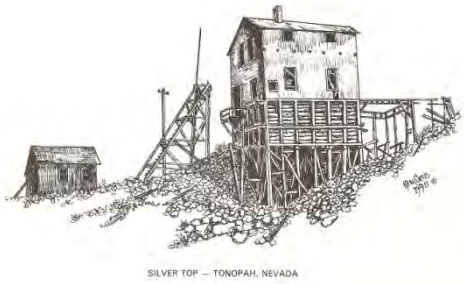
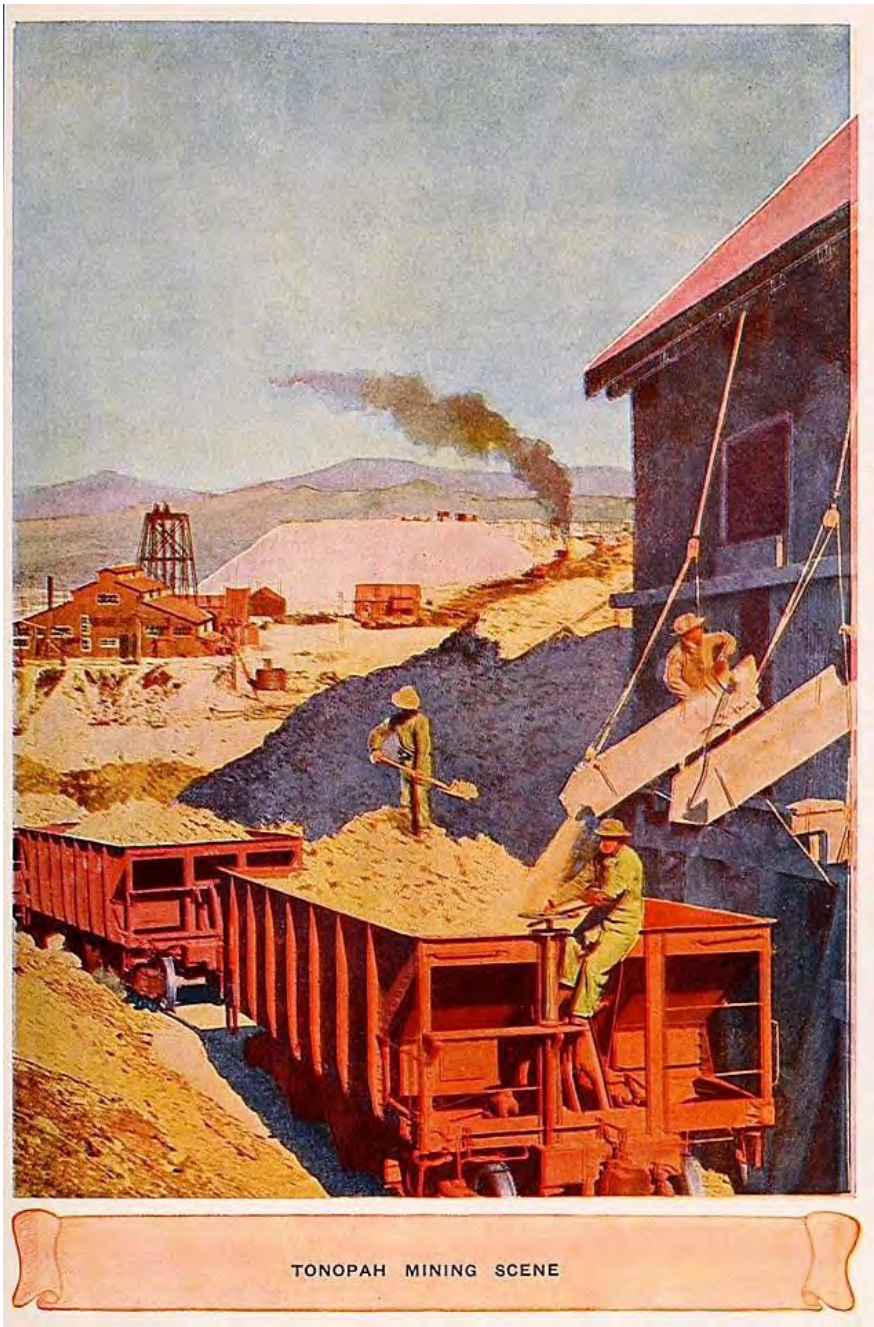
Tonopah Historic Mining Park Presents

