles Townley to Cheryl Thornburg, October 16, 1996, University Library Records Correspondence, Box 4, UA 99-26, Library Collection, Archives and Special Collections, New Mexico State University Library.

32. "Depression-era murals dedication for homecoming," *The Round-Up*, October 25, 1996, 5.

33. "What's Special About the Library?," *lib.nmsu.edu: New Mexico State University Library Newsletter*, 26 no.2 (Fall 2011), 13.

34. Louis E. Freundenthal, *The Branigan Me-*

morial Library: A Short History (Las Cruces, NM: Private), 1967.

35. "Memorial Library For Las Cruces," *Las Cruces Citizen*, February 20, 1932, 1. The value of a \$45,000 donation in 1932 is equivalent to over \$900,000 in 2021.

36. Adair Margo, "Interview with Tom Lea, 1993," Interview no. 800, Institute of Oral History, University of Texas at El Paso, 253. Over forty years after the Branigan Library opened, lawyer and former Las Cruces mayor J. Benson Newell stated he thought of Lea to paint a mural because Newell knew his father, also an attorney. Newell also stated that he took the lead in soliciting subscriptions to have the mural created; see Marvin Tessner, "Carving Out a Life For Himself," *Las Cruces Sun-News*, May 2, 1976, 23.

37. Peter A. Friesen, "Thomas Branigan Memorial Library," *National Register of Historic Places Registration Form* (Washington, DC: U.S. Department of the Interior, National Park Service, 2004), accessed October 30, 2021, <https://npgallery.nps.gov/NRHP/AssetDetail?assetID=2253ef44-40b4-4942-b60f-8f842d2cc651>.

38. Alice Branigan inherited a substantial amount of money from her brother, a dentist who died while travelling back to New Mexico from Spain. Branigan donated funds not only to the city for a library, but also to her church and the local Woman's Improvement Association, where she was an active member. See Mrs. L. Stanley Edwards, "History of Woman's Improvement Association as Presented in January, 1965," scrapbook, Box 6, Ms0152 W.I.A. Las Cruces Woman's Club records, Archives and Special Collections, New Mexico State University Library.

39. For additional biographical material on the Brangan's and the initial planning of the Thomas Branigan Memorial Library, see the Branigan Memorial Library Scrapbook, 1911-1945, at the Thomas Branigan Memorial Library.

40. Branigan Memorial Library Scrapbook, 1911-1945, Thomas Branigan Memorial Library.

41. H.S. Hunter, "Around Here," *El Paso Times*, November 5, 1935. McGhee served on the El Paso

committee of public art that sought to connect artists with government funding, a role that doubtlessly brought him into contact with young Lea, see “Garret Artists Largely Myth, El Pasoan Says,” *El Paso Herald-Post*, March 16, 1934.

42. “Opening Day of Library Not Set,” *Las Cruces Citizen*, June 27, 1935, 1. There is some discrepancy as to when Lea installed this mural and moved to El Paso, as both LeBovit (84) and Antone (27) state September.

43. The Dedicatory Service program, Branigan Memorial Library Scrapbook, 1911-1945.

44. “Branigan Library Gets National Recognition,” *Las Cruces Sun-News*, March 23, 1939.

45. Ina Sizer Cassidy, “Art and Artists of New Mexico: Memorial Library, Las Cruces,” *New Mexico Magazine* 16, no. 3. (April 1938): 24.

46. “The Thomas Branigan Memorial Library,” *The Pioneer: A Monthly Publication of the Library Bureau Division of Remington Rand, Inc.* 2, no. 10 (February 1939): 2.

47. J.P. Bryan, “Tom Lea and Texas,” *Humanities Texas*, June 2010, accessed October 30, 2021, <https://www.humanitiestexas.org/news/articles/tom-lea-and-texas>.

48. LeBovit, 83.

49. Antone, 31.

50. Rindge, 131; LeBovit, 91-92; Bryan, “Tom Lea and Texas.”

51. Bryan, “Tom Lea and Texas.” Further, “I admitted to myself they were not works of fulfillment. They were studies, attempts, groping to accomplish what I was not able to perform. I destroyed most of them and felt better after I did.”

52. For information regarding the destruction of PWAP Region 13 records, see Flynn (11) and Spurlock (62).

53. For example, in the college yearbook from 1937, librarian Elizabeth McCoy describes the “artistic aspects” of Young Hall’s reading room by detailing Lea’s murals; see *The Swastika* 31 (1937): 33. Additionally, the college listed the paintings as part of the inventory of the library’s permanent fixtures, complete with insured values; see Inventories, 1928-1948, UA 120 Library Collection, Ar-

chives and Special Collections, New Mexico State University Library.

54. “Library Receives Mural Paintings,” *The Round-Up*, September 12, 1934, 1.

55. LeBovit, 83.

56. Shatha Almutawa, “Walls that Speak History: Preserving Tom Lea’s WPA-Era Murals,” *Perspectives on History: The Newsmagazine of the American Historical Association*, November 1, 2014, accessed October 30, 2021, <https://www.historians.org/publications-and-directories/perspectives-on-history/november-2014/walls-that-speak-history>.

57. This muted section of *Conquistadores* was a drastic change from the original sketch created by Lea (see <https://www.tomlea.com/2-murals?lightbox=dataItem-ka7nvf9z1>) and the reason for this modification to the mural remain unknown.

58. One could argue that these two murals were out of alignment with PWAP objectives of simple yet aspirational art as discussed above. Lea’s paintings bordered on being overtly intellectual, somewhat abstract, and very busy. The murals required previous knowledge of New Mexico history on the part of a viewer to fully understand what they were seeing. By requiring some familiarity with historical events, names, and themes, Lea made it harder for the public to connect with his murals. This is likely why most other New Mexico murals of the time focused on Southwestern scenery rather than a series of historical events captured in one painting.

59. LeBovit, 79-80.

60. “Library Receives Mural Paintings.”

61. *The Swastika* 31 (1937): 33.

62. Tom Lea to J. Benson Newell, November 2, 1935, Branigan Cultural Center.

63. Lea painted two decorative scrolls, or cartouches, at either end of the frieze. The scroll on the right states, “The first book written about New Mexico was the epic poem of El Capitan Don Gaspar de Villagr a, ‘La Historia de Nueva M xico’ published in Alcal a in 1610.” In the letter to Mayor Newell, the artist encouraged the Branigan Library

to acquire a copy of this book, which Effie Carmichael did in the spring of 1941; see Tom Lea to J. Benson Newell and “Branigan Library Secures Rare Book Long Out of Print,” *Las Cruces Sun-News*, April 7, 1941, 3.

64. Tom Lea to J. Benson Newell.

65. Martha Virginia Burton, “Interurban Interest: Thinking Out Loud,” *El Paso Herald-Post*, October 5, 1935, 8.

66. “Library Attracts Favorable Comment By Passing Tourist,” *Las Cruces Sun-News*, April 1937.

67. Cassidy, “Art & Artists of New Mexico,” 37.

68. “Thomas Branigan Memorial Library,” May 1, 1941, Branigan Memorial Library Scrapbook, 1911-1945, Thomas Branigan Memorial Library.

69. The *Three Peoples Mural*, a Depression-era painting at the University of New Mexico’s Zimmerman Library, has also faced calls for its removal from students, employees, and others on these same grounds; see Samuel Sisneros, “Student Activism and the Three Peoples Paintings: Challenging Settler Mythology at the University of New Mexico,” *Aztlán: A Journal of Chicano Studies* 44, no. 1 (Spring 2019): 19-52.

70. “Depression-era murals dedication for homecoming.” Rather than share his motivations and feelings about his work, Lea felt the results should speak for themselves; see Al Lowman, “Remembering Tom Lea, Fellow, Texas State Historical Association,” *Southwestern Historical Quarterly* 105, no. 1 (July 2001): 9. As an example of his reluctance to assess his work, Lea quipped, “I have the feeling that my painting is by no means a new contribution to the long train of the history of art or anything. It’s a man born in West Texas who’s looking at the world as he sees it with the means that he has at hand;” see Tom Lea, Rebecca McDowell, and Margo Adair, *Tom Lea – An Oral History*, 124.

[RETURN](#)
to
[TABLE OF CONTENTS](#)



José Brito And His Rough Rider Revolver

By Frank J. Brito

The Brito Family of Las Cruces, New Mexico includes two veterans of the 1st U.S. Volunteer Cavalry, commonly known as “Roosevelt’s Rough Riders.” This group of 1,060 officers and men, many from New Mexico and Arizona, enlisted in May 1898 to fight the Spanish at the beginning of the Spanish American War. Two of the men were Frank C. Brito, and his brother, José Brito. Both were cowboys working in April 1898 for the Circle Bar Ranch near Silver City, New Mexico.



José Brito at age 29 in 1893. Photo taken in Los Angeles, Calif. (Author’s collection.)

After the War, Frank and José returned home after mustering out at Camp Wikoff on Montauk Point, Long Island in New York State. José reenlisted in the Army and was sent to the Philippines where he presumably was killed or missing in action. The National Archives has searched for his Philippine military records and they are missing or lost.

An article appeared in the January/February 1989 issue of *Man at Arms - The NRA Journal for the American Arms Collector*, listing serial numbers of the firearms issued to these troopers. The Spanish American War sidearms were Colt Single Action Army revolvers (Colt SAA) in .45 Colt caliber with manufacturing dates between 1873 and 1897. Two of these guns were issued to Frank and José and their names and firearm serial numbers were recorded and documented by the U.S. Army at their Springfield Armory. These records are now held by the National Park Service. Antique arms collectors call these Rough Rider revolvers “Artillery Models” because U.S. Army Ordnance cut 7 ½ inch cavalry barrels down to 5 ½ inches. Kenneth Moore in his research and book, says the correct name is “Single Action Army Revolvers – U. S. Alterations.”

What makes Rough Rider firearms difficult to research is that only Troops “G” and “I” listed the serial numbers by soldiers’ names. Therefore, only about 160 revolvers can be unquestionably documented as Rough Rider models. Of these, only eight are known to exist today. Since 1997, a search was conducted at gun shows and antique arms web sites seeking these revolvers more from curiosity and with little expectation of success. The serial numbers were memorized, inquiries made in Internet antique arms forums and every oppor-



José Brito's Single Action Colt Army revolver. (Author's collection.)

tunity was sought to check gun show displays of Colt Artillery Models.

In February 2010 during a regular Internet search for either pistol, 13 years of patience were finally rewarded. José's pistol was placed for sale with an antique arms broker and the history of the pistol was known by the seller, a retired university professor. The provenance added a premium to the rarity as a martial item, and now the revolver has been returned to Brito family custody by the seller. If you are unfamiliar with firearms, you would quickly recognize this revolver as the "cowboy gun" from the movies. This is a misnomer, as it was invented and patented in 1871 and manufactured by Colt's Manufacturing Company for the U.S. Cavalry beginning in 1873. It was purchased by the military for a brief period from 1873 through 1897, was the official sidearm for the Army during the Indian Wars, but won early acceptance by civilians. In both military and commercial markets, the revolver, in various barrel lengths, was a large success. You may be familiar with the World War Two photo of Gen. Patton wearing a nickel-plated Colt SAA as his unofficial sidearm.

José Brito's Colt revolver was manufactured for

black powder cartridge use and while capable of being operated today, it would be pointless to do so and should not be fired again to avoid risk of damage. It is a military and family history artifact that has been passed on to younger generations. Because of small production there is a scarcity of Colt Single Action Army "Martial" revolvers. Martial Colt SAA revolvers were purchased by the military for about 24 years. They are stamped with a prominent "U.S." on the left side of the frame and have other U.S. Army Ordnance inspector markings known as "cartouches." José's pistol was one of 8,000 made in 1891 for civilian and military use. It was discovered that there is a sub-community of collectors that seeks antique arms identified to individuals. Not only do collectors seek martial arms of specific manufacturers, models, conflicts, dates and eras, certain collectors specialize in items that are documented as issued to named soldiers. Therefore, the José Brito revolver has much scarcity as a U. S. Army Artillery Model used in the Spanish American War and is listed as issued to José Brito. As an extreme example in the military collector community, Gen. John Pershing's documented Cavalry Model Colt SAA was available in 2010 for \$106,000.

As you may be aware, Frank and José never went to Cuba, but stayed in Tampa, Florida. Not all the 1st U.S. Voluntary Cavalry troopers made the voyage from Florida to Cuba because of lack of space on the ships. Also, Roosevelt considered the Brito brothers more valuable as jailors because they could speak, read and write Spanish. They worked in the stockade and tended to Spanish prisoners and also cared for the many horses that could not be transported to Cuba. Remaining behind in Florida bitterly disappointed the brothers.

Because of their assignment, the revolvers never made it to Cuba. However, José's likely made it to the Philippines and was possibly used in combat because documentation shows it may have been refurbished at the Manila Arsenal. Unfortunately, José did not return to the U.S., but his revolver did. Undoubtedly, José was required to turn in his revolver at Camp Wikoff, NY after service in Florida and it would have been recalled by the arsenal for refurbishing. José left New York for Pinos Altos and a brief rest after mustering out of the Rough Riders on September 15, 1898 and before reporting for duty to the Philippines via San Francisco. It is well documented that U.S. soldiers shipping out to the Philippines left via Fort McDow-

ell on Angel Island in the San Francisco Bay.

Arriving in the Philippines, the U.S. Army soldiers were issued a Model 1892 Colt double action revolver in .38 LC caliber. It was a weak cartridge and often took several shots to stop a charging Philippine rebel. Many U.S. soldiers were killed

THE UNITED STATES OF AMERICA.

Territory of *New Mexico* } ss.
 City or Town of *Santa Fe* }

I, *Jose Brito*, born in *El Paso*, in the State of *Texas*, aged *24* years and _____ months, and by occupation a *cowboy*, DO HEREBY ACKNOWLEDGE to have voluntarily enlisted, this *6th* day of *May*, 189*8*, as a **SOLDIER** in the VOLUNTEER ARMY OF THE UNITED STATES OF AMERICA, for the period of **TWO YEARS** unless sooner discharged by proper authority: And do also agree to accept from the United States such bounty, pay, rations, and clothing as are or may be established by law. And I do solemnly swear (or affirm) that I will bear true faith and allegiance to the **UNITED STATES OF AMERICA**, and that I will serve them honestly and faithfully against all their enemies whomsoever; and that I will obey the orders of the President of the United States, and the orders of the officers appointed over me, according to the Rules and Articles of War.

Subscribed and duly sworn to before me this *6th* day of *May*, A. D. 189*8*
Charles L. Cooper
 Captain, 10th Cavalry
 Recruiting Officer.

I CERTIFY That I have carefully examined the above-named man agreeable to the General Regulations of the Army, and that, in my opinion, he is free from all bodily defects and mental infirmity which would in any way, disqualify him from performing the duties of a soldier.
A. A. Surgenon
 Enrolling Officer.

I CERTIFY That I have minutely inspected the above-named man, *Jose Brito*, previous to his _____ enlistment, and that he was entirely sober when enlisted; that, to the best of my judgment and belief, he fulfills all legal requirements; and that I have accepted and enlisted him into the service of the United States under this contract of enlistment as duly qualified to perform the duties of an able-bodied soldier, and, in doing so, have strictly observed the Regulations which govern the Recruiting Service. This soldier has *dark brown* eyes, *slight* hair, *dark* complexion, is _____ feet _____ *9 1/2* inches high.
Charles L. Cooper
 Recruiting Officer.

