

# The Opal Express

American Opal Society  
P.O. Box 4875  
Garden Grove, CA 92842-4875



**Volume #39 Issue #01  
January 2006**

TO:

### ***Some Topics In This Issue:***

- Question on Leakey Opal
- January Elections
- Phenomenal Opal
- Famous Opals: The Flame Queen
- Mining Terminology
- An Introduction To Flint-Knapping
- Gold Coloration
- Cleaning Opal Pineapples
- Utah Emerald
- Polishing Curved Surfaces
- Lapidary Polishing Compounds
- A Rocky Mountain Mystery
- Acid Disposal

### ***Important Info:***

***Board Meeting  
January 10<sup>th</sup>***

***General Meeting  
January 12<sup>th</sup>***

*Mike Kowalsky on Lightning Ridge*

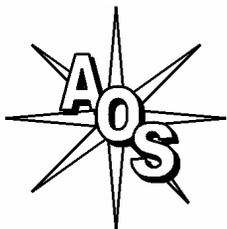
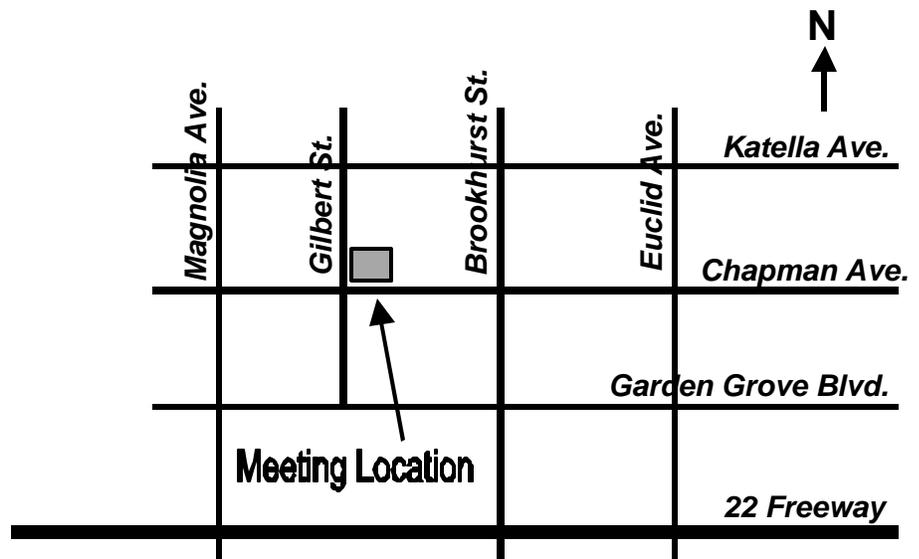
### ***— GENERAL MEETINGS —***

2nd Thursday of the Month  
7:00 pm - 9:00 PM  
Garden Grove Civic Women's Club  
9501 Chapman Ave.  
(NE corner of Gilbert & Chapman)  
Garden Grove, CA

### ***MEETING ACTIVITIES***

*Opal Cutting, Advice, Guest Speakers,  
Slide Shows, Videos, Other Activities*

# **January 12th: Mike Kowalsky Presentation on His Trip to Lightning Ridge**



## **The American Opal Society**

<http://OpalSociety.org>

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**NAME BADGE ORDER FORM:**  
PLEASE PRINT NAME AS YOU WISH IT TO APPEAR ON YOUR BADGE using up to two (2) lines of text for your name, nickname, or name of your opal related business.

**MEMBERSHIP ROSTER and NEWSLETTER MAILING:** The AOS publishes a membership directory once per year in its Newsletter, the *Opal Express*. Your name will be included. Please check what additional personal information that you want listed for other members. If it is different from the information above, please note that on the application.

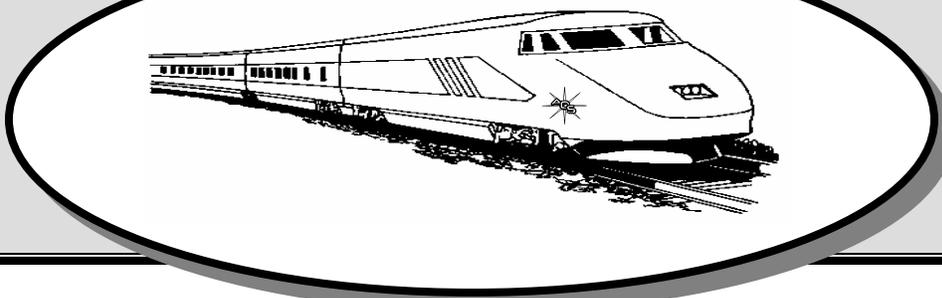
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**Are Your Dues Due Now?**  
**PLEASE CHECK YOUR ADDRESS LABEL.** If your label shows the current month/year your dues are DUE NOW. If the date is older, your dues are overdue.  
**A Renewal Grace Period** of two months will be provided. If your dues are due now you will receive two additional issues of the newsletter. Please note, however, that as the system is now set up, if your renewal is not received you will be AUTOMATICALLY dropped from membership thereafter. It is your responsibility to assure your dues are current.  
Thank you,  
The Editor

# The Opal Express



Published  
monthly by  
The  
American  
Opal  
Society

January 2006

Volume 39 Issue 1

## Table of Contents:

President's Message	3
Members Only Website Password	3
Christmas Party Potluck	3
Tucson Show Booth Cancelled	4
Correction to Dec. 2005 Opal Express	3
Question on Leakey Opal	4
January Elections	3
Opal Society Workshop to Open!!!	3
A Tribute to Walter Johnson	4
Phenomenal Opal	4
Famous Opals: The Flame Queen	5
How to Tell Your Adit from a Hole in the Ground	5
An Introduction To Flint-Knapping	6
Gold Coloration	6
Cleaning Opal Pineapples	7
Utah Emerald	8
Polishing Curved Surfaces	8
Lapidary Polishing Compounds	8
Where Do You Put That Acid...	9
A Rocky Mountain Mystery	9
January 2006 Gem & Mineral Shows	9

## President's Message

*Eugene LeVan*

Happy 2006 New Year from the AOS! We closed the year with very good turn out of happy guests at our annual Christmas party, food and fun for all. My thanks to the members that worked so hard to make it successfully happen!

Our first order of business is the election of officers for 2006 with a stable staff.