Tailings



Volume 16-1 **Spring 2018**



Grizzly Process

This 1911 photograph shows rail cars being loaded with ore from the underground Silver Top Mine. The ore was brought to the surface of the mine and transported by small rail cars across a trestle to the Silver Top ore bin (also known as "The Grizzly"). The ore cars were unloaded into the ore bin, allowing the ore to fall down into chutes. Over the top of the chutes are parallel steel bars or rails (called a "grizzly.") These parallel rails are placed to stop large chunks of ore from falling into, and clogging the chutes. The large chunks of rock on the grizzly were broken by hand using a "double-jack" hammer.

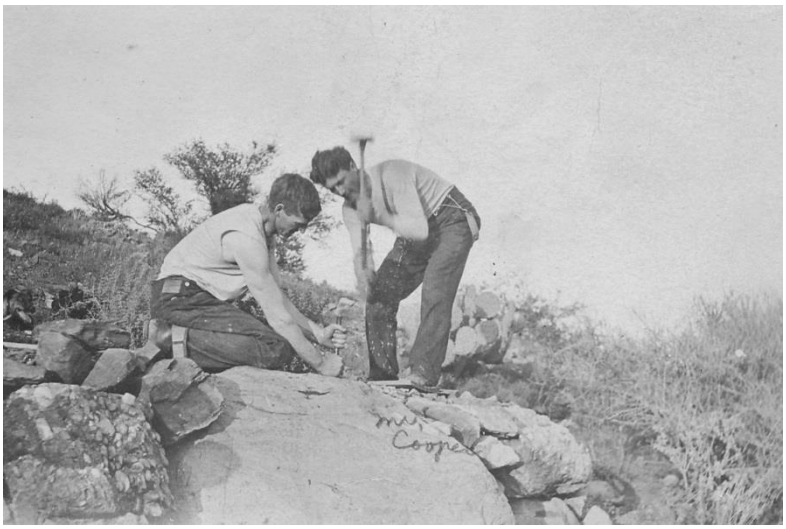
At the bottom of the ore chutes are wooden "timber slides" which were raised or lowered by a cable system. When a "timber slide" is lowered it allows the ore to flow into the waiting ore car. In this photograph, ore can be seen flowing from the "timber slide" on the left. The man with the shovel is re-distributing the ore by hand to make sure it stays inside the car. Chunks of ore falling off the side of the car could land on the rails and cause a derailment.

Agricultural Nevada by Charles Norcross. Sunset Publishing House. 1911

The Nevada State Mining Championships

will be held at the Tonopah Historic Mining Park during Jim Butler Days Celebration on Memorial Day Weekend. The competition follows the Saturday morning parade. Events include double and single jack drilling, individual and team mucking. Both women and men are invited to participate in a wide variety of events. Cash prizes are the incentive and the reward is being able to brag that you are the Nevada State Champion! Prize money is donated by supportive companies and individuals. All are invited to participate. In addition to prize money, winners of the mens' events take home silver shovels (individual mucking, team mucking) and hammers (single jack, double jack). A minimum of three participants must be entered for an event to be held.

Cooper Family has deep roots in Tonopah



George Cooper was born in La Junta, Colorado in 1878. He moved west to be a miner, stopping briefly in Sonoma, California and Copper Hill, Arizona before moving on to Goldfield after 1910. He was a classic miner. His brother-in-law Fred Steen said, "He liked to work at the bottom." He met Miss Mary Burke at a town dance. They married and my father, George Cooper, Jr, was born in Goldfield in 1914 (maybe the Tonopah Hospital.) After several years, they returned to Arizona. They later retired to Grass Valley, California where Mary said "No more mining camps!" That is where I was born. But I am now happily back in Washoe Valley, Nevada.