José Brito's enlistment papers. Note that Captain Cooper had to swear that José was not drunk and was "duly qualified to perform the duties of an able-bodied soldier." (Author's collection.)

and injured before the wounded rebels expired. After several officers complained, the Ordnance Corps resurrected the thought to be outdated 1873 Colt SAA revolvers in .45 caliber and shipped them to the Philippines replacing the weaker guns. The Spanish American War in the Philippines was the last conflict where the Colt SAA was in official use. At the end of the Spanish American War, the Colt SAA revolvers were turned in, warehoused in Armory vaults and eventually sold to the public. The Colt SAA as a military sidearm was replaced by the semi-automatic Colt Model 1911 in .45 caliber.

José's enlistment record shows he was born in El Paso, Texas in 1864. His mother, Ancelma, lived there or more likely in nearby San Elizario while his father, Santiago, worked the gold mines in Pinos Altos, New Mexico about 160 miles distant. As a Janos trooper, Santiago had a connection to the Presidio in San Elizario, Texas and lived there several years. Pinos Altos lacked the comforts or necessities for Santiago to raise a family with three children and though a Janos Mission-educated Apache himself, this mining camp was unsafe due to the Apache Wars. When Pinos Altos became more settled (likely the mid 1870s), Santiago's wife and children (Estanislada, Estéfana and José) joined him to live in a house (still in use) across from the blacksmith shop.

As a single man in 1886, José served as a police officer in Georgetown, a silver mining town of 1,200 people just northeast of Silver City. Only rock foundations, dirt streets, prospect holes and mine dumps remain of Georgetown. Retired Police Chief and Santiago Brito descendant Tommy Ryan of Silver City has visited and shown family members the foundations of the store where José fell unconscious after being stabbed by a drunk he was attempting to arrest. There are four news articles in Silver City newspapers about José's adventures in Grant County.

Leaving New Mexico about 1893, José moved to Los Angeles at age 29 where he had his photo taken at the downtown plaza next to the La Nuestra Señora Catholic Church. Shortly thereafter,

he moved north to Kern County, California and was a miner in the town of Keene in 1894 in the Tehachapi Mountains east of Bakersfield. José moved south back to Los Angeles in 1896 and listed his occupation as a laborer. There is an elementary school built over the address he gave as his home. He rejoined his family in Grant County, New Mexico to work as a cowboy with his brother, both subsequently enlisting in the Rough Riders in 1898.

Genealogy files contain José Brito's military enlistment contract, pay and mustering out copies for the Cuban period obtained from the National Archives (NARA). More problematic has been obtaining his records for the Philippine Insurrection. In a third attempt using different terminology to obtain José's Philippine military file, they were unable to locate his records. José's height has been listed variously at 5 feet 9 7/8 inches and 6 feet with brown eyes and black hair. In both Kern and Los Angeles Counties, he was a voter, his name appearing in the Great Registers.

Did José Brito die in combat with the Philippine Moros? Did he enjoy the Philippines and desert the Army to raise a family? His niece Anselma Mendoza said there are family rumors to that effect. Whatever the answer is, José disappeared there and he left us no clues. All we have to remember him by are a photo and his revolver.

Frank J. Brito is the grand-nephew of José Brito and the grandson of Frank C. Brito. He collects family artifacts and has researched the history of these two Rough Rider brothers. Puzzled with the loss of José in the Philippines, he has walked in his footsteps in two states and pored through archives hoping to find his resting place, thus far to no avail. A retired banker, Frank has written articles on California history, his family and the account of a World War Two submariner.

[RETURN](#)
[to](#)
[TABLE OF CONTENTS](#)

Cleared For Take Off: Aviation In Southern New Mexico

By Jennifer McClung

When I was tasked with researching and developing an exhibition about the history of aviation in southern New Mexico for the Las Cruces Museums, I initially did not think there would be much history beyond the usual growth of civilian aviation found across America after World War II. However, I was pleased to discover that small communities such as Columbus and Deming played a major role in military aviation in 1916 and World War II, respectively.

Additionally, as Cruces has deep roots in aviation with an early civilian airfield and the state college teaching air mechanical skills that would service military aircraft during World War II. After the war, a close-knit group of aviators enjoyed the comradery and freedom that flying offered. At the end of my research, I discovered that, while flying has changed in many ways over the years, those who embrace the open skies never seem to.

1st Aero Squadron

The first presence of “aeroplanes” in southern New Mexico was noteworthy enough that it was

specifically noted in an *El Paso Herald* newspaper column.¹ Curious Columbus, NM residents were witnessing airplanes from the 1st Aero Squadron, the oldest U.S. military flying unit, formed in 1913. It also became the first aviation unit to participate in military action after political unrest in Mexico crossed into the United States when Mexican rebel leader Francisco “Pancho” Villa and roughly 500 supporters crossed the border at Columbus and raided the town on March 9, 1916. The attack left eighteen Americans dead, and parts of the town looted and burned.²

The squadron arrived on March 15th with eight Curtiss JN-3 “Jenny” bi-planes, eleven pilots and 82 enlisted men.³ Their flight on that day marked the first time American aircraft were used in military operations. However, it soon became apparent that the Jenny’s 90 horsepower engines were ill-equipped for the weather, terrain, and high mountains found in the Chihuahua desert. Because of this, the squadron’s mission shifted to performing aerial reconnaissance and photography, and transporting mail and official dispatches.



First Aero Squadron “aeroplanes” in Mexico, 1916. (Image courtesy of Fort Sam Houston Museum, PUNEX-1st Aero on Ground in Mexico.)

Serving the military expedition in this way, they flew 346 hours over the course of 540 flights that covered more than 19,300 miles.⁴ This experience helped refine the military's use of aircraft, which soon proved valuable in World War I.

The arrival of the Punitive Expedition forces had a tremendous, if temporary, impact on the small town of Columbus, which sits only three miles north of the border. At the time of Pancho Villa's raid, its population was approximately 300 people. The assembled Punitive Expedition forces swamped the town as it grew to some 4,800 men. It filled an area on the outskirts of town with all the necessary buildings, outbuildings, tents, vehicles and machinery, and 4,175 animals to support and feed the men.⁵

Deming Army Air Field

Like all of America, the Borderlands experienced changes brought about as the nation geared up for World War II. Less than a year after the Japanese bombed Pearl Harbor, the Deming Army Air Field (AAF) was activated on November 15, 1942, as one of more than a dozen bombardier training bases in the U.S. As with Columbus, Deming was a small town of 3,608 in 1940, and the Deming AAF ended up stationing between 8,000–9,000 men at the large base to support the cadets.⁶ This change happened so quickly that when Tom Watson, Secretary of the Deming Chamber of Commerce, made note of a tour he took of the new base and its facilities in September 1942, he wrote in amazed terms, "One can hardly realize that only a few weeks ago this location was full of mesquite bushes and overrun with rabbits. Now it is a model and beautiful camp..."⁷

The first class of cadets arrived December 12 and graduated on March 6, 1943; by the time the AAF closed in December 1945, some 12,000 bombardier cadets were graduated.⁸ Classes lasted eighteen weeks and cadets were trained in a hangar on an elevated simulator with a bombsight on top. The cadet would propel the simulator across the hangar floor, using the knobs on his sight. A target was mounted onto a moving box and when



Beech AT-11 dropping sand-filled bombs at target. (Image courtesy of Creative Commons, Army Air Forces Collection, Deming Army Air Field 1943-12 Class book.)

the cadet positioned the simulator over the target a trigger would mark it.⁹ Cadets eventually advanced to a twin-engine Beech AT-11, fitted with a Plexiglas nose and bomb bay. Along with two cadets, the pilot, and instructor, the airplane carried ten 100-pound sand-filled bombs with a small spotting charge in their tails. Their targets were 24 graded, bulls-eye targets in 960 acres of open land between Deming and Las Cruces.¹⁰ The concentric circles were set at 500-, 300-, 200-, and 100-foot increments with a large wooden pyramid in the center for daytime training and a lit cross for night training.¹¹ Cadets used the highly secret, state-of-the-art Norden bombsight in these active practices.

One student's job was to sight and drop half the practice bombs, with scores tallied for each hit, while the other student filmed the drops. They would switch places and repeat the process.¹² After graduating, bombardiers were assigned to flight

crews across the U.S. and spent several months more training in operational bombers, mostly B-17s or B-24s, before being deployed overseas.

After the war ended, the Deming AAF base was closed and turned over to the city of Deming.¹³ Many of the larger buildings and hangars remain and have been used as period movie sets, most notably for *Indiana Jones and the Crystal Skull*, and several of the training bulls-eye targets are still visible from the air.

Highway 70 Airstrip

New Mexico College of Agriculture and Mechanic Arts (NMA&M) (now New Mexico State University) had a significant role in World War II aviation with the training of civilian pilots and air mechanics. Its first step was the establishment of an airstrip on Highway 70, about seven miles east of Las Cruces, that consisted of some 400 acres that included a landing field and hangar.¹⁴ Originally, the airstrip was an emergency landing area for the Civilian Aeronautics Administration (CAA); it later served as training space for participants in the Civilian Pilot Training (CPT) program run by NMA&M.



Highway 70 airstrip hangar, 1940. (Image courtesy of New Mexico State University Library, Archives and Special Collections, A74-061-1275.)

The hangar, officially unveiled on September 25, 1940, did not stand for long. Early in the morning on January 30, 1941, the hangar, constructed with wooden ribs and covered with corrugated roofing, collapsed after 80 mph winds blew for hours from the southeast. Pilot instructor Nell Ruth Roughton and air mechanic Robert

Chamberlin watched as the building collapsed, with pieces of the hangar later found more than a quarter of a mile away. Four planes were damaged and plans for CPT program for that semester were put on hold.¹⁵

In April, the NMA&M Regents approved rebuilding the hangar with state and federal Works Progress Administration funds.¹⁶ This one was built with reinforced concrete blocks and wood trusses and consisted of the main hangar with an adjoining office, shop and dope room, and locker room.¹⁷ It was heavily used until 1943 when a new airstrip was built on the NMA&M campus. Eventually the Regents determined the airstrip to be too far from campus and in poor condition, so they abandoned it in the late 1940s. By 1951, the Highway 70 airstrip was no longer listed in airfield directories, but the hangar still stands and currently is used as a church.

University Campus

As a teaching institution, NMA&M's role in instructing men and women for critical air mechanic support services was as important to the war effort as training pilots. As early as 1939 plans were developed to implement a civilian pilot training program and an air mechanics laboratory.¹⁸ The Air Mechanics laboratory was built in 1941 and consisted of an aircraft laboratory, welding room, engine laboratory, classroom and other support facilities.¹⁹

As the number of male students declined due to being drafted, female students became involved in the Air Mechanics program and by 1944, the students were almost exclusively women. They took courses in aircraft riveting, aircraft mechanics maintenance, aircraft engine maintenance, aircraft instrument repair, arch welding, and machine shop.²⁰ The students built, repaired, and maintained airplanes including



South side of Air Mechanic Laboratory with assorted airplanes, circa 1944. (Image courtesy of New Mexico State University Library, Archives, and Special Collections, UA03440001)

the Lockheed Vega, Aeronca C-3, Taylorcraft, and Buhl Pup.²¹

To meet the needs of the air training program, the college regents opened a campus airstrip in 1943, and expanded it by 100 acres a year later.²² However, the airstrip was not fully utilized until after the war when it served both the university and local pilots. The university used it for its Reserve Officers' Training Corps (ROTC) program and for university-related travel, while Las Cruces residents used it for pleasure and business.

Men like Robert "Bob" Crawford offered classes to veterans under the G.I. Bill so they could obtain civilian pilot licenses. But as the land to

the east of the university changed, due to the construction of the interstate and Memorial General Hospital, and facing the cost of necessary upgrades, university regents decided to close the University airport in 1971, much to the dismay of local pilots, many of whom had fond memories of learning to fly using that airstrip.²³

The Air Mechanics Laboratory still stands on the NMSU campus, now as the Biology Annex, at the corner of Stewart Street and Williams Avenue. The associated airstrip was located just south of Stewart Street and ran east to where Aggie Memorial Stadium currently is.

Downtown Airport

A small, city-owned airport on the east side of Las Cruces was established in 1939. Located east of the intersection of North Solano Drive and East Hadley Avenue, newspaper reports describe the Downtown airport as being "scraped out of the desert" by city leaders who thought it was impor-

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PAGE TWENTY-ONE

Advertisement for Crawford Flying Service, 1946 (Image courtesy of Morris Drexler.)



Aerial photograph of the Downtown airport, looking southeast, circa 1950s. The “A” on Tortugas Peak is very visible on the right near the top. (Image courtesy of Morris Drexler.)

tant to have an airport close to downtown.²⁴ However, the addition in 1943 of the University airport and the Army airport west of town resulted in the smaller airport being neglected, causing local pilots in 1944 to petition the city to improve and expand it, which they did.²⁵

Nevertheless, it wasn't until after the war, when Robert “Bob” Crawford took the reins of running the airport in 1947, that the Downtown airport flourished, becoming an active airfield and watering hole for local pilots to stop over and share stories and their knowledge. Crawford became uniquely associated with this airport, serving as the airport operations manager for twenty years, 1947-1967, and operating a carrier service, crop dusting service, and a flying school from there. Crawford's reputation as a calm pilot and flying instructor earned him the dedication of the countless local pilots he taught, including Lela Carwar-

dine, Morris Drexler, Joe Gold, Mel Rennekar, Cal Traylor, and Jim Boykin.

For a while the land surrounding the airport was empty space with only National Guard facilities nearby. However, as the postwar housing boom started filling up empty lots around the airport, more pressure was put on the airport to close. By 1961 the city was examining ways to deal with the property and by Spring 1967 the city had decided to close the airport after a Chamber of Commerce report indicated that there was no commercial interest in developing the airport. It also noted Federal Aviation Administration concerns about the airport's location near a densely populated area.²⁶ On December 31, 1967, the airport was closed with all airplanes ordered to be removed by January 15th.²⁷ Some pilots took their airplanes to the West airport but those who went to the University airport only had three years

before it too closed, and the West airport was all that remained.

There is nothing left of the Downtown airport. Starting in 1973, the city turned the land into an extensive recreational area, that now includes the Meerscheidt Recreation Center, a dog park, baseball fields, a BMX course, a skate park, and other outdoor activity areas.

West Airport

The West airport originally began as an airstrip that was built between 1942-1943. It was constructed by the U.S. Army, but in close coordination with Las Cruces city leaders, who held a 4th of July inaugural celebration when it was finished. Later in 1943 the city leased the airstrip to the War Department to serve as an auxiliary landing field for the Deming Army Air Field.²⁸ It hosted an 8,500-foot runway that was long enough to land a B-29 airplane, the largest U.S. bomber at the time. Training for B-29 crews took place at the Alamogordo Bombing Range at the close of WWII.

After the war the city resumed possession of the airstrip and began upgrading it to include all facilities and services needed in a modern airport, leading to the Civil Aeronautics Authority approving the airport in October 1948.²⁹ It was officially dedicated on October 31, 1948, with a gala air show consisting of military and civilian aircraft, flying and landing contests, stunt flying, and airplane rides.³⁰

Currently known as the Las Cruces International Airport, for a period of time it was named after local aviator Bob Crawford. After his death in 1976, the local flying community pressed the city to rename the West airport in his honor. It was renamed the Las Cruces Crawford Airport in 1977 and carried that name until 1984 when the city's



Bob Crawford in 1976. (Image courtesy of Morris Drexler.)

Airport Advisory Board recommended that the name be changed to better reflect its desire to be a permanently recognized international airport. The airport officially became Las Cruces International Airport, KLRU, in 1985.

During the early years of its operation, when civilian flying and carrier airlines provided new and unusual opportunities to the public for flying, the West airport was a busy hub, hosting a series of regional carrier airlines and civilian pilots. Pioneer Airlines established itself at the airport in



Aerial photograph of the West airport, circa 1968. (Image courtesy of Morris Drexler.)

early October 1948 and used it as an anchor for its southwestern routes in New Mexico, Texas, Colorado, and Arizona.