The board members with the input of the membership will have new monthly programs set in place to keep new things happening. We need your idea's to keep our group fresh and interesting.

The new workshop will be open for business in 2006 and we will require some staffing to make the shop operate.

Opals are the stones that bring us together with the many colors shapes and sizes. No other stone on earth is like opal, none the same just like people and very precious. See you at our January meeting.

## Members Only Website Password

To log onto the website's members only area at:  
[http://opalsociety.org/aos\\_members\\_only\\_area.htm](http://opalsociety.org/aos_members_only_area.htm) type: Name:  
"member" and Password: "harlequin".

## Christmas Party Potluck

The Christmas Party Potluck was a great success. The AOS provided ham and turkey. Other members brought everything from meatballs to pecan pies. We had a good turnout and everyone enjoyed themselves. The highlight of the evening was a presentation of a plaque to President Dr. Walt Johnson to commemorate his contributions to the society.

## Correction to Dec. 2005 Opal Express

In the published article last month "Where Did Christopher Columbus Go Wrong?" By Ernest Barnhart, we misspelled the author's first name. The correct spelling should be Erston. Thanks to member Cathy Gaber for pointing out the error.

## January Elections

Due to the fact that Dr. Walt Johnson can only serve as president for one year, Gene LeVan will take over as the President of the Society for the remainder of Walt's term. In addition, we will have an election to fill the position of Vice President left vacant by Gene for the remainder of that term.

The candidates will be nominated at our January General Meeting. Voting will occur immediately after the nominations. Please attend the meeting if you are planning on voting.

## Opal Society Workshop to Open!!!

*Dr. Walt Johnson*

The American Opal Society will open its workshop at Ball Jr. High School on Monday, January 9 from 7:00 to 9:30 p.m. The school is located at 1500 W. Ball Road in Anaheim. This is between Euclid Ave. and Harbor Blvd. If you are traveling east on Ball Rd. the parking lot entrance you need to use is just before the railroad tracks. If you are traveling west, the lot is just after the railroad tracks. Room 37 is in the center of the campus.

The workshop will be open on Mondays. Instruction will be given in cutting opal, wax models, lost-wax casting, fabrication, and setting stones. The workshop will furnish machines to cut and polish stones as well as a centrifuge for casting and a kiln for burnout. You will need to furnish other equipment you wish to use. Please bring a roll of PAPER TOWELS with you for clean-up as the room is a science lab and needs to be kept spotless.

To attend, membership in the American Opal Society is a must due to insurance. A nightly fee of \$2 is asked to help keep the equipment in good running condition.

Our thanks to Pete Goetz and the Anaheim Union High School District for the use of this classroom for our workshop!

## Tucson Show Booth Cancelled

The American Opal Society booth at the Tucson Show has been cancelled. Lack of volunteers to man the booth and late registration are to blame.

## Question on Leakey Opal

Does anyone know anything about the opal artifacts found by Louis Leakey in Kenya in the late 1930's? If so, please contact Cathy Gaber at this e-mail: [bg@his.com](mailto:bg@his.com).

## A Tribute to Walter Johnson

The AOS awarded AOS President Dr. Walter Johnson with a plaque at the December General Meeting. The plaque read as follows:

*The American Opal Society recognizes Dr. Walter Johnson for his lifetime contributions and his dedication to the education of members of the American Opal Society and Walker Jr. High School classes.*

*In performing the creation of jewelry by the design of jewelry foundations by designing wax models and casting finished jewelry.*

*By lost wax casting methods and mounting intricacies of precious gem stones.*

*We honor these accomplishments and thank him for his generous contributions to the American Opal Society.*

*Vice president 2005-2006 - Eugene Le Van*

*President 2002-2005 Peter Goetz*

*President 2000-2002 Michael Kowalsky*

We thought that Society would like to know some more about Dr. Johnson so we included his Biography here. Thank you, Walt!

### Dr. Walter Johnson Biography

Walt was born the last of 6 children to a South Dakota pioneer family. His early childhood was spent on the Walker Ranch, the middle of the Standing Rock Indian Reservation. One building not used during his life time was the old meat house because it was there that Sitting Bull's body was kept overnight on its journey to North Dakota for burial. Walt attended a one-room school at Walker which sat upon a den of thousands of wintering rattlesnakes. It was on this lonely and desolate ranch that his interest in rocks, gems and relics was born. His love of history and antiques was fostered early in his life as he walked along the old ruts of the Oregon trail where it crossed his ranch picking up relics left by pioneers of long ago. While in the 7th grade, Walter took one of these discarded pieces of wood and carved it into a statue encrusted with garnets, rubies, and gold.

In growing up, he received his daily spanking from his mother with her Ma Perkins brush because she knew he had done something wrong. His Dad only got him twice. Once was for taking a pet baby rattlesnake to bed with him and the other was for getting in the pigpen and squeezing the piglets until they squealed. Both the old sow and his dad were most unhappy. And now, he won't get near a snake to tell if it is a rattler or not. And he prefers picking and teasing schnauzers rather than pigs.

During high school his love of fine cars began to emerge. He won 3rd place in the Fischer Body Craftsman Guild Competition. He also had his first showing of his paintings at the Carnegie Institute of Art at the age of 14. At the age of 15 he traveled by bus alone to Minneapolis, a distance of a couple hundred miles, to attend the symphony and opera.

Walt left the cold, Dakota winters for Korea thanks to the U.S. Army. Here he stayed for 6 years as a medic and part of the VIP Escort for generals. In his free time, he studied Asian art, had a private dinner with the Emperor of Japan, taught English at Seoul University, and had numerous adventures including one into North Korea delivering Christmas presents.

On his return to the U.S., he worked in the V.A. hospital in Washington State and designed sets and costumes for a theatrical group in Tacoma.

In the early 1960's he came to California to be with his parents and brother. Chapman College was his next stop. Here he earned both his B.A. and M.A. degrees in Art Education. During this time he met and married Donna. His father was so happy with her that he announced one day that if a split came in the marriage, SHE was the one that was to return to them.

He refused a job offer doing cartooning from Walt Disney in person because the pay was only 25 cents more than minimum wage: Anaheim Union High School got him instead. He worked for 26 years at Walker Jr. High teacher both art and his favorite, lost wax and lapidary. In addition to day classes, he loved teaching lost wax and lapidary to adult education classes. It was here that Stan McCall became a true friend by faithfully coming and assisting twice a week year in and year out. This continued several years after his retirement.

