



PICK & SHOVEL

August 2016, Volume 58, Issue 12

Editor: Sharon Marburger

The purpose of this corporation shall be to study, promote an interest in, and disseminate knowledge of lapidary and various Earth Sciences including but not necessarily limited to Geology, Paleontology and Mineralogy. It shall be a particular purpose of the corporation to provide education in these fields to its members and the general public, especially to youth and student groups.

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ed20649@windstream.net

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lgmc.editor@windstream.net



2016 MEETINGS AND ACTIVITIES

Regular monthly meetings are held at 7:00 p.m. at the Bethany Park Shelter House. Youth activities begin at 6:00 p.m. Board Meetings begin at 6:30 p.m.

Summer Break from Business, but join us in social activities!

Thursday, Sep. 15

Thursday, Oct. 20

Thursday, Nov. 17 (Annual Business Meeting)

Sunday, Dec. 4 (Christmas Party & Awards)

Board

Wednesday, August 31 (September Meeting):
Lyman Residence

Activities

**Saturday, August 27, 1 to 3 p.m.
Ice-cream Social at the Lapidary Class
See article on page 4.**

JULY BIRTHDAYS

Brooklyn Blazek
Susy McMahan
Sharon Marburger
Charlie Messenger



AUGUST BIRTHDAYS

Rowdy Cropp
Taylor Gerlach
Elayna McMahan
Karen Messenger
Andrew Tiedje

PRESIDENT'S MESSAGE

by Ed Dvorak



It has been a hot one! On my trip, the temperature varied from 109° to 56°, and one day I even had frost on my car's roof! I hope everyone has had a exciting summer so far. Like Sharon said, if you have done anything, even if it is a repeat of someone else's trip, we would like to hear about it in your words. PLEASE!! Let's keep our newsletter going. Thank You. BE SAFE!

Does anyone remember the TV show *Death Valley Days* that aired way back, from 1952 through 1970? It was sponsored by "20 Mule Team Borax" who were the makers of Boraxo soap.

I had the pleasure to visit Boron, California this year, for a second time. This is where the original twenty mule team wagons hauled borax from the mine for your soap!

The location has a great visitors' center and what's best---three stock piles of minerals for you to plunder and take all you want!!



The 20 Mule Team Rolls
(courtesy of the Borax Visitor Center)

These great mule teams traveled 162 miles from Furnace Creek in Death Valley to Mojave, California; and from the mines at Old Borate to Daggett, the nearest railroad points. Their routes carried them over some of the most forbidding land on the face of the earth.

There was not a single house or any other sign of habitation along the Death Valley trail. One stretch of 60 miles was without water. In the summer, temperatures ranged from 136 degrees to 150 degrees.

The 20 Mule Teams could cover from 16 to 18 miles a day. Camp was made on the desert each night. The one-way trip, from mine to rail point, took about ten days.

The Borax Wagons

The borax wagons, said to be the largest and strongest of their kind, were build in Mojave. The rear wheels were 7 feet high. The front wheels, 5 feet high. Each wheel had steel tires 8 inches wide and 1 inch thick. The spokes, of split oak, measured 5½ inches wide at the hub and 4 inches wide at the point. The

axles were made of solid steel bars, 3½ inches square. The wagon beds were 16 feet long, 4 feet wide and 6 feet deep.

The two wagons held 25 tons, or a railcar-load, of borax. Two of them together with a trailer tank wagon that carried 1,200 gallons of water, constituted a train. Each borax wagon weighed 7,800 pounds, and the combined weight of the two, loaded, (exclusive of hay, grain and other provisions) was more than 60,000 pounds. However, there is no record that one of them ever broke down on the trail during the years they were in service.

