

The Rockhound Record

June 2005 - Volume 71 - Issue 6

Newsletter of the Mineralogical Society of Arizona, P.O. Box 39235, Phoenix, AZ 85069



Next MSA Meeting

Friday, September 9th at 7 pm
at the Arizona Mining & Mineral Museum
No meeting in July/August



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Miners Story Project

The Flandrau Science Center and University of Arizona Mineral Museum have started a joint effort to preserve and share stories of life in the mines and mining communities in the Southwest United States. These stories will help in teaching the history and importance of mining in the Southwest. Additional information and sample stories on the Miners Story Project website at: <http://www.minersstory.org>

New Newsletter Editor -

Lois Splendoria will be the MSA's newsletter editor beginning with the next edition. Her email # is chimes@extremezone.com. Or write to her at 3225 E. Baseline Road, Apt 1077 in Gilbert AZ 85234-2680.

Upcoming Arizona Shows

July 1 - 3, 2005 Flagstaff

American Gem & Mineral Show

Little America Hotel Ballroom, 2515 E. Butler, exit 198 off I-40 & Butler Ave., Flagstaff, AZ

Sponsored by: Flagstaff Gem & Mineral Society

Hours: 10:00 a.m. to 6:00 p.m.

Admission: \$2.00, children 6 & under free

Show Chairperson: Val Latham, 6598 Pintail,

Flagstaff, AZ 86004, 928-526-5152

July 1-5, 2005 Bisbee

Bisbee Gem & Mineral Show

San Jose Lodge, 1002 Naco Highway, Bisbee, AZ 85603, 520-432-5421 or 1-877 424-7234

Need to Contact the Board?

President - Shirley Fiske phone: (623) 551-0882
email: ShirleyAF@aol.com

Vice-Pres. - Gilbert Flores phone (800) 264-5101
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Secretary/Newsletter Editor - Lois Splendoria
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President's Message

I recently looked at next month's calendar, and was shocked to find out it was June. The year is almost half gone! As everyone older than me has already discovered, time is not a constant. What used to so slowly crawl by (especially in December) has undergone metamorphosis, grown wings, and is now enjoying its new existence as a hummingbird. Like a hummingbird, time can zoom forward at breakneck speeds, especially on weekends. On other occasions, it tends to hover and savor the moment. Friday afternoon before a three day weekend comes to mind.

What I like about June is that it heralds the official start of summer. In Phoenix, that means things slow down a bit. Everyone tends to go into the hover mode, and our prime objective is to stay cool. That's not necessarily bad. If we're not heading out of town, this is a prime time to check out the local museums. We have some good ones in this area, and many are worth more than one visit. We might also take the opportunity to clean out our specimen cabinets, update our labels, or even get around to finally doing that long-delayed and dreaded cataloging of our collection. Enjoy the summer, and take time to smell the roses.

I'll see you in September. Shirley Fiske

BOOKS ON THE ROCKS -

Hearing boulder stories about rocks . . .

The Arizona Mining and Mineral Museum will host Laurette Kennedy, a dynamic children's story teller and retired teacher, who will be reading and talking about fascinating rock books to children ages 5-15 on Tuesdays and Thursdays in July and August at 1:00 pm. The museum is located at 1502 West Washington, with plenty of free parking in the back.

Parents are welcome to participate in the half hour programs.

Participants are encouraged to bring a camera to take pictures of themselves standing next to the 23' high truck mural, standing next to an actual 12' high tire from that truck, or in the 10,000 pound bucket scoop on the northwest corner of Washington Street. Dates are: July 12, 14, 19, 21, 26, 28 & August 2,4,9,11. Reservations are not necessary. There is a \$2.00 admission charge for adults, and children are free. All participants will receive free rock samples, 10% off all purchased books, and a \$1.00 off coupon for their next visit.

Call 602-255-3795 x10 for more information.

Misleading Nicknames

"Spanish Topaz" - Not topaz, not from Spain. It's really citrine, a variety of Quartz.

