

NATIONAL HISTORIC LANDMARK NOMINATION

NPS Form 10-900 USDI/NPS NRHP Registration Form (Rev. 8-86) OMB No. 1024-0018

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United States Department of the Interior, National Park Service National Register of Historic Places Registration Form

1. NAME OF PROPERTY

Historic Name: TWENTY MULE TEAM WAGON SET

Other Name/Site Number: TWENTY MULE TEAM WAGONS, TWENTY MULE TEAM WAGON TRAIN DEATH VALLEY TWENTY MULE TEAM WAGONS

2. LOCATION

Street & Number: Harmony Borax Works, Death Valley National Park Not for publication: N/A

City/Town: Death Valley Vicinity: Furnace Creek

State: California County: Inyo Code: 027 Zip Code: 92328

3. CLASSIFICATION

Ownership of Property Category of Property
Private: ___ Building(s): ___
Public-Local: ___ District: ___
Public-State: ___ Site: ___
Public-Federal: X Structure: X
Object: ___

Number of Resources within Property
Contributing Noncontributing
___ buildings
___ sites
3 structures
___ objects
3 Total

Number of Contributing Resources Previously Listed in the National Register: 0

Name of Related Multiple Property Listing: N/A

checkbox

4. STATE/FEDERAL AGENCY CERTIFICATION

As the designated authority under the National Historic Preservation Act of 1966, as amended, I hereby certify that this ___ nomination ___ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property ___ meets ___ does not meet the National Register Criteria.

Signature of Certifying Official Date

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State or Federal Agency and Bureau

In my opinion, the property ____ meets ____ does not meet the National Register criteria.

Signature of Commenting or Other Official

Date

State or Federal Agency and Bureau

5. NATIONAL PARK SERVICE CERTIFICATION

I hereby certify that this property is:

____ Entered in the National Register

____ Determined eligible for the National Register

____ Determined not eligible for the National Register

____ Removed from the National Register

____ Other (explain): _____

Signature of Keeper

Date of Action

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6. FUNCTION OR USE

Historic: TRANSPORTATION	Sub: road-related
INDUSTRY/PROCESSING/ EXTRACTION	Sub: extractive facility
COMMERCE/TRADE	Sub: business
Current: LANDSCAPE	Sub: park (interpretive display)

7. DESCRIPTION

ARCHITECTURAL CLASSIFICATION: N/A

MATERIALS:

Foundation:

Walls:

Roof:

Other: WOOD/METAL (iron)

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Describe Present and Historic Physical Appearance.

The twenty mule team wagon set is currently located at Harmony Borax Works at Death Valley National Park. The site is on level ground, previously utilized as parking by visitors; the parking lot was removed in the 1970s. Prior to being a parking lot, the site may have been the location of a storage structure or barn that was associated with the Harmony Borax Plant operations. A fence has been erected around the entire wagon set at a distance of about four feet from any side of the wagon set. Access to the site is from a paved maintenance road that begins at the current parking area and runs up to and around the Harmony Borax Plant. From the paved maintenance road extends the flat gravel-covered site upon which the wagon set is located. During February of 2000, National Park Service Historic Preservation Specialists from the Architectural Conservation Projects Program at the Intermountain Support Office in Santa Fe, New Mexico replaced some of the wooden elements on the forward and trailing wagons, moved the wagon set up onto concrete pads, and installed structural supports to prepare the wagons for semi-permanent exhibition for visitors to Death Valley National Park.¹

The twenty mule team wagon set has three major components: a lead wagon, a trailing wagon, and a water wagon, and all three components are of composite wood and iron construction. Testing of wood samples by the U.S. Forest Products Laboratory in Madison, Wisconsin revealed that the primary woods used in constructing the wagons were hickory, Douglas fir, and white and red oak. The forward and trailing wagons are nearly identical and consist of: the wheels; the wagon undercarriage, which includes the axletrees, the pull assemblies, brake assemblies, and the chassis; and the wagon bodies, which include floorboards, coverboards, sides, fenders, sliding front panels, hinged rear doors, interior corner posts, exterior support posts, exterior iron strapping, water barrels and mounts. The water wagon consists of: the wheels; the wagon undercarriage, which consists of the axletrees, the pull assembly, brake assembly, and the chassis; and the water tank itself.

The front pull assemblies are a composite system of wood and iron components. They consisted of the tongues, jaws, and turning guides attached to the axletrees. The tongue for the lead wagon is approximately 12 feet in length, whereas the tongues for the middle and water wagons are approximately seven feet long. The rear pull assemblies are a composite system of wood and iron axle braces and tie rods connecting the front axletrees to the rear axletrees. The wood components of the rear pull assembly of the water wagon appears to have been replaced. All iron pull assembly pieces are present. The brakes were constructed of an iron ratcheted-lever system mounted on the left sides of each of the wagons connecting to a cross member forward of the rear wheels upon which the brake calipers are attached. The calipers themselves are constructed out of wood with an asbestos-like lining; they were applied to the rear wheels only. The cross member and the calipers are missing from the lead wagon; those on the water wagon have been replaced. Detailed descriptions of the individual wagons are provided below.

Overall the wagon set retains a high degree of fabric integrity. The character defining features of the wagons, such as the enormous wheels and the large wagon boxes, still retain their integrity of design, materials, workmanship, and feeling in spite of selective replacement of deteriorated wooden members and metal fasteners with like materials. The wagon set also has a high degree of integrity with regard to its location, setting, and feeling. They were designed to accommodate the rough terrain between the borax extraction facilities and the railroad, and Harmony Borax Works was the most remote of these. This isolation is experienced by the modern visitor to Death Valley National Park in the length of their journey into the park by bus or car and in the expansive view of the surrounding mountains from the bottom of the valley. The remoteness of the setting combined with the impressive size and durability of the wagons convey the feeling of the Western landscape as it is represented in the popular imagination.

Forward and Trailing wagons

The forward and trailing wagons have 1 inch by 6 inch thick wood floorboards, which are were placed across the longitudinal frames and run the entire length of the wagon body. The sides of both wagons are made of six

¹ Glenn Simpson, Completion Report: Twenty Mule Team Wagon Set Stabilization Project. Santa Fe, New Mexico: Architectural Conservation Projects Program, National Park Service, 2000.

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horizontally stacked boards on each side, the two bottom boards being 2 inches by 12 inches and the remaining five boards being 1 inch by 12 inches. The sideboards are held in place by four interior wooden corner posts, four exterior vertical wooden posts and seven exterior vertical iron straps, which are through-bolted with carriage bolts and square nuts on each side. Two of the seven exterior vertical straps on each side of the wagons are joined at the base of the wagon body, forming a stirrup or cradle in which rests the brake assemblies; however, the brake assembly for the lead wagon is missing. Both wagons have seven 3 inch by 4 inch cross members which are bolted to the bottoms of the seven exterior iron straps, supporting the longitudinal frames. Attached to the sides on both sides of both wagons are iron water barrel shelf supports, which are bolted to the cross members to support the weight of the barrels. Fastened on the left sides of both the front and trailing wagons are the iron brake lever components and guides. Also attached to the left sides of the front and trailing wagons are wooden fenders above the front wheels. The fenders are constructed of single 2 inch by 14 inch by 4 foot wooden boards mounted horizontally and flat on iron angle brackets and placed just below the brake lever assembly. On the front of the wagon boxes are two plank-style panels that rest one upon the other and which slide upward to allow access to the interiors of the boxes. A small box bolted to the lower sliding panel seen in many of the historic photographs is missing except for several fasteners and one small wooden piece. At the rear of the boxes are a pair of plank-style doors hinged to the sides of the wagons and closing in the center with a hook and ring fastener and a simple hasp. The hook and ring fastener on the rear wagon is missing. All sides of both wagons have been painted, and remnants of the borax promotion paint scheme are still distinguishable. There are remnants of light blue paint on all the wooden components, black paint on the iron strapping and rear door hinge components, and red on the wheel felloes and spokes. There are faint traces of white lettering on the side ports. The coverboard system for the tops of the wagons is similar to the floorboard system, with the coverboards resting on ledger boards that run the length of the interior of the wagon sides. The coverboards are screwed in place using contemporary galvanized decking screws.

The front wheels are wagon-style wheels approximately 4 feet 6 inches in diameter with 14 wooden spokes terminating into wooden hubs at the proximal ends and wooden felloes at the distal ends. The rear wheels are wagon-style wheels approximately 6 feet 4 inches in diameter with 18 wooden spokes. The hub assemblies consists of 4 retaining rings, two on the outside and two on the inside, with the inner rings on each side retaining the proximal ends of the spokes. Inserted into each hub is a 3/8th inch galvanized steel oiling tube. The tires are approximately 1 inch thick by 8 inches wide and are hammer-welded around the circumference of each wheel.