The city continued to make improvements and addressed the needs of pilots by adding hangars when the Downtown airport was closed in 1967 and again in 1971 when the University airport closed. In 1979 a new terminal building was added and other improvements were made.³¹ However, as the love affair between Americans and their cars grew, the demand for short-distance air travel declined, leading to periods where commercial airport use waned. Currently there are no commercial services, but chartered flights regularly serve businesses and NMSU athletic teams and faculty.

Additionally, the airport serves an important community role as it is used by the local Civil Air Patrol squadron, and the New Mexico Army National Guard C Company, 3rd Battalion, 140th Aviation Regiment. The U.S. Navy's Training Air Wing 4, stationed out of Corpus Christi, Texas, cyclically uses the airport for its winter training. NMSU's Physical Science Laboratory Unmanned Aerial Vehicle (UAV) program has a hangar and test-flies their UAVs. The Experimental Aircraft Association (EAA) Chapter 555 also maintains a hangar and test-flies its aircraft at the airport.

With increasing public interest and financial investment in sub-orbital, commercial space flights, the future of aviation seems to be moving into a new and exciting era. The 106 years of aviation history in the Borderlands will serve to anchor this new age of flight, while allowing for new possibilities and new interpretations of what aviation looks like. With Spaceport America located only forty-five miles away from Las Cruces, it seems that the Borderlands will have a unique place to witness this advancement in flight.

Jennifer McClung is a Museum Curator-Exhibits at the Las Cruces Museums. She holds a Bachelor of Arts in History and Anthropology from Texas State University, and a Master of Arts degree in Museum Science from Texas Tech University. She has actively worked in the museum field since the early 1990s, and still finds researching topics and developing engaging exhibits stimulating and fun.

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[RETURN](#)
[to](#)
[TABLE OF CONTENTS](#)

A View Of Turn-Of-The-Century Las Cruces: Neale Family Photographs

By Dennis Daily

In 2021, the Doña Ana County Historical Society was contacted by Jerry Elder about a set of early Las Cruces photographs that had been handed down in his family. Jerry, who lives in the Southeast U.S., said he was interested in donating the photographs to the DACHS. Since DACHS does not have a location to house collections of photographs, documents or artifacts, Mr. Elder was encouraged to contact the New Mexico State University Library Archives and Special Collections. The result was the donation of 20 unique photographs of Las Cruces made in 1899 and 1900. Jerry had an interesting family story about the making of these 20 Las Cruces photographs.

Jerry's great-grandfather, Charles Fulton Neale, was a livestock broker around Springfield, Washington County, Kentucky, specializing in matched carriage horses. He was born in 1871 and according to the Springfield News Leader, was a "well-known and popular young man of the county... who won the respect of all with whom he came in contact."¹ In 1892, he married Katharine Meadows and the couple had a daughter, Katharine Elizabeth (Eliza) Neale – Jerry's grandmother. The Neales had been married a few years when Charles was diagnosed with tuberculosis, the dreaded lung disease that was the leading cause of death for Americans throughout the 19th and into the 20th centuries, responsible for an estimated one of every five deaths.² The family doctor advised Neale to go to Las Cruces to seek the cure.³

The American Southwest, with its high altitude, dry climate, and abundant fresh air, became a magnet for health seekers during the late 19th and early 20th centuries, particularly those suffering from TB. California, Colorado, Arizona and New Mexico were particularly popular destina-

tions for those seeking relief from the disease and an industry of TB sanatoria and hospitals sprang up across the region to meet the demand. Tuberculosis became one of the leading factors of western migration at the turn-of-the-century.⁴

Las Cruces was home to two noted sanatoria, the Alameda Ranch and Van Patten's Mountain Camp at Dripping Springs in the Organ Mountains. Both started as resorts but were converted officially into sanatoria in 1904 and 1917 respectively. The Alameda Ranch sanatorium was operated by Dr. Robert McBride and the Dripping Springs sanatorium by Dr. Nathan Boyd, both of whom had wives who suffered from TB.⁵

Charles Neale and his family arrived in Las Cruces in 1898 and spent a little more than a year here. They may have been residents at the Alameda Ranch, as one blurry photograph in the collection bears the handwritten inscription "The Alameda Sanitarium, Las Cruces, N. Mex. 1900." Charles' health did not improve during their 18-month stay in Las Cruces, and upon his doctor's advice the family returned to Kentucky. The Springfield newspaper reported on April 12, 1900, "Mr. and Mrs. Charlie Neale and little daughter arrived here Monday from Las Cruces, New Mexico, where they went about 18 months ago. The climate did not prove as much benefit for Charlie's health as was hoped for so he was brought home."⁶ Charles Neale's obituary appeared in the paper two months later. He was 29.

Charles F. Neale, who was a well-known and popular young man of the county, died at the home of his father, Mr. F. R. Neale, in the Pleasant Grove neighborhood on last Friday morning after a long illness of consumption. The deceased was about thirty

years of age and was born and reared in this county, where by his upright and moral character he won the respect of all with whom he came in contact. About a year and a half ago, his health becoming very bad, he went to New Mexico, but did not improve and returned home several weeks ago. His condition appeared to improve somewhat since his return until a few days before his death, when he became suddenly worse. In the fall of 1892 the deceased was married to Miss Katie Meadows and she and their little daughter survive.”

Jerry believes that during their brief time in Las Cruces, either Charles or Katharine Neale took the photographs that he donated to the NMSU Archives. They depict people and scenes around Las Cruces that were typical of this border community, but must have seemed exotic to the Neales. Whether the photographs were taken by the Neales or someone else is difficult to know. The photographs are mounted on typical ornate boards of the time. These types of mounted photographs often were sold in local art shops or photography studios as souvenirs, but the Neale family photos do not bear any studio stamp. Two of

the photographs match identically to two photographs already in the NMSU Archives, indicating that they are not unique to the Neales. For now, the authorship of these early Las Cruces images remains in question. Thankfully, each photograph bears a handwritten note, in pencil, on the back of the card to which it is affixed, with a description of the scene, the location, and the year.

Regardless of their authorship, the photographs provide an important glimpse into turn-of-the-century Las Cruces that is difficult to obtain from other sources. Of particular note are photographs that depict local vendors of firewood and fruit, with their burro or ox-drawn carts, depicting



This image labeled as “Typical Mexican Dwelling” No. 1, Front, Las Cruces, N. Mex., 1900 is shown here with its mat. (Neale family photographs, RG2021-011-001)

a style of commerce that must have been typical among Mexican residents of the border region during the 19th century.

Also important are several photographs depicting Matachin dancers performing in front of St. Genevieve Catholic Church for the December

12 feast day of the Virgin of Guadalupe. These dances were common among the Mexican population in the Mesquite neighborhood of Las Cruces and still can be seen at the annual dances held at Tortugas. Photographs of these dances at the St. Genevieve church are very rare.

The photographs are presented here with verbatim transcriptions of the handwritten notes on the backs of the cards, probably made by Mr. or Mrs. Neale. The mount cards have been removed for these reproductions.



Mexican wood vender - team of Texas steers. Cotton wood – sold at 75 cents and \$1.00 per load, Las Cruces, New Mexico, 1900 [Author’s Note: in the background is the sprawling home of the Martin and Refugio Amador family.] (Neale family photographs, RG2021-011-002)



Fruit vender, Las Cruces, N. Mex., 1900 [Author note: At left, behind the cart, can be seen an adobe home in mid-construction. The photo was made in the area of Pioneer Park and the old Doña Ana County courthouse is seen in the distance.] (Neale family photographs, RG2021-011-003)



A Good aim, Chicon - Pueblo Indian, Organ Mountains, N. Mex., 1900 (Neale family photographs, RG2021-011-005)



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Pueblo Indians Dancing before church - La Iglesia Catholica. Las Cruces, N. Mex., Dec. 12, 1899, Fiesta de la Senora Guadalupe (Neale family photographs, RG2021-011-009)



Main Street, Las Cruces, N. Mex., 1900 (Neale family photographs, RG2021-011-010)



Mexican wood venders. Burro team, Mesquite wood – dug out of ground – taking several days to procure full load – hauled twenty miles and sold at from \$1.00 to \$1.25 per load. Las Cruces, N. Mex., 1900 (Neale family photographs, RG2021-011-011)



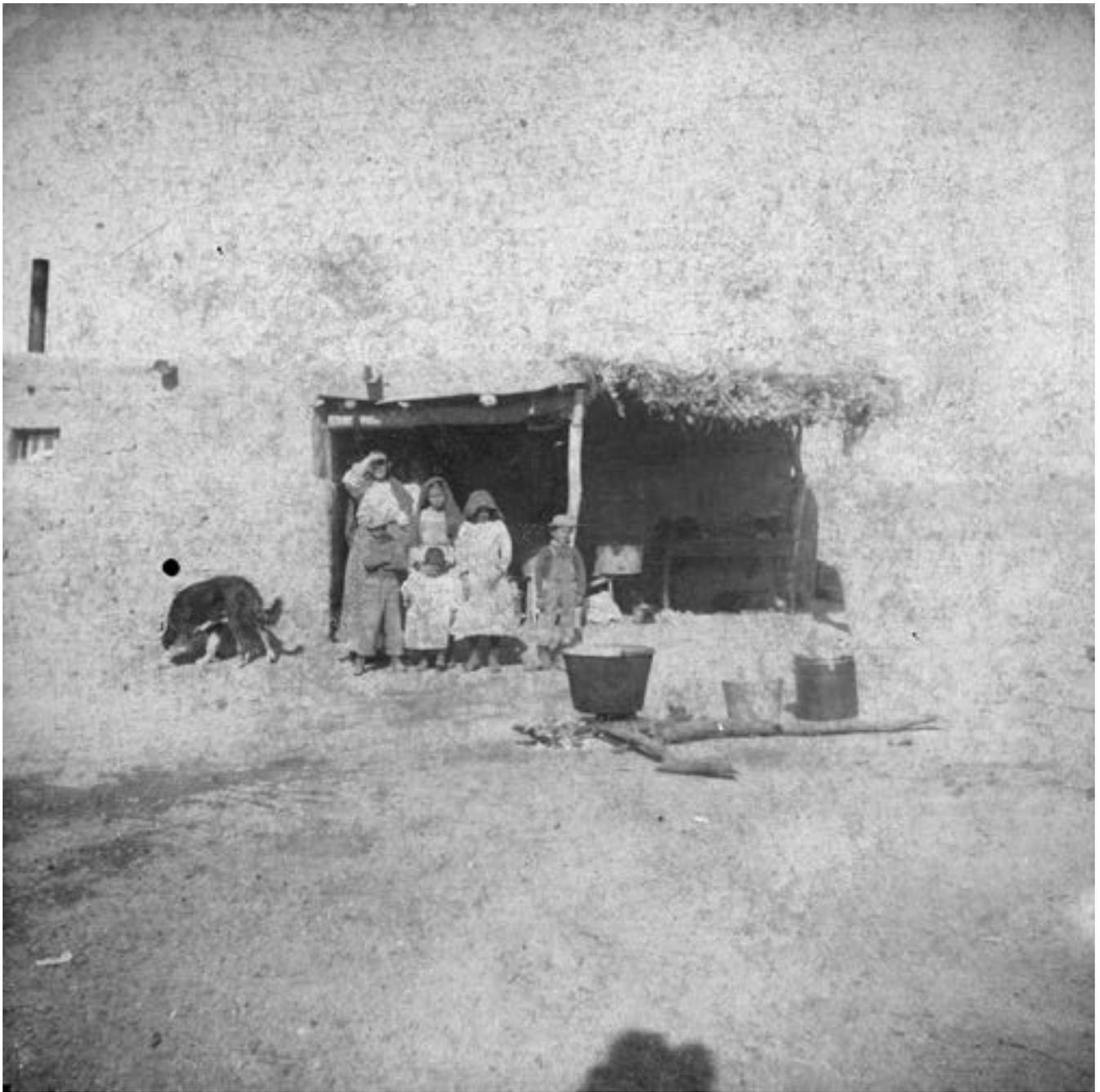
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Paulina Garcia and family, Las Cruces, N. Mex., 1900 [author note: Paulina Garcia was granddaughter of Martin and Refugio Amador. Photo was taken on the porch of the Amador home] (Neale family photographs, RG2021-011-016)



Typical Mexican Dwelling, No. 2, Rear, Las Cruces, N. Mex., 1900 (Neale family photographs, RG2021-011-017)

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Endnotes

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[RETURN](#)
[to](#)
[TABLE OF CONTENTS](#)

Pigeons And The Punitive Expedition

By Elizabeth G. Macalaster

When the U.S. Army was ordered to Mexico in 1916 to pursue Francisco “Pancho” Villa, the Signal Corps faced treacherous and unpredictable conditions; they used every trick in their communications book to stay connected, including homing pigeons.

Revolutionary-cum-bandit Pancho Villa had been a key figure in the Mexican Revolution (1910-1920), backing first one regime then another. In 1913, Villa fought under Venustiano Carranza to oust the dictator Victoriano Huerta, but later he broke ties with Carranza and became his rival. The U. S. government recognized Carranza as Mexico’s authority, allowing him to use U. S. railroads to conspire against Villa. Once friendly toward Americans, Villa now felt betrayed. He may also have sought to provoke the U.S. to invade. That way, he could rally people to rise up against America—and he, not Carranza—would be the national hero. Whatever his reasons, in 1916 in two separate raids, he killed more than 30 Americans.

On one of these raids, on March 9, 1916, Villa and 500 of his men swept into Columbus, New Mexico, three miles from the U.S.-Mexico border. Under early morning darkness, they attacked both the town and Camp Furlong, an adjacent army base. The Villistas ransacked stores, hotels and homes, set fires and shot at people indiscriminately. Although the Camp Furlong

soldiers reacted quickly to the surprise attack, 10 American civilians and eight soldiers were killed.¹ Villa retreated back to Mexico and dispersed his forces.

President Woodrow Wilson had had enough. He sent Brigadier General John J. Pershing, stationed at Ft. Bliss, Texas, to hunt down the bandit. Called the punitive expedition, the pursuit party consisted of horse calvary, infantry, artillery, and initially, about 4800 troops.² Pershing set up his base at Camp Furlong and reorganized his forces into two calvary and one infantry brigade, plus support units including the Signal Corps, which formed three field signal companies and commanded the 1st Aero Squadron.

Established in 1860, the U.S. Army Signal Corps was dedicated solely to communications, and it was always investigating something new, some better way of transmitting messages. With the invention of electrical telegraph in the 1830s



General Pershing, third from left, with a group of reporters at Camp Furlong before his expedition into Mexico. (Deming-Luna Mimbres Museum Archive.)

and 1840s, the Corps moved rapidly beyond voice command, flags, flares, heliograph and balloons. By the time the Signal Corps served in the punitive expedition, they were using telegraph, telephones, radio, and buzzer phones, a combination telephone-telegraph, as well as some older forms of signaling.

Camp Furlong was Pershing's Command center with forward headquarters in Colonia Dublán, about 116 miles into Mexico. The Signal Corps' challenge was to maintain communications between Columbus and Colonia Dublán and even farther into Mexico as Pershing's troops advanced. Lead by Captain Hanson B. Black, the Signal Corps faced barren, mountainous terrain and a climate that changed from heat and dusty winds to rain and hail. The signal soldiers employed both wire and wireless communications, but were constantly met with mishaps. Radio was unreliable and the equipment large and heavy. Wagons hauling the apparatus couldn't keep up with the fast-moving calvary. The bare wire the Corps laid on the ground shorted out in wet weather, and even insulated wire was cut by animal hooves or sabotage.