"Cape Ruby" - Nope, not a ruby at all. It is only a blood-red Garnet, a lot less valuable.

"Bohemian Ruby" - Not ruby, not from Bohemia. It's red Tourmaline or rose Quartz.

"Vesuvianite" or "Californite" - Definitely not jade. It's actually green Idocrase.

"Oregon Jade" - Hmm. Another 'not jade'. Really greenish grossular Garnet.

"Evening Emerald" - This gem-quality variety of Olivine should be called peridot.

"Oriental Emerald" - Just a green sapphire, one of the varieties of Corundum.

"Oriental Amethyst" - Just a purple sapphire, but more valuable than amethyst!.

From the Pegmatite Bulletin - San Diego Mineral & Gem Society's June-August 2005 newsletter.

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COALITION ROCK HUNTING TRIP JUNE 25, 2005

Arranged by the Payson Rimstones Club
Trip Leader: Dick Lane
Email dic_net@cbiwireless.com

HUNTING: FOSSILS, CORALS, GEODES.

MEETING TIME & PLACE: Tiny's Restaraunt (1/2 mile east of the intersection of HWY 260/87, north side of the road), 600 E. HWY 260, in Payson.

THE PLAN: Arrive at Tiny's NLT 9:30 a.m. to sign liability waiver, ask questions and pass out maps.
LEAVE TINY'S NOT LATER THAN 1000.
Breakfast anyone?? Open 8:00 - 9:30.

Bring a scratcher to dig up bigger geodes and clear leaves, branches off specimens. Hammers and heavy digging not necessary. Brick bucket/bag for samples, hiking boots, gloves, long trou and shirts and good hiking boots. Temps will be in high 80's, but there is a lot of shade. Bring lunch and lots of water.

This area contains many 4"-6" nodules, coral (rugose coral), some red horned corals and occasional crinoids. Looking closely, you might find the occasional "diamond point" clear quartz, some nicely double terminated... not many but there are some.

Museum News - The Friends of the Arizona Mining & Mineral Museum has recently been awarded 3 grants for Museum projects. Qwest awarded \$5000 to upgrade and re-publish Teacher Pacs (classroom activities and ideas offered free to teachers). Phelps Dodge Foundation awarded \$20,000 toward the Copper Corner (the southwest gallery will be re-designed to present copper minerals, processing, products and related information). And APS awarded \$3000 to support the Outreach Program.

COALITION FIELD TRIP – Fat Jack Mine

DATE: Saturday, July 16, 2005
Questions? Email Deanna Smith at azland61@cox.net

LOCATION: FAT JACK MINE, near Crown King, in the southern Bradshaw Mountains.

MINERALS: This mine is noted for fine quartz crystals, particularly smoky quartz (with some amethyst-tipped crystals, doubly terminated crystals, and crystal clusters. There is a \$20 fee, for persons 12 and older, to collect at the site.

MEETING PLACE/TIME: Meet at the Crown King General Store, in Crown King, Arizona, at 9am.

DIRECTIONS TO CROWN KING: Crown King is reached by traveling north from Phoenix on I-17 to Black Canyon City. Continue north on I-17 for 14 miles to exit 259. Turn left and go west on Bloody Basin road for about a half mile to where the road becomes NF-259. Follow NF-259 for 10 miles to where it becomes Crown King Road. Follow Crown King Road for about 13 miles to Crown King. Mapquest estimates 2hrs 37 min total driving time from downtown Phoenix to Crown King.

VEHICLES: 2WD and low-clearance vehicles can make it to within about 1 mile of the mine, where we will carpool to the mine entrance road. From the mine entrance road, there is about a quarter mile walk to the mine, since there is no room for parking vehicles at the mine itself. John will shuttle people, as needed, to the mine from the stopping point. Many people will find it a pleasant walk to the mine, others will prefer a shuttle ride.

EQUIPMENT: water, sunscreen, digging/screening tools, hat, gloves. 7000' elevation.