Fred Steen, of Hamilton, Nevada, lived in Tonopah since boyhood. He passed away in 1975 and is buried in the Tonopah Town Cemetery with his family. Fred worked his way up from nothing to be auditor for the Belmont Mines.

Mary's father, James F. Burke was also a miner. The Burke family is buried in the Goldfield Cemetery. Mary's sister was Nellie Burke, a lifelong teacher in the Goldfield and Tonopah schools. As you can see, I have a lot of family history in the Goldfield/Tonopah area. Richard (Rick) Cooper

Foundation Activities

Your Tonopah Historic Mining Park Foundation has been working together to make your Mining Park adventure more educational and fun. They have hired Exhibit Technician, Doug Southerland to create new exhibits at the Park. Mr. Southerland was the Exhibits Specialist at the Nevada State Museum, Carson City for many years. He is known state-wide for his thoughtful plans for museums. In addition to Carson City, he has created some of the best museum exhibits for the Fourth Ward School in Virginia City. Doug has developed a Master Plan for the treatment of windows for U.V. film and vinyl photos. He has checked with the Tonopah Town staff on electrical service, possible cooperation with the local high school shop, judged the color and condition of both interior and exterior paint and measured ceiling heights to determine future design of tract lighting in all exhibit areas. As a final consideration, he was able to quietly, without interruption, get a feeling for the building and its character.

Traffic flow, room dividing panels or walls and appropriate paint schemes, along with the lighting is critical to the overall experience of any exhibit gallery. A final item mentioned in Mr. Southerland's Master Plan is developing a site map and introductory statements to be located on the proposed new room dividing and traffic controlling panel located as you enter the building. The close circuit T.V. cameras and monitors needed for security will offer an improved visitors' experience and freshen up the office, known as the John Livermore Event Center.

The restoration of the Silver Top Head Frame is on-going. The Silver Top is part of the complex next to the Grizzly, as depicted on the historic plate on our cover page of this issue of Tailings. Funds are being raised to stabilize and improve, as needed, this second famous head frame. This project will be completed as funds become available. This is the second of three head frame restorations on the Park site. The Mizpah Head Frame has been beautifully restored. This Silver Top is the present major fund raising endeavor of the Foundation.

Foundation member, Don Southwick, continues to sell bricks which cover the entrance to the newly restored Mizpah Head Frame. Become a patron of the Tonopah Historic Mining Park by supporting the Park with your membership, donating to the head frame restoration or buying a personalized brick. Small bricks, 4" x 8" with up to 3 lines of 20 characters each - $100.00. Large bricks, 8" x 8" with up to 6 lines of 20 characters each - $500.00.

Order forms are on our website.

www.TonopahHistoricMiningPark.com

Focus on our Facebook Friends

"Reviews of the Mining Park"

Katherine Ruvalcaba— *5 star*

"I couldn't be happier with the place. I recommend visiting if you're passing through on the self-guided tour. The staff were friendly, welcoming, and encouraging. Upon our arrival, which was thirty minutes before closing, we were offered a free film about the history of the mining company and encouraged to visit the following day. We did and it was fun! We had a chat with the staff about our spooky experiences in the Tonopah Cemetery while staying at The Clown Motel (also worth a visit) and they had stories of their own. The actual park is bigger than I expected with lots to see. If you can, do the guided tour instead of the self-tour because I'm certain it'd be filled with some stories. To sum up, stop by and enjoy the history of Tonopah! Well worth it!"

Brian Zuzga — *5 star*

"Definitely worth the visit. The staff is very friendly and helpful. Make sure to view the twenty-minute movie. Leave yourself at least two hours to wander around the rest of the property to look around. It was great to learn about the history of Tonopah."