The front axletree is composed of two major components, the axle assembly and the axle mount. The axletree accommodates the smaller front wheels and is slightly narrower than the rear axletree. The front axle assembly is made up of stacked timbers approximately 5 inches wide and 4 feet long with a flat iron bar on the top at the interface of the axle assembly and the axle mount. The timbers rest on top of the iron axle approximately 7 feet 4 inches in length and 3 inches by 3 inches square, which becomes 2½ inch diameter circular spindles at the ends to accommodate the internal bronze bushings of the wheel hubs. The stacked timbers and the iron axle are U-strapped and U-bolted together. Three holes are cut through the wooden timbers, one rectangular in the center, and two square holes toward the ends. The holes allow the components of the pull assembly to pass through the axle assembly. The front axle mount is made from a single large timber approximately 6¼ inches square at the ends and 4 feet 6½ inches in length. The top of the axle mount is flat and the wagon body attaches directly to it, but the underside tapers downward, moving from the ends to the center, and is lined with iron to minimize wear at interface between the axle mount and the axle assembly. The axle mount is connected to the axle assembly with a center iron kingpin approximately 1¼ inches in diameter and 2 feet in length. The axle assembly turns independently of the axle mount on the axis provided by the kingpin, allowing the front axletree to provide steering for the wagon.

The rear axletree is a made of single component, an axle assembly, unlike the front which is two separate components. The axle assembly is composed of stacked timbers, approximately 5 inches wide and 4 feet 8 inches long at the top and notched on the bottom corners making it approximately 3 feet 8 inches long where it meets the axle. The timbers rest on top of the iron axle approximately 7 feet 6 inches in length and 3 inches by 3 inches square, except at ends where axle becomes 2½ inch diameter circular spindles to accommodate the internal bronze bushings of the wheel hubs. The stacked timbers and the iron axle are U-strapped together. The chassis is made up of two wooden members or frames approximately 4 inches by 5 inches, which run longitudinally the entire length of the wagon box. Resting on the longitudinal member are seven cross-members approximately 3 inches by 3 inches spaced fairly evenly from front to rear.

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Wooden cross-members function to floorboards and wagon sides and are supported by longitudinal wooden frames. The axletrees attach to undersides of the longitudinal wooden frames.

During February of 2000, National Park Service Historic Preservation Specialists from the Architectural Conservation Projects Program at the Intermountain Support Office in Santa Fe, New Mexico replaced in kind some of the wooden elements on the forward and trailing wagons, which included the floorboards, coverboards, and coverboard ledgers. On the trailing wagon, the bottom sideboard on the left side, one cross member, and the wooden components of the tongue were replaced, and the missing longitudinal frame timbers were restored. Two cross members on the lead wagon were also replaced.

Water wagon

The water wagon is a cylindrical tank mounted horizontally on the wagon frame. It is approximately 4 feet 4 inches in diameter and 9 feet 6 inches in length, with a capacity of approximately 1,050 U.S. liquid gallons. It is constructed of sheets of iron approximately 3 feet wide overlapped and riveted approximately every 2 inches in a single line around the circumference seams, and riveted in an alternating double line pattern along the horizontal seams. The front end of the tank has one welded seam where a repair was made. On the top and approximately 3 feet 6 inches from the front of the tank is riveted a collar 14 inches in diameter which at one time was fitted with an iron lid, now missing. The tank rests on the two longitudinal wooden frames and is strapped to the frames with $\frac{1}{4}$ inch by 2 inch iron straps with possible contemporary threaded rods welded to the ends which pass through and are bolted to the frames. There is a large dent on the underside of the tank and the strapping used to secure the tank to the undercarriage appears recent and is welded to contemporary threaded rods.

The front wheels are wagon-style wheels approximately 4 feet 2 inches in diameter with 12 wooden spokes terminating into wooden hubs at the proximal ends and wooden felloes at the distal ends. The rear wheels are wagon-style wheels approximately 5 feet 4 inches in diameter with 14 wooden spokes. The hub assemblies consist of 4 retaining rings, 2 on the outside and 2 on the inside, with the inner rings on each side retaining the proximal ends of the spokes. The wheels did not have the oiling tubes installed on the front and trailing wagons. The tires are approximately 1 inch thick by 8 inches wide and are hammer-welded and heat-shrunk around the circumference of each wheel.

The front axletree is composed of two major components, the axle assembly and the axle mount. The axletree accommodates the smaller front wheels and is slightly narrower than the rear axletree. The front axle assembly is made up of stacked timbers approximately 5 inches wide and 4 feet long with a flat iron bar on the top at the interface of the axle assembly and the axle mount. The timbers rest on top of the iron axle approximately 6 feet 6 inches in length and 3 inches by 3 inches square, becoming 2½-inch diameter circular spindles at the ends to accommodate the internal bronze bushings of the wheel hubs. The stacked timbers and the iron axle are U-strapped and U-bolted together. Three holes are cut through the wooden timbers, one rectangular in the center, and two square toward the ends. The holes allow the components of the pull assembly to pass through the axle assembly. The front axle mount is made from two large timbers approximately 5 inches wide and approximately 4 feet in length. The top of the axle mount is flat and attaches directly to the tank frames. The axle mount is lined with flat iron to minimize wear at interface between the axle mount and the axle assembly. The axle mount is connected to the axle assembly with a center iron kingpin approximately 1¼ inches in diameter and 2 feet in length. The axle assembly turns independently of the axle mount on the axis provided by the kingpin, allowing the front axletree to provide steering for the wagon. The rear axletree is a made of single axle assembly composed of a three stacked timbers, approximately 5 inches wide and 4 feet in length. The timbers rest on top of the iron axle approximately 6 feet 5 inches in length and 3 inches by 3 inches square, becoming 2½ inch diameter circular spindles at the ends to accommodate the internal bronze bushings of the wheel hubs. The stacked timbers and the iron axle of the rear axletree are U-strapped together.

It was discovered during the 1999 condition assessment performed by the staff of the Intermountain Support Office, Santa Fe, Architectural Conservation Projects Division that many of the wooden components of the water wagon had been replaced in kind. These components include: the upper stacked timbers of the front and rear axletrees, the two

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longitudinal frames, the rear axletree braces, the brake caliper cross member, and the felloes on all four wheels. However, nearly all of the iron components remain in place.²

² Glenn Simpson, Condition Assessment and Preservation Plan, Twenty Mule Team Wagon Set, Death Valley National Park (Santa Fe: National Park Service Architectural Conservation Projects Program, Intermountain Support Office, 2000).

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8. STATEMENT OF SIGNIFICANCE

Certifying official has considered the significance of this property in relation to other properties: Nationally: ___
Statewide: ___ Locally: ___

Applicable National
Register Criteria:

A X B ___ C X D ___

Criteria Considerations
(Exceptions):

A ___ B ___ C ___ D ___ E ___ F ___ G ___

NHL Criteria: 1, 3, and 4

NHL Theme(s):

- III. Expressing Cultural Values
 - 6. Popular and traditional culture
- IV. Expanding Science and Technology
 - 1. Experimentation and Invention
- V. Developing the American Economy
 - 1. Extraction and Production
 - 3. Transportation and Communication

National Register Areas of Significance: Industry, Transportation, Commerce, Entertainment/Recreation

Period(s) of Significance: 1884 to Present

Significant Dates:

Significant Person(s):

Cultural Affiliation: N/A

Architect/Builder: Perry, John W.S.

NHL Comparative Categories:

- XII. Business
 - A. Extractive or Mining Facilities
 - 3. Other Metals and Minerals
 - L. Shipping and Transportation
- XIV. Transportation
 - G. Automobiles, Buses, Wagons, and Highways
- XX. Theater
 - I. Theater for Radio and Television



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State Significance of Property, and Justify Criteria, Criteria Considerations, and Areas and Periods of Significance Noted Above.

The Twenty Mule Team Wagon Set is significant as a National Historic Landmark under Criteria 1, 3, and 4 for its association with the transportation and extraction of minerals from the Death Valley area during the late 19th century; for its association with the history and development of advertising as an industry icon used to promote the use and sales of borax as a cleaning agent from the early 20th century to the present; its association with Stephen T. Mather, the first director of the National Park Service and creator of the Twenty Mule Team Wagon icon sometime around 1895; its role in the television series *Death Valley Days* which contributed to its status as a symbol of westward expansion in the context of the burgeoning genre of the Hollywood Western; and for its association with Ronald Reagan, one of the hosts of *Death Valley Days* and former California governor and U.S. president. It retains a high degree of integrity, both in fabric and setting.