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Rockhounding in an Iraqi Combat Zone

(Rockhounding at its Extreme)

By Sergeant Yonis Lone Eagle

Intro - 31 Dec 2004

Howdy fellow Rockhounds:

Sergeant Yonis Lone Eagle from the Rocky Mountain Federation here writing to yall from Camp Virginia in Kuwait. We reported to our unit on Christmas day and left for the Middle East on the 26th of December. We are here at a staging area with over 5000+ other U.S. troops and coalition forces from at least a half a dozen countries waiting for our turn for a flight north into Iraq. I'm currently assigned to the 228th Combat Support Hospital as a senior Bio-Medical Equipment Technician or BMET. The 228th is from Fort Sam Houston, Texas. I will be stationed in Tikrit, Iraq where we will set up and operate a 44 bed field hospital to support our brave troops during "Operation Iraqi Freedom."

Being an avid Rockhound for almost forty years now, I find adventure in every new field I hunt in. But to go hunting for rocks and fossils in a foreign country called Iraq during the ongoing "War on Terrorism" is something totally different. One must be very careful not to step on any old forgotten land mines and to keep your head low for all the flying bullets.

Therefore, I thought I would share my adventures with my fellow Rockhounds. I will be writing periodically on war, the geology and rock & fossils I find over here. I hope everyone will enjoy these stories and I look forward to your comments. This first report is more about the country that I will be working in for the next year. Hopefully it will give you a better idea of where I'm located.

Saturday, January 1, 2005, SOMEWHERE IN IRAQ —

A Big Texas HOWDY to all my fellow Rockhounds from Iraq...

This is Yonis Lone Eagle wishing each and every one of you a very Happy & Safe New Year. I'm over

here in Iraq waiting to set up our field hospital and thinking about you all. I have already started collecting some rocks to bring back home. I will be sending updates for y'all to post in y'all's newsletters on "Rockhounding in a Combat Zone". It will be about the Geology of Iraq and what kind of rocks you can find over here when you're not dodging bullets and bombs. Everyone take care and I will be sending more when I get settled in..

Your Fellow Rockhound... Yonis Lone Eagle.

Rock Hunting in an Iraqi Combat Zone (Rockhounding at its Extreme) PART 1 of ???

With a current population of almost 25 million, Iraq is a very ancient country with its birth dating back to near the dawn of civilization almost 10,000 years ago. Some of the world's greatest ancient civilizations such as Assyria, Babylonia, and Sumer developed in the area of Iraq. It is bordered by Turkey to the north; Iran to the east; by the Persian Gulf, Kuwait, and Saudi Arabia to the south; and Jordan and Syria to the west. The physical geography is made up of a combination of arid sandy rocky desert and mountains that covers almost 170,000 square miles with a green vegetation zone between her two major rivers, the Euphrates to the west and the Tigris to the east.

The northern portion of Iraq, known as Al Jazira, is mountainous. Near her northern border with Turkey, elevations reach around 7,000 feet above sea level; in the northeastern part of the country, near the border with Iran, there are higher peaks. The highest is Mount Ebrahim with an elevation of almost 12,000 feet above sea level. Farther south the country slopes downward to form a broad, central alluvial plain, which encompasses the valley of the Euphrates and Tigris rivers. West of the Euphrates, the land rises gradually to meet the Syrian Desert. The extreme southeastern portion of Iraq is a low-lying, marshy area adjacent to the Persian Gulf.

There are two different types of soils in Iraq. Heavy alluvial deposits, containing a significant amount of

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humus and clay, make up one type and are very useful for the numerous construction projects in the region. The lighter soils, lacking in humus and clay content, contain wind-deposited nutrients. With its large quantities of water, supplied by the Euphrates and Tigris rivers, semi-rich soil has been deposited along and between the two rivers for centuries. A high saline content mars the otherwise rich composition of these deposited soils. Flood-control projects and irrigation on the Euphrates and Tigris rivers help increase the agricultural production of this area. About 50 percent of the land is arable.