Jerry Miller — *5 star*

If you are into history, this is an excellent and inexpensive place to visit. Lots of history in one place. About 113 acres total to explore. Make sure your camera and/or phone is plenty charged as there are many photo opportunities to capture.

Carl von Bargen — *5 star*

"The tour on the cart *(Polaris)* with the guide is the only way to go. You get insight and additional information. Fabulous place!!

Editor's Note: Carl enjoyed his visit so much that he made reservations to bring his family back for Jim Butler Days.

Aaron Ardley — *5 star*

An amazing experience!!! The park covers the entire side of the mountain and is relatively well kept up. You could spend days exploring there! The museum building is great too, be sure to watch the video for an overview of the region and mine's history. Really an incredible interactive way to learn history and just have fun - I've traveled all over the country and the world and never seen anything like it before. Sarai was incredibly knowledgeable, lively, friendly, and engaging and made us feel very welcome and really made the visit an unforgettable experience. Take the Polaris tour if available! We'll be coming back soon to spend more time there. Tonopah rocks! 🙂

Kris Su — *5 star*

"This historical gem is such a great find in the desert. First let me say thank you to Jeff. We got our SUV stuck in a ditch and he was so calm and nice and pulled us right out with his Polaris side by side. Now the mining park itself is beautifully maintained and all the paths have been nicely placed and maintained making it a nice walk for even the elderly."

Julie Kramer — *5 star*

"Wonderful staff and an excellent walk back into history. Such a neat place! Well worth the time."

Howard Sherman — *5 star*

"Friendly staff oversee a site of true historical importance. You can't leave Tonopah until you visit."

Kymmberley Robertson — *5 star*

"This was a fabulous unplanned stop along our route. Rich in history and well-preserved artifacts, I would definitely recommend stopping and forking over the $5/person. I'll be back."

Editor's Note:

While in Tonopah, discover Central Nevada's rich history. Visit both the ***Tonopah Historic Mining Park*** *at 110 Burro Street, (directly behind the Mizpah Hotel) and the* ***Central Nevada Museum****, 1900 Logan Field Rd.*

The Charcoal Industry in Eureka and Tybo

By Stanley Paher

The indispensable charcoal was produced in gigantic pits which extended above ground for about five feet. Many of these remain in the foothills east of Eureka. In time the familiar beehive shaped kilns became the principal way to produce charcoal.

The charcoal industry originated in Europe where it was associated with smelting, especially in northern Italy and southern Switzerland. Both there and in this nation the demand for charcoal paralleled the industrial revolution from about 1760 well into the 19th century. In the years around 1800 in Italy charcoal burners became a political force where they formed a secret revolutionary society known as the Carbonari. In the industrial states of the northeast, early iron making and charcoal production developed hand-in-hand, and the commodity by the mid-19th century was commonly used in the mining West, especially in Colorado, Utah and Nevada.

Users of charcoal for fuel included laundries, cafes, hotels, assay offices, and dwellings. Charcoal fueled furnaces that produced pig iron, lead and copper. It saw usage by the Central Pacific Railroad after 1867 and in Nevada mining districts where lead-silver ore had to be smelted, notably Eureka, Tybo, Ward and Bristol and somewhat on the Comstock Lode. The charcoal provided a hot burning fuel for ore reduction. Local wood supplies from stands of pinion-juniper and other trees provided the timber to make the coal. In Candelaria and Tuscarora furnaces were fired with sagebrush, and in White Hills, Arizona the spongy Joshua trees were a source of raw material to make charcoal.

While discussing scores of Nevada mining districts, Myron Angel's *History of Nevada 1881* repeatedly recorded whether or not wood and water were locally available in various mining districts, devoting attention to these resources almost as much as that of the mineral deposits themselves. He offered extensive histories of Nevada's two largest lead-silver districts, Eureka and Tybo.