Since construction in 1884, the twenty mule team wagon sets have been recognized as unusual for their large size, sturdy construction, and for the rugged route they followed while hauling borax mined in Death Valley to the railroad at Mojave, California. Transportation of raw material was a very real limiting factor in the industrial development of the remote Death Valley region until the arrival of the railroad, and the twenty mule team wagons were a technological solution to a perennial problem—the latest development in a long tradition of innovation, but one necessitated and shaped by the task and environment for which they were designed. Their size and the long teams of animals used to pull them made a striking image—one that evoked pride in American ingenuity and lent an air of legitimacy to the purity of the borax thus transported. The symbolic weight of the twenty mule team wagons was exploited by the borax industry, which took advantage of the highly recognizable image of the wagons for use as a brand name and icon to promote the sale of borax. This campaign proved successful not only because the icon was unique, recognizable, and based on historical fact, but because the physical artifacts representing that history were still in existence and could be sent around the country on tours promoting borax (and, incidentally, themselves). The universal appeal of the twenty mule team wagon sets reached beyond the borax industry, due in large part to their role in the history of mining and the romantic view the public held of the teamsters. This ensured the twenty mule team wagons a place in the pantheon of symbols associated with the West, placing them in the public imagination next to pioneers, cowboys, false-fronted boomtowns, and the western landscape itself. The ongoing public exposure offered by *Death Valley Days* provided the wagons sets a place in the consciousness of a generation of Americans, and made certain of their long-lasting status as emblems of westward expansion.

The enduring significance and appeal of the twenty mule team wagons has its basis in their status as historical artifacts representative of the mining industry and its role in the settlement of the West, and it has been argued that no industry has had a greater impact on Western history than did mining.³ Miners settled new regions faster than did farmers, coming into conflict with Native Americans and forcing territories and states into being sooner than would otherwise have been the case. Mining lent itself well to the cause of the industrial revolution, as power shifted to companies and corporations and the ambition of miners shifted from bonanzas to wages, forcing swift developments in mining law surrounding company responsibilities.⁴ The California gold rush and the development that followed is particularly significant for the sheer numbers of people involved and the lasting impact it has had on the development of the western frontier of the United States.⁵

³ Patricia Nelson Limerick, *The Legacy of Conquest: The Unbroken Past of the American West*. (New York: W.W. Norton & Company, 1987), 99.

⁴ *Ibid.*, 99-108.

⁵ Ronald H. Limbaugh, "Making Old Tools Work Better: Pragmatic Adaptation and Innovation in Gold-Rush Technology" in *A Golden State: Mining and Economic Development in Gold Rush California*, eds. James J. Rawls and Richard J. Orsi (Berkeley: University of California Press, 1999), 28.

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The history of the mining industry in California and the westward expansion it fostered are well known. The promise of gold brought thousands of people to the state, including Spanish-Mexicans who brought with them the mining expertise they had developed in Mexico and Peru for over three centuries. Words such as *placer* and *bonanza* are one of the legacies of these immigrants, as are technologies such as the *arrastra* and amalgamation.⁶ Within a few years, the gold in the steam beds and surface outcroppings of quartz was depleted. Reaching subsurface deposits required heavy equipment and large amounts of capital, provided at first by investors in San Francisco and later from eastern and even European businessmen as well. Many ingenious devices were developed, but more time-tested equipment proved of greater worth, including the stamp mill, developed at least as early as the sixteenth century in Europe. Underground mining required shafts, tunnels, tracks, carts, hoists, blasting equipment, and paid labor. Refining the raw ore was expensive as well, and as the proposition “It takes a mine to run a mine” became more true, only those miners with expertise and financial backing were successful. The ambitions of working miners shifted from working their own small claims to working for wages in larger operations, and the power shifted to companies and corporations. In time, a great variety of minerals, including borax, were discovered and exploited in areas all over the state as the search for wealth in other forms began in earnest as well. Technical innovations were on going as companies tried to improve their profit margins with increased efficiency. The air drill, for example, relieved miners from boring dynamite holes in rock with a hand drill and hammer, but created more dust that damaged miners’ lungs and caused long-term health problems such as silicosis and phthisis.⁷ In addition to extraction and refinement, transportation of the resulting product was an aspect of mine management as well. Freighting of minerals less valuable relative to their weight than gold became an expensive proposition in remote areas, and the success of many mining operations was dependent on an adequate available infrastructure to haul their product to refining, manufacturing, and distribution centers. Railroads were a valuable resource in this regard, but the ore still had to be transported from often isolated mine sites to the railroad lines. Horses and mule teams often proved the best option, as motorized vehicles frequently broke down and were expensive to maintain.

As in other parts of California, miners attempted to exploit Death Valley’s gold and silver resources much earlier than the other minerals, and the borax resources weren’t developed until nearly twenty-five years after the first attempts to extract precious metals.⁸ While horse traders were known to pass through the valley as early as the 1830s, some of the first accounts of the mineral wealth of Death Valley come from emigrants who crossed the valley on their way west in 1849. Both gold and silver were noticed by these early entrepreneurs, who nevertheless passed them by in favor of the fabled riches of the high Sierras and who counted themselves lucky to have passed through the valley with their lives.⁹ These fleeting early encounters with precious metals proved to be the stuff of legend, and as the gold rush continued, many a prospector was to find financial backing with the promise of finding one of the fabulous veins of silver or gold first found but badly documented by some hapless forty-niner. A piece of silver-lead ore picked up by Jim Martin in 1850 and made into a gunsight gave birth to tales of the “Lost Gunsight silver lode”, the wealth of which grew with every telling and the location of which remains a mystery to this day. Searches for the Gunsight lode continued for decades, and received additional impetus with the discovery

⁶ James J. Rawls and Walton Bean, California: An Interpretive History (New York: McGraw-Hill, Inc., 1993, 6th edition), pp. 88, 147; and Limbaugh “Making Old Tools Work Better”, 29.

⁷ Mark Wyman, Hard Rock Epic: Western Miners and the Industrial Revolution, 1860-1910. (Berkeley, University of California Press, 1979), 90-91.

⁸ David J. St. Clair, “The Gold Rush and the Beginnings of California Industry” in A Golden State: Mining and Economic Development in Gold Rush California, eds. James J. Rawls and Richard J. Orsi (Berkeley: University of California Press, 1999), 205.

⁹ Richard E. Lingenfelter, Death Valley and the Amargosa: A Land of Illusion (Berkeley: University of California Press, 1986), 38, 43.

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of the Comstock Silver Lode in 1859.¹⁰ The prospector Charles Breyfogle inspired a legend of his own by emerging from the desert one day with pockets full of rich gold ore and a faulty memory. This vein was also never relocated, but it inspired so many unsuccessful treasure hunts (including many by Breyfogle himself) that the term “breyfogling” has come to represent “the quest for lost mines everywhere”.¹¹ If gold and silver lodes were becoming legendary, individual prospectors were as well, including women. Panamint Annie and Happy Days Diminy were two of the women who made names for themselves prospecting in and around Death Valley.¹² The result of all the prospecting in the area was that a number of mine claims and mining towns were established, some more lucrative and long-lived than others. In the end, gold, antimony, copper, lead, zinc, silver, tungsten, talc, and borax were all mined in the area.¹³ In many cases, the ore was not rich enough to warrant the expense of hauling out of its remote location, but this fact rarely deterred prospectors or newly-rich San Francisco businessmen searching for a lucrative investment. Gradually, infrastructure was created to enhance the profit margin on ore that needed to be transported to refining facilities and to market, making it possible to consider the exploitation of bulkier forms of mineral wealth.

“A fact of peculiar and somewhat romantic interest is that the only product of value from this region of fatal barrenness and heat is that rare preservative, borax. . . Passing strange that this Valley of Death should pour out a harvest of nature’s most potent preservative and purifier!”¹⁴, wrote one author for the publication *Good Roads* in 1892. Death Valley’s borax deposits were first recognized in 1873, at the height of the “great borax fever”. But even at \$700 a ton at its peak price, the commercial worth of the borax in Death Valley wasn’t exploited until the establishment of the Southern Pacific Railroad east across the Mojave.¹⁵ Even then, the claims were ultimately developed by William Tell Coleman and Francis Marion Smith—men who had a virtual monopoly on the production and distribution of borax and financial resources substantial enough to support such an endeavor. Between them, they spent \$29,000 to buy the titles to all the borax and calcium borate (known as colemanite) claims in Death Valley and Amargosa country, save that of Eagle Borax Works, and later Coleman would acquire even that.¹⁶

By late 1883, three borax processing plants had been established in and around the valley: Eagle Borax Works, Harmony Borax Works and the Amargosa Borax Works. Predictably, transportation was a limiting factor. Standard California freight wagon boxes were sixteen to twenty feet long, but only three or four feet wide. They weighed nearly two tons empty, and hauled loads of six to eight tons with up to twelve mules.¹⁷ Initially, the borax produced at these three plants was hauled to the railheads at Daggett and Mojave, California by these standard-sized wagons pulled by twelve to eighteen mules. A drop in borax prices in 1884 forced the closure of Eagle Borax Works and necessitated a more economical way to transport the borax out of the valley.

