

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



Member

Member



Volume #32 Issue #05 May 2000

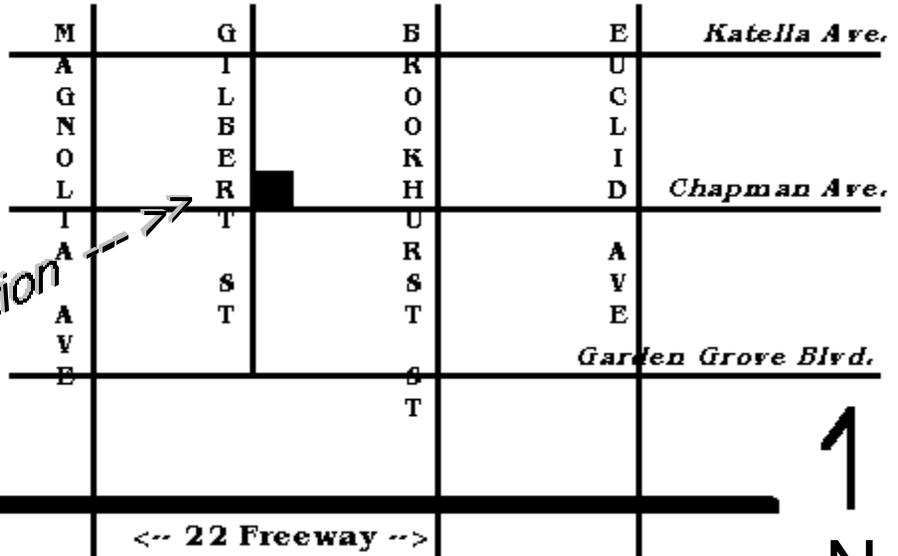
**General meeting Thursday
 May 11 7PM**

TO:

GENERAL MEETINGS —
 2nd Thursday 7:00-9:00 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

Meeting Location →



We have a new mailing address please make a note of it!
P.O. Box 4875, Garden Grove, CA 92842-4875



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American Opal Society website		http://www.opalsociety.org	

April General Meeting news

Our April Meeting saw **Bob Olinskas** pull off a "clean sweep" of the both the raffle drawing and door prize. Congratulations Bob. You know what they say about gift horses!

Bob took home a nice carrying case door prize as well as the Queensland boulder opal rough from the raffle.

Remember folks, you have to be there to win so come on out and join the fun! Plus, each door prize entry from the meetings during the year qualifies you for a chance at the final "Grand" door prize at the end of this year.

We thank **Mike Kowalsky** for our meeting presentation. He brought in his new HiTec diamond flat lap unit. Mike noticed dealers in Tucson had this unit at their sales tables as a tool to face or window pieces of opal rough.

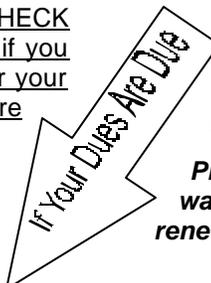
Everyone who wanted a chance enjoyed some hands-on experience as Mike was kind enough to provide several pieces of dopped opal rough. Discussion about the machine included it's very reasonable price of around \$300, it's compact footprint of hardly more than a square foot and it's fairly light weight. It seems to be an ideal "traveling" unit for cutting opal.

In addition to Mike's presentation of the flat lap and several accessories, **Stan McCall** brought out a Genie and demonstrated the special techniques and strategies one needs to produce a high quality result with a piece of fire agate that **Jim Pisani** just happened to have in his pocket (smile).

It was also agreed that the club will obtain for its library a copy of the fine instructional video and accompanying book, **Black Opal** by Australian opal cutter, Greg Pardey. It most likely will not arrive in time for the next meeting but be on the lookout for it to appear at a future meeting. ✨

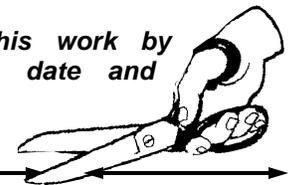
Are Your Dues Due Now? PLEASE CHECK YOUR ADDRESS LABEL or the membership roster if you are listed. If your label shows the current month/year your dues are DUE NOW. If the date is older, your dues are overdue.

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.

Please help us make this work by watching your expiration date and renewing promptly. Thanks!



DUES RENEWAL FORM

(membership renewal form rev. 1/1/98) d:\ameropal\news\forms\dues_due.pub



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

Thank you for continuing to support your American Opal Society!!

Make check or money order payable to: American Opal Society, Inc.

Please mail payment and renewal form to the club address at left.

DUES RENEWAL RATES (select one)**	
1) LOCAL AREA member	\$26.00
(addresses in Los Angeles, Orange, & Riverside counties)	
2) CALIFORNIA & USA	\$20.00
(all addresses outside local area counties)	
3) FOREIGN	\$30.00
(all addresses outside USA)	
** \$5 SENIOR DISCOUNT = Age 65 or over <deduct \$5.00 from above>	

DEALER LIST: Yes, include my name/address on a list provided to Opal Dealers selling at the most recent Opal Show.

(if yes, please sign or initial here) _____ date _____

without your signature here you will not be included in the dealer info list

MEMBERSHIP ROSTER: Yes, include my name and/or address and/or phone information in a published AOS membership directory...