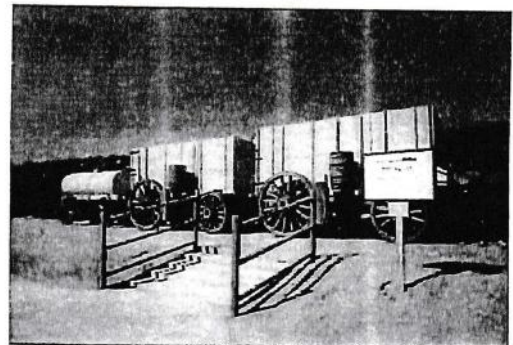
Driving the 20 Mule Team

The mules were all selected for their intelligence and were trained to answer to their names. Commands were given by the driver or "skinner." He controlled his team by shouting orders, calling the mules by name, and by means of a long "jerk" line. The "skinner" rode the "nigh wheel" (left hand) mule. He held the "jerk" line which was 120 feet long. It ran through the rings on the harness of the nigh animals up to the leaders. A light iron rod called a jockey stick, with a snap hook on each end, connected the leaders. One end of it was fastened to the chin strap of the "off" (right hand) mule. The other end was fastened to the hame ring on the offside of the nigh mule. A steady pull on the line caused the team to go to the left. A jerk turned them to the right. Hence the name "jerk" line.

The 20 Mule Team Driver or "Skinner"

The driver had to know his mules and to be able to handle them under all conditions. He had to be a practical veterinarian to take care of them when they got sick, a blacksmith to replace any shoes that came off, and something of a wheelwright to make any needed repairs.

One of the best drivers was Bill Parkinson, better known as "Borax Bill." He had a most emphatic and eloquent vocabulary to awaken the necessary amount of energy in balky mules. On occasion, he backed up his verbal commands with a long, black-snake whip.



BIG INDIAN CAMPING TRIP

By Sharon Marburger

Several members of LGMC met at Big Indian Recreation Area for field trips and camping during the last weekend of June. Wooly filed a Special Use Permit with Lower Big Blue Natural Resources District, the entity maintaining the recreation area. Beginning their outing during the week prior to the weekend, Jackie and Wooly were able to secure one of the shelters in a lovely tent camping area.



Again that evening, the group gathered for a potluck supper. As is always the case, we had more than enough food for everyone there. Although the weather was warm, Wooly built a campfire to grill the assorted dogs and brats, and toasted marshmallows and s'mores for dessert!



On Friday, June 24, Wooly led a field trip to Big Sandy Creek, west of Fairbury. Several bones, teeth, pottery, and rocks specimens were collected. That evening, the group met at the picnic shelter for a good potluck of fried chicken, chili, potato salad, deviled eggs, and a variety of other yummy delights.

Jim and I had other obligations on Sunday, so we headed for home while others in the group went to the Fairbury area to collect at a gravel pit and spend some time at the Fairbury Museum.

Saturday found the group hunting the South Fork of the Big Nemaha River at



Kinner's Ford, also known as Broken Bridge. We parked alongside the road, and wound our way down through the tall weeds to get to the river and gravel bars.

Some of the more adventurous folks waded across the river to get to less accessible gravel bars. I understand that Wooly scooped up a Laker before Corey even spotted it. Way to go, Wooly!! I couldn't believe it when I bent over to pick up a stone that looked like it could have been an artifact, then BOOM! a Laker caught my eye. It was a nice quartz Laker, about 1.5 inches in diameter. Not bad for my third Laker.



It was a fun weekend. If you didn't go, you really missed out. Although the weather was predicted to be unbearably hot, a cold front came through that portion of the state. Combined with the cloud cover, the days were comfortably warm and humid. But what do you expect for southeast Nebraska in the summer? And with the lake right there at our doorstep, a quick dip was a fantastic way to cool off.

ICE CREAM SOCIAL

By Jim Marburger

Instead of a monthly Rock Party in August, an old fashioned ice-cream social will be held on August 27 from 1:00 p.m. to 3:00 p.m., following the Southeast Community College Lapidary Class. Ice-cream and drinks will be provided. If you would like to bring some small snacks to share, they won't be turned down!

The lapidary class is held in the basement of the Auld Pavilion Building located at 1650 Memorial Drive in Lincoln, near the southwest corner stairway outside of the pavilion. Rowdy Cropp will be happy to show off the lapidary classroom for all to see.

This is a great opportunity for our membership who have not had the opportunity to visit the classroom or participate in the class. The club supports this program by providing replacement equipment, supplies, and material as needed. This class is a great introduction to the lapidary arts. Not only can one acquire lessons in lapidary, it provides a place for the newcomer to practice the hobby. Purchasing equipment can be a sizeable investment, and there are many who do not have space for the equipment in their homes.