He finally finished his doctorate degree in art education through Cambridge University. The work had been nearly completed years ago.

Walt is and has been greatly involved with another of his loves - the Packard motorcar. He currently has 4. Parades are a favorite of his, especially the Hollywood Christmas Parade in which he drives every year. Walt has been a member of both the National Board of Packard's International and the Southern California Regional Board where he has served as president. He is currently Director of Regions for the organization.

He is enjoying his retirement, which is filled with traveling, jewelry making, playing "cars", and just having fun!

## Phenomenal Opal

### One of America's finest gems comes to light

December 1999

*By Robert Weldon, G.G. Gemstones & Pearls: News*

When Thomas Ames sat down to carve one of the largest and finest opals mined from Opal Butte, OR, you can only speculate about his state of mind. A seasoned glyptic artist, Ames was about to use his particular technique of sand-blasting a gemstone - masking off strategic areas, blasting, remasking and so on - until the opal yielded to the varying depths and contours of the Cattleya-laelia orchid design he wanted to create.

But this wasn't a normal opal. First, it was huge - over one pound of rough. It also had an unusual quality. "It was unlike Australian material, which is opaque and shows its play of color in reflected light," says Ames. "This piece had a clarity I've never seen in opal before; I could see through it, and the fantastic play of color dazzled me."

The opal also has some interesting rounded orange clouds that some gemologists speculate are concentrations of microscopic iron oxide stains, similar or identical to the colors seen in cherry opals.

Opal Express, January 2006 Page 4



272-ct. opal from Opal Butte, OR, was carved by Thomas Ames. Photographed with transmitted light, this opal reveals that it is the contra-luz variety

Ames says the opal is of the contra-luz variety, the Spanish phrase meaning "against the light." The opal composition (microscopic, tightly packed silica spheres) diffracts reflected and transmitted light, resulting in red, orange, green, blue and violet flashes and pinpoints of color. This composition creates an ebb and flow to the colors as the gem is rotated and angled in relation to light.

In addition to the opal's composition, Ames considered its general outline. "Cut just right," he says, "it has a rainbow-opal effect." (Rainbow opals typically change body color entirely, depending on how light is angled in relation to the gemstones.)

#### Award-Winning Result

What resulted from Ames' tireless efforts was the 272-ct. opal carving shown here. The gem won a first-place honor in the American Gem Trade Association Cutting Edge competition this year (see Professional Jeweler, October 1999, p. 62).

"It was the largest piece mined at the Blue Mountain range in Oregon until just last year," says Ames. "Now a 2-pound piece of pure transparent opal has been cut from the matrix, though it remains unfashioned."

Almost 2000 years ago, naturalist and philosopher Pliny the Elder pondered the virtues of opal. He wrote in his epic Natural History volumes: "There is in them a softer fire than in the carbuncle [garnet]: there is the brilliant purple of the amethyst; there is the sea-green of the emerald – all shining together in incredible union."

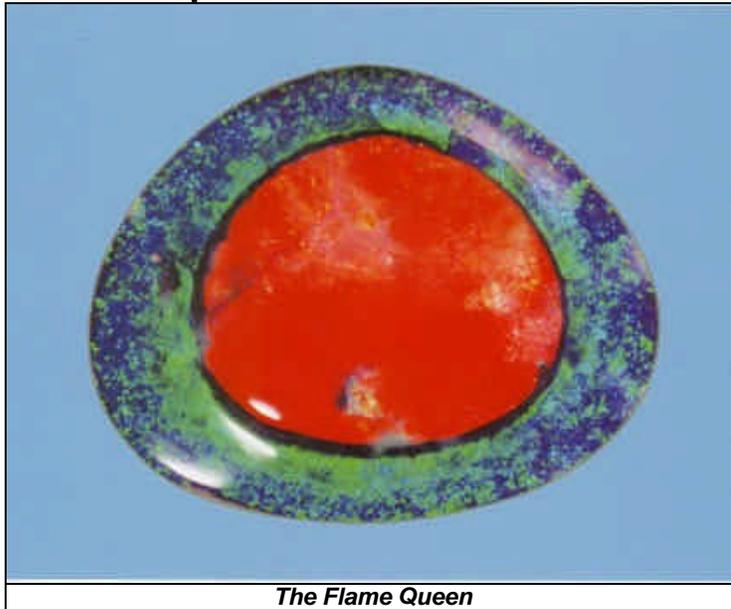
It's an appropriate salute to Pliny two millennia later. A singular opal, from a world unknown to him, that perfectly matches his contemplations.

Thomas Ames, Arvada, CO; (303) 424-3772.

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## Famous Opals: The Flame Queen



**The Flame Queen**

The 'Flame Queen' was mined on Bald Hill in 1918, not far from where Dunstan mined 'Queen of the Earth' in 1906. Three partners, Jack Phillips, Walter Bradley and "Irish" Joe Hegarty took over a partially dug claim that was abandoned by a miner who left to fight in World War I.

Lightning Ridge was a risky place to speculate for opals. The early miners used picks and shovels, battling fatigue and hunger and desperate to find an opal-rich shaft. Hegarty completed the partially dug tunnel, but when he reached the opal level, the site appeared worthless. The opal-rich clay, usually around 30 feet down the shaft, did not reveal any color, which indicates the presence of

gemstones. Once Hegarty reached the clay, he and Bradley tunneled vertically, a dangerous procedure that could result in the collapse of the entire site. At this level, with little ventilation and light, Bradley discovered a "great nobby". Close to 35 feet below the surface, in a tunnel little more than 2½ feet wide, he was hoisted up so that he could examine the stone under daylight. The story goes that Walter Bradley took a "bite" at "a great black nobby" with his steel snips... and revealed the brilliance of opal within. They were offered £7 in the rough for the stone, which they refused.

Of the three partners, Bradley was the most skilled lapidary and had the best equipment to cut and polish the rough. It revealed a dazzling red domed center with a greenish blue border. The three men, broke and exhausted from their labor, hungry from scarce food supplies, hastily sold the opal to a gem buyer for 93 pounds. Phillips, Bradley & Hegarty were the lucky miners, who shared the £93 that Ernie Sherman gave them for this collector's piece.