For the first time, the Signal Corps turned to airplanes to ferry messages and mail between Columbus and Colonia Dublán and to conduct reconnaissance flights. On March 19, 1916 Captain Benjamin D. Foulois arrived at Columbus with Curtiss Jenny biplanes powered by 90 horsepower engines. But flying proved dangerous in the Mexican mountains where the fragile and under-powered planes couldn't handle the high altitudes and strong winds. And, the dry climate warped and split the wooden propellers. After a month into the expedition, only two of the initial eight planes were in service, and the replacements didn't fare much better.³

The Signal Corps tried out another winged service to carry messages, one that was nearly immune to altitude, weather or terrain. The U.S. Army's trials with homing pigeons began during the Indian Wars when General Nelson A. Miles flew them successfully in 1878 from Fort Keogh



A typical homing pigeon. (Photo by Denis Doukhan, Pixabay.)

in Montana. The Army also established an operational flock at their Key West, FL barracks in 1888⁴ and continued to use pigeons on a trial basis during the Spanish-American War. Despite more than 20 years of success, the Army had no pigeon or pigeoneer training program, nor an actual pigeon messenger service at the time of the punitive expedition.

Nonetheless, plenty of evidence points to their use in the hunt for Pancho Villa. The Signal Corps' exhibit at the Pancho Villa State Park Museum at the site of Camp Furlong includes a wooden transport cage. This cage would have carried several birds into Mexican territory either via horseback



Trucks and men at Camp Furlong preparing to enter Mexico in pursuit of Villa. (Wikipedia.)



Map of southern New Mexico, SW Texas and the Mexican state of Chihuahua invaded by Pershing and his forces. (Wikipedia)

or truck. Soldiers would have inserted a message written on lightweight paper into a metal capsule on a pigeon's leg, then released the bird to fly back to its loft at Camp Furlong.

An August 1916 Yuma, AZ newspaper article states that 50 birds were sent on the expedition.

Columbus, Aug. 24—Carrier pigeons are the latest recruits to the U.S. Army on the border. Fifty fliers donated by the American Carrier Pigeon Association to the U.S. Signal Corps branch at Columbus are enroute. The recruits are of racing birds. After the birds have become accustomed to their new quarters, it is proposed to dispatch a number of them from Mexico to Columbus.⁵

At least two soldiers serving with Pershing, 2nd Lt. Ray R. Delhauer and Lt. John L. Carney, had the expertise to train and handle the birds. Delhauer had been a pigeon expert in civilian life in his home state, California. Carney had been a veteran Signal Corps telegrapher, and before the punitive expedition, had served in the Spanish-American War and the Boxer Rebellion. Both men had worked with pigeons all their lives.

There may have been several reasons for the limited use of pigeons in the expedition, even with expert handlers like Delhauer and Carney to train them. With Pershing moving his troops so quickly, the most likely cause is a lack of time to train the birds. It takes several months for pigeons to grow accustomed to new surroundings and for handlers to train them to fly a route reliably. At first, squeakers, birds only a few weeks old, are released from a point less than a mile away. Close to home, the young birds perfect flight and learn landmarks associated with their loft. Over time, that distance is increased until the birds can fly from 100 miles or more away. The urge to return home to a nest

and mate generates the homing pigeon's intractable power, and nothing but an accident or death (usually in the talons of a hawk or falcon) stops it. To find their way back to their loft, homing pigeons rely on navigational skills based on an internal compass and position of the sun. These skills



Wooden pigeon crate in Pancho Villa State Park Museum, Columbus, NM. (Courtesy Kim Davidson's blog.)

are augmented by superb hearing, smell, and sight, cues that make a kind of sensory map. Wings that beat up to 600 times per minute, for as long as 16 hours without stopping, speed them home at 60 miles per hour. However, it takes time to hone these skills, time Pershing evidently did not have.

In a 1916 *New York Times* article, Vermont pigeon enthusiast Cyrus F. Wicker weighed in on the expedition's lack of pigeon power, claiming that Villa could have been captured if a better organized pigeon service had been employed.

With pigeons in active service I believe we could have gotten Villa; and could not our army—at present I believe almost entirely ignorant of their existence—now advantageously use carrier pigeons with the expedition in Mexico? With pigeons bred, let us say, in twelve of the nearest border towns and distributed among all Americans in Northern

Mexico, the trail of every returning raiding be kept hot and our pursuing troops kept closely and accurately in touch with their every movement.”⁶

Wicker adds, presciently, that airplanes used in the expedition would have served as couriers much more efficiently if they had carried a basket of pigeons and released them to send back a message, instead of landing to report.

While Pershing's pursuit did not capture Villa, the expedition served as an important training opportunity for soldiers and a proving ground to test new methods and equipment, expertise that would soon be put to use in the looming world war. In the pigeons' brief appearance in the punitive expedition, General Pershing must have seen their potential as messengers. Combined with the effective pigeon courier service already in use on the battlefields of World War I, the general had little doubt as to their role in the war.

Upon our entry into the war in 1917, General John J. Pershing, now the leader of the American Expeditionary Force, ordered as one of his first priorities that the Signal Corps establish a pigeon service. Two of his soldiers from the punitive ex-



As suggested in pigeon fancier Cyrus Wicker's newspaper critique on the punitive expedition, American pilots began to use homing pigeons in World War I to carry messages from planes to home base. Here, a gunner with the Signal Corps, Aviation Section, releases a homing pigeon over Ourches, France, 1918. (U.S. Army Signal Corps)

pedition would become key players in that effort. At the start of World War I, 2nd Lt. Ray Delhauer went to Camp Lewis, Washington to take command of that base's pigeon training program, and Lt. John Carney shipped to France to help establish a pigeon service for the American Expeditionary Force.

Under Pershing's command, some 15,000 pigeons served with American fighters on land and in the air. These swift and steadfast soldiers flew through smoke, gas, gunfire, exploding bombs and across large expanses of ocean. When all other communications failed, homing pigeons got their messages through.

Elizabeth Macalaster is the author of *WAR PIGEONS: Winged Couriers in the U.S. Military, 1878-1957*, (McFarland, 2020). She lives on the coast of Maine where she writes about history and science.

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[RETURN](#)
[to](#)
[TABLE OF CONTENTS](#)



Proving The Earth Is Not Flat At White Sands Missile Range

By Jim Eckles

The White Sands Missile Range logo claims the facility is the birthplace of America's space activity. When you consider personnel at the missile range have been sending vehicles into space since 1946, it is hard to argue with the assertion. On July 30, 1946 a German V-2 rocket broke the 100-mile barrier when it carried instruments to measure cosmic radiation. It was a world record for any manmade object at the time and 60 miles higher than the American-made WAC Corporal rockets launched in 1945.

At the time, knowing how strong cosmic rays were in space was essential to any plans to eventually send humans into space. If they were too powerful, spacecraft would need to be shielded to protect the passengers.

This work of non-military, space-related activities has run continuously to the present day at the missile range. Although no humans have ridden a rocket fired from White Sands and no objects have been sent into orbit from there, the steps taken at the missile range have made those things possible. The missile range even played a role in our exploration of the moon.

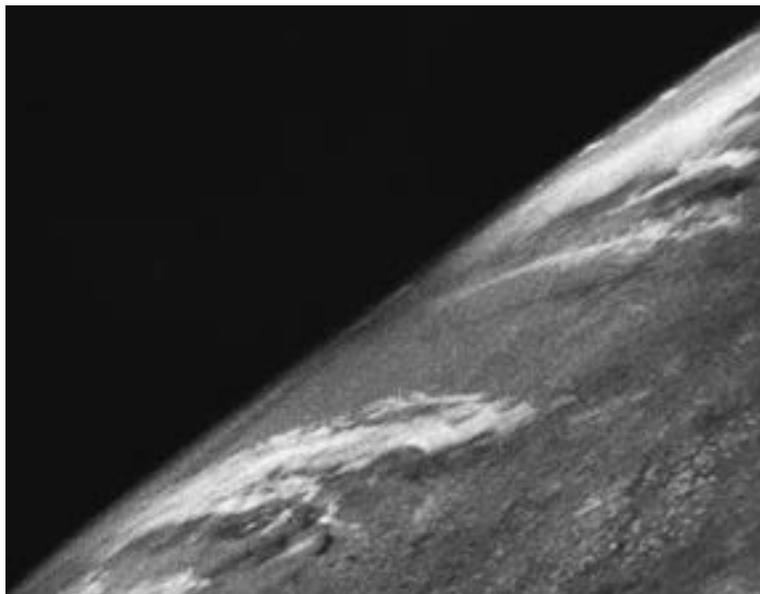
V-2s, The Launch of The Sounding Rockets

When the captured World War II German V-2 rocket components arrived in Las Cruces, N.M in August 1945 to be trucked to the newly established missile range, most people thought it was for military exploitation. But, according to the world famous scientist James Van Allen in a speech given March 26, 1986 at New Mexico State University, a far-sighted ordnance officer, Colonel Holger Toftoy, "had the view that

they might be used for scientific purposes as well, if equipment could be mounted in the warhead in place of the sand that had been planned as ballast."

Toftoy formed the "V-2 Upper Atmosphere Panel" with both military and civilian scientists on board to review payload proposals for V-2 rockets. This led to an eclectic array of experiments that flew on the V-2s. Some of the participants were Johns Hopkins University, Harvard, Princeton, the University of Michigan and the California Institute of Technology.

One of the early payloads to capture the attention of Americans was a flight on Oct. 24, 1946, V-2 #13, that carried a DeVry motion picture camera to an altitude of 65 miles. The published photos showing the edge of the earth against the blackness of space and the cloud formations miles below were instant hits.



This is the first photo of the earth taken from space. It was taken from an altitude over White Sands five times higher than any picture ever taken before.

A few months later, on March 7, 1947, a V-2 carried a camera to an altitude of 100 miles. In this case, the scientists stitched a series of images together to show a million square miles of the earth's surface in one photo. Before the V-2 rocket launches in New Mexico, the highest perch for a camera to look back at earth was 13.7 miles on a balloon in 1935.

Showing the cloud formations over the whole Southwest must have given meteorologists a sense of what might be possible if they could get such images several times a day. Today we think nothing of the satellite images of weather fronts and storms which are the logical conclusion to those early efforts.

In addition to measuring cosmic radiation, scientists collected air samples at various altitudes to see what gases were there and their density. Dr. Charles Green, a scientist with General Electric, the contractor responsible for assembling and launching V-2s at White Sands, was interviewed by the New Yorker magazine about these studies.

He said our knowledge of the upper atmosphere in 1946 was similar to what a fish knows about land. In the article Green pointed out one gee-whiz fact scientists discovered - the distance between air molecules in the upper atmosphere was 370 inches while on earth the distance was one-millionth of an inch between molecules.

There were also biological based experiments

sent aloft. Several experiments were conducted using mammals as test subjects in flights sponsored by the Air Force and Cambridge Research Labs. In the "Albert" series Rhesus monkeys were sent aloft. On the second flight (Albert II), on June 14, 1949, the V-2 reached an altitude of 83 miles, and good heart and respiration data for the monkey was collected. Unfortunately for the monkey, the recovery system (separating the payload from the rocket and then deploying a parachute) failed miserably. The monkey died on impact with the ground.

For the third flight the rocket failed. However, on Dec. 8, 1949 (Albert IV) scientists collected good data from their little astronaut. Although scientists failed to bring back a monkey alive, something that eluded them for several more years, they had valuable respiration and heart data from the flights. In a nutshell, the animals' respiration and heart rates were within normal ranges during the stressful parts of the flights. The results showed that a mammal could survive the extreme G forces at liftoff and the zero gravity experienced at the top or apogee of the flight. This gave scientists confidence that a large mammal like a man would some day safely ride a rocket into space.

Some experiments seem a little strange in hindsight and some didn't go well. On a V-2 launched at night on Dec. 17, 1946, rifle grenades were fired from the side of the rocket. The idea was to make artificial meteorites. The Harvard



This typical V-2 launch was on July 10, 1947 from Launch Complex 33, now a National Historic Landmark. On the left is the Army blockhouse used to protect men and equipment during launches. On the right is the V-2 gantry used to erect the rockets and prepare them for flight. (White Sands Missile Range photo.)

scientist Fred Whipple who established the meteor monitoring sites east and north of Las Cruces had his teams watching for the man-made light show.

The V-2 was launched at 10:12 p.m. and reached an altitude of 116 miles. The grenades were not visible during the test and did not show up on any of the film shot of the event. Decades after this apparent failure, the rifle grenade experiment still gets some play in the blogosphere. No one knows if the rifle grenades even fired since there was no evidence seen from below. But some speculate one of the grenades may have fired and, if it was pointed in the right direction, it or pieces of it could have become the first man-made, earth-orbiting objects.

Often lost in the fanciful discussion about artificial meteors are the facts about this launch. It was the first night firing of a V-2, it attained a very high altitude for such an early firing, and the glow of the carbon vanes was clearly seen by everyone on the ground in the surrounding area.

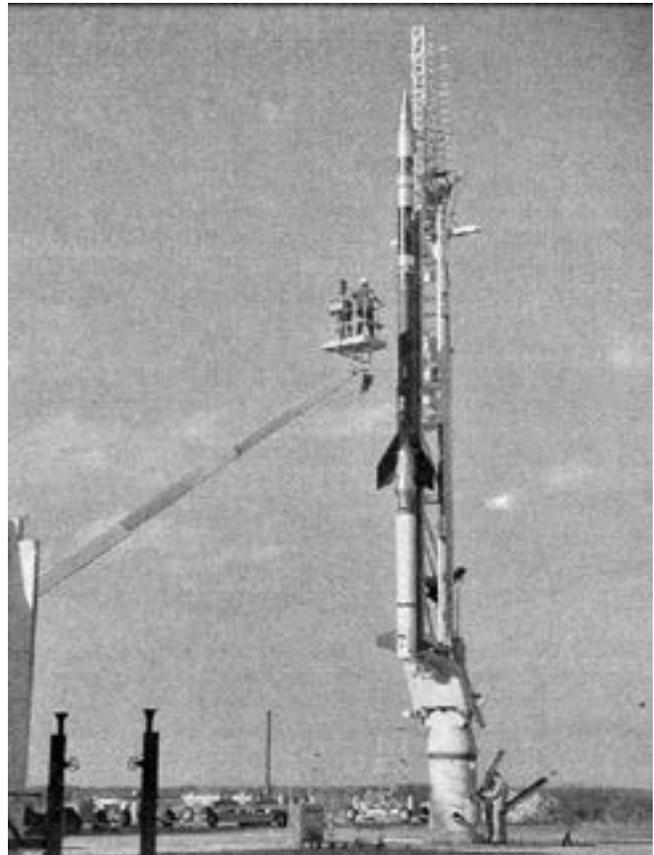
Using rockets to “sound” or explore the upper reaches of the atmosphere on the edge of space has continued through the entire history of White Sands. They are called “sounding rockets” and are a relatively quick and inexpensive way to send instruments into space for short periods of time. It is the longest running program at the missile range.

An excellent example of this high altitude work was the launch of four rockets at White Sands during a two-week period to get a clear look at Comet Hale-Bopp in 1997. The light coming from the comet was much more extensive than what was visible to the naked eye while standing on the earth’s surface. Our atmosphere filters out most of the ultraviolet light, not enough to prevent a sunburn but enough to keep us from being fried. That filtering robbed us of valuable information about the comet’s makeup.

A way around this issue was to send up the instruments in rockets so they were above the atmosphere where they could catch all the incoming ultraviolet light. At White Sands, NASA sponsored four Black Brant sounding rocket launches and timed them as the comet passed only 85 million

miles from the sun. This was the comet’s “perihelion,” its closest approach to the sun.

The first launch was on the night of March 24 with a payload from the University of Colorado. The second launch was on March 29 with a package from the Southwest Research Institute in San Antonio, Texas. The third shot was April 5 with a payload from Johns Hopkins University. The final launch was a rocket with a payload from the University of Wisconsin on April 7. These instruments reached altitudes of between 175 and 240 miles above the earth’s surface and were safely parachuted back onto the missile range at the end of their flights.