Discovered in 1864, Eureka saw limited growth because the unsuccessful Washoe pan amalgamating processing delayed large-scale operations. But when C. A. Stetefeldt designed an effective smelting furnace in 1869, development quickly followed. But the new smelting process required higher smelting temperatures to reduce the lead-silver ore, so mill owners turned to the use of charcoal**.** During the 1870s charcoal production and usage at smelters was a major component of the Eureka economy.

What is Charcoal?

Charcoal is made by the carbonizing of wood. The regulation of the flow of air to the burning wood in a pit or a kiln results in controlled combustion and incomplete burning. After the wood is carbonized, or pyrolyzed, charcoal is the end product which was fed into smelters in Eureka, Tybo, Cerro Gordo, and in many other western places. Fed into the smelter furnaces in admixture with the ore and certain fluxing

materials, and re-ignited under forced draught, the charcoal-carbon burned with minimal smoke and produced the desired intense white heat and a long hot flame—much hotter and faster than could be realized from ordinary cordwood which harbored organic matter.

In either a pit or a kiln some wood burned up in the process of raising the temperature of the entire wood charge until pyrolsis begins and maintains itself until the end of the burning process. Since the intense heat in a pit or kiln can reach several hundred degrees, the charge must be cooled without oxygen before it could be unloaded and the charcoal sacked for shipment.

Pits and Kilns

Following the practice established generations before in the Old World, charcoal was initially burned in pits of various sizes, but this may be a misnomer**.** They were also known as heaps or *meilers*, as well as clamps. These ancient, simple methods involved laying wood on level or slightly sloping ground. The logs were piled in horizontal rows of about nine feet, then they were covered with chips, twigs, and leaves, and finally with either sand or dirt to prevent a fire. In all, the circular mounds were 40 to 50 feet in diameter. There were variations in design known as the clamp heap, the standing *meilers*, and line *meiler* with a center block. Air was not allowed to circulate within the pit otherwise the entire mass of wood would burn. A large pit might hold as much as 100 cords of green wood— generally pinion pine, juniper, mountain mahogany or quaking aspen. Ignited and allowed to burn to a certain degree before being smothered with earth, the cargo of such a pit would smolder flameless for fifteen to twenty days before finally burning itself out, one firing in such a pit produced from 2500 to 3000 bushels of charcoal-the black porous residue of wood from which all matter has been burned, leaving nearly pure carbon.

Where previously all charcoal was burned in earthen pits, the trend by the early 1870s was to build beehive shaped kilns, with heights attaining twenty to thirty feet, and stoutly constructed of stone or brick or a combination of them. Wall thickness at the base might be two feet or more, descending to twelve to fifteen inches at the top of the kiln. The interior floor diameter ranged from twenty to thirty feet. Off-setting the original cost of $500 to $1,000 each was the fact that such kilns could be used almost indefinitely, producing charcoal of a much higher quality and with less dross than was possible in pit-burning. Kilns also allowed for better control of drafts. The resultant saving in fuel material soon repaid initial construction costs. As the effectiveness of the beehive kiln became apparent, they began to be built in sets of two, three, or more, or even a cluster of ten as in Wild Rose Canyon in Death Valley. Everywhere kilns were built they became at once a point of local interest.

Rossiter Raymond's mining report published in 1873 states, "The kilns have the shape of an old-fashioned beehive with a diameter of twenty-three feet at the base and a height of twenty feet. There is a charge door near the top in the backside, and a discharging door in front, level with the ground. A kiln holds twenty-five cords of wood, and the time for burning is twelve days; thirty-eight to forty-eight bushels of wood, solid charcoal is produced per cord of wood, or from 950 to 1200 bushels per day. The yield is far higher than can be obtained in a common charcoal pit."