Many of the machines have not been upgraded for a long time and are still in service. Two of our club's missions are to promote the hobby and to educate its members. Most of the instructors since the inception of the lapidary class have been members of the Lincoln Gem and Mineral Club, Inc. The equipment is housed with the Lincoln Parks and Recreation and in partnership with the adult education program with Southeast Community College. Come on down to participate and swap stories.

And don't forget—there will be ice-cream!!

CLEANING QUARTZ

Susy McMahan thought an article on cleaning quartz might be of interest at this time. This editor has excerpted the article found at <http://www.mindat.org/article.php/403/Cleaning+Quartz> so the pertinent information fits in our limited space. To read the entire article and view the associated pictures of examples, go to the above-referenced website.

Original article by Rock Carrier

Soap and Water

Use liquid detergent soap and warm water. This will remove any easily removable dirt and can often give you an indication of how to proceed. If your detergent is the kind that has perfume or lemon scent

Silversmithing classes

Tuesday Evenings

7:00 p.m. - 10:00 p.m.

The Jewelry Connection Ltd.
Indian Village Shopping Ctr.
13th & Arapahoe, Lincoln

Tuition: \$120 plus \$30 supply deposit

Session 4: Aug 9 - Sep 27

Session 5: Oct 4 - Nov 22

Contact:

Jayne Beer 402-890-3307

Judith Bay 402-423-7058

or e-mail

jbeer60070@aol.com

added, your specimens will have the added virtue of smelling nice. Often, experienced cleaners will skip this step and proceed to blasting their specimens with high pressure water using fabric guns to see if that will remove the offending substance. The easiest way to do that is to buy one of the little handheld cleaning guns called fabric cleaning guns. They are commonly used in the dry-cleaning industry for removing spots from fabric. You can buy these for less than \$75. [Always remember that safety comes first. Use protective eyewear!]

Ultrasonic Cleaners

Before the advent of fabric guns, ultrasonic cleaners were often the cleaning device of choice to clean specimen. These cleaners come in various sizes from those that hold a small cupful of cleaning solution, usually water with a little detergent soap in it, up to giants you could almost take a bath in. They strongly vibrate the cleaning solution and this causes tiny bubbles to form (cavitation) and the collapse of these micro bubbles creates a lot of energy and cleaning action. In the larger, more powerful models, the water will heat up as you use the device and this also enhances the cleaning process. The material to be cleaned is suspended in the tank. If you put specimens on the bottom of the tank, this will often reduce the cleaning effect, sometimes dramatically, because it reduces the amount of cavitation

(Continued on page 6)

DINOSAUR CHASE

Article borrowed from The Northwest Arkansas Gem and Mineral Society Newsletter, ROCK, PICK & CHISEL, June 2016

Trace fossils are different from other types of fossils in that they give some (limited) information about the activity of living prehistoric beings. They include any impression or other preserved sign of activity (for example, feeding, scratching, burrowing, walking, or resting). The former Union Chapel Mine near Jasper, Alabama (now the Steven C. Minkin Paleozoic Footprint Site), is one of the most important vertebrate trackways sites. The Minkin site was preserved, and people can visit it today. Recent news reports concerned another site that no longer exists, but that paleontologists can still study due to the use of modern analytical techniques. On a river bed in Bexar County, Texas, near San Antonio, one dinosaur was chasing another. Not recently, but 110 million years ago. The tracks they left behind were preserved. The tracks are from a large, herbivorous sauropod and a carnivorous theropod—the group of top predators to which *Tyrannosaurus rex* belonged. “In some places the theropod tracks are in the sauropod tracks,” said Dr. Peter Falkingham, the lead researcher in the work described here. “[This means] the theropod came after. So the interpretation is a theropod chasing a sauropod.” Seventy years ago, the whole trackway was removed from the river bed and divided into blocks, which were moved to different locations for study. Since then some of the blocks have been lost. But American paleontologist Roland T. Bird, who first excavated the site in 1940, took photographs. Bird also drew maps of the whole site. Falkingham’s team used a technique known as photogrammetry — scanning and combining the photographs — to build a digital model of the site. Photogrammetry finds the 3-dimensional coordinates of points in the photographs, building a mathematical model of the scene. “We now have the whole trackway in context in a single piece,” said Dr Falkingham. “Here we’re showing that you