To meet this need, Coleman, the owner of Harmony and Amargosa Borax Works, had five enormous wagon sets constructed under the supervision of John W. S. Perry in Mojave. Each set contained two freight wagons followed by one water wagon. The wagons had precedents in other composite wagons of

¹⁰ Ibid., 59-61.

¹¹ Ibid., 69.

¹² Sally Zanjani, *A Mine of Her Own: Women Prospectors in the American West, 1850-1950* (Lincoln: University of Nebraska Press, 1997), 263-283.

¹³ Linda Greene, *Historic Resource Study: A History of Mining in Death Valley National Monument* (Denver: Historic Preservation Branch, National Park Service, 1981), 3.

¹⁴ C.M. Plumb, “Death Valley Borax Wagons”. *Good Roads* Vol. 2, 1892, 67.

¹⁵ Lingenfelter, *Death Valley and the Amargosa*, 173.

¹⁶ Ibid., 175.

¹⁷ A.C.W. Bethel, “The Golden Skein: California’s Gold-Rush Transportation Network” in *A Golden State: Mining and Economic Development in Gold Rush California*, eds. James J. Rawls and Richard J. Orsi (Berkeley: University of California Press, 1999), 260-261.

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wood and iron construction used to haul the products of smaller-scale mining operations in the area, but they were ground-breaking in their proportions and durability. Each box wagon weighed nearly four tons and was four feet wide, sixteen feet in length and six feet deep. The rear wheels were nearly seven feet high and the front wheels nearly five, both with iron tires approximately eight inches wide and an inch thick. The water wagon was constructed to slightly smaller dimensions and carried an iron 1050-gallon water tank supported by a composite wood and iron undercarriage. Because each wagon set was hand-made, each set was slightly different from the others. Fully loaded, each set weighed over 36 tons.¹⁸ While the name implies that twenty mules were used to pull them, in fact it was found that eighteen mules and two horses were the best combination, with animals of different temperaments and sizes placed in strategic positions throughout the team.

While the wagons were unique in their dimensions, their use of long strings of mules was not a first. An article in *The Engineering and Mining Journal* discussed in detail the techniques of driving teams of fourteen mules¹⁹, there are records of strings of twenty mules being used by other outfits to haul borax at least as early as 1876, and other references to such teams hauling a stamp mill and other mining equipment in 1878.²⁰ The same technique had been employed outside the mining industry even earlier. One writer reports watching large wagons with 5000 pounds of cargo being drawn by ten to twelve mules.²¹ 6000 pounds became the normal weight for wagonloads on the Santa Fe Trail, and some wagons of the time were designed to bear loads of 7000-8000 pounds. Most of these, however, were drawn by oxen. The well-known "Prairie Schooners" of the 1850s were pulled by 12 mules, and are estimated to have carried up to 32,000 pounds of freight.²² It was, however, the long-term use of teams of twenty animals in Death Valley, beginning with mule driver Ed Stiles, that established the techniques for managing long strings of mules and provided the basis for the image and the tradition. The wagons were in seasonal use for five years between 1884-1888, hauling borax from the Harmony and Amargosa Borax Works over the rough Death Valley terrain to Mojave and the railroad. For the entire season for which the heat did not preclude borax production, one wagon set departed the borax works every four days, traveling the 330-mile round trip in twenty days. The teamsters that drove them earned \$100 to \$120 a month,²³ while the swampers that assisted them earned \$75.²⁴

The teamsters themselves were the objects of admiration and the stuff of legend for the general public, which romantically viewed them as tough men, both in physique and disposition. "If historians and poets have been justified in writing rapturously about the Arab and his steed, what may we not say of the Death Valley teamster and his mules? . . . When the teamster pulls up beside the dump with the mules in a line so straight a stretched string would touch the ear of every mule on either side of the chain, as has often been done, one wanted to be introduced and shake hands, as with 'one whom lesser minds make boast of having seen'", wrote Spears in praise of the skill of the teamsters.²⁵ Other tales of teamsters and swampers were published in 1883 by Henry G. Hanks. "No more vivid and romantic figure has come down to us, through the legends that set forth the opening of the desert and the desert mines, than the long line muleskinner of Death Valley", wrote Hanks, who referred to the period in which the wagons were in

¹⁸ Harry P. Gower, *50 Years in Death Valley: Memoirs of a Borax Man* (Bishop, CA: Chalfant Press, 1970), 11.

¹⁹ George C. McFarlane, "Freighting Ore with Big String Teams". *The Engineering and Mining Journal*, May, 1909.

²⁰ Harold O. Weight, *Twenty Mule Team Days in Death Valley* (Death Valley: Death Valley Natural History Association, 1997), 15.

²¹ Mark L. Gardner, *Wagons for the Santa Fe Trade: Wheeled Vehicles and their Makers, 1822-1880* (Albuquerque: University of New Mexico Press, 2000), 59.

²² *Ibid.*, 59, 102.

²³ Lingenfelter, *Death Valley and the Amargosa*, 184.

²⁴ Weight, *20 Mule Team Days in Death Valley*, 27.

²⁵ John R. Spears, *Illustrated Sketches of Death Valley and Other Borax Deserts of the Pacific Coast* (Chicago: Rand McNally and Co. Publishers, 1892), 93.

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use as the “halcyon days”.²⁶ This romance surrounding the legendary mule drivers was later exploited to good effect in efforts to publicize borax for commercial purposes.

Following the collapse of William Coleman’s borax enterprise in 1888, three of the wagon sets were dispersed to areas outside Death Valley. Francis M. Smith purchased the remaining two wagon sets in conjunction with the purchase of the Harmony, Amargosa, and Calico Borax properties and the formation of the Pacific Coast Borax Company. These two sets, which included the wagon set currently owned by Death Valley National Park, were then put to use at various times from 1890 to 1904 hauling borax from Death Valley and Calico. The wagons continued to be the only means of freight for the Death Valley borax operations until they were closed, and they were used to haul borax from Calico Dry Lake at Borate to the railroad at Daggett until F.M. Smith was able to construct a railway spur and an accompanying narrow gauge rail line to Borate. F.M. Smith was also obliged to use the teams again during the initial period at the Lila C. Mine at Ryan, outside of Death Valley. The teams hauled the borax to an ever-approaching railroad, and were finally retired from freighting when the railroad arrived in Ryan in 1907.²⁷

The twenty mule wagons began as a very practical solution to the difficult problem of transporting borax from a remote area in Death Valley to the nearest railroad, but in reality were only used in this fashion for five years. The next period in the history of the twenty mule team in the early part of the 20th century is centered around product promotion, both as an image and as a physical presence as the teams themselves were sent on tour around the country. The twenty mule team therefore serves as a touchstone for the study of the history of advertisement, for their name and image was one of the first to be used to identify a particular brand, and the development of the twenty mule team as an icon closely parallels the development of advertising in America in the early 20th century.

The promotion of goods and services has been present for centuries, but advertising truly became a social institution in the western world in the wake of the industrial revolution in the latter half of the 1800s and the early 1900s. Some of the earliest advertisements were run in newspapers with minimal graphics, and all the announcements were printed together on a single page. Product information was also distributed in the form of small, postcard-sized advertisements called trade cards, which came to be collected much in the same way as stamps or baseball cards and were exchanged and displayed as decorations.²⁸ However, advertisers found a broader audience in the mass-circulation of magazines that began in earnest at the turn of the 19th century. Publishers were slashing their prices in hopes of generating a market beyond the leisure class, and manufacturers eagerly took advantage of the increased exposure for their product promotions. At the same time, interstate trade restrictions were being loosened, and the potential consumer base went from local to national in scope in a very short amount of time. The increased competition meant that customers had to be convinced to buy products for reasons other than convenience and local production. Advertisers began promoting their products in subject- and audience-specific publications, and by the 1920s, even the *Saturday Evening Post* was composed over fifty percent paid advertisements.²⁹ In addition to printed media, the number of advertisements over the radio and television air waves grew as each of these appliances became more commonly owned. In 1949, advertisers spent \$12 million on television advertisements, and only 2 years later, that figure was at \$128 million.³⁰ Television was particularly effective because consumers could see live demonstrations of the product in use and watch celebrity endorsements (including Ronald Reagan’s pitches for light bulbs and

²⁶ Weight, *20 Mule Team Days in Death Valley*, 27.

²⁷ *Ibid.*, 387.

²⁸ Christina Mierau, *Accept no Substitutes!: The History of American Advertising* (Minneapolis: Lerner Publications Company, 2000), 46-47.