Kiln construction follows the same beehive form with a gracefully arched stone roof, these kilns derive their sole support from the highly skillful manner in which the stones are fitted together. The stones were square-faced to the exterior, with dressed stone forming the frames of the charge and the discharge door. Near the top and at the rear of each kiln is a charge door (or window) for stoking, and at ground level was a discharge door for removing the charcoal. Both openings were carefully fitted with heavy iron doors which closed against an iron frame set into the stone doorway, thereby effecting a seal nearly airtight. All

air necessary to control the burning process was supplied through a series of small ports built into the kiln wall each located about a foot and a half above the ground. When the wood was burned through, the vent holes were sealed or fitted with a long square metal tray.

Burn management required careful attention. Control was exercised by regulating air flowing into the oven through the small ports or vents. In either a pit or kiln, carbonization descended from the top of the charge to the bottom and horizontally at the same time. The charcoal burner gauged the pace of combustion by carefully noting the color of smoke from the pit of kiln emanating from the top, whether or not there is uneven burning, or if there had to be adjustments in airflow and also determine when to close down the burning. A ready supply of clay was maintained to repair cracks in the oven wall as they developed. Filling the cracks was known as "jumping the pit." Otherwise, if a substantial crack was left unattended, the increased airflow could easily turn a smoldering oven into a flaming inferno, thus an oven had to be watched night and day during the entire extent of the burn. Once the charcoal reached the desired stage, all oven openings were closed off and the fire smothered; cooling took seven to ten days. If unsealed too soon, the charcoal might reignite and burn up.

Various aspects of charcoal production were season specific. Pinion was cut during the winter when the sap was down. Horse drawn sleds with two wooden runners were used to haul wood to the kilns. Production took place from the spring through the fall months, coinciding with the peak period of mining and milling activity.

Tools employed by burners at earthen ovens consisted of baskets for moving charcoal from the oven to wagons or bagging areas. Charcoal rakes had long wooden handles and long iron teeth. Shovels had long handles and rounded blades. Ladders were used to reach the top of the oven to light it at the start, and to fill cracks during the burn.

Three distinct entities were involved in the charcoal production industry: the producer or burners, the consumer (the smelters) and the middleman, the teamster. The latter worked for the smelters on a contract basis. Insofar as the relationship between the teamsters and the burners, it depended on the locality. More commonly the latter were subcontractors to the teamsters or the burners worked as employees of the teamsters, who owned the charcoal even while still piled up in the kilns.

The Burners (Colliers or Carbonari)

The burners, or colliers or carbonari as they were called because many of the men had ancestral roots in southern Italy, performed labor that did not demand extraordinary skill nor intelligence, and those employed received less than half the wage paid to miners. They lived in remote charcoal production sites at near subsistence levels in tents, wikieups, crude hovels or dugouts under poor sanitary conditions. They often hunted and foraged for their food.

Clearly, charcoal burners stood at a low economic status of the Western mining society and were easily taken advantage of. There is evidence of collusion of teamsters and even merchants against the carbonari. Teamsters frequently would not reveal to them smelter receipts which would indicate the quantity of bushels delivered and how much they collected from smelter management. This situation allowed the teamster to maximize his profit by underpaying the carbonari, who were also often not paid in cash but in credits redeemable at selected stores at the mining camp, where merchants might also charge higher prices for goods than ordinary customers.

Carbonari spent their weekly $10 wage on liquor and gambling in the mining camps, and all the while were scorned not only by saloon keepers but also ignored by the muckers and mill-men whose very livelihood ironically depended upon the carbonari's labors.

The Teamsters

With long-line teams and up to four wagons, teamsters showed up at the production sites kilns or pits, loaded the charcoal in gunny sacks, and delivered them to the smelter. The long-line teams consisted of horses at the wagon tongue and up to fourteen or sixteen mules in front of them. Drawing as many as four wagons, each loaded with about four tons of stacked, bagged charcoal. Each ton represented about 140 bushels of charcoal. Once the teamster was paid at the smelter, he then returned to the charcoal camps to settle with the colliers. The woodcutters and tenders of pits and kilns were paid an average of about thirteen cents per bushel, though the teamster had collected from smelter operations just about double that amount.