can do this to lost or damaged specimens or even entire sites if you have photographs taken at the time. And that means we can reconstruct digitally, and 3D print, objects that no longer exist.” The reference below gives more detailed information. You can actually see a video of the model at the link below. https://figshare.com/articles/Historical_Photogrammetry_Bird's_Paluxy_River_Dinosaur_Chase_Sequence_Digitally_Reconstructed_as_It_Was_prior_to_Excavation_70_Years_Ago/984429.

Ref:
Falkingham PL, Bates KT, Farlow JO (2014)

Historical Photogrammetry: Bird’s Paluxy River Dinosaur Chase Sequence Digitally Reconstructed as It Was prior to Excavation 70 Years Ago.

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3973721/>



NEBRASKA ROCKS!

LGMC’s Annual Show is scheduled
for April 1 and 2, 2017 at the
Lancaster Event Center in Lincoln,
Nebraska! Mark your calendars!
Contact Show Chairman, Jayne Beer,
for information.
jbeer60070@aol.com

J J & L Rocks & Minerals

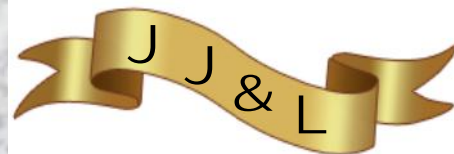
**P.O. Box 68
Hickman, NE 68372**

Lee Harrison
Eric Harrison
402.792.2337

**330 Locust
Hickman, NE 68372**

James Marburger
Sharon Marburger
402.792.2348

jimandjohn@jjlrocksandminerals.com
www.jjlrocksandminerals.com
jjlrocksmin - Ebay Username



Proudly serving
the hobby for
40 years

CLEANING QUARTZ—CONTINUED

(Continued from page 4)

and therefore the cleaning efficiency of the unit. Often cleaning will take place within a few minutes. This device, however, is usually not very good at cleaning a lot of dirt out of deep cracks or below overlapping crystals or specimens with a lot of dirt or well consolidated dirt. We quickly discontinued the use of these units soon after we got our first fabric guns.

Chemical Cleaning

Perhaps the most common reason people want to clean quartz is to remove brown “iron stains”. These “iron stains” are caused mostly by two iron oxide minerals: hematite and goethite. They are usually a rusty brown color but can manifest a range of colors from black to red. The term limonite is often used to name them collectively. There are a number of other minerals that lie in that color range and may require chemical treatments other than those discussed below. A lot of this offending material can be removed by mechanical means, often easily with high-pressure water or by use of an air abrasive tool. But if the collector does not have access to these devices, he often hopes for some magic liquid that he can dip his specimen into that will remove the offending material. For cleaning quartz, no such magic solution exists.

Before you use chemicals, I would suggest you clean the specimen as well as you can with the above methods. This will allow you to chemically clean your specimens more quickly and use a smaller amount of chemicals to do so. There are three main ways to chemically remove “iron stains” from quartz. They are by the use of: 1) A Waller solution (Iron Out), 2) Oxalic acid, or 3) Hydrochloric acid. These three chemical methods will remove “iron stains”.

Waller Solution (Iron Out)

If you decide to use chemicals to clean your quartz, I would definitely recommend that you first try using a Waller solution because 1) the chemicals in this solution are usually not difficult to obtain at least in the United States and, more importantly, 2) are generally less harmful than oxalic or hydrochloric acid. The Waller solution is a buffered solution of sodium dithionate. Easier than buying the chemicals and mixing them yourself, you can buy a product from Wal-Mart called Super Iron Out. You buy it in plastic bottles. It is a fine white powder and you mix it in water according to the directions on the bottle. A solution of sodium dithionate is not very stable because it reacts with atmospheric oxygen. Therefore you should not expect it to be useful after a few days. We have switched over to this method of removing iron stains almost exclusively from other chemical methods because it is quick and easy and we do not have to neutralize it when done and disposal problems are minimal.