Cutting it would have spoiled the unique pattern. John Landers reported that the architecture "made this stone!" A black nobby as big as the palm of a hand, 'Flame' weighed 253 carats. An oval, 2 3/4 inches x 2 1/3 inches, with a dome that a half-crown would not cover, displayed a broad bronze-red flash. The ½-inch dome was framed with a high emerald green 3/8-inch band (then electric blue from another angle). Thus, the appearance of a 'Poached Egg', the rather unflattering nickname that was given to 'Flame'. One writer described the stone thus: "Suppose you put an egg in a frying pan. Directly the egg hits the pan, the white spreads out, leaving the yolk standing in the centre. This is what the exquisite stone looks like, only the yolk is a striking blood-red, raised above and surrounded by beautiful blue-green opal." The cut and shape are highly unusual and enhance the natural formation of the stone. Under differing lights and angles, the stone reflects numerous combinations of color in a unique and remarkable way.

A Brisbane jeweller submitted the stone to the Queensland Geological Survey. It was established that traces of ginko, a fossil plant (Chinese maiden hair fern), occurring in Jurassic rocks but not in any opal deposits, were impressed on the back of the gem.

The asking price for this unusual opal has continued to climb over the years with each change of hands. In 1925, an offer of £2000 was made. In 1948, she was valued at £5000. In 1973, \$US 32,000 was paid. In 1980, 'Flame' was for sale again at a million dollars! As of 1992, she was back home in Australia. In 2003, 'Flame' was put up for auction at Christie's in New York but was passed in for an undisclosed reserve. (Estimated at US\$250,000) Current photos confirm the beauty of this gem and no sign of crazing after 86 years of to-ing and fro-ing.

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## How to Tell Your Adit from a Hole in the Ground

*By Walt Margerum*

If you are like me you come across mining terms all the time and sometimes you wonder what they mean. I have therefore compiled a short list of terms with their meanings to assist and edify everyone.

1. Adit - An almost horizontal tunnel from the surface to where you hope the ore is. Sometimes the adit is dug primarily for haulage of the ore from the vein to the outside so it can more easily be put on the dump. In this case it is called a haulage adit.
2. Decline - A tunnel dug at too steep an angle to easily walk. When you are at the bottom it is called a X%&\$ incline.
3. Drift - A horizontal or nearly horizontal tunnel that usually does not intersect the surface, but hopefully follows the ore. If it intersects the vein it is called a cross drift. If it passes through the vein it is called a X%&\$ drift.
4. Dump - The large pile of useless rock you spent many hours removing from the mine to get to the ore. Quite often everything from the mine.

5. Foot Wall- The lower wall of the vein. The one you try to stand on that is usually steep enough so that you slide down it to the vein.
6. Head Wall - The upper wall of the vein. The one you bang your head on.
7. Mine - A usually valueless hole in the ground into which otherwise intelligent individuals are willing to spend all of their money.
8. Ore- The material removed from the mine that is sold in a vain attempt to make a profit.
9. Raise - A vertical or almost vertical shaft dug after you discover the vein is above the location of your tunnel.
10. Shaft- A vertical or almost vertical hole dug from the surface either along the vein or to where you hope the vein can be found. It is used to extract the ore until you decide it is easier to dig an adit for that purpose. This decision is usually made long after common sense dictates that is how you should have done it in the first place.
11. Stope - A large hole dug to extract the ore. If the ore falls on your head as you remove it, it is called an overhead stope. If you have to bend over to dig the ore it is called a back ache.
12. Tunnel - A drift or adit. The term is usually used when you get lost and do not either intersect the surface or the ore.
13. Vein - The body of rock that contains mostly gangue, and a small amount of ore.
14. Winze - A hole dug to intersect the ore after you discover the vein is below the level of your tunnel.

I hope you will find these definitions useful.

*From the Bulletin of the Mineralogical Society of Southern California, Volume 75 Number 7 July 2005.*

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## Flaked Out

### An Introduction To Flint-Knapping

*By Bob Miller*

Somewhere lost in the sands of antiquity, the first flint tool lies buried and forgotten. My guess is that it sleeps somewhere east of Eden in Mesopotamia, likely fashioned by the hands of Adam. Of course, I don't really know and neither does any other living human. The bond between mankind and flint is very old and deep indeed. Likely, it is some vestige of this friendship that reappears today as the urge to rock-hound.

Flint-knapping (from the German ("Knappen" meaning "to nibble") is doubtless one of the most basic and ancient of industries. Without the very sharp and durable edges produced by fracturing flint even the working of wood becomes next to impossible. If you doubt this, go into the woods without knife, ax, or saw and try to fell a useable sapling. Catching a cooperative beaver is about your only option here. Along with fire, flint was survival for millennia, and many of those fires were kindled using a flint spark.

In everyone's genealogy there were flint-knappers. It may be many generations ago for some or only a few as in this writer's own Cherokee and Choctaw ancestors. Their skills were undoubtedly adequate or we would not be here today.

Until the recent development of fused diamond plating on a tungsten matrix blade, obsidian (as in "Apache Tears") produced the sharpest known edges, far superior even to the best surgical steel scalpels. Obsidian fractures at the molecular level producing edges that may be only a molecule or two thick. The Maya Indians of southern Mexico were in fact successfully performing brain surgery (trepanning) centuries before Columbus landed, using obsidian tools.

The knap-ability of flint owes to its krypto-crystalline structure (its crystals are microscopic or non-existent). It is much like glass being about 95% quartz (silicon). When struck a sharp blow with a hard object it will fracture into a "Hertzian cone" (conchoidally).

Perhaps the easiest illustration of this phenomenon is to shoot a piece of thick glass with a B-B-gun. The characteristic product of this collision is a smoothly rippled Hertzian cone. This is the basis of flint working by percussion.

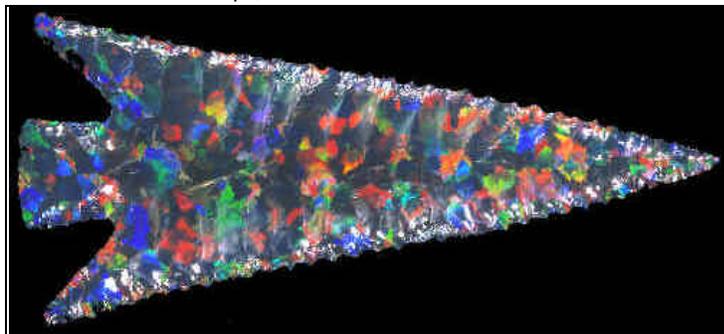
Flint-knapping is the art of vectoring blows from a "billet" to remove flakes from the core in a manner predictable enough to eventually shape a blade. This process is called "core reduction". Once a blow is struck it cannot be recalled. For better or worse the record of that blow is "written in stone".