Mission Statement

"The Tonopah Historic Mining Park preserves the mining heritage of Nevada and related regions through acquisitions and preservation of collections and presentation of quality exhibits and educational activities."

"As an IRS-approved 501(c)3 tax-exempt charity, your donation to the Tonopah Historic Mining Park of Tonopah, Nevada may be tax-deductible."

The Mining Park is open seven days a week excluding Federal holidays. Our hours are 9 am – 5 pm.

We have bicycle and hiking trails, one of the best sites for star gazing and photography, and are centrally located for regional meetings. We accept donations of materials, historical documents, pictures and other artifacts having to do with the history of mining in Central Nevada.

Editor: Mimi Rodden
Production Coordinator: Marti Barth

Photo Credit: JR Bombard, Rick Cooper, Scott Elkins, Stanley Paher, Mariah Rivero, Don Southwick and Corrina Williams

Find us on and Youtube

"Tonopah Historic Mining Park"

"Blacksmithing at the Tonopah Historic Mining Park"

Join the Tonopah Historic Mining Park

Membership fees and donations go toward expanding our collections, head frame restoration and improving your experience.

Park members receive a subscription to our bi-annual Tailings Newsletter and a ten percent discount on all gift shop purchases, blacksmithing classes and coal.

Photo by Victoria Ritter

Blacksmithing at the Mining Park

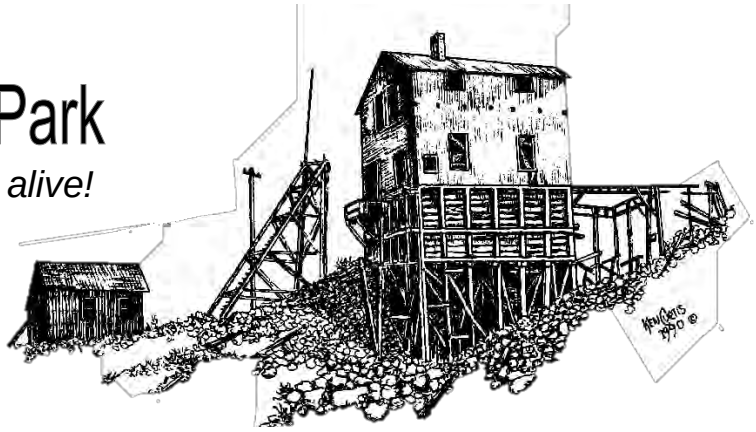
Registration forms for our 2018 Blacksmithing Classes are now on the Tonopah Historic Mining Park's website: www.TonopahHistoricMiningPark.com. Classes are April 28 & 29, May 19 & 20 and June 23 & 24 with a ***Hammer In*** scheduled for July 21 & 22. A ***Hammer In*** is when smiths get together to refine their skills with little to no instruction.

Certified Blacksmith Instructor, Michael Barth will be teaching our April, May and June beginning classes. Thanks to a grant from the **Nevada** Arts Council, Certified Blacksmith Instructor, Mike Mumford will be teaching our Intermediate May and June classes. Registration is on a first paid basis. Classes are filling up quickly. Please get your registration forms in soon. Gift certificates are available in the Tonopah Historic Mining Park gift shop.

NEVADA ARTS COUNCIL

Tonopah Historic Mining Park

Where mining history comes alive!



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Sustaining: we appreciate your continued support for the Mining Park's annual budgeting needs.

Additional donation……$_____

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You may pay securely on our membership page (http://www.tonopahhistoricminingpark.com/membership.html) using your credit or debit card via PayPal (you do not need to have a PayPal account), after submitting this form.

If you prefer to pay by check or money order, please remit payment along with a printed copy of your completed membership form to:

Tonopah Historic Mining Park Foundation
P.O. Box 965
Tonopah, NV 89049-0965

The Tonopah Historic Mining Park Foundation, Tonopah, Nevada, is an IRS approved 501(c)3 tax exempt organization which provides support for the Park. Your donation may be tax deductible.

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