The Black Brant rocket and its Terrier booster are prepared for launch on the night of April 7, 1997 for the University of Wisconsin mission. The payload carried a polarimeter that took eight pictures in the ultraviolet spectrum. (Missile Ranger newspaper image.)

Since these shots were non-military in nature, the public was invited to watch the firings each

night. The experimenters were trying to determine the origin of the comet and, possibly, the early composition of the universe. What they learned complemented information gathered from other sources such as the Hubble Space Telescope.

First Manned Space Missions

The missile range did not play a role in America's first manned space flight when Alan Shepard flew in the Mercury Freedom 7 capsule on May 5, 1961. Later, for the Mercury flights where Glenn, Carpenter, Schirra and Cooper orbited the earth, White Sands provided radar tracking when the capsule passed nearby. Coupled with other sites around the world, this position data was provided to NASA so they could maintain a constant track of the vehicle. About 75 White Sands personnel were involved in each mission. The same support was then provided for Gemini orbital flights.

Apollo

In June 1961, NASA asked White Sands Missile Range and Holloman Air Force Base to evaluate launching and recovering Apollo spacecraft from spots on the 3,200-square mile missile range. In response, White Sands prepared a report called "Proposal For NASA-DOD Launch Site On National Lunar Program." Dated July 14, 1961, the internal government document proposed two launch sites with one being essentially where the NASA White Sands Test Facility is now.

This was to be a huge complex with eight launch pads spread south to north on the very western boundary of White Sands, just north of Organ, N.M. The administrative and support facilities were to be placed on land belonging to the Jornada Experimental Range.

The hurriedly prepared plan had to estimate the cost of putting in everything: paved roads, a railroad spur from near Dona Ana to the site, power and gas lines to power the facility, the launch areas, a landing strip, plants to manufacture liquid oxygen and other propellants, a telephone exchange with 2,000 lines, 10-each 40,000-square foot warehouses, control buildings

and on and on. The report had quite a to-do list, all of it requiring new construction with a cost approaching \$700 million in 1961 dollars. That is just over six billion in today's dollars. The construction camp alone, to house personnel, equipment and materials, was estimated to need 200 acres of real estate.

Given the short time to prepare the report, it was sorely lacking in real details. For instance, a medical services building to house 120 people at a cost about \$200,000 was listed. However, the cost was for the building only, an empty box. There was no cost estimate for the medical equipment to go inside it.

The report glossed over any possible issue about the amount of water available and what its quality might be. It simply stated water would come from five new wells and the system, along with sanitation, would cost close to \$15 million.

Who would operate it? All totaled, White Sands estimated it would take an additional 2,000 workers to man the place once it came on line. To feed everyone there were going to be four cafeterias. To move people, they imagined a fleet of 2,000 vehicles. The operations building was going to cover 30,000-square feet. There were to be seven fire stations – no estimate on the equipment for them either. And, of course, there was to be a security complex with guard stations all over the property.

NASA quickly rejected the White Sands proposal and all the others except for Cape Canaveral where they already had a huge presence. Two facts were in the missile range's way. One was the inability to move the boosters to New Mexico. They were 33 feet in diameter and would not have fit through any tunnel or over any highway bridge.

The second problem was the required launch trajectory to the east would have meant dropping boosters in Texas and elsewhere. In the event of a problem any number of cities might have been bombed.

Holloman Air Force Base, with the missile range's endorsement, responded to the NASA request for a landing site with "Proposal – National

Aerospace Landing Site.” This proposal was for the landing of manned and unmanned space vehicles as well as military related testing on White Sands Missile Range.

Holloman and White Sands proposed using a “100-square mile area commonly referred to as the Alkali Flats” out in the middle of the missile range. It is part of the old Lake Otero lakebed left over at the end of the last ice age. The area is north of Lake Lucero and west of the national park’s gypsum sand dunes. NASA chose to continue water landings for the return of their Apollo missions and New Mexico missed out again. However, that site on the Alkali Flats would be remembered and soon used by the next generation of manned space vehicles.

Apollo Escape System

White Sands would soon play a role in the Apollo program with testing of the Launch Escape System (LES). One of the riskiest parts of any space flight is the launch. Rockets have been known to malfunction, break apart or just blow up. For the Apollo launches, the LES consisted of a tower attached to the top of the crew capsule. Solid-propellant rocket motors were mounted on the tower which could be quickly fired in an emergency. The rockets were designed to lift the capsule away from the main vehicle and boost it to the side and out of the way. Then parachutes were to be deployed for a soft landing back near the launch point.

The tests were conducted on the missile range at what is now Launch Complex-36. One remnant of the test series is a large assembly building at the launch complex with the big red NASA letters on the side.

There were seven firings at White Sands for this program. Basically, NASA wanted to test the LES under the various possible conditions that might require its use. That meant firing the LES before the booster rockets ever left the ground and also firing it during various stages of flight.

For the first condition, the LES with a mockup of the capsule was fired while it sat on the launch

pad. There was no rocket under it. These were dubbed the Apollo pad abort tests and were conducted in November 1963 and June 1965.

For the second condition, NASA jury-rigged a booster from a bunch of smaller engines, tying them all together into one unit. They called it Little Joe II and it stood in for the mighty Saturn rocket. Before the Little Joe II could be used in a test of the LES, NASA launched one at White Sands to make sure it performed as advertised. This successful flight was performed in August 1963 and confuses things a bit because it was the seventh test in the program.

There were then four tests of the LES utilizing the Little Joe II vehicle to simulate Saturn liftoff conditions. These took place on May 13, 1964;



The first test of the escape system using the Little Joe II vehicle on May 13, 1964. (White Sands Missile Range Museum photo.)

Dec. 8, 1964; May 19, 1965; and Jan. 20, 1966. The last one went the highest as the abort system wasn't activated until 73 seconds into the climb.

Apollo Moonsuit Dust Chamber Test

From the first three landings on the moon, NASA scientists and engineers knew the surface of the moon was very dusty. Neil Armstrong's Apollo 11 spacesuit is on display at the Smithsonian and is obviously stained from the thighs down with grey dust. NASA grew concerned when they designed new, more articulated suits for the Apollo 15 mission and beyond.

Apollo 15 was going to be the most ambitious mission to the moon yet. Astronauts Dave Scott and Jim Irwin were going to spend almost three days on the moon's surface living in their landing vehicle dubbed "Falcon." During their stay, the plan was for them to use the Lunar Roving Vehicle – the most expensive dune buggy ever built - to drive around and cover as much ground as possible. In the end they drove more than 17 miles exploring much more than the acre or two of walkable real estate around the Falcon.

This was the first Apollo mission of three to use lunar rovers to extend astronaut exploration. A total of four were built at a cost of \$38 million. The fourth was scavenged for spare parts. The first three are still up there.

The new spacesuits for Apollo 15 had to be more flexible in the middle so the astronauts could bend over to pick up equipment and samples and sit in a vehicle like a moon dune buggy. Also, the metal hinges at the joints, hidden under the space-suit's fabric, had to be resistant to that fine dust and keep on working – no jamming. Not being able to flex joints and freely move in an environ-

ment like the moon could have been a recipe for disaster.

The new suits for Apollo 15 were designed and built by ILC Dover. They built all the suits for the Apollo program. Every American who walked on the moon wore one of their spacesuits. Since then, the spacesuits worn by astronauts on the Space Shuttle and International Space Station for outside work have come from ILC Dover.

To test the new suit design and build, NASA and ILC Dover brought one to experiment with in the missile range's dust chamber during 1971. The dust chamber was constructed in 1958 as a place to expose military hardware to various grades of dust to see if they will still function after such an exposure.

For this test, to simulate moon dust, the missile range acquired 200 pounds of specially treated dust from Ottawa, Ill. According to the Missile Ranger newspaper on March 5, 1971, the powder was "of 140-mesh silica 'flour,' pulverized almost as fine as talcum powder."

On February 25, 1971, White Sands Missile Range personnel put David Burris, wearing the latest in moon wear, into the dust chamber, something never done before. In fact, they did it four times, each session lasting about 30 minutes in clouds of blowing dust and temperatures varying from 70 degrees to 140 degrees. While in the grimy little chamber, Burris simulated movements the Apollo 15 astronauts might make.

After the White Sands testing, the suit went elsewhere for different kinds of tests. Eventually the final moon suits were assembled and placed aboard the Apollo 15 vehicle. The Saturn V rocket ignited at 7:34 a.m. Mountain Standard Time on July 26, 1971 to start the mission. Astronauts Dave Scott and Jim Irwin landed on the moon at 3:16



Shirley Wells, a stenographer with the missile range's Data Collection Directorate, is posed with the Apollo moon suit before testing. On the right is Bob Kopernick, an engineer with ILC Industries Corp. that built the suit. From the March 5, 1971 (Missile Ranger newspaper.)

p.m. Mountain Standard Time on July 30. The third astronaut, Alfred Worden, orbited the moon in the command module during the mission.

During their time on the moon, Scott and Irwin collected 170 pounds of lunar rock/soil samples for the return. The mission was completed when the crew splashed down in the Pacific at 1:45 p.m. Mountain Standard Time on August 7.

Planetary Entry Parachute Program (PEPP)

Back in the 1960s, in addition to taking a trip to the moon, NASA was making plans to send unmanned, exploratory spacecraft to Mars. Initially this program was dubbed "Voyager" but morphed into a smaller lander called the "Viking"

program. Voyager was the term later applied to the flyby vehicles exploring the outer planets.

The NASA team planned to have their vehicle parachute to the surface of Mars after the 460-million-mile flight. Since Mars has a much thinner atmosphere

than Earth, they couldn't slap some regular Earth-tested parachutes on the vehicle and call it good. They needed to design a different system and then test it.



The PEPP Aeroshell on display at the White Sands Museum is often jokingly referred to as the missile range's flying saucer. Below the saucer are the small rocket motors used to propel it to supersonic speeds. (White Sands photo.)

For the test, they chose White Sands Missile Range. They built a Planetary Entry Parachute Program (PEPP) Aeroshell to carry their parachute system. It was disk shaped and looked very much like the flying saucers portrayed in science fiction movies from the 1950s and 60s. There is one on display at the White Sands Museum's Missile Park.

Under it were several small rocket motors. The lander simulator was carried aloft, starting in Roswell, under a huge, helium-inflated balloon. Upper level winds carried the package to the west over White Sands where teams of range employees were busy collecting data. When the balloon reached an altitude of about 150,000 feet, the PEPP Aeroshell was dropped and the rocket engines ignited to push it even higher and accelerate it to supersonic speed. It was at this point the parachute system was tested in the very thin atmosphere some 30 miles above the missile range.

The first test was conducted on Aug. 30, 1966. The other three were done in the summer of 1967.

A few years later, after the Mars lander program had evolved into the Viking program, NASA returned to White Sands to basically conduct the same tests with a different vehicle and parachute system.

Four successful tests were conducted during the summer of 1972. It all started to come together when Viking 1 was launched on Aug. 20, 1975 and Viking 2 on Sept. 9. Viking 1 entered Martian orbit on June 19, 1976 and Viking 2 followed on Aug. 7. Then, on July 20, 1976, the tests at White Sands were proven useful as Viking 1 successfully landed on Mars. On Sept. 3, Viking 2 landed as well.

Space Shuttle

Many people are aware that the space shuttle Columbia landed at White Sands on March 30, 1982 on just the third flight for the program. However, the missile range was involved in the shuttle program well before the system's first launch in 1981.

On May 27, 1970, NASA conducted the first of

a series of one-tenth-size scale model drop tests of the shuttle over the Alkali Flats area. The 13-foot-long models were dropped from an Army CH-54 “Sky Crane” helicopter at an altitude of 12,000 feet above sea level. According to NASA, the aerodynamic tests were “designed to demonstrate the vehicle’s transition from a steep reentry angle of attack to a level cruise attitude and its stability in stalled conditions.”

In the same time period there was fierce competition nationwide for the shuttle launch site. Many facilities and regions entered the fray to have NASA pick their area. It was much like the competition in 1961 for the Apollo launch site. Southern New Mexico businesses kicked in \$50,000 to promote White Sands Missile Range as that launch site. Of course, instead of building from scratch, it made sense for NASA to continue their operations in Florida.

In 1976, White Sands agreed to allow NASA to use Northrup Strip, a small dirt runway in the middle of the old Lake Otero lakebed, as a shuttle pilot training site. This is the same Alkali Flats area proposed in 1961 as a recovery area for Apollo spacecraft landing by parachute after their trips to the moon.

The Northrup runway was originally used by the Northrup Corporation to launch and recover drones for military missile testing. In preparation for the shuttle pilot training, the strip was lengthened to 15,000 feet. A second runway was added and training began in Oct. 1978.

Yes, the name of the strip is misspelled. Somewhere along the line the company name was misspelled in a news release and on maps. Maps are really hard to change so the misspelling stuck.

In 1979, the two runways were designated an alternative landing site for actual shuttle missions. To accommodate this move, the runways were stretched to 35,000 feet. That’s right, seven miles. They started life being 100 yards wide but were widened to 300 yards later. There was a lot of room for error at the site.

In 1989, a third runway was added to the system. This was a short, narrow runway to simulate

an emergency landing in Morocco or elsewhere. The scenario for a Morocco landing was called “Trans-Atlantic Abort Landing” and was based on the shuttle having engine failure during launch and unable to reach orbit. There were a number of these launch failure possibilities and subsequent emergency procedures.

If the shuttle wasn’t very high and was still intact, it was supposed to separate from the fuel tank and boosters and land back in Florida. If the shuttle was high enough and had enough energy, it was to glide across the Atlantic to reach the Morocco site. Finally, if the shuttle was just short of orbit, the protocol was for an “Abort Once Around” landing.

For an AOA, the shuttle would have enough energy to circle the earth once and land back in the United States. Because of the launch angle and lack of maneuvering possible in such a situation, White Sands was frequently designated the prime AOA site. Both NASA and WSMR often had people on call or on site ready to respond.

The shuttle landing strip was managed by NASA’s White Sands Test Facility located on the western edge of WSMR. The range’s NASA tenant was responsible for much more shuttle work than just the landing strips. For instance, each shuttle was equipped with small thrusters that were tested at WSTF. These little guys were part of the Reaction Control System and were scattered around the body of the shuttle to turn and move it just a bit when docking with other vehicles or retrieving something like a satellite.

Also, at the back of each shuttle were two “Orbital Maneuvering System” rockets that were tested at WSTF. When you look at the back of the shuttle, you see the three large rocket engines that are used at launch. Just above them are the OMS rocket pods. The OMS engines had enough juice to move the shuttle to a higher orbit. Also, on every mission they were used as big brakes to slow the shuttle down so it would fall out of orbit and begin its descent through the atmosphere.

To understand why the shuttle Columbia landed at White Sands, you need to go back to catch

a little historical perspective. In this case NASA was answering critics who said space exploration was burning up money with its boosters and other throw-away equipment. NASA came back by advertising that the very expensive space shuttle was to be used as a “space truck.” They said they would be hauling cargo into space for all kinds of organizations and nations and they would run it on schedule just like a trucking company. NASA was trying to fit in by comparing itself to United Parcel Service.

The other major factor was that the program was still testing these new vehicles and managers wanted to land on the dirt of dry lakebeds instead of unforgiving short, hard concrete runways. So the first series of missions was scheduled to land on Lake Rogers at Edwards Air Force Base in California.

At the time, the public was excited by the shuttle program. This was the next great thing after going to the moon. For instance, after the early shuttle missions, NASA announced when

and where the Boeing 747 would be as it hauled the shuttle back to Florida. People all along the route would step outside their homes and offices hoping to catch a glimpse of it as it went by. In the Las Cruces/El Paso area residents were sometimes lucky to have the 747 actually land in El Paso to spend the night before flying on to Florida.