Knapping is a lot like playing billiards. Due to inconsistency or defects (inclusions) in the flint it can more resemble playing pool on a wavy table with a tree limb and glass eggs. There are times I feel that I am actually matching wits with a piece of flint, as in three-dimensional chess! Many Indians believed that everything, even inanimate objects like rocks had a spirit and were somehow "alive". Perhaps they were right.

There is, of course, a lot more to knapping, like pressure flaking, heat-treating flint to improve its "lithic" qualities, "hands on" experiencing of just how sharp flint really is, weeping over the halves of an exceptional, almost complete blade, and of course losing one's mind.

One thing is certain, if you pursue knapping with any degree of persistence, you will recognize that its ancient practitioners were not a bunch of dumb savages banging rocks together. Instead, that is what we modern hobbyists are! They did it to survive—we do it ... For fun???!.

Bob Miller is a member of the Deming Gem & Mineral Society. *From the from Rock Chips, March 2004.*



*MODERN-MADE ARROW POINT made from Synthetic opal - in a private collection. MADE BY JIM HOPPER*

This arrow point was made several years ago by Jim Hopper. It was made out of what is apparently a fairly rare type of opaque synthetic opal. This material displays brilliantly iridescent colors of all variety. It must be one of the most beautiful arrow points ever made, and for two reasons. One reason is that it was made with perfect flaking technique similar to some of the Columbia River gem points from northwestern United States. The other reason is, of course, that it was made from a very exotic material that sparkles every color in the rainbow. It's a wonderful work of art. This point measures 1 9/16 inches (4 cm) long.

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## Gold Coloration

### What Makes Rose Gold Pink, White Gold White and Green Gold Green?

What goes into platinum jewelry metal? This is something I was not quite sure about until I researched the question. Not only are white gold jewelry styles possible that combine white and yellow (and even rose) gold, but exotic gold hues like blue, green, brown and purple have been created. Because it is harder than pure gold (24K), karat gold can take on a smoother polish. This makes its polished surface more reflective. This means that karat gold can have a brighter luster than pure gold, which is more likely to dent

from everyday wear. Karat gold weight and cost both make a difference in the final cost of jewelry. For example, a 14K gold item weighs less than the same item cast in 18K gold. The 14K gold item will also cost less than the 18K gold, because it contains a smaller percentage of gold. These factors combine to lower the manufacturing cost and final price of karat gold jewelry. This makes karat gold jewelry more accessible to the public at large.

#### Ingredients of Typical Gold Alloy Colors

14K Yellow	Gold, copper, silver, zinc
18K Yellow	Gold, copper, silver, zinc (with a higher proportion of gold)
Green	Gold, copper, silver (amount of silver increased)
Rose	Gold, copper, silver (amount of copper increased)
White	Gold, nickel or palladium, copper, zinc

#### Platinum Alloys

Compared to silver and gold, the element platinum is a fairly recent discovery. To some people, this makes platinum a symbol of progress and innovation. Europeans learned about platinum when the Spanish discovered it during their occupation of Ecuador in the late-1500s. But it took two more centuries before European scientists learned how to work with the odd metal. Platinum is one of the strongest and most durable of all metals (excluding titanium, of course). However, platinum's physical properties make it a challenge to use in jewelry manufacturing. One of the biggest problems the early scientists had was its very high melting point -- approximately 3224°F (1773°C). Use of the high-heat oxyhydrogen torch finally allowed jewelers to melt and solder platinum in the 1800s, and thus it began to be used in jewelry. Other platinum group metals are iridium, osmium, palladium, rhodium and ruthenium. Presently, manufacturers alloy pure platinum with other platinum group metals, mainly ruthenium or iridium. Another alloy possibility for platinum is the addition of cobalt. Mixing platinum with different members of its group creates alloys that can be harder than pure platinum. Platinum alloys that are 950 parts out of 1000 platinum and 50 parts other platinum family group metals are typically referred to as "platinum" without reference to the alloy, and stamped with the letters "PLAT". Occasionally a stamp for platinum reads "PT950", which means the same thing. Plating platinum with rhodium gives it a whiter finish. This practice occurs in the US and in other parts of the world. Rhodium is also used to sterling silver and white gold.

#### Silver Alloys

Pure silver (.999) is luminous and lovely, but too soft and easily damaged to be as versatile as its alloys. Even the silver used to plate tableware has been alloyed to improve its hardness and durability. In order to bear the name "silver" in the United States, silver alloys must contain at least 92.5% pure silver. The rest of the alloy is usually copper. Sterling by far is the most popular silver alloy in the world. It contains 92.5% silver and 7.5% copper, so its harder and stronger than pure silver. This makes it excellent for jewelry. The 92.5% silver standard was actually started by Tiffany & Co. in 1851. The Tiffany & Co. standard of platinum, 95%, became the United States standard in 1926. The term "nickel silver" has the word "silver" in it, but it doesn't describe pure silver or its alloys. In fact, nickel silver contains no silver at all: Its a combination of base metals -- copper, nickel and zinc -- that merely resembles sterling silver in color. *From The World of Famous Diamonds and other Gemstones* - <http://famousdiamonds.tripod.com/index.html>.

#### Cleaning Opal Pineapples

*From eminerals · Minerals & Mineralogy Australia & New Zealand*  
No. 1072 <http://groups.yahoo.com/group/eminerals>  
From 1/2/2002 through 1/4/2002

From: "crystalencounters" <[mail@c...](mailto:mail@c...)>

We have recently acquired some opal pineapples. Anyone out there know how to clean them?

Frank Cheshire - [www.crystalencounters.com.au](http://www.crystalencounters.com.au)

From: Crystal World <[tomk@p...](mailto:tomk@p...)>

Hi frank I have cleaned lots of them over the years Primarily delicate micro air abrasion is the most effective along with ultrasonics, acid, water abrasives I couldn't see your pics. regards Tom K

From: "magnetstogo" <[magnetstogo@y...](mailto:magnetstogo@y...)>

Hi,

Depending on how much sandstone is attached you could try one of two methods.