Oxalic Acid

Whatever you do, I would advise you to use Iron Out as described above before you use oxalic acid. Oxalic acid is a poisonous white crystalline powder that is dissolved in water and has the ability to dissolve various fine grained iron minerals and clean your brown quartz. Oxalic acid is the toxic substance that makes rhubarb leaves poisonous to eat. For many years it was, and sometimes still is, sold in hardware stores for various purposes, perhaps the most common of which was to bleach wood. When you work with this chemical you should wear plastic gloves and make sure not to inhale its dust or get any in your mouth. Don't leave solutions of this material lying around because they are poisonous. It is best that this chemical is used in plastic or ceramic containers and not metal ones, because the oxalic acid will attack most metals. A pound to a pound and a half of oxalic acid in a five gallon bucket of water will make a good solution for cleaning quartz. The oxalic acid will take a few minutes to dissolve and you must keep stirring until it does. If you use warm water it will dissolve faster.

Hydrochloric Acid

You can buy this acid in hardware stores and in places like the Home Depot. Always use rubber gloves and eye protection and DO NOT use it in a confined area like your home or garage. There should be plenty of ventilation. You should also have a garden hose handy in case some is accidentally spilled; flood it with lots of water. Hydrochloric acid is a strong acid and must be treated with respect. The concentrated hydrochloric that you get at the hardware stores is rated at about 32% and gives off a strong acidic vapor. Avoid breathing the fumes. Use a plastic or ceramic container to clean your quartz. Plastic is much better because it is not as breakable. Make sure you have a tight fitting cover for your container. When it looks like your quartz crystals are clean, remove them from the acid and rinse them off with water. Then put them in another container of clean water and let them soak for an hour or two. Soaking them overnight will not hurt them and is a good idea. You do this to remove any acid that may have been trapped in the cracks of the specimen. If you do not completely remove the acid from your specimen, it may turn yellow at a later date and you will have to repeat the acid treatment and the neutralization. When you are done you can store the solution for future use or neutralize it. I recommend not storing it more than a week or two. You can use limestone or marble chips to neutralize the acid. When you put limestone or marble chips (calcite) in the acid, it will bubble and froth while carbon dioxide gas is liberated. When you add more limestone and no more bubbling happens, then the solution is neutralized and you can dispose of it.

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3 years:	Jim Atkins Andrew Tiedje

ADVERTISING, SUBSCRIPTION, AND MEMBERSHIP INFORMATION

Advertising by rock / hobby business or interest is permitted with the approval of the Board of Directors. Contact the Editor with your proposed ad. The rate is set at \$20.00 per full page; \$10.00 per 1/2 page; \$5.00 per 1/4 page (minimum) per issue, paid in advance to the Club treasurer. Ads will be placed throughout the newsletter as space permits.

Subscription to the Pick & Shovel is \$15.00 per year for mailed copy.

Membership dues for the Lincoln Gem & Mineral Club are as follows:

Adults (age 16 and over) - \$15 per year or \$25 per couple (within the same household)
Juniors - \$2 per year (with a responsible adult)

All new memberships must be accompanied by a written application. Prospective members must gain Board approval and attend one regular meeting before being approved for membership.

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Mail Exchange Newsletters to:

Lincoln Gem & Mineral Club, Inc.
P.O. Box 5342
Lincoln, NE 68505-0342

Or e-mail newsletters to:
lgmc.editor@outlook.com



A color version of the Pick & Shovel is available at:
<http://www.lincolngemmineralclub.org/index.php/newsletters/current>

PICK & SHOVEL

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YOUR PICK & SHOVEL STAFF:

PUBLISHER: LINCOLN GEM & MINERAL CLUB, INC.
P.O. Box 5342
Lincoln, Nebraska 68505-0342

EDITOR: SHARON MARBURGER
P.O. Box 64
Hickman, Nebraska 68372
E-mail: lgmc.editor@outlook.com

CIRCULATION: VERA LYMAN
402-464-6089

REPORTERS: All members are encouraged to submit features, articles, poetry, or drawings.

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