When it came time for the third mission, NASA ran into a problem. Seasonal rains soaked the lakebed at Edwards making it way too soft for a shuttle landing. They could have opted for a concrete runway landing but that was completely outside their safety directives.

At the same time, their “trucking” schedule was looming. The public needed to see they could keep to the schedule. So instead of simply delaying, they decided to launch on time and land at their backup dirt runway, Northrup Strip at WSMR.

The announcement about the new landing site was made by NASA on March 18, 1982 – four days before the launch on the 22nd. Almost immediate-



Columbia just after touch down at the Space Harbor on White Sands Missile Range on March 30, 1982. The shuttle is landing from north to south after being delayed one day because of fierce spring winds on March 29. (White Sands Missile Range photo.)

ly the public began calling the Army to see about getting onto White Sands to watch the landing. The Air Force and NASA had already set a precedent to allow public viewing with the first two landings at Edwards. On the first mission, when John Young and Bob Crippin landed Columbia on Rogers Lake on April 14, 1981, over 200,000 people were on hand to watch. Some estimate the crowd was closer to 300,000.

At first, the shuttle program was hugely popular. Witnesses raved about the double sonic boom that accompanied the shuttle as it glided out of the clear desert sky headed for Edwards AFB. The California landings were huge “geek” festivals. Eventually, the effort to go and see a “truck” land lost its luster.

Organizations all across the missile range went into high gear to prepare for the event. Gary Lindsey, a National Range engineer at White Sands, estimated about 1,000 missile range employees were busy at one time or another supporting the shuttle mission. The missile range school kids even got involved. Their moms and dads baked cookies and brought boxes of them to the Public Affairs building for the news media.

One of the major problems for Public Affairs was the early announcement on March 18 that Columbia was coming to WSMR. But the landing wasn't scheduled until the 29th. That meant just about every news agency and outlet in the U.S. and the free world had the opportunity to get themselves to New Mexico. In the end, close to 900 people registered as “media” types.

A lot of these were support personnel and not reporters. Why all the support? For instance, the three networks each brought in a huge house trailer and planted it at Northrup. They built wooden platforms on top to mount cameras and have a place for their reporters to report from. Public Affairs allowed Associated Press into their building to construct a dark room in the back where the old Officer's Club kitchen was located. Running water was the key ingredient.

These reporters ended up being fairly isolated in southern New Mexico after spending a lot of

money to get there. They needed to file stories daily with their newspapers, news services and radio/television stations about what was going on. They needed to justify their trips and motel rooms. Eventually it turned out well for the missile range because the reporters were willing to do stories on any aspect of White Sands that supported the shuttle mission and go visit places like Trinity Site.

One of the interesting historical artifacts from the event now on display in the White Sands Museum is a replica of the space shuttle created by local artist Bob Diven. Diven is known as a painter, writer, performer, editorial cartoonist, musician and street artist. During the build up, he did odd jobs for one of the TV stations at the site. During his downtime, he built the model using manila folders, foam coffee cups, and other debris he found.

On March 24, Major General Alan Nord, White Sands commander, held a press conference and announced that the public would be allowed in to see the landing. Adding the public to the landing created a whole new level of complication. Folks were allowed to drive to the northwest corner of Lake Otero where they were seven miles northwest of the shuttle landing strips crossing point. In preparation, the Explosive Ordnance Disposal (EOD) personnel at White Sands walked and cleared a square mile of lakebed to make sure it was safe for cars and pedestrians.

The news outlets were given a much closer vantage point. They were located just east of the point where the two runways intersected. It was thought this maximized the possibility of seeing the shuttle no matter which runway was used or which direction it landed.

In addition to the news media watching from this sweet spot, VIPs were thrown into the mix - hundreds of them. Bleachers, more portable toilets and shelter tents had to be erected. Workers soon found out why Northrup Strip is the perfect natural surface for a runway.

The lakebed is gypsum-based with some sand, clay and other materials. Over the centuries the wet gypsum compacts and hardens to a density

close to concrete. To make a runway you just have to wet it and blade it smooth. Teams needing to erect tents or drive stakes for poles or dig holes soon found it was just about impossible. Jackhammers and drills were used to punch holes in the ground so the stakes could be driven home.

Having said that, the runways could be a little temperamental. When the gypsum dried out it began to flake away. When the winds blew, the gypsum sand went with it creating a blow-out or pothole. That is exactly what happened on the scheduled landing day, March 29. By mid-morning the wind was howling. It was more than a typical spring day. The winds picked up the finer gypsum dust on the lakebed and lifted it to form a low-hanging "fog" bank over the old lakebed. The bigger particles traveled closer to the ground and ended up being added to the dune field to the east.

Because of the sand blizzard, the landing was postponed a day. The wind blew potholes in the runways and sand was drifting like snow across them in other places. The engineers went to work after the wind died down to move sand and fix the holes.

One requirement for blading the sand was to get it wet. Tankers hauled in water from a tiny well nearby, just north of Pony Site. The water had one remarkable trait. Because of its high sulfur content it smelled like rotten eggs. Everyone was aware of the smelly water because they, at one time or another, had been stuck behind the tankers as the runways were initially prepared. It was pretty foul.

After the landing was postponed, the news media immediately started a joke saying they didn't see any reason to postpone the landing. Certainly the pilot would be able to smell the runway even if he couldn't see it.

At the public viewing area, visitors suffered through the winds. Camper tops were blown off of pickups and people lost chairs and other light items as they flew toward Tularosa.

Everyone reloaded and tried again the next day, March 30. Since the weather forecast was for high winds again, NASA brought Columbia in earlier in the morning to make sure they got it on

the ground before the dust storms cranked up. The shuttle successfully touched down at 9:04 a.m. The mission commander was Jack Lousma and the pilot was Gordon Fullerton. They completed 130 orbits and traveled 3.3 million miles while circling the earth.

The WSMR landing was a bit different than all the other landings in the program's history. NASA officials briefed that Columbia would come from the west, visitors would hear a double sonic boom, it would make a big swooping loop turn to bleed energy, and then it would touch down on the north/south runway heading south.

Most of that happened except for the big loop at the north end of the runway. Instead, Columbia came from the west and made a big right turn and shot for the runway. As a result, according to Al Paczynski, NASA's manager at Northrup Strip, the shuttle came in hotter (faster) than planned. When it touched down it was going close to 50 miles per hour faster than intended.

As Columbia rolled down the runway on its rear wheels, the nose started to drop. Suddenly, everyone saw the nose rise back up as if it was going to do a back flip. However, it quickly stopped going up and dropped back down hard onto the runway.

This little hiccup distinguishes the WSMR landing from all the others because of that little rise and fall. Fullerton later said he thought the nose was dropping too fast so he pulled back on the controls and brought it up but went too far.

Later it was revealed that the landing gear deployed at just 150 feet off the ground and locked in place only five seconds before touchdown. That was cutting it close.

Paczynski said the two rear shuttle tires left a great deal of burned rubber embedded in the runway where they initially touched down. He said he had workers cut out those blackened areas of the runway and gave small pieces to employees as souvenirs.

Once on the ground, the two astronauts were removed from the shuttle, given a quick health check, and then whisked to a ceremony near the

media/VIP viewing area. Soon after that concluded, the winds started to blow again. By noon, workers couldn't see the shuttle out on the runway from the press viewing area.

The winds continued for days. They plagued all operations at the site. Public Affairs and other organizations didn't end their involvement with the landing. Columbia was towed to a "de-service" area to prepare it for its piggyback ride back to Florida. While this work was being done, NASA and WSMR allowed the public and WSMR personnel and their families the chance to ride buses to Northrup Strip and look at the shuttle.

White Sands devised a schedule to run long caravans of buses from the main post out to the strip and back. So the missile range's labors in supporting the mission of STS-3 didn't really end until Columbia flew away on the back of a 747 on April 6.

As a result of the flight, Major General Nord proclaimed the spot where Lousma and Fullerton rejoined their wives out on the strip as "Columbia Site." Also, New Mexico Senator Harrison Schmitt, a former astronaut who walked on the moon, introduced a bill that Congress passed renaming the old Northrup Strip as the "White Sands Space Harbor."

Lousma and Fullerton, along with their wives, flew into WSMR again on May 17, 1982 to thank White Sands for its support. They visited the school to talk to students, gave a slide presentation about their mission at the post theater, and shared their experiences again at a luncheon attended by

450 people.

After the experience, locals were anxious for another landing. It never happened. However, the Space Harbor did serve as a backup landing site throughout the program. Improvements were continually made to keep it up-to-date.

For instance, lights were added so a night landing could be accomplished. This was a simple system that used huge xenon spotlights with a total of more than 11 billion candlepower. The lights were mounted at one end of the runway and were tilted to shine parallel to the ground, down the

runway. Along the edge of the runway were small stakes with reflective tape at the top. If a shuttle came into the runway at night, the pilot would see a long area at the beginning of the runway fairly well lit and then the edges lit by the reflectors, probably all the way to the end.

Also, the de-service area was moved west to the edge of the lakebed. In 1982, the blowing gypsum got into everything on the shuttle. By moving the preparation area to the edge of the runway there would be much less dust to contend with in the event of high winds.

The closest White Sands ever again came to hosting another landing was on December 22, 2006. Bad weather at Edwards and in Florida made it necessary for NASA to activate the Space Harbor. The missile range was told it was landing on the 22nd come hell or high water because it couldn't stay up another day.

The local news media were advised that the Space Harbor was being activated and might see a landing in the afternoon. Enough reporters and



Shuttle astronauts Jack Lousma (left) and Gordon Fullerton. After landing space shuttle Columbia on the missile range, they returned in May to thank the workforce. (NASA photo.)

news crews showed up to take two Army buses out to a new viewing area. At that point it was looking pretty good for a landing at WSMR.

As the buses arrived at the viewing area, their escort received a phone call saying that the shuttle Discovery had just made a deorbit burn for Florida. It was not going to land in New Mexico.

The value of the White Sands Space Harbor to America's space program certainly can't be measured in actual shuttle landings. In the end it was the training of the shuttle pilots that made the site important. All the pilots trained to fly one of the shuttles in simulators and a trainer aircraft that simulated the controls and actions of the shuttle. When the trainee sat in the pilot's seat, the controls were exactly like those found on the shuttle. They went so far as to cover parts of the cockpit windows to simulate the limited visibility found up front in a shuttle. They also modified the plane, a Grumman executive jet, to behave like a shuttle falling much like a rock out of the sky.

Over 85 percent of that training was done at White Sands Missile Range. The pilots trained in all kinds of conditions – day, night, cloudy, head winds, tail winds, cross winds, calm – using the runways. According to NASA, the pilots “logged in more than 100,000 training runway approaches.”

The pilots liked the Space Harbor. The runways were so long and wide, they were very forgiving. They said the old lakebed surrounding the Space Harbor was visible from an orbiting shuttle as a large, sparkling white spot on the ground.

In July 2011 the last space shuttle mission was completed. With it, the White Sands Space Harbor ended its 41 years of service to the program. On June 13, 2011, NASA held a farewell ceremony at the site and thanked White Sands Missile Range for its considerable support.

Delta Clipper

By 1990, experts realized there were two shortcomings to the space shuttle – it was fast becoming old and worn out and scheduling was unreliable. At the same time, the Department of

Defense's Strategic Defense Initiative (SDIO) was interested in finding a new vehicle to replace the shuttle for servicing space-based weapons and other assets.

In 1991, McDonnell Douglas started building a demonstration vehicle for SDIO, calling it the DC-X (Delta Clipper-Experimental). The vehicle was the first of several planned vehicles designed to progressively work out the bugs of building something relatively inexpensive, compared to the shuttle, with a turnaround time of only hours for a return flight to space.

The vehicle looked something like an obelisk sitting on its fat end (tail) which housed the rocket engines. It was launched in the vertical position, like most rockets, but also landed in the vertical position using retro rockets to set down. Although a very familiar idea from 1950's science fiction movies, this was a first in the real world. Of



***A Delta Clipper launch near the Space Harbor.
(White Sands Missile Range photo.)***

course, today this is more common with SpaceX recovering their rocket boosters in exactly this way.

Another goal was to eventually make Delta Clipper a single-stage-to-orbit vehicle. This meant there were to be no boosters in the final design. Nothing would fall off at launch, so when it returned from orbit and landed at its launch site, it could be refueled, restocked, recrewed and be ready to go again in a day or so.

This second goal has been a dream for decades but has been impossible to reach. The basic problem is the strong gravitational force of the earth. To put a reasonably sized payload into orbit requires a lot of thrust to overcome gravity's pull, which in turn requires a lot of fuel and a large heavy structure to hold it all together. During launches, by jettisoning pieces of that structure (spent boosters, empty fuel tanks, etc.) and burning fuel, the vehicle gets lighter every second and is able to eventually reach the speed needed for orbit.

In the 1990s, the dream was that materials technology, rocket engine systems and new fuels might be advanced enough to make the total package sufficiently light so nothing would need to be discarded.

In addition, the prototype was cheap. For instance, McDonnell Douglas used the avionics package from one of its jet fighters to control the Delta Clipper. It was much cheaper and faster to jury-rig an off-the-shelf system than design and build one from the basement up.

Testing of the vehicle at White Sands Missile Range began on Aug. 18, 1993 when the DC-X launched, climbed a short distance, hovered and then landed next to its launch stand. The total flight time was just under a minute.

The Delta Clipper generated a great deal of interest, especially among amateur Space enthusiasts. As a group they were called "Trekkies" after the popular television show Star Trek. They saw these tests as the next great thing after the shuttle, especially as it took off and landed on its tail. Calls came to the missile range from all over the world

as Trekkies wanted to attend the launches.

Eventually some of them were invited – if they knew someone important or were representing a news media outlet. The range's Public Affairs Office was surprised at how many news outlets there could be.

Over time new components and new composite materials were introduced to the vehicle. For instance, metal tanks were replaced with ones made of graphite or a special aluminum-lithium blend.

The vehicle advanced and stayed aloft longer, went higher, demonstrated its ability to move horizontally, and even rolled over on its side in one maneuver. On July 31, 1996 on its 12th flight, the Delta Clipper suffered a failure that doomed the vehicle.

When Delta Clipper was launched, it lifted off from a stool. When it landed, so it could put down on any pad, it deployed four legs or landing struts – one from each corner. The McDonnell Douglas people who built the thing, being from an aviation background, sometimes called the legs "landing gears."

On its last flight, one of those legs failed to deploy. Video of the landing is available on YouTube. Some versions have the real-time audio from the McDonnell Douglas engineers. As the vehicle descends, you hear one of the engineers calmly call out "missing a gear." Former astronaut Pete Conrad, who was project manager, continues to call out the progress of the vehicle until it lands and the engine shuts down. It was a perfect flight and landing. Then as the Delta Clipper starts to fall over toward the corner missing its leg, another voice can be heard saying, "she's coming over." That is followed by a crash and explosion of fire.

The resulting fire was a conflagration of hydrogen and oxygen incinerating the vehicle. Afterward it was just a pile of charred metal. No attempt was made to build another.

Orion

In the first decade of the 21st century, NASA selected its next crew launch vehicle system and

dubbed it “Ares 1.” The plan was to return to having the astronauts ride atop a rocket, much like in the days of Apollo, in a capsule named “Orion.” In other words, NASA was returning to the simple days of putting a manned vehicle atop a big, expendable rocket and propelling the crew or payload (depending on the mission) into space. The Orion capsule could be configured to deliver crews to the space station and bring them back to earth using a parachute system or provide the setup to send crews to the moon or Mars.