!(The Tigris River from Tikrit, Iraq)

Iraq is predominantly an agricultural country. Approximately 12 percent of the land is under cultivation. Most farmland is in the region of the Euphrates and Tigris rivers. Agricultural production averages included 550,000 metric tons of wheat, 465,000 metric tons of barley, and 130,000 metric tons of rice annually. Before the imposition of UN sanctions, exports of dates from Iraq accounted for a major share of the world trade in dates. Other fruits produced include apples, figs, grapes, olives, oranges, pears, and pomegranates.

The natural resources of Iraq are primarily mineral. The country is well endowed with petroleum and natural gas. Petroleum is the most important natural resource of Iraq. The country is estimated to have about 10 percent of the world's supply of proved petroleum reserves. The oil fields are located in two main regions: in the north-central part of the country, near Kirkuk and Mosul, and in the southeast part of the country, just inland from the Persian Gulf, near Ar Rumaylah. There are also small deposits of various other minerals that include ores of copper,

gold, iron, lead, silver, platinum, and zinc. Gypsum, salt and sulfur are fairly abundant, and seams of brown coal are numerous.

On a rockhound note... While still in Kuwait and out on a nearby weapons range to test fire our rifles, which is located out in the middle of the Kuwaiti desert, I found a good size chunk of well tumbled light gray & tan agate. About the size of a grapefruit and weighing about 5 or 6 pounds, it was very weathered and polished from the blowing desert sands. I'm looking forward to getting back to the states and having it cut open. I suspect it will be banded inside.

There were also several more much smaller tumbled stone that covered the entire area, evidently, an ancient riverbed. I also found a smaller, less rounded two-toned rock slightly larger than a golf ball. Half of the rock was a dark purplish-brown color and the other half was a tan color. The blowing desert sands or sandblasting too had polished it. And walking to the chow hall at our base camp the other day, I found a small piece of tumbled Brown Moss Agate, a nice little surprise.

Well folks, I hope yall enjoyed this first report. I will be writing more once I get up north to Tikrit. Everyone take care and happy hunting - Yonis

(from the Rocky Mountain Federation newsletter)

Interested in taking classes on Lapidary Arts, Wire Wrapping, Silversmithing or Metal Casting? The Arizona Mining and Mineral Museum in Phoenix offers classes at very reasonable rates. Call them at (602) 255-3795 x10 for more information on cost, scheduling and requirements.

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The Mother Lode - Part 10: The Empire Mine

By Tom Horton

First Discovery: A 49er named George McKnight found a piece of white quartz containing embedded gold on the current site of the Empire Mine in June, 1850. A similar piece of gold encrusted quartz was found in what is the current parking lot of the Northstar Mining Museum at about this same time by George Roberts. George Roberts was a lumberman, not interested in hard rock gold mining and sold his claim (which subsequently produced over ten million dollars) for \$350. Several other mines in the Grass Valley area were discovered and developed in the years following. All of them, the Northstar, Gold Hill, Golden Center, the Orleans Group and several others, were part of the quartz/gold deposit around and under Grass Valley, but separately claimed, owned and operated. The Golden Center Parkway passes through the property of the Golden Center Mine, whose tunnels, shafts and adits are mostly beneath the town of Grass Valley. The Golden Center Mine was and is at the geographical center of the Nevada Country gold producing areas. Nevada Country produced just over 50 percent of the gold produced by all of the California gold mines in the Mother Lode.

Gold Recovery: The method for gold extraction at the Empire Mine evolved from the technology used in Cornwall by tin and copper miners. Around 1850, Cornwall's mines were in a state of depression, so many of the Cousin Jacks and Jennys, upon hearing of the gold strike at Grass Valley, made the long journey to find work. They brought with them the technology of the Cornwall mines and a thoroughly flavorful dish that they called a "pasty" (pass tee; soft pronunciation of the letter "a", if you please). The Cornish pasty is served in many of the restaurants in Grass Valley and is similar to the American pot pie with many variations in contents.

The Empire Mine's deposit was mostly pure gold embedded and encrusted in white quartz. These deposits were discovered by finding pieces of ore on the surface and searching for where they originated. Erosion exposed parts of the ore deposit which became the initial ore bodies to be processed by the miners.