1. Air abrading with fine glass bead - low pressure.
2. A quick dip in hydrofluoric acid but it will also attack the opal too and is extremely corrosive - don't get any on your skin. Thick rubber gloves is recommended.

Happy New Year, Best regards,

Gus. <http://www.openallday.au.com>

From: John Carroll <[jczebra@y...](mailto:jczebra@y...)>

ATTENTION RE USE OF HYDROFLUORIC ACID (non Hydrofluoric acid). This highly corrosive acid should only be used in a laboratory situation with proper ventilation areas. A small drop on the skin can cause extremely serious wounds. The air abrading method, or picking to sandstone off with dental type probes, or using a flexible shaft drive with very fine tools would be a much better option. All the best. JC

From: Gus <[magnetstogo@y...](mailto:magnetstogo@y...)>

Hi John,

Thanks for posting the information on hydrofluoric acid. I should have given more information but I can also add that the fumes are also extremely dangerous.

A fact sheet can be obtained from:

<http://www.ehs.berkeley.edu/pubs/factsheets/40hf.pdf>

I have used it for etching gold in quartz. It attacks the quartz and frees the gold.

There are other uses for the acid in cleaning silicates and oxides from other minerals. Tourmaline, for example, is not attacked so readily and the acid can be useful to remove or clean up quartz and coatings on the tourmaline without visible damage to the tourmaline. Don't leave the specimen in for too long.

Another point to remember is to ensure the acid is stored in a polythene container with an air tight lid as it will attack glass. Other useful sites to get safety information on hydrofluoric acid are:

<http://www.uwm.edu/Dept/EHSRM/LAB/labHF.html>

or if you want to learn more about this acid try:

<http://search.netscape.com/search.psp?cp=nrpussag&search=hydrofluoric+acid&gr=1&pagecp=gsa>

I hope that this will help any intending to use this acid for mineral cleaning.

Happy New Year, Best regards, Gus. <http://www.openallday.com.au>

From: John Weir <[johnsgem@o...](mailto:johnsgem@o...)>

Hi All, In regard to using hydrofluoric acid, it is not a good idea for amateurs to use this stuff, as you really do need a self contained suit and a proper venting system to be safe from the fumes, that's if you value your lungs. Leave this acid to the experts, no rock is worth the risk. Regards, John

From: "Jon Gladwell, Ph.D." <[jgladwell@m...](mailto:jgladwell@m...)>

List,

As has been pointed out by a number of list members, hydrofluoric acid is much too dangerous for casual users. An

efficient fume hood, gas neutralization hookups, and personal protective gear are required, and the user must be completely familiar with the stuff and with what to do in case of a problem. Not many people can qualify for that, I think.

However, perhaps an acceptable alternative is ammonium bifluoride. This is (NH<sub>4</sub>)F<sub>2</sub>. It is also nasty stuff, but is quite a bit safer than straight HF. I have used it, with excellent results, to remove many types of amorphous silica crusts. It is slower-acting than HF, giving you more time to inspect the specimen before accidentally discovering that you have gone too far.

It affects crystalline quartz at a \_very slow\_ rate compared to amorphous and cryptocrystalline quartz.

Please obtain and read an MSDS before using ammonium bifluoride. Although it is less dangerous than hydrofluoric acid, it is still quite powerful enough to leave nasty burns and will affect your respiratory system in a similar fashion as HF. Be careful!

Jon -- Jon Gladwell, Ph.D. Myrddin Emrys Limited 18018 NE Faye Ct Beaverton, Oregon 97006-4173 <mailto:[jgladwell@m...](mailto:jgladwell@m...)

<<http://www.myrddinemrys.com>

"The whole aim of practical politics is to keep the populace alarmed -- and thus clamorous to be led to safety -- by menacing it with an endless series of hobgoblins, all of them imaginary." - H. L. Mencken

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From: "Jim Daly" <[sauktown@a...](mailto:sauktown@a...)

The worst thing about hydrofluoric acid is that it is an anesthetic as well as being corrosive. You don't feel it when it gets on your skin, so you don't know it until it is too late. Other mineral acids, such as sulphuric, nitric or hydrochloric sting, so you wash it off fast. I do consider myself an "expert"- I was a practicing chemist for over 40 years- but wouldn't let HF anywhere near my house. If I HAD to use it, I'd probably set up a shed & workbench in the middle of the hayfield! Jim

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From: Gus <[magnetstogo@y...](mailto:magnetstogo@y...)

Hi Jim,

I agree with you, that the safest place to use the stuff is miles away from home. I have been in the trade for many years and most of the people I know in the trade are aware of the dangers of the acid.

When I made the suggestion that the pineapples be cleaned with hydrofluoric acid I did not think for a moment that they would rush out to the local hardware store and buy a 44 gallon drum full.

I have used acids for years for cleaning minerals and I treated large quantities of opal matrix. and am aware of the dangers. I did warn them that it was extremely corrosive and of the dangers of getting it on their skin. The fumes were another issue which I addressed later and then researched a site for them to look up and posted it.

Anyway I hope they succeed whichever way they go. Cleaning minerals and fossils is never easy. I think I'll take up retiring, it's 1.52 am. Best regards, Gus

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From: John Weir <[johnsgem@o...](mailto:johnsgem@o...)

Hi All, In regard to cleaning minerals with acid, another thing that came to mind after I sent my last reply was that when using hydrochloric acid, to be sure the specimen does not contain any fluorite as this will combine with the hydrochloric and produce hydrofluoric acid. I thought I would mention this as hydrochloric is quite commonly used to remove calcite from specimens. Regards, John

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From: "Dehne McLaughlin" <[dehnem@b...](mailto:dehnem@b...)

That's good advice John Re stay away from HF unless you have appropriate up to date equipment, including a fan driven fume hood with strong suction, which most workshops do not have.