Like the old Apollo system, Orion was to have a launch abort system. In its simplest terms the Orion was to have a tower mounted on top of it equipped with rocket motors and a parachute package. In the event of an emergency, the rockets could be used to pull the capsule away from the Ares booster and then safely parachute the crew back to earth.

The first test of this system was like the first pad abort test for Apollo where the system was activated as it rested on the concrete pad and not atop a booster. However, the Orion test involved three different rocket motors. According to a NASA news release after the test, the “abort motor produced a momentary half-million pounds of thrust to propel the crew module away from the pad. It burned for approximately six seconds.”

Simultaneously with the abort motor, the attitude-control motor was fired to keep the capsule on a controlled flight path away from disaster. Finally, a “jettison motor” was activated to pull the entire abort system off of and away from the capsule so the parachutes could be deployed.

The test was carried out at White Sands on May 6, 2010 and was called “Pad Abort 1.” It successfully carried a full size command module mockup away from the pad.

Later in the year, the launcher program that was to carry Orion was cancelled. Orion survived and is to be used on NASA’s Space Launch System.

Boeing’s Starliner

There is an old saying that there is nothing new under the sun. On November 4, 2019, another

manned spaced capsule’s pad abort system was tested at White Sands. This third pad abort system to be tested at the missile range belongs to Boeing and is part of the NASA/Boeing partnership for the “Commercial Crew Program.” The spacecraft is supposed to carry people to the space station and return them.

In addition, Boeing has selected White Sands Missile Range as its prime landing point for the capsule’s return by parachute. You’ll never guess where that landing site is. That’s right, it is on the same Alkali Flats area proposed by the military in 1961 and later used by the space shuttle. The landing area was successfully used by Boeing on Sunday, December 22, 2019 when the Starliner softly landed on the old lakebed after a less than successful test flight to link with the International Space Station.



Boeing’s unmanned Starliner orbiter just after landing on Dec. 22, 2019. The vehicle was supposed to link with the International Space Station but a malfunction kept it from reaching the appropriate orbit. After two days it was brought down at White Sands on the Alkali Flats. (Boeing press photo.)

Conclusion

On September 9, 2021, at 11:25 a.m., NASA and White Sands launched a Black Brant sounding rocket. The payload flew to an altitude of 182 miles to take measurements of the sun and then descended by parachute to the floor of the Tularosa Basin.

NASA has the “Solar Dynamics Observa-

tory” satellite in orbit that is always looking at the sun, measuring its extreme ultraviolet light. The problem for observers on earth is knowing if the satellite’s instruments are providing accurate readings, especially after being exposed to the harsh radiation day after day.

Periodically, NASA launches a sounding rocket at White Sands carrying a calibrated suite of the instruments identical to those on the satellite. The two sets of instruments take measurements at the same time and if the satellite’s information doesn’t agree with the rocket’s readings, its instruments can be tweaked or adjusted as needed.

The use of rockets like the V-2 to do space work continues to this day at White Sands Missile Range. The use of the test facilities and space to test new vehicles and land manned spacecraft continues to this day. These space-related activities are not one-time historic events but a continuing process that has been ongoing for decades. Along the timeline are a whole series of accomplishments that have pushed forward our knowledge of space. It really is where space exploration started for America.

Jim Eckles retired from a 30-year career at White Sands Missile Range in 2007. He has written extensively about the history of the range and published *Pocketful of Rockets: The History and Stories Behind White Sands Missile Range* and *Trinity: The History Of An Atomic Bomb National Historical Landmark*. He was inducted into the missile range Hall of Fame in 2013. He is currently the DACHS secretary and newsletter editor.

[RETURN](#)
[to](#)
[TABLE OF CONTENTS](#)



Book Review

I Know Where the Bodies are Buried! There are Stories to Tell; Questions to Ask by Carlos Melendrez, Las Cruces. Foxware Publishing, 2021, 193 pages. Copies available from the author: melendrezc@zianet.com

I Know Where the Bodies are Buried! There are Stories to Tell; Questions to Ask, True Exciting Stories of Southern New Mexico's Early History! Unsung Tales of the Founding Family of Las Cruces by Carlos Melendrez presents a family history by a nationally recognized activist. The author is a direct descendant of Pablo Melendres (1795-1868), co-founder and alcalde of the Dona Ana Bend Colony land grant.

The book provides insight on the founding of Dona Ana and Las Cruces. Lt. Delos Bennett Sackett surveyed and laid out the Las Cruces town site, and somehow got credit for founding the town. It was Alcalde Melendres that authorized the work and should be more widely accepted as the founder (or "father") of Las Cruces. The Las Cruces original town site lies wholly within the boundaries of the Dona Ana grant, as does Tortugas (also overseen by Melendres).

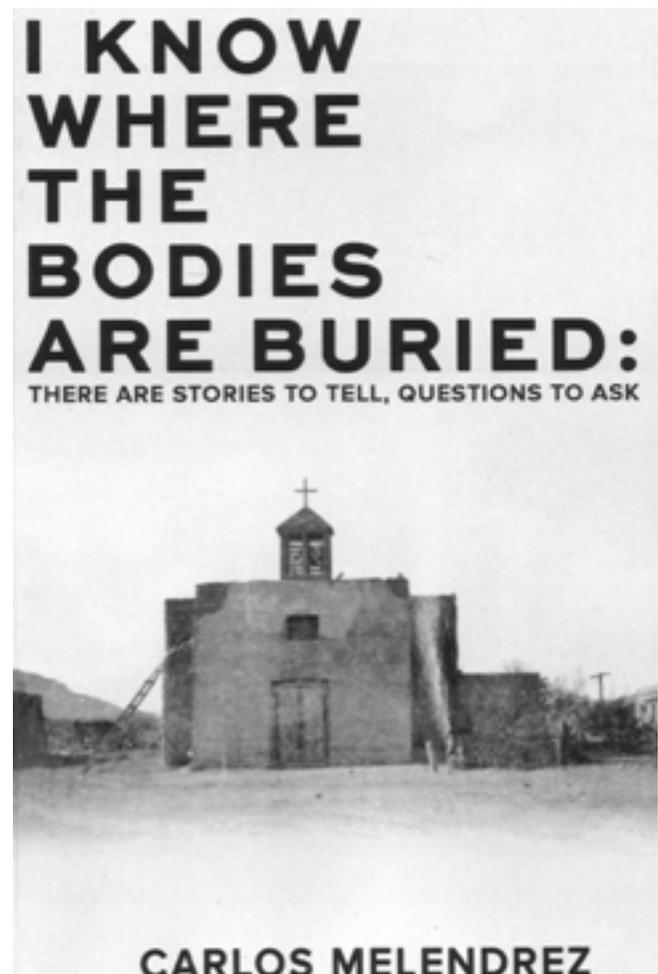
Pablo Melendres (junior) continued in his father's footsteps serving in multiple public offices and an even larger role in politics of Dona Ana County and the Mesilla Valley. Many descendants still reside in the valley. The most remarkable chapter is the one seeking the grave site of Pablo Melendres. Is he buried in the old Dona Ana Cemetery on Joe Gutierrez Road or is he buried inside the historic Nuestra Senora de Candelaria Catholic Church? As the title suggests there are stories to tell and questions to ask!

Carlos Melendrez has a long history and background as an activist, which started as director of the Boycott Bank of America movement. He also served as executive director of EDGE, an alliance of civil rights and environmental organizations,

including the Sierra Club, Environmental Defense Fund, Natural Resources Defense Council, the Earth Island Institute, Latino Issues Forum, Japanese American Civil Rights League and Urban Habitat.

I Know Where the Bodies are Buried received a bronze medal from The International Latino Book Awards. I found this family history book, from an activist's perspective, fascinating and very thought provoking. It has spurred me into further research on Don Pablo Melendres and his fate.

Mary Kay Shannon
Las Cruces, NM





Book Review

Fruit, Fiber, and Fire: A History of Modern Agriculture in New Mexico by William R. Carleton. Lincoln: University of Nebraska Press, 2021. ISBN 978-1-4962-1616-8, 216 pages, \$55.00, hardcover.

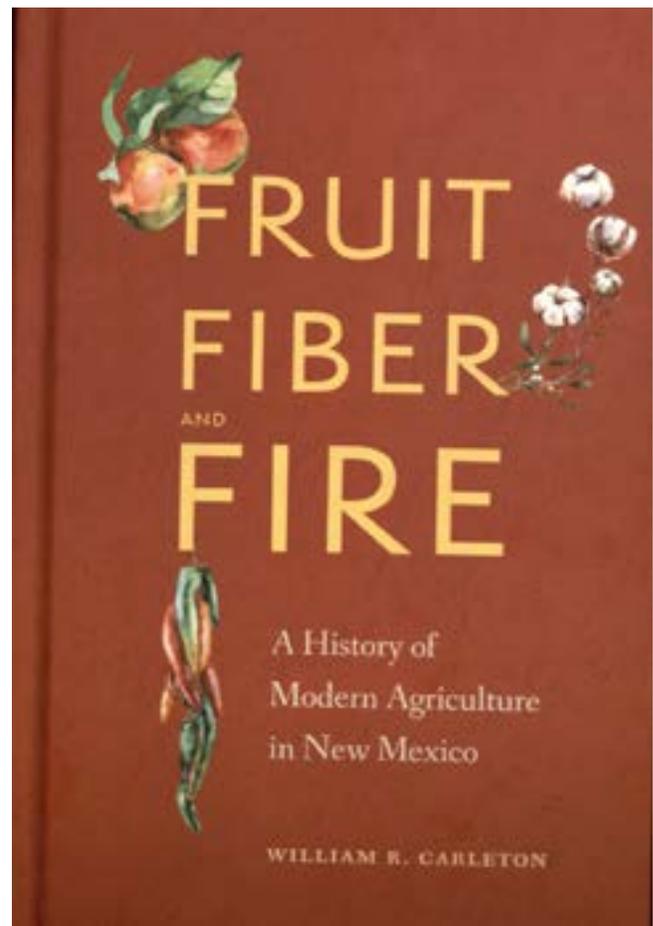
William Carleton's book titled *Fruit, Fiber, and Fire: A History of Modern Agriculture in New Mexico* delves into the historical perspective relating to New Mexico's rich agricultural foundation from its humble beginnings. Carleton explains the importance of the agriculture realm in New Mexico and its ties to the unique cultural landscape. The author utilizes primary resources to provide a strong factual background analysis on New Mexico's native vegetation, with emphasizes on apples, cotton, and chili.

The book provides a historical examination of apples, cotton, and chili relating specifically to the Land of Enchantment and reveals the triumphs and struggles of agricultural industrialization. *Fruit, Fiber, and Fire* is structured in a format where the author provides a deep analysis of each crop and explains that before the famed renowned chili, other crops were cultivated in the state, which put New Mexico on the map.

Before reading Carleton's book, I never imagined that New Mexico was a region where apples were a favored crop. After reading, I learned that the apple took over the agricultural landscape during the turn of the twentieth century. It is difficult to imagine that once New Mexico was one of the leading importers of apples. As one can imagine, obstacles were experienced. For example, the climate and the coddling moth were some impediments, but as discussed spraying laws and orchard inspections came into play and issues such as pesticide regulations led to social pressures, which created cultural change (p.37).

The second highlighted crop discussed was cotton. Cotton thrived in the arid lands, and

altered the harvesting landscape because it took over rapidly, and ultimately farmers favored it. Many small rural towns transformed into boomtowns as "an influx of new settlers" made their way to the region (p. 81). Cotton brought new hope to the irrigated valleys of the region since it was a sustainable crop. With the arrival of cotton, many farmers shifted from planting vegetables to cotton because it proved to be a profitable source of income and it took well to the arid region. Due to cotton's popularity among far west Texas and southern New Mexico farmers, it eventually re-shaped the cultural and agricultural landscape (p.78). Cotton was viewed as a strong economic factor, but also a strong cultural symbol since it brought people from miles apart together to



celebrate at local cotton harvest festivals. A few of the noticeable impacts discussed included new migrations among both farmers and farm laborers and “sourcing genetic material from around the continent, refining it through scientific research” (p. 78). As cotton continued to be the top cash crop for area farmers, it became the go-to crop to plant, and that brought along complications. Since cotton was one of the sole crops being grown, it transformed the region into a one-crop area that proved to be problematic to a degree (p.86).

The last chapter focused on the chili pepper and its early origins dating back to Dr. Fabian Garcia. Little was it known that the chili pepper would transform the cultural landscape and it became the symbol of New Mexico (p. 137). As the chili industry grew due to breeding developments, new chili varieties played a major role in the industry’s growth and it put New Mexico on the radar nationwide. Carleton argues that chili brought “industrialization into the heart of the New Mexico cultural identity” (p. 160).

Overall, Carleton notes that apples, cotton, and chili “brought with it modern technologies and innovations ranging from spraying laws, innovative advertising, from highly organized seed districts to greenhouses, from scientifically bred seeds – that have led to new agricultural possibilities and broader cultural change” (p. 163). In addition, Carleton offers an informative foundation and illustrates how agriculture has made an impact in the region and most importantly how crops have played an instrumental role in shaping the region’s culture. The author’s narrative provides an in-depth understanding of social and cultural views and is a must-read for individuals interested in furthering their knowledge in regards to how agriculture has had an impact in the New Mexico region.

Jennifer Olguin
Rio Grande Historical Collections Archivist
New Mexico State University Library

[RETURN](#)
[to](#)
[TABLE OF CONTENTS](#)

Book Review

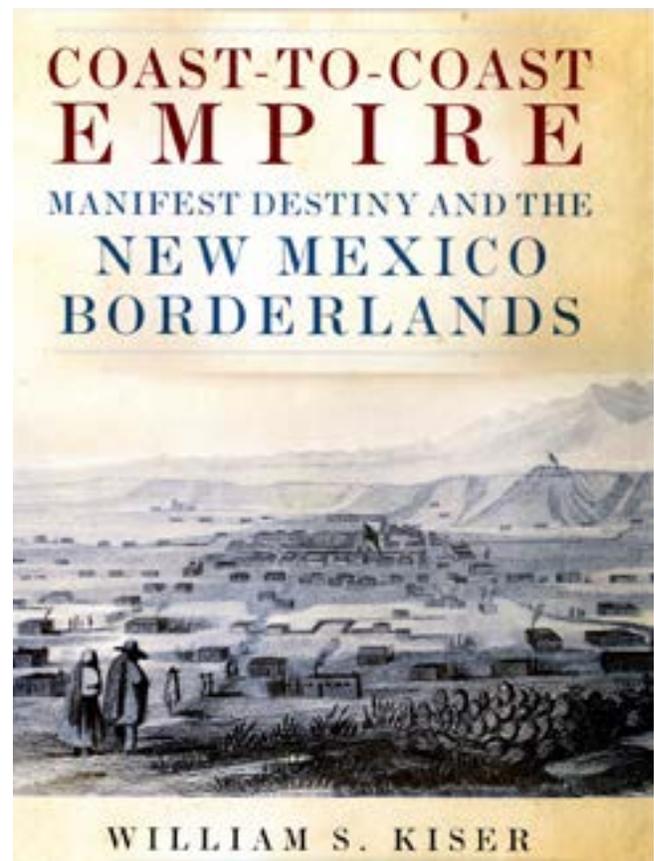
Coast-to-Coast Empire: Manifest Destiny and the New Mexico Borderlands by William S. Kiser. Norman, OK: University of Oklahoma Press, 2018. ISBN 978-0-8061-6026-9, 273 pages, \$32.95, cloth with dust jacket.

William Kiser has again focused on the New Mexico borderlands in his latest historical treatise. Similar to his previous scholarly efforts, *Coast-to-Coast Empire* is engrossing in its prose, concisely organized, and efficient in its arguments. The book places New Mexico at the center of the country's drive toward full implementation of Manifest Destiny. Kiser reframes known historical events and actors, discussing their impact beyond the borderlands and placing them in a keystone role in the effort by U.S. politicians and their military actors to establish an empire between the Atlantic and the Pacific. This book effectively synthesizes 19th century New Mexico history with a focus on the crucial role these happenings have on our understanding of westward expansion. Kiser's continued commitment to understanding the history of the U.S.-Mexico borderlands, as found in this work, places him at the forefront of recent scholarship on the topic.