It was not unusual to discover one of these quartz/gold ledges while digging foundations for buildings in Grass Valley. Most of those discovered within the town limits, some of them quite extensive, were acquired by the Golden Center Mine operators.

To recover gold from these mines, shafts and tunnels were blasted into volleyball sized pieces, using black powder initially and dynamite later as well as double jacks in the hands of the miners. These pieces were transported to the surface in mining cars running on narrow gauge trolleys within the mine, elevators to the surface and finally narrow gauge rails to both "jaw breakers" and "gyratory crushers" to be crushed into two inch sized pellets.

These 2" pellets produced by both jaw breakers and gyratory crushers, were transported to the stamp mill after passing through grizzly' s to remove oversized pieces. Grizzly' s were large metal screeners with 2" openings through which small pellets could pass through. Oversized pieces were returned to be reprocessed into small pellets.

The 2" pellets passed from the "grizzly' s" to the mortars of the stamp mill. The Empire Mine, the largest of the mines in the area at the height of its operation, ran a 100 stamp mill, as did also the Northstar Mine. The stamps processed 2" pellets into a water based slurry of 40 mesh (1/100 inch size) pieces of quartz, gold and "other material". A screen retained larger pieces of material in the slurry under the hammer and allowed very small sized solids to pass through from the stamping zone onto the mercury recovery tables.

The "other material" consisted of gold chemically combined with lead, copper, sulphur and tellurium and possibly coated with iron silicates or manganese. Mercury tables only recovered about 35% of the gold contained in the ore from the mine, so the "other material" was passed to a cyanidization process located on the property.

Gold extracted from the mixture passed over the mercury tables and formed a very viscous material, which was cleaned off the mercury tables once per day, and passed to Berdan pans for further processing which "squeezed" gold

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from the mercury/gold "pseudo-alloy". Large, round pieces of iron ("cannon balls") rotated in a large iron vessel and separated gold from the "pseudo-alloy". The mercury squeezed out of the "pseudo-alloy" flowed over the lower edge of the tilted iron vessel, and was collected and returned to the mercury table operation for reuse. The ever increasing amount of gold remaining in the tilted and rotating vessel was recovered periodically by shutting down operations, emptying the gold/mercury material into ceramic lined vessels and passing it to a mercury distillation process. This process utilized heat to vaporize the mercury and cooling coils to recover it. It operated much on the principal of a conventional whiskey still. Some mercury vapor was lost into the atmosphere as an unavoidable result of this operation.

Gold recovered from the mercury distillation process was melted and poured into ingot molds. These molds made ingots weighing about 200 pounds, making them difficult to transport and thus difficult to steal. These ingots also contained a small amount of silver. The Bodie Mine at Bodie, California added silver to their ingots so the mixture was 35% silver. If someone other than a mine representative presented such an ingot, it was thus known to be stolen.

Initial Ore Crushing: Volleyball sized ore pieces were reduced to 2" pellets by both "jaw breaker" and "gyratory motion" crushers. The "jaw breaker" crusher was a very large, heavy iron machine driven by steam, water mill (Pelton Wheel) or electric motors when they became available. Ore passed into a fixed position iron "lower jaw". The upper jaw moved up and down against the ore supported by the "lower jaw". Large iron flywheels maintained the momentum of this operation. The 2" sized pieces passed out of an opening in the base of the "lower jaw" and were collected into mining cars running on narrow gauge railroad wheels.

Production of the small pellets in the mines of Cornwall was accomplished by a crew of "capable" ladies using double jacks (eight pound sledge hammers). When conversing with these ladies, extreme courtesy was the order of the day.

Two inch pieces of ore from the initial crushing operation were stock piled in ore bins awaiting processing. Thus the stamp mill could be shut down without having to shut down mining or initial crushing operations.