Dehne

**COMMENTS FROM THE AOS EDITOR – DON'T USE HF ACID!!!**

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## Utah Emerald

A man found an irregular stone in the Uinta Mountains near Hanna, Utah, about 50 miles northeast of Provo. Eventually it was identified as a 30 carat emerald by Jeff Keith, a geology professor at Brigham Young University. He was skeptical that it had formed naturally, so he and a graduate student checked out the area themselves. They did not find emeralds, but did find a huge vein, estimated at 170,000 tons of fibrous calcite. The calcite, some of which has been used for carvings and other decorative collectibles, could be worth \$120 million. The abundance of the fibrous calcite indicates there are deposits of emeralds buried deep in the Uintas. The area is similar (more than 20 similarities) to the Villeta Formation in Columbia from which come the most valuable emeralds in the world. The Utah emerald is now in the possession of the finder's mother, but it has little market value. Eventually people may discover more emeralds in the Uintas. *Excerpted from an article in the Denver Post 2/14/99, via the Mineral Mite 3/99, via Rock Chip Reporter 2/2005*

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## Polishing Curved Surfaces

*By Rudy Appleby, WAMS*

To polish small curved surfaces in carving with your flexible shaft tool, visit your auto supply store and purchase a real leather chamois (or use any reasonably thin, clean, uncontaminated leather you have around).

Select a felt, rubber or resin tip on a mandrel and lay the tip on the leather and cut enough leather to cover the tip up to the shank of the mandrel plus about 1/2". Wrap the tip tightly, gathering the overlap uniformly at the shank. Secure the leather with a tie. I use a rubber band, pulling and bopping it over the tip, pull it out and loop over the tip repeatedly until tight. Trim off the excess leather above the secured point on the shank as desired.

You now have a leather "micro" polisher. Dip the tip in water to get it wet, then dip in optical grade cerium oxide (or whatever you prefer). Set the tool on low speed and polish as you would on the "big buff" (keep it damp and loaded).

For safety purposes: safety glasses always; make sure the leather is securely fastened at the shank by checking to see if you can pull it off in between charges of polish; and check to make sure you aren't "burning" through the leather (this won't help the polish).

*From Rockhound Rumbings*

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## Lapidary Polishing Compounds

For economy dedicate a buff, lap pan to a particular polish and simply recharge with fresh polish as required to maintain effectiveness.

**Cerium Oxide** - the best gemstone polishing compound for most uses. Best with opal, agate, quartz, obsidian. Not as effective with soft material or stones that tend to undercut.

**Micron Alumina** - a 5 micron polishing powder developed for computer disks. It is the best polish for seashells, pretty good for soft stones and excellent as a pre-polish in vibratory tumblers and laps - not rotary tumblers.

**Aluminum Oxide, MAP** - preferred by many to Linde A, this is a slightly faster and more economical rare earth polish that we call Miracle Atomic Polish.

**Tin Oxide** - a long time favorite. Use on leather for polishing turquoise and all soft stones.

**Zirconium Oxide** - a rare earth polish that is especially good for tumblers and laps. The most economical effective polishing media. White and will not discolor gemstones.

**Linde "A"** - A tremendous favorite with gem cutters whether faceting or polishing cabs. Relatively expensive, you should consider polishing the stone then giving it a quick hit with Linde A to attain a super polish. Available as powder to mix with water or an emulsified cream with the consistency of hand lotion that does not separate in solution.

**Oxalic Acid** - used for polishing carbonate type onyx when mixed with another polish such as Tin Oxide. In a strong solution with water, it is used to clean iron stains from specimens, i.e. Quartz. Mix with hot tap water by stirring in oxalic crystals until the water is saturated and will not dissolve any more. Crystals forming along the sides of the container indicate a saturated solution and should they disappear, you need to add more. **WARNING:** While this is a relatively mild acid all precautions must be taken to keep it out of eye, mouth, etc. *From the Golden Spike News, 4/01, vial Rockhound Rumbblings.*

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**Where Do You Put That Acid...**

Don't dump used acid down the drain, where it will cause pollution and might damage plumbing, nor let it sit where it might endanger someone. Instead, do this; Put it into a plastic bucket with a piece of two of limestone. The limestone will neutralize the acid so that it can be safely dumped almost anywhere.

If you don't have access to limestone - you can use baking soda to neutralize the acid before discarding. *From Ghost Sheet 11/96, via The Palomar Gem 5/02*

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**A Rocky Mountain Mystery**

*By Murray Nicholson*

Imagine, if you can, a chain of valleys, each different from the next, but all stretching in a straight line over more than 1,600 kilometers, leaving a scar so distinctive it is visible from outer space. Add to this the discovery that the east wall rocks are sedimentary while the west wall rocks are much older intrusive and metamorphic rocks. These are the mysteries of the Rocky Mountain Trench.

Extending from Flathead Lake, Montana to the Liard Plain near the Yukon border, the Trench marks the western boundary of the Rocky Mountains. The width of individual valleys ranges from 5 to 13 kilometers. Mountain summits on each side rise steeply some 1,000 to 2,000 meters above the flat-bottomed floor. Nine rivers, including the Fraser and Columbia drain the Trench, most entering and leaving through the canyons.

The Trans-Canada Highway crosses the Trench at Golden, British Columbia. From here, the traveler can see the Trench to the north and the south. Another highway follows the east wall for 100 kilometers south to Radium Hot springs. More small communities can be found in the valleys to the south.

Since George Dawson first described the Trench in his 1886 report to the Geological Survey of Canada, several geologists have studied different sections. They have concluded that while all of the valleys show signs of glaciation some were formed by erosion and others by faulting. To date however, there is no comprehensive explanation of the origins of the Trench as a whole. Could it be the result of mountain-building, or an old tectonic plate boundary, or perhaps the evidence of something we don't yet understand? More than 100 years after its discovery, the Rocky Mountain Trench remains a mystery. *From the Calgary Rock & Lapidary Club Lapidary Journal (<http://www.crlc.ca/crlcart1.htm>) via Rocky Mountain Federation News, April, 2003 via the 2/04 Flatirons Facets.*

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**January 2006 Gem & Mineral Shows**

**6-8 — SANTA ROSA, CA:** Gem show; Gem Faire Inc.; Sonoma County Fairgrounds, 1350 Bennett Valley Rd.; Fri. 12-7, Sat. 10-7, Sun. 10-5; weekend pass \$5; contact Yooy Nelson, (503) 252-8300; e-mail: info@gemfaire.com; Web site: www.gemfaire.com.

**13-14 — GLOBE, AZ:** 49th annual show; Gila County Gem & Mineral; Gila County Fairgrounds; Fri. 95, Sat. 95, Sun. 94; adults \$2, high school students with ID and children with adults free; dealers, demonstrations, lapidary equipment, jewelry, minerals, slabs, fossils, gold and silver casting; contact Bill Morrow, (928) 425-0194, or Clyde Caviness, (928) 425-7200.