Many readers will be familiar with the basic narrative found in Kiser's publication, but it would be a mistake to dismiss this as just another history of the transitional period between Mexican and American control of New Mexico. Kiser clearly describes his intent, indeed his thesis, in the work's introduction, reminding readers that while most historians have treated events from the period in isolation, he "approaches these topics as comprising a single, interconnected process of imposed political and ideological transformation." To spotlight how Manifest Destiny played out in the Southwest, Kiser then recasts the stories of the development of the Santa Fe trade, the American invasion led by Colonel Kearny, the ongoing

conflicts with the indigenous nations, the political debates over the expansion of slavery and the construction of a transcontinental railway, and the Confederate invasion as a single narrative of regional transformation wrought through force. The author reminds us that the imperial desire for expansion was "not always overt, purposeful, and immediate; it sometimes involved indirect and measured tactics," yet nevertheless, a unified story exists to be documented.

For nearly the entirety of its time as a Spanish colony, New Mexico held little appeal to the United States. An arid and landlocked locale with a struggling economy, inhabited by numerous indigenous peoples and an unfamiliar Hispanic Catholic society, it began to show its potential to interested U.S. politicians with the establishment of a trade network between distant Santa Fe and



the growing American settlements along the Missouri River. As neighboring California and Texas began to further fall into the American sphere of influence, New Mexico quickly emerged as a crucial crossroads, the geographic key to any successful westward expansion in the eyes of President James K. Polk. After Polk invaded the territory and seized it from Mexico, the new American possession continued to have a role in national discussions regarding the sectionalists' justifications for furthering the peculiar institution of slavery. Additionally, the location of a rail route to connect and enforce the country's claim to land along the Pacific, hotly debated by capitalists and their allied federal politicians, ensured the region remained firmly a part of the national discourse. Military men dispatched to protect New Mexico's settlements from indigenous raiding questioned the cost of this effort when viewed against a miniscule economic return provided by the region. Yet, once again, New Mexico's strategic importance came into focus as Confederate rebels attempted to seize the territory in their own ill-fated bid to establish a southern transcontinental empire. Thus, within a 50-year period, New Mexico had gone from a largely unknown entity to most in Washington, D.C., to an indispensable location in their nation-building plans. In *Coast-to-Coast Empire*, Kiser succeeds in drafting a compelling New Mexico-centered westward expansion narrative.

Printed by the University of Oklahoma Press, a publishing house committed to supporting scholarship on the American West, the work includes adequate illustrations and maps to inform the text. The publisher has additionally shown commitment to the work as seen by its release in audio and e-book versions, likely expanding its readership with these formats. Kiser's nearly 80 pages of endnotes and bibliography, a great resource to mine for those interested in further details, speaks to the author's dedication to the topic and scholarly craft.

All Southwestern academic and public libraries should carry this book among their holdings. The author's articulate effort makes his book a

necessary read for those wishing to understand the central role New Mexico played in American expansion. By foregrounding the history of the 19th century American Southwest, Kiser has better informed our understanding of the Manifest Destiny narrative and hopefully removed the scholarly marginalization all too frequently assigned to New Mexico.

Dylan McDonald
Political Collections Archivist and
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[RETURN](#)
[to](#)
[TABLE OF CONTENTS](#)

Book Review

My intent this fall was to write a book review of *V2: A Novel of World War II* by Robert Harris, a historical novelist who has sold over 10 million books. It was published in November 2020 and falls right into my area of interest – German V-2 rockets and their use. Even though it is a novel, I thought it might be of interest since America's V-2 program was conducted right over the mountains at White Sands Missile Range.

Indeed, the novel has a great deal of historical information about the German V-2 program and how the rockets were used to bomb Britain. At the end of the book, the author lists source material for his details – plenty of good information. However, as I read it, I realized that most readers will not be able to separate the interesting facts from the fiction. For instance, there is no way for you to tell if the rocket fueling sequence Harris details is real or simply manufactured to fit his plot line.

In the end it is a tight little novel that focuses on a few days of World War II but falls into the “average” category. The historical details detract from the thriller aspect of the novel and the fictional story leaves the historical information in question.

One Summer: America, 1927 by Bill Bryson. New York: Doubleday, 2013. ISBN 978-0-7679-1940-1, 509 pages, \$28.95, hardcover.

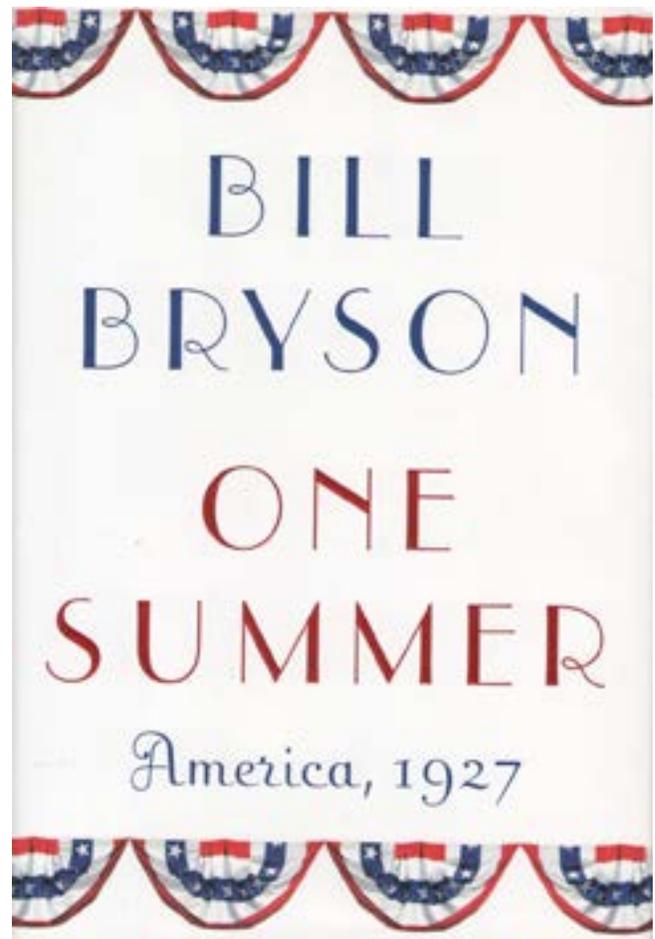
This is where you get two for the price of one. I also read Bill Bryson's ***One Summer: America, 1927*** this fall and, although published in 2013, this is an excellent book worthy of anyone's time.

Bill Bryson is a writer of travel memoirs, history books and a keen observer of modern culture. In this book he looks at what was happening in America during the summer of 1927. We are familiar with the two big wars and the Great Depression in the first half of the 20th century and now Bryson fills in some of the gaps with this book. For instance, did you know that by 1927 Henry Ford

was in danger of driving his company into the ground?

Ford introduced the industrial assembly line in 1908 and made the Model T the number one car in America. Most people could afford one. But what we didn't learn in our school history books which tend to glorify and make heroes of some people is that Henry Ford was kind of a rich bully blinded by his own good fortune. He was one of those people who think they are brilliant and should decide what is right for his employees, customers and the general public.

It meant he continued to produce the Model T almost 20 years later and, by then, it was a piece of junk compared to what General Motors and



Chrysler were producing. Sales were declining. The board of directors hammered away for changes and finally Ford relented. But, instead of setting about to design and produce a new model, Ford, in a snit, shut down all his operations so they could design, retool and start anew. It put everyone in his factories out of work for months and his showrooms had no product.

Other people Bryson focuses on are Charles Lindbergh, Babe Ruth, Al Capone and many others. The first two, American heroes, were at their peak of stardom in 1927. One nice touch is that Bryson provides the back story on these people and, at the end, does a quick summary of what happened to them.

Bryson really brings it home about how popular Lindbergh was after he crossed the Atlantic alone. He was like the beginning of the Beatles – he couldn't go anywhere without being mobbed. People gathered by the thousands just to see him fly by and at airfields where he landed protection was required for his airplane as people wanted a piece of it.

At its height he could have run for almost any public office and won simply based on his flight. Of course, Bryson follows up by pointing out that Lindbergh ruined it when he made speeches in the late 1930s supporting Hitler and the Nazis as they torpedoed American cargo ships. In just a few months Lindbergh was erased from many communities. Places that named their airfields or main streets or schools after him moved on to someone more patriotic with another European war looming.

The president during the summer of 1927 was Calvin Coolidge. Bryson couldn't find all that much to say about him because he spent most of the summer in the Black Hills of South Dakota fishing and playing cowboy.

The book is filled with everyday news from the time as well. It surprised me at how powerful the Ku Klux Klan still was in 1927 with members actually holding state office in places like Indiana. Racism and anti-Semitism were common too as eugenics was very popular. Many believed Amer-

ica could be improved by dictating who could reproduce and who should be eliminated from the gene pool. There were ministers who actually preached about race purification. Lindbergh's good friend Alexis Carrel advocated a committee to decide who to eliminate from society by the use of gas chambers.

At the same time the summer was glorious. With his 60 home runs, Babe Ruth singlehandedly hit more homers than all major league teams except the Cardinals, Cubs and Giants... and he batted .356. He hit a home run every 11.8 times at bat and he was walked 138 times. He was clearly a man amongst mostly boys.

Although this book has little of Bryson's humor that is common in his travel memoirs, it makes a fascinating deep-dive into one eventful summer in America.

Jim Eckles
Las Cruces, NM

[RETURN](#)
[to](#)
[TABLE OF CONTENTS](#)

Memorials

Joe Gold, October 29, 2021 at the age of 97. Joe received a bachelor's degree in mechanical engineering in 1949 at New Mexico College of Agriculture and Mechanical Arts, now New Mexico State University. After graduation, he went to work at White Sands Proving Ground now known as White Sands Missile Range. His career at White Sands lasted 30 years and one day. Joe retired in 1979 and was inducted into the Missile Range Hall of Fame in 2006. At home Joe learned to fly during college and continued his interest in becoming a flight instructor. He partnered to create Las Cruces Aviation to teach others to fly. He became active in the Civil Air Patrol (CAP) holding many positions including New Mexico CAP Wing Commander. Joe also had a great interest in history, especially family history. After retirement he spent significant time researching genealogy, writing, and publishing many books on family history. Joe was a longtime member of DACHS.

James J. (Pete) Drexler, April 22, 2021 at the age of 83. Pete's working career was as a scientist. After retiring as a physicist from White Sands Missile Range, Pete went on to become an award-winning writer of historical non-fiction books, which required a tremendous amount of research and fueled his passion for the untold history of the Southwest. Among other things, he researched and deduced Coronado's debated route through the Southwest, traced Cabeza de Vaca's harrowing journey from Florida to Mexico, and condensed the history of Dona Ana County. A longtime historical society member, in 2019, DACHS presented Pete with the Pasajero Del Camino Real Award for his body of work on Southwest history. His family has set up a scholarship fund at NMSU in his name that is aimed at students studying science or history.

Donovan J. Swann, November 9, 2020 at the age of 88. Donovan first came to Las Cruces courtesy of the US Army. He arrived in Las Cruces in July of 1956, and was assigned to the Signal Company at what was then White Sands Proving Grounds, now White Sands Missile Range. He served at WSMR until discharged in 1962. While at White Sands he chased local historical stories like Victorio Peak and its famous Doc Noss treasure. He was a walking encyclopedia of information on the peak and its mythic gold bars. In recent years, as a member of the Dona Ana Historical Society, he published a short article titled "Chasing the James "Bear" Moore Story." According to his family, he loved anything involving New Mexico and Southwest history.

David Soules, March 26, 2021 at the age of 63. David was a local Renaissance man. In the area of history, David was instrumental in doing much of the behind-the-scenes historical groundwork for establishing the Organ Mountain/Desert Peaks National Monument. He spent years finding and documenting the historical places, artifacts and events that were part of the package that was presented in Washington, D.C. for the declaration. In a presentation to the Dona Ana County Historical Society he demonstrated how he used satellite imaging to find likely cultural sites before going out on the ground to survey the areas. To help others find the cool things in the monument, David co-authored the book "Exploring Organ Mountains – Desert Peaks National Monument."

David worked as an engineer at White Sands Missile Range for more than 35 years. There he served for years as vice president of the White Sands Missile Range Historical Foundation. The foundation was formed to build a permanent museum building on the missile range. Members of the board of directors said he was always the calm presence and the voice of reason during meetings. Whenever David spoke, he was articulate and organized. Everyone listened and, most of the time, followed his advice. The missile range museum is preparing to move into that brand-new building, thanks in part, to David's efforts.

Campo Santo de la Sagrada Familia

Village of Picacho, Doña Ana County, NM

This *campo santo* was started by the Evangelisto Chávez family when they set aside some of their own property for community burials. This plaque honors the estimated 200 people buried in the cemetery and adjoining properties.

The last known interment here was in 1919. Since then, the cemetery records have gone missing. Also, only a couple of grave markers remain standing. The result is almost no obvious information on who is buried here.

However, some burials have been documented using church records and death records found here in the Mesilla Valley. The estimated total of 200 interments is based on interviews with local residents and the use of ground penetrating radar to identify likely graves.

Local researchers were able to identify 34 individuals known to be buried here. The oldest documented burials were in 1860.

This memorial contains the names of all individuals known to be buried here (as of 2020). The background information found during the research, including biographical data on some individuals, is housed in the New Mexico State University Library Archives & Special Collections and is available to the public.

Armedares, Juan Nepomuceno	1868 - 1926	Matsuba, Refugio Alvarez de	1886 - 1923
Armijo, José Francisco Xavier	1830 - 1861	Matsuba, Refugio	1923 - 1923
Burgosa, Julio	1927 - 1927	Matsuba, Eulinda	1937 - 1938
Bivas, Manuel	1924 - 1925	Matsuba, María	Stillborn
Chávez, María Rita	1919 - 1896	Mieles, Andrés	1839 - 1860
Cortez, Marcelino	1905 - 1926	Myers, no name	1923 - 1923
Delgado, María López	1927 - 1930	Peña, Loreto	1923 - 1928
Delgado, Mauricio	1925 - 1926	Peterson, unnamed	1924 - 1924
Delgado, Maximiana Apodaca de	1893 - 1922	Salas, Paulita	1920 - 1926
Fajardo, Ramón	1860 - 1871	Sacceda, Mercedes Garcia de	1906 - 1928
Glar, Clara Garcia de	1896 - 1923	Sacceda, Natalia	1927 - 1928
Glar, unnamed child	1923 - 1923	Savedra, Estefano	1848 - 1935
Guerra, Mateo	1839 - 1861	Serna, Andrés	1940 - 1940
Guerra, Tirso	1861 - 1861	Serna, Cecilia	1949 - 1949
Gutiérrez, Juana Márquez de	1906 - 1924	Silva, Martín	1861 - 1861
Lacera, Juana	1911 - 1862	Trajillo, Abran	1860 - 1860
Márquez, Juan	1853 - 1938	Trajillo, Tere	1861 - 1861

Placed by the Doña Ana County Historical Society
2020

Above is the plaque paid for and installed by the Doña Ana County Historical Society after clean-up of the village cemetery in Picacho. The photo below shows the cemetery with the plaque mounted in a stone pedestal and the pillar-and-chain barrier along the road. In April 2021, the Historical Society of New Mexico announced that it was giving the L. Bradford Prince Award to the DACHS for its work on the cemetery. The award recognizes significant work in the field of historic preservation in New Mexico. Photo by Jim Eckles