²⁹ Vincent Vinikas, *Soft Soap, Hard Sell: American Hygiene in an Age of Advertisement* (Ames, IA: Iowa State University Press, 1992), 7-14.

³⁰ Mierau, *Accept no Substitutes!*, 70.

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appliances for General Electric). Both of these strategies have also experienced tremendous growth over the 20th century, and both were exploited by promoters using the twenty mule team as a symbol of their company and products.

Initial efforts at product promotion were usually simple announcement of availability, with few graphics, logos, or brand names. Eventually, some description of the products was incorporated, and medicines, soaps, food, and other products were soon the subject of wild and distorted statements proclaiming their efficacy in curing any of an extensive and disparate array of ills in humans and animals. In the 1870s, for example, sarsaparilla was promoted as curing “scrofulous, humor in the blood, ulcers, catarrh, consumption, neuralgia, sciatica, rheumatism, a general tired feeling, and even pimples.”³¹ Borax and borax shampoo was extolled as preventing diphtheria, lung fever, kidney trouble, and decay of the mental faculties, and a curative for nervous headaches.³² By the turn of the century, however, American medicine was becoming a profession more grounded in science, and advertisements shifted from the outrageous and curative to the more scientific and practical.

It wasn't long before advertisement came to function in the capacity of generating markets in addition to educating people on product availability, and advertisers began speaking of “demand creation”. Advertisements became more specific in their lists of uses for products, in effect educating potential consumers on the reasons they needed the product in addition to its features and availability. Brand names and logos took on added importance as it became imperative that consumers be able to associate certain virtues with individual goods amongst the array produced by competing manufacturers. The strategy worked. A survey in the 1930s revealed that advertised name brands composed from 48 to 67 percent of the goods on household shelves³³—a statistic that rose in tandem with income, and one that reveals the paramount importance of a recognizable brand name and image to the success of a product on the open market. In the 1870s, only 121 manufacturers had register a product's brand name and logo with the U.S. Patent Office, but the number had skyrocketed to 10,000 by 1905.³⁴ With brand names came the implication that it was possible for one to distinguish between the original, “genuine” versions of products and the imitations, always “shoddier” according to the ads. Many advertisements warned consumers not to purchase these lesser products, simultaneously urging brand name loyalty while implying that their original product was so fabulous that it inspired imitation. Also implicit was the notion that if a store did not carry the genuine, original item, that it was a lesser establishment than one that did, and should not be patronized. The appearance of brand name manufacturers who opened retail stores, such as Sears and Roebuck, were part and parcel of the growing association between brand names and assurances of quality.

Prior to the turn of the century, soap was advertised in much the same fashion as other products—simple announcements of availability preceded more spurious curative claims. However, soap makers were one of the first groups of manufacturers to promote their products on a large scale, lending legitimacy not only to their products but contributing to an acceptance of advertising as a regular part of doing business. In doing so, they also established the practice of advertising what a product did, rather than what it was. The 1920s saw the formation of the Association of American Soap and Glycerine Producers, which in turn established the Cleanliness Institute for the purpose of educating the public on the importance of cleanliness and to encourage it to use soap liberally (doing so through the publication of circulars such as the *Cleanliness Journal*).³⁵ Advertisers of the early 20th century assured women that a clean house was as

³¹ James D. Norris, Advertising and the Transformation of American Society, 1865-1920 (Westport, CT: Greenwood Press, 1990), 115.

³² Bruce L. Johnson, “The 20-Mule Team Revisited: Borax in 19th Century California” in California Historical Courier, Vol. 34, No. 4, 1982.

³³ *Ibid.*, 99

³⁴ *Ibid.*, 19.

³⁵ Vinikas, Soft Soap, Hard Sell, 79 and 90.

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important as a clean body, and the rhetoric surrounding cleaning products was similar to that of cosmetics. Ads in women's magazines implied that there was a particular brand name product perfectly suited to each and every house-cleaning task, and that a housewife's success was contingent on her standards of cleanliness.

Soap manufacturers continually revised their approaches as the 20th century progressed and technology changed. The Depression, the use of enclosed cars instead of the use of horses, the light bulb instead of kerosene lanterns, linoleum instead of carpet, changing clothing fashions, and a reduction in the number of households with servants all contributed to a decrease in the demand for cleansers. The response of the part of soap makers was to increase its efforts in extolling the virtues of cleanliness, and the feared drop in sales never materialized. The overnight success of products such as Lysol and Listerine are due in no small measure to the effort that was put into their promotion in the form of public advertisements in all media.

The twenty mule team was one of the earliest advertising icons and brand names. Stephen Mather, the man who was to become the first director of the newly formed National Park Service, had the idea of publicizing a brand name while working for Francis "Borax" Smith, owner of the Pacific Coast Borax Company, and chose the twenty mule team wagons to represent the company. Mather had a long standing interest in borax, and even had the idea for the successful popular history of borax that was written by journalist John Spears under the title *Illustrated Sketches of Death Valley and Other Borax Deserts of the Pacific Coast*. The twenty mule team's role in borax extraction and unique construction and appearance made it a natural choice in his goal to put "a box of borax on every kitchen shelf".³⁶ It also had the added advantage of adding legitimacy to Pacific Coast Borax Company borax, already in competition with other companies marketing a "borax" that in reality consisted of a few grains of borax mixed into a great many grains of sal soda or bicarbonate. The implication was that every effort had been made to haul borax to the consumer straight from the source, and that Twenty Mule Team Borax was therefore of the highest, purest quality. In a moment of shortsightedness, Smith decided he preferred his name and the name of the company on his products, although he did agree to the step of copyrighting the sketch of the team Mather sent him. It was only after the unequivocal value of a brand name became increasing obvious that he consented to the use of the term "20 Mule Team". In the meantime, Mather took other steps to promote the public consumption of borax. He wrote a series of letters to various women's magazines, each describing a moment in which borax had come to the rescue in the kitchen, all of which were printed. He also wrote short pieces describing the use of borax throughout history for syndicated publication, and encouraged his friends in journalism to write articles about Francis "Borax" Smith and his "triumph over the desert" which were published in popular magazines. That F.M. Smith's triumph was due in part to the twenty mule team paved the way for the popularity of that icon later as well.

With the popularity of the Twenty Mule Team brand name and icon as well as his own expanding fame, F.M. Smith allowed Mather more leeway. Mather circulated placards and a pamphlet on *The Various Uses of Borax*, offered a \$1 prize to anyone writing a letter mentioning a use of borax that was published, and started a slogan contest. When all the letters had been collected, Mather condensed them into a book entitled *Borax: From the Desert, Through the Press, Into the Home: 200 Best Borax Recipes from More than 800 Issues of 250 Different Publications in 33 States of the Union*, which he sent out with free samples of borax.³⁷ The most spectacular promotional effort on the part of the Pacific Coast Borax Company, however, was that of sending a set of twenty mule wagons, complete with mules, driver, and swamper, on tour around the country. The net profits of Pacific Coast Borax had started to decline in 1903, and a law prohibiting the use of borax as a food preservative was passed in January 1907.³⁸ The

³⁶ Robert Shankland, Steve Mather of the National Parks (New York: Alfred A. Knopf, 1951), 27.

³⁷ *Ibid.*, 31.

³⁸ N.J. Travis and E.J. Cocks, The Tincal Trail: A History of Borax (London: Harrap Limited, 1984), 115.

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national tours on which the teams embarked were geared toward promoting such products as Boraxaid Soap Powder, Twenty Mule Team Soap Chips, Boraxo, and Grime Off.³⁹ F.M. Smith himself took credit for the idea of driving them through the middle of New York City in the early 1900s, a feat that also added to the reputation of teamster “Borax Bill” Parkinson, who became expert at maneuvering the team in the confines of city streets.⁴⁰

“Borax Bill” was a colorful man with a large walrus mustache and even more colorful language whose image was well suited to the propagation of the mythology surrounding the twenty mule team drivers. F.M. Smith even published a little booklet on *The 20-Mule Team and a Sketch of its Famous Driver: Borax Bill*, which went so far as to state that teams were still hauling borax out of Death Valley in 1904, sixteen years after the last load had passed through Wingate Pass. So popular was “Borax Bill” that he ceased to be an individual and became an institution. Bill Parkinson died in 1905, but F.M. Smith merely recruited a new “Borax Bill”, and continued with his tours.⁴¹ In testament to “Borax Bill’s” lingering popularity, teamster Frank Wilson was given the name when he was hired to drive them in the Pasadena Rose Parade in 1916 and on tour through the eastern states for the following five or six years. The image of “Borax Bill” was compelling enough that it grew beyond the myth-making efforts of F.M. Smith. Robert Ramset of the Pneumatic Scale Corporation, which produced the machines that boxed borax for the market, published a small book entitled *The Romance of the Desert*, which recounted tales of the borax teams and promised a full measure of borax in every box so that old “Borax Bill . . . did not work in vain”.⁴²