**13-15 — DEL MAR, CA:** Gem show; Gem Faire Inc.; Del Mar Fairgrounds, 2260 Jimmy Durante Blvd.; Fri. 12-7, Sat. 10-7, Sun. 10-5; weekend pass \$5; contact Yooy Nelson, (503) 252-8300; e-mail: info@gemfaire.com; Web site: www.gemfaire.com.

**13-15 — PHOENIX, AZ:** Annual show, "Arizona Rockfest and Earth Science Fair" Mineralogical Society of Arizona; Tempe Diablo Stadium, I10 exit 153; Fri. 9-5, Sat. 9-5; ages 13 and up \$5, 7-12 \$3, 6 and under free; 60 dealers, 30 earth science organizations, gold panning, Rockadelic Caverns, Rockin' Fossil Dig; contact W.R. Russ, 4515 E. Joan de Arc, Phoenix, AZ 85032, (602) 684-7381 or (620) 929-7802; e-mail: azrockfest@hotmail.com.

**25-29 — QUARTZSITE, AZ:** 40th annual show, "QIA Pow Wow" Quartzsite Improvement Association; 235 E. Ironwood Dr.; Wed. 9-5, Thu. 9-5, Fri. 9-5, Sat. 9-5, Sun. 9-5; free admission; more than 400 vendors, rocks, gems, minerals, fossils, beads, wire wrap supplies, jewelry, lapidary, daily field trips, lapidary and gold panning demonstrations, exhibits, displays; contact Diane Abbott, P.O. Box 881, Quartzsite, AZ 85346, (928) 927-6325; e-mail: qia@redrivernet.com; Web site: www.quartzsiteimprovementassoc.com.

**27-29 — ROSEVILLE, CA:** Gem show; Gem Faire Inc.; Placer County Fairgrounds, 800 All America City Blvd.; Fri. 12-7, Sat. 10-7, Sun. 10-5; weekend pass \$5; contact Yooy Nelson, (503) 252-8300; e-mail: info@gemfaire.com; Web site: www.gemfaire.com.

**1-28 — QUARTZSITE, AZ:** 6th annual show, "Desert Gardens International Gem & Mineral Show" 1055 Khuen Blvd.; 125 to 200 dealers from around the world, rocks, rough, slabs, cabs, jewelry, beads, fossils, rough and cut stones, crystals, silver, equipment, lapidary supplies; contact Sandra McAllister, P.O. Box 2818, Quartzsite, AZ 85346, (928) 927-6361; e-mail: dgggemshow@ureach.com.

**28-11 — TUCSON, AZ:** Show, "Arizona Mineral & Fossil Show" Martin Zinn Expositions; The InnSuites Hotel, 475 N. Granada; 10-6 daily, Sun. 10-5; free admission; more than 400 dealers; contact Martin Zinn Expositions, P.O. Box 665, Bernalillo, NM 87004, fax (505) 867-0073; e-mail: mz0955@aol.com; Web site: www.mzexpos.com.

**28-11 — TUCSON, AZ:** Show, "Arizona Mineral & Fossil Show" Martin Zinn Expositions; The Mineral & Fossil Marketplace, 1333 N. Oracle Rd.; 10-6 daily, Sun. 10-5; free admission; more than 400 dealers from all over the world, free shuttle to other shows; contact Martin Zinn Expositions, P.O. Box 665, Bernalillo, NM 87004, fax (505) 867-0073; e-mail: mz0955@aol.com; Web site: www.mzexpos.com.

**28-11 — TUCSON, AZ:** Show, "Arizona Mineral & Fossil Show" Martin Zinn Expositions; Clarion Hotel-Randolph Park, 102 N. Alvernon Wy.; 10-6 daily, Sun. 10-5; free admission; more than 400 dealers from all over the world, free shuttle to other shows; contact Martin Zinn Expositions, P.O. Box 665, Bernalillo, NM 87004, fax (505) 867-0073; e-mail: mz0955@aol.com; Web site: www.mzexpos.com.

**28-11 — TUCSON, AZ:** Show, "Arizona Mineral & Fossil Show" Martin Zinn Expositions; Smuggler's Inn, 6350 E. Speedway; 10-6 daily, Sun. 10-5; free admission; more than 400 dealers from all over the world, free shuttle to other shows; contact Martin Zinn Expositions, P.O. Box 665, Bernalillo, NM 87004, fax (505) 867-0073; e-mail: mz0955@aol.com; Web site: www.mzexpos.com.

**28-11 — TUCSON, AZ:** Show, "Arizona Mineral & Fossil Show" Martin Zinn Expositions; Ramada Inn Limited, 665 N. Freeway; 10-6 daily, Sun. 10-5; free admission; more than 400 dealers from all over the world, free shuttle to other shows; contact Martin Zinn Expositions, P.O. Box 665, Bernalillo, NM 87004, fax (505) 867-0073; e-mail: mz0955@aol.com; Web site: www.mzexpos.com.

**28-11 — TUCSON, AZ:** Show; AKS Gem Shows; Howard Johnson, 1010 S. Freeway (I-10 and Starr Pass Blvd.); 10-7 daily; contact Kay Schabillon, P.O. Box 24552, New Orleans, LA 70184, (504) 455-6101; Web site: www.aksshow.com.

**28-11 — TUCSON, AZ:** Show; AKS Gem Shows; La Quinta, 750 W. Starr Pass Blvd. (I-10 and Starr Pass Blvd.); 10-7 daily; contact Kay Schabillon, P.O. Box 24552, New Orleans, LA 70184, (504) 455-6101; Web site: www.aksshow.com.

**31-6 — TUCSON, AZ:** Show; The Bead Renaissance Shows; 3340 E. MI, next to the Holidome; Tue. 10-6, Wed. 12-9, Thu. 12-9, Fri. 10-6, Sat. 10-6, Sun. 10-6, Mon. 10-6; free admission; retail and wholesale dealers, ancient, vintage and contemporary beads, buttons, jewelry, tools, books; contact J&J Promotions, P.O. Box 420, Williamsburg, NM 87942, (505) 894-1293; e-mail: info@beadshow.com; Web site: www.beadshow.com.

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