Stamp Mill: 2" pieces of quartz/gold ore first passed through 2" grizzly where oversized pieces were separated and returned to the crushing operation. Ore passing through the "grizzly" was introduced as required into the mortars of the individual stamps where it was mixed with water pumped out of the mine. The operation of the stamps resulted in the production of 40 mesh sized pieces of solid material mixed with water. The material that passed through the 40 mesh screens was allowed to flow downhill over the mercury recovery tables.

Stamps in the Empire Mine stamp mill were arranged in 5 stamp batteries. The design evolution of these devices was on a "let's try it and see if it works" basis. This way of doing things evolved into a more sophisticated procedure involving experience-determined algorithms. Stamp mills were very heavy and ponderous machines, which were capable of shaking themselves apart if run beyond their capabilities. Some of the design variables were the sequence of the stamps being raised and dropped, the weight of the stamps, the frequency of the raises and the distance that they were raised between "drops" onto the slurry resting on the mortar surfaces. The Empire Mine operated with stamps weighing 1,750 pounds each, raised 7" per lift, dropped 108 times per minute over a 24 hour day (except for down time to recover the mercury/gold pseudo-alloy from the mercury recovery table, to repair a malfunction or to perform preventative maintenance. The noise from stamp mills was deafening.

Mercury Recovery Tables: Each of the stamps in the battery had an associated mercury recovery table. These tables were covered with a smooth copper sheet coated with mercury. The tables were wide enough to process material emerging from the fine grain screens attached to the hammer and mortar part of the individual stamp and 10 to 15 feet long. Mercury will amalgamate with copper, and thus a managed mercury table could be continuously covered with a layer of mercury even though it would seem that the mercury would flow off the table.

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Additional mercury as needed was "sprinkled" on the tables as the slurry from the stamps passed over it. In the Empire Mine, applied mercury extracted about 65 percent of the gold from the slurry in the form of a "pseudo-alloy". The remainder was collected in ceramic lined vessels and passed to the Empire's cyanide recovery area. The "pseudo-alloy" on the recovery tables was allowed to accumulate over a day of operation and then collected from the table when the stamps shut down.

Berdan Pan: The Berdan Pan was a large iron vessel, mounted at an angle with several 8 inch cannon balls that "floated" on top of the mercury amalgum. Mercury/gold "pseudo-alloy" mixture was added, and the Pan was rotated while the cannon balls moved around squeezing out liquid mercury. During processing, the low concentration gold/mercury mixture in the pan overflowed from the top of the pan into ceramic lined vessels. This mixture was returned to the mercury recovery tables for reuse. Mercury remaining in the bottom of the pan became richer and richer with gold as the process continued. A lighter slurry of highly reduced gold content rose to the top of the pan. The pan was periodically shut down during the day to collect the rich mercury/gold mixture and send it to the distillation process. Modern day US Government mining agencies "might have a problem" with this procedure ...

Mercury/Gold Distillation: Material from the Berdan Pan operation was distilled causing the mercury to vaporize and the gold to remain in the distillation pan. The vaporized mercury was condensed to a liquid, collected and returned to the mercury table operation. The gold remaining in the distillation pan was heated until it melted and then poured into ingot molds producing gold ingots weighing around 150 pounds.

In all of these processes involving mercury, mercury vapor escaped into the atmosphere, making this an operation that was very hazardous to the health of the people working in and around the area.

The resulting gold was shipped to the Philadelphia Mint for purchase by the federal government. During that period when the various banks and other businesses were minting their own gold coins, much of this gold was sold

to those organizations for this purpose. The price paid for gold locally in California varied around \$16 an ounce. The price paid for gold at the Philadelphia mint varied from around \$18 an ounce in the 1850s to \$35 an ounce after the federal government made it illegal for individual citizens to traffic in gold in 1936.

Hammer Mill Replacement: The U.S. Government shut down the gold mines in the Grass Valley area in 1942; deeming gold mining an unnecessary industry during the war. After World War II, the mines were reopened by returning miners. At that time, the stamp mills were replaced with roller mills and iron bar mills. The 100 stamp mill is no longer at the Empire Mine although its concrete foundation is still there. There is also an example of the original wooden stamp mill used at the mine on display at the Empire Mine Museum. The Northstar Mine Museum has a working and operational example of a 5 stamp mill within its museum building.