Mather continued with the Pacific Coast Borax Company even after 1899 when F.M. Smith created, along with a borax firm in England, a holding company known as Borax Consolidated Ltd.—one of the world’s first “conglomerates”⁴³. He finally left to go into the borax business himself in 1903, and was eventually bought out by Smith in 1911. The twenty mule team wagons continued their national tours, however, which had begun with the 1904 St. Louis World’s Fair.⁴⁴ There are photographs of twenty mule teams in Boston in 1909, and in 1915, the wagons were sent on a national tour that included Oakland, San Francisco, Pasadena, Riverside, and Los Angeles, California; San Antonio, Dallas and Galveston, Texas; Washington D.C. (for the inauguration of Woodrow Wilson), and New York. Prior to the tour, the wagons were painted with a distinctive paint scheme features red on the wooden components of the wheels, a light blue on the wagon body and water tank, with large white lettering across the top sideboards which read “20 MULE BORAX TEAM FROM DEATH VALLEY”. The tour was concluded in 1922, and in 1923 the wagons arrived at F.M. Smith’s estate in Oakland, California. The exact whereabouts of the wagons after 1923 is unknown, however in 1937 the wagons went on a brief tour again, this time in celebration of the history of the twenty mule team wagons themselves. The wagon set was repainted in the same manner as the previous tour, but with the wording on the sideboards changed to “THE ORIGINAL 20 MULE TEAM WAGON USED FOR HAULING BORAX OUT OF DEATH VALLEY FOR THE PACIFIC COAST BORAX CO.” Photographs from this period place a twenty mule team in San Francisco in 1937 for the dedication of the San Francisco Bay Bridge, and in Los Angeles in 1938. In all, three tours were undertaken between 1900 and 1940. The location of the wagons between

³⁹ Ibid., 116.

⁴⁰ Gower, *50 Years in Death Valley*, 8.

⁴¹ Lingenfelter, *Death Valley and the Amargosa*, 381.

⁴² Quoted in Lingenfelter, *Death Valley and the Amargosa*, 442.

⁴³ Gordon Chappell, “The First Ryan: A Borate Mining Camp of the Amargosa” in *Proceedings, Fourth Death Valley Conference on History and Prehistory*, Jean Johnson, ed. (Death Valley: Death Valley Natural History Association, 1995), 104.

⁴⁴ Such tours were expensive, however. Travis and Cocks (*The Tincal Trail*, 116) report that Smith’s advertising expenditures in 1906 were \$300,000.

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1938 and 1940 is also unknown. F.M. Smith himself ran into debt with failed real estate endeavors, and had to yield his majority of stock in Borax Consolidated, dying with very little money in 1931.⁴⁵

Further national exposure came about in 1940 as the twenty mule wagon team was adopted as an icon by another institution—Hollywood—and was pressed into service as part of the burgeoning genre known as the Western. The mythology of the western frontier is represented visually and cognitively in a series of iconic images made familiar to the American public and the world through traveling wild west shows such as that of Buffalo Bill initially, and movies, television, novels, and other popular media later. The symbol of the twenty mule team wagons, already commonly recognized from its use in promoting borax products, was easily incorporated into a familiar pantheon of icons representative of the western frontier that included covered wagons, boomtowns, stalwart pioneers, cowboys, Indians, and outlaws such as Billy the Kid. The appearance of the twenty mule team wagons at the beginning and end of every episode of *Death Valley Days* certainly contributed to its national reputation, and characteristics of the wagon teams themselves fit particularly well with the mythology of the West that allowed the image of the wagon outfits to be used successfully to sell borax long before the start of the popular TV show that ensured their popularity and recognition by the American public.

“. . . a settler pushes west and sings his song,” asserted Ronald Reagan in his second inaugural, “That’s our heritage, that’s our song.” It is “the American sound. . . We sing it still.”⁴⁶ That these words were still compelling in the later part of the 20th century is testament to the depth to which western expansion and the settlement of the frontier have become embedded in American culture. Children playing cowboys and Indians; Disney’s Frontierland; and the Western novels, movies, and TV shows are all examples of the extent to which this idea and image of the West has pervaded popular culture. The West is an “image that has *become* the historical reality, only one indication of which is the temporal difference between the short-lived reality and the long-lived myth”⁴⁷ Put another way, “. . . the Western’s overall thrust sanctified territorial expansion, justified dispossession of the Indians, fueled nostalgia for a largely mythicized past, exalted self-reliance, and posited violence as the main solution to personal and societal problems”⁴⁸.

An examination of the dominant narrative of westward expansion finds it to be one of white victimization.⁴⁹ Americans did not conquer the West so much as press on in the face of monumental obstacles such as the defeats at the Alamo and Little Bighorn. As much as explorers and settlers suffered at the hands of Indians, they also endured the hardships of the wilderness. Written accounts by people who encountered Indians and lived to tell the tale go hand in hand with narratives of perilous journeys through desolate territory that the intrepid travelers only narrowly survived. With a harsh environment that epitomized the suffering of the westward-bound, Death Valley became the setting for many such stories, and articles from the late 19th and early 20th centuries bear titles such as “Escape from Death Valley” and “The Mystery of Death Valley’s Lost Wagon Train”, appearing in such publications as *Pioneer* and *Overland Monthly*.⁵⁰ By denigrating the landscape, pioneer travelers could be exalted for their fortitude in surviving the journey and succeeding in the face of adversity. Similarly, miners gained a reputation for a degree of heroism as they attempted to wrest mineral riches from nature for the benefit of

⁴⁵ Ibid., 390.

⁴⁶ Patricia Nelson Limerick, “The Adventures of the Frontier in the Twentieth Century” in *The Frontier in American Culture*, James R. Grossman ed. (Berkeley: University of California Press, 1994), 83.

⁴⁷ Jane Marie Gains and Charlotte Cornelia Herzog, “The Fantasy of Authenticity in Western Costume” in *Back in the Saddle Again: New Essays on the Western*, ed. Edward Buscombe and Roberta E. Pearson (London: British Film Institute, 1998), 172-3.

⁴⁸ Michael Coyne, *The Crowded Prairie: American National Identity in the Hollywood Western* (New York: I.B. Tauris Publishers, 1997), 3.

⁴⁹ Patricia Nelson Limerick, *The Legacy of Conquest*, 17-54.

⁵⁰ Lingenfelter, *Death Valley and the Amargosa*, 606, 607.

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civilization. Death Valley's particularly remote, difficult terrain and extreme heat meant that it retained its "frontier" status longer than many parts of the West. The individuals associated with it also retained their "pioneer" designation and with it, the attribution of being strong, practical, inventive, energetic, bighearted, optimistic, idealistic, and strongly individualistic—all characteristics that eventually became associated with the American intellect at large, with its emphasis on freedom and independence.

If the pioneer represented an Americanist spirit, the Western hero came to personify the particularly masculine embodiment of American national identity, and the West itself became a landscape in which moral struggles could be resolved by the straightforward use of strategic violence. One of the reasons for the popularity of the television Western has been given as "the public's nostalgia for a less complex moral universe"⁵¹, and indeed, political issues were sometimes phrased in the language of the genre. Boddy quotes John D. Weaver's discussion of the Cuban missile crisis in those terms:

The form of the Western, with its clear-cut conflicts between the white hats and the black hats, is so deeply ingrained in the emotional mechanism of the American electorate that when the new lawman stood eyeball-to-eyeball with the Kremlin Kid over a parcel of missiles smuggled into the Cuban territory, the hands of the planet's clock seemed to meet at high noon on a dusty Western street, where Good was prepared to shoot it out with Evil, both armed with thermonuclear six-shooters.⁵²

As late as the 1980s, critics were still linking the strength of the syndicated classic television Western to the conservative ideology and politics of the Reagan presidential era, again pointing toward the longing of the American public for less moral ambiguity. Others writing in the 1940s and 1950s cite the appeal of open countryside to the average city-dweller, who was also thought to be attracted to the freedom of the self-determined Western hero that was a sharp contrast to the alienated worker confined to an assembly line or mired in endless bureaucracy. Westerns also were viewed as providing roles for masculinity and even reasserting white male primacy in a world where gender roles were being blurred by women's entry into the work place.⁵³ The details of the traditional Western gunfighter's costume lent itself to a certain degree of eroticism, and the casual, non-committal attitude toward sexual relations exhibited by such men all played a role in defining a particular form of masculinity and male sexuality⁵⁴ that relied on "self-styled social alienation".⁵⁵ Simultaneously, Western actors were held up as representative of "biff-bang Americanism", and served as models for what every boy ought to strive to be: "physically strong, self-reliant, resourceful"--in short, "manly men"--in strict contrast to the overcivilised, effeminate sissies who were their adversaries onscreen.⁵⁶ In addition to their moral character, the Western heroes exhibited a variety of styles of character and leadership, a trait that contributed to their popularity as well. Details in their costumes revealed them to be composed of "Indian brave, Mexico *vaquero*, Civil War soldier, US cavalryman, cattleman, horse wrangler, and gambler".⁵⁷ In their quest to bring not only law and order but good and just society to the frontier towns, they enact the archetypal struggle against the forces of chaos,

⁵¹ William Boddy, "Sixty Million Viewers Can't Be Wrong": The Rise and Fall of the Television Western" in Back in the Saddle Again: New Essays on the Western, ed. Edward Buscombe and Roberta E. Pearson (London: British Film Institute, 1998), 134.

⁵² Ibid.

⁵³ Ibid., 135; Coyne, The Crowded Prairie, 34.

⁵⁴ Ibid., 180.

⁵⁵ Coyne, The Crowded Prairie, 4.

⁵⁶ Gaylyn Studlar, "Wider horizons: Douglas Fairbanks and Nostalgic Primitivism" in Back in the Saddle Again: New Essays on the Western, eds. Edward Buscombe and Roberta E. Pearson (London: British Film Institute, 1998), 63, 65-67.

⁵⁷ Gains and Herzog, "The Fantasy of Authenticity in Western Costume", 177.

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and in so doing, prove themselves universally appealing even as they are a uniquely American phenomenon.⁵⁸ Canfield calls them “existential heroes”.⁵⁹

Westerns in the form of formulaic dime novels were finding an audience as early as the 1860s, and the movie *The Great Train Robbery* ushered in the era of the Hollywood Western movie in 1903.⁶⁰ By the late 1950s, Western novels by the likes of Zane Grey and Louis L'Amour comprised nearly 11% of the fiction published in the United States. Phrases such as “showdown”, “last stand”, and “hired gun” entered popular speech in the same fashion that sports metaphors have done.⁶¹ The first three so-called “adult” Westerns appeared on television in 1955. By 1959, there were twenty-eight, representing 26 percent of the total network prime time. Four of the five most popular shows were Westerns in 1958, and in 1959, they represented nine of the most popular eleven shows and totaled 570 hours of programming. The crest came in 1960 with thirty prime time shows, but the number soon declined to only ten by 1963, and the Western has never recovered its previous popularity.⁶² However, the history of the Western on television began before the 1950s, for B grade Westerns were a cheap form of programming for independent stations when commercial television started in the 1940's. Cost was a determining factor for many years. Many of the syndicated shows were produced on shoestring budgets, including *The Cisco Kid*, *The Gene Autry Show*, *The Lone Ranger*, *Range Riders*, *The Roy Rogers Show*, *Adventures of Champion*, *Buffalo Bill Jr.*, and *Annie Oakley*. However, the merchandising surrounding shows like *Davy Crockett* (which earned \$300,000,000 in product sales alone)⁶³ fostered both legitimacy and funding for future endeavors. The financial success also ensured more interest and control on the part of the television industry, and producers soon began generating prime-time Westerns aimed at selling household products and cigarettes to adults rather than bicycles, watches, and cowboy clothes to children. The new shows included *Stagecoach*, *Shane*, *High Noon*, *The Life and Legend of Wyatt Earp*, *Cheyenne*, and *Gunsmoke*. It was also in the 1950s that all three major television networks began the shift toward multiple sponsorships from the traditional practice of having single advertisers by the sole sponsors of individual shows in the manner that 20 Mule Team Borax sponsored *Death Valley Days*. This in turn caused companies to pressure networks to produce high and consistent ratings. Westerns, with their modest costs, good ratings, and low cancellation rates, were ideal programs for meeting ratings goals and for a few years, the numbers aired soared.

The enormous popularity of television Westerns did not last long into the 1960s, however. The thirty-minute Western was largely extinct by 1961, but the genre did survive in the form of hybrids such as *Bonanza*, *Gunsmoke*, *F Troop*, and *The Wild Wild West*. Audience saturation was one reason for the decline, and contemporary crime series, medical dramas, and situation comedies were rapidly becoming more popular. Westerns were also representative of general grievances with network television at large. On the heels of John Kennedy's assassination and a with growing recognition that liberty should not be confused with license, Westerns were being attacked as representative of and contributing to the problem of social violence. Anti-violence campaigns eventually led to congressional hearings, and while they ultimately had little effect on the industry, they are instructive on both the public perceptions of Westerns and of the goals and machinations of the industry. By the 1970s, many of the virtues of the hero of the Western were transferred to the urban action-cop in the growing genre of the cop drama. Clint Eastwood,

⁵⁸ Ralph Lamar Turner and Robert J. Higgs, *The Cowboy Way: the Western Leader in Film, 1945-1995* (Westport: Greenwood Press), x.

⁵⁹ J. Douglas Canfield, *Mavericks on the Border: The Early Southwest in Historical Fiction and Film* (Lexington: University Press of Kentucky, 2001), 2.

⁶⁰ *Ibid.*, xx.

⁶¹ Richard White, *“It's Your Misfortune and None of My Own”: A New History of the American West* (Norman: University of Oklahoma Press, 1991), 613.

⁶² Boddy, ““Sixty Million Viewers Can't Be Wrong”, 119-120.

⁶³ *Ibid.*, 122.

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Paul Newman, and other actors were able to move back and forth between the two.⁶⁴ Filling the role of the villain became more problematic. Coyne points out that the traditional Westerns marginalized Indians and Blacks because they were focused on White centrality (though not necessarily White supremacy).⁶⁵ Martin Luther King Jr. was assassinated in 1968, and as the Vietnam War dragged on and American righteousness and manifest destiny were losing their appeal, increasingly there was no conveniently vilified “other” (though the degree of violence depicted onscreen actually increased). This trend corresponds with a movement within the Western genre from heroes allied with their community to individuals irreconcilably alienated from modern society, ultimately reflecting a shift from “national epics” to “psychological epics”⁶⁶ and further paving the way for cop shows and other, more psychological dramas.

While the Western genre was at its height, however, the twenty mule team wagons had a role to play. In 1940, the twenty mule team wagon sets began their fourth national tour and the third confirmed tour of the wagon set owned by Death Valley National Park. The tour included appearances in 40 cities around the country, and coincided with the release of the Metro-Goldwyn-Mayer (MGM) western film *Twenty Mule Team*, featuring notable performers such as Anne Baxter and numerous others. The storyline followed the Death Valley exploits of muleskinner Bill Bragg. One of MGM’s publicity articles even boasted that “The original high-wheeled wagons which hauled thousands of tons of borax out of Death Valley went back into service for the motion picture. . .”⁶⁷ Clearly an important part of the appeal of the wagons was their status as authentic artifacts of the borax mining industry and their association with Death Valley. For this film and tour, the white, blue and red paint scheme was removed to give the wagons a more “western” look. After the tour the wagons once more disappeared from public view, but their enduring public appeal was demonstrated when, in 1952, they were again called into service for the camera, this time in the national Western television program *Death Valley Days*.

Death Valley Days originated as a radio show that ran from 1930 to 1945, and began as a means of promoting the products of its sponsor, 20 Mule Team Borax. The television version started filming in 1952 and ran until 1975, well over a decade beyond the ending date of most other serial Western programs of the time. During this period, 558 episodes were produced, most of which were filmed on location in Death Valley, and which were sponsored by 20 Mule Team Borax as well. The opening sequence of every episode of *Death Valley Days* featured the twenty mule team wagons hauling borax, and this repeated exposure ensured that all viewers of the immensely popular show for more than two decades were familiar with the twenty mule team as an icon not only of the *Death Valley Days*, but of the west and of Death Valley itself. *Death Valley Days* was hosted at various times by Stanley Andrews (“The Old Ranger”) (1952-1965), Ronald Reagan (1965-1966), Robert Taylor (1966-1968), Dale Robertson (1968-1972), and Merle Haggard (1975). Notable actors appearing on *Death Valley Days* included: James Caan, Clint Eastwood, Carol O’Connor, Mariette Hartley, Robert Blake, Forrest Tucker, and Ronald Reagan.⁶⁸

Ronald Reagan’s hosting tenure remains the most notable and immediately preceded his election as governor of California in 1966. Some scholars feel that “If Reagan had not subsequently entered national politics and capitalized on the image of the leathery Westerner there, today he would be about as well-remembered as Wayne Morris”.⁶⁹ Reagan relied so heavily on his image as a Western hero, that one of his 1980 campaign buttons featured him posing before a drawing of John Wayne, and bore the slogan,

⁶⁴ Turner and Higgs, *The Cowboy Way*, 227.