The rising costs of recovering gold from the mines in and around Grass Valley made it impossible to make a profit on these operations in the 1950s, and the Empire Mine was shut down in 1956.

As this is written, a Canadian company is planning to reopen the Idaho Maryland gold mine just to the north of the Empire Mine. They plan to spend \$200 million merely to dewater the mine. Clearly they have obtained some very pleasing core samples from this mine....

Value of Arizona Mineral Production - 2004 (1)

Commodity 2004 (4)

Copper \$2,130,000,000
Gemstones 1,450,000
Sand and Gravel, const. 372,000,000
Stone, crushed 52,000,000
Combined values (2) 447,000,000
Subtotal **3,000,000,000**
Coal (3) 312,000,000
Total **\$3,312,000,000**

1. USGS data except as noted. 2. Includes cement, clay, lime, gypsum, gold, molybdenum, perlite, salt, silver, dimension stone, zeolites, and iron oxides 3. ADMMR data 4. Unpublished USGS data, subject to change; official preliminary 2004 will be published in the Ariz. chapter of the USGS Mineral Yearbook, Area Reports: Domestic 2004, Vol. II.

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New Recreation Fees -

(I received this in the mail, but the envelope had no return address, and the letter wasn't signed. I'd like to thank whomever sent this and wholeheartedly agree that usage fees for public lands is an issue of concern to all rockhounds)

The Bureau of Land Management (BLM) is applying new recreation fees, as are other Federal land-management agencies, under the Federal Lands Recreation Enhancement Act of December 2004. That law is supposed to limit fee collection "to sites that have a degree of development and receive significant visitation," along with other criteria, "for improved facilities and services." Arizona BLM field offices will spend FY 2005 preparing Business Operations Operating Plans for all recreation sites which are "in compliance" with the new law. This replaces the "Recreation Fee Demonstration Program," established by Congress in 1996.

As you travel around this summer, jot down and keep track of any sites and fees you are being nicked for, and by which Federal agencies. See how much this really is costing all of us. How fast this fee collecting escalates. Take copies of any brochures, sites, facilities and fees provided you. Come October, let us all combine and compare notes on what it is costing us to use our public lands and what passes for improved facilities and services. How much farther afield did you have to roam to keep the toll takers at bay? Was the quality of your visit commensurately improved, or the facilities, in keeping with the deflation of your pocketbook?

Do something pro-active on your own behalf for your outdoor recreational experiences.

Arizona's Copper Mines: Past and Present Thru December 31, 2005

The University of Arizona Mineral Museum in Tucson will feature displays of many of the beautiful minerals that come from the large copper mines found throughout Arizona that have been great producers in Arizona's past and present.

These include:

- Bagdad Mine - Miami, Gila County
- Bisbee Mines - Bisbee, Cochise County
- Miami-Inspiration District - Miami, Gila County
- Morenci Mines - Morenci, Greenlee County
- New Cornelia Mine - Ajo, Pima County
- Old Dominion Mine - Globe, Gila County

Contributors include: the Bisbee Mining and Historical Museum, Robert J. Kamilli, Phelps Dodge Mining Company, Les and Paula Presmyk, Eloise Tobelmann, and Gene Wright.

Some Upcoming California Tailgates :

San Diego Lapidary Society Sept. 24 & 25. The Bernardo Winery in Rancho Bernardo will be the site for the 2nd Annual SDLS Tailgate. Lots of dealers and tailgaters already signed up. Admission is free. If you are interested in selling- contact Bill Horning at (619) 748-0069.

El Cajon Valley Gem & Mineral Society Oct. 8 & 9. Yee-haw! Come fall it will be time to head back to Lakeside Rodeo Grounds. This was a pretty big event last time around, and it bodes well to become even bigger and better. To sign up to be a dealer or tailgater, call Peggy Bowery at (619) 443-8327.