⁶⁵ Coyne, *The Crowded Prairie*, 5.

⁶⁶ *Ibid.*, 7.

⁶⁷ Ted Faye, “The Twenty Mule Team Goes to Hollywood” *Borax Pioneer* No. 19, 2000.

⁶⁸ Tim Brooks and Earle Marsh, *The Complete Directory to Prime Time Network and Cable TV Shows*. <http://www.skypoint.com/members/joychek19/dvdays.htm>, 2/28/2001.

⁶⁹ Coyne, *The Crowded Prairie*, 185.

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“Carry on for the Duke”.⁷⁰ Though he only performed in six Western films (including *The Last Outpost*, *Law and Order*, *Cattle Queen of Montana*, and *Tennessee’s Partner*) and was top billed in only two, Reagan artfully “supplanted his personal ‘mythic’ past, grounded in actuality, with another version he preferred more”, identifying himself as a Western hero complete with all the rugged virtues that image implied.⁷¹ Vaughn writes “The studios molded much of [his image] to his personality, and if part of it did not square, it likely reflected characteristics he would have like to possess.”⁷² Even after his election to the presidency, Reagan maintained his Western hero image, and even fashioned a foreign policy around “standing tall”.⁷³ In portraying himself as a Westerner to further his political ambitions, Reagan was not alone. Eisenhower was known to whistle songs from *High Noon* and to read the Western novels of Luke Short and Zane Grey. During his own bid for the White House, Texan Lyndon Johnson raced on horseback against Arizonan Barry Goldwater in a symbolic gesture against his opponent’s attempts to portray him as a creature of Washington. Richard Nixon, Gerald Ford, and Jimmy Carter all considered John Wayne among their personal friends. Only John Kennedy was reluctant to shed his Eastern identity and assume a Western air, refusing to don a large Stetson when it was presented to him by the Fort Worth Chamber of Commerce the day before his assassination.⁷⁴

Surprisingly few original wagons from the 1800s and early 1900s survive today. In his research on wagons used on the Santa Fe Trail, Gardner found only the hub and axle arm of a wagon that supposedly traveled the Santa Fe Trail in the Arrow Rock Historic Site Visitor Center in Missouri, a freight wagon of uncertain origin on display in the Fort Garland Museum in Colorado, a wagon composed of many pirated pieces of other wagons on in the collections of Fort Leavenworth’s Frontier Army Museum, a freight wagon at the Yolo County Fairgrounds in California that had been “refitted” (leaving the amount of original fabric in doubt), and three wagons in poor condition and of unknown origin at the Lagoon Corporation’s Pioneer Village in Utah.⁷⁵ While this was by no means an exhaustive inventory of the existing wagons in the United States, is a surprisingly small number in light of the thousands of wagons that crossed this country during the period of western expansion and industrial development and illustrates the relatively scarcity of such objects.

Of the five wagon sets originally constructed, three are still relatively intact. One is the subject of this nomination and is currently being displayed at the Harmony Borax Works site in Death Valley National Park. A second is owned by the U.S. Borax Company and is on display at their headquarters in Boron, California. The company had it repaired and repainted for inclusion in the 1999 Rose Parade. The third is on display in front of the Furnace Creek Ranch at Death Valley National Park, alongside the steam engine “Old Dinah”. Remnants of the other two wagons are in the form of running boards from three box wagons, and are located behind the privately-owned Borax Museum in the Furnace Creek Ranch complex. Of the three remaining sets, the one on display at Harmony Borax Works retains the most integrity of fabric and setting. The U.S. Borax set is in good condition, but has been repainted with a scheme for which there is no precedent in the historic photographs, and much of the historic fabric has been replaced. The Furnace Creek set only retains approximately fifty percent of its original wood and some of the original metal hardware. In addition, it suffered a fire in the lead wagon. Close examination of historic photographs and remnants of paint on the freight wagons at Harmony Borax Works has revealed that these wagons were the ones taken on the national tours to promote the sales of borax. The water wagon on display is not the one that was sent on tour, but differs only in small details from the one that was. The set owned by U.S. Borax is the set depicted in *Death Valley Days*, not the Harmony Borax

⁷⁰ Ibid., 2.

⁷¹ Ibid., 186.

⁷² Stephen Vaughn, *Ronald Reagan in Hollywood: Movies and Politics*. (Cambridge: Cambridge University Press, 1994), 232.

⁷³ Turner and Higgs, *The Cowboy Way*, 228.

⁷⁴ Ibid., 1.

⁷⁵ Garland, *Wagons for the Santa Fe Trade*, 105-110.

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Set. However, because the U.S. Borax set has been repainted, the Harmony Borax set is more representative of the wagons as they appeared in *Death Valley Days*. The wagons used for the television show were stripped of their paint before they were filmed in order to make them look older and more “western”. The Harmony Borax wagons are thus the most representative example of the twenty mule team wagons for all phases of their varied history.

The twenty mule team wagon set is of national significance as a physical presence embodying the history of borax extraction, nationwide product promotion, and the West as a mythologized, idealized past that is an integral part of the American identity. In addition, it has an association with Stephen Mather, who was to be the first director of the newly formed National Park Service, and contributed to the Western hero image of Ronald Reagan through the television program *Death Valley Days*, thereby aiding him in his political ambitions for the governorship of California and the presidency of the United States. From its very inception, the twenty mule team wagon set was representative of the innovative spirit of the western entrepreneur, and its rugged construction was symbolic both of the degree of adversity presented by the rugged landscape and the success with which technology and skilled construction overcame that adversity.⁷⁶ The twenty mule wagons proved to be an ideal image for the advertising of the borax they hauled when Stephen Mather pressed them into service. Not only did the long string of animals and the large wagons present an unforgettable sight, but the picture of wagons loaded with borax lent an air of genuineness to the borax products sold by Pacific Coast Borax., Inc. One aspect of the appeal of the wagons were the wagon teamsters themselves, men who conjured up an image of tough resourcefulness and skill and who could be as mulish as the animals they drove. These men fit in well with the pantheon of gritty characters associated with the West as popular mythology envisioned it. As such, certain nostalgia was invoked by the wagons that was only heightened by their status as physical artifacts which were experienced in a very direct way, and the national exposure they enjoyed only added to their popularity. The nostalgia and romance associated with the wagons were exploited by Pacific Coast Borax when it sent the wagons around the country on promotional tours, and later by Hollywood as the teams were filmed first for a feature film and later as part of the very popular and long-running television series, *Death Valley Days*. The qualities associated with men of the West was put to use by Ronald Reagan, the second host of the show, who capitalized on his carefully cultivated Western image in his bids for the governorship of California and later, the White House. Today, the twenty mule team wagons remain a national symbol of the cultural history and values inspired by westward expansion and the ingenuity and determination of the men who built and drove the wagons.

⁷⁶ That this is the case is evident in the title of a brief article on the twenty mule teams published in *The Boron Enterprise* in 1957 entitled “20 Mule Team: Invented by Necessity”.

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Previous documentation on file (NPS):

- ___ Preliminary Determination of Individual Listing (36 CFR 67) has been requested.
- ___ Previously Listed in the National Register.
- ___ Previously Determined Eligible by the National Register.
- ___ Designated a National Historic Landmark.
- ___ Recorded by Historic American Buildings Survey: # _____
- ___ Recorded by Historic American Engineering Record: # _____

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Primary Location of Additional Data:

- State Historic Preservation Office
- Other State Agency
- Federal Agency
- Local Government
- University
- Other (Specify Repository): Death Valley National Park Archives; U.S. Borax Archives, Valencia, California

10. GEOGRAPHICAL DATA

Acreeage of Property: .22032

UTM References:	Zone	Easting	Northing
	11	511244	4037009

Verbal Boundary Description:

The twenty mule team wagon set is currently located on the property of the Harmony Borax Works at Death Valley National Park. As a movable object, its boundaries are limited to the concrete pad on which it is located and the fence that surrounds the wagons at distance of four feet. The fenced area is sixty-four feet long and sixteen feet wide.

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Boundary Justification:

As a movable object, the twenty mule team wagon set does not have fixed physical boundaries in the landscape in the fashion of a historic building or property. In addition, a large part of its significance is due in part to the fact that it toured the country as a physical object representative of certain aspects of American history. The concrete pad and fence that currently display and protect it are therefore the boundaries that most accurately address its itinerant character.

11. FORM PREPARED BY

Name/Title: Emily J. Donald and Glenn D. Simpson

Address: National Park Service
P.O. Box 728
Santa Fe, NM 87504

Telephone: (505) 988-6801 and (505) 988-6794, respectively

Date: 3/1/01