[Please circle any of these → **NAME** / **ADDRESS** / **PHONE** if you prefer a partial listing.]

(if yes please sign or initial here) _____ date _____

without your signature here you will not be included in the member roster

NAME: _____

ADDRESS: _____ APT #: or PO BOX: _____

CITY: _____ STATE: _____ ZIP: _____

COUNTRY (IF OUTSIDE U.S.) _____

TELEPHONE: Home (_____) _____ : Business (_____) _____

FAX (_____) _____

Please indicate any name or mailing address changes

NAME BADGE ORDER FORM: (OPTIONAL)

Number of badges ordered _____

(\$5.00 EACH - includes engraving)

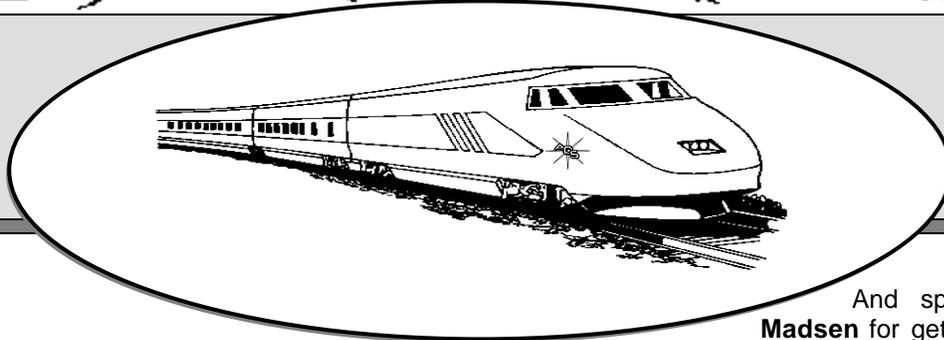
PLEASE PRINT NAME AS YOU WISH IT TO APPEAR ON YOUR BADGE using up to two (2) lines of text for your name, nickname or name of your opal related business.

The Opal Express

MAY 2002

Published monthly by the American Opal Society

Volume 32, Issue 5



President's Message from Carol Bova

The international nature of the **American Opal Society** was emphasized last month when we received a letter from the **Coober Pedy Miners Association Inc.**, a group of over 600 miners from one of the world's most prolific opal areas. We hope this will be the beginning of a regular correspondence with the CPMAI. Look to read more about them in these pages next month.

On the local scene, meeting attendance has been growing, which is always good to see! **Bob Dixon** has been doing a great job of organizing door prizes for each meeting, and while that's not the only reason people are coming out, it does add to the fun. **Mike Kowalsky's** program last month demonstrated using the Hi-Tech machine for opals, and Mike had pre-dopped several opals to give us a chance for a 'hands-on' experience. If you're in town on the second Thursday of the month, mark your calendar and come to our regular meetings! We'd love to see you!

We were relieved to hear Nate Madsen, son of Russ and Jane Madsen, survived a tree eviction attempt in April during which another supporter fell 50 feet after branches were hacked from the tree Nate has been living in for the past year and a half. (The supporter was saved from injury by a nub of a branch.). Nate will be graduating from college in May, having continued his studies while preventing the tree he's named Mariah from being felled. Mariah is among the remaining 3% of old-growth forest. For full details, you can go to Nate's website, <http://www.upatree.net>.

And special thanks to **Russ and Jane Madsen** for getting this issue out while recovering from an accident last week where a pickup skidded in front of their bikes on a freeway! According to Russ, they "are coming along okay," and we wish them a very speedy and full recovery.

Don't forget to send in **dealer forms for the Opal show**, and to plan to make early reservations if you want to stay at the Quality Hotel. They are only holding a few rooms this year, and released them early last year!

See you all next month,
Carol



DATES TO REMEMBER

General Mtg
Thursday
May 11 7PM

Board of Directors
Meeting
Mon May 8th 7PM

Annual AOS Opal &
Gem Show
Nov 4th & 5th

Work Shop Information...

The LOCATION for the Opal Society workshop is the lapidary classroom at Walker Jr High School, 8132 Walker St., La Palma, CA 90623

Directions: (Choice of 3 Freeway approaches)

[1] Exit the 605 at Carson St and proceed east, or [2] exit the 5 or 91 Fwy at Valley View and proceed south, or [3] exit the 22/405 Freeways at Valley View and proceed north.

Walker Jr HS is on Walker St north of Lincoln Ave. It is on the east side of Walker between Crescent Ave. and La Palma Ave. Drive to the far back of the school to the Lapidary Arts classroom.

Only AOS members may use the equipment and workshop. You will be required to sign a release form as well.

Workshop Schedule on Page 5 shows dates/times and appointment instructions. ☼

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Safety Report

by Cathy Gaber

Do or Die

What you do not know about a mineral can hurt you. You can not always tell by looking whether or not a mineral contains harmful elements, or if it is radioactive or if it's fumes or dust might be deadly. Most minerals are completely harmless, but with a few simple precautions you can protect yourself from those with potentially deadly effects.

Elements such as lead, mercury, arsenic, uranium, antimony and cadmium are toxic. Without proper identification, you can never be sure if you might be handling some of these potentially dangerous substances. Never lick an unidentified rock, and always wash your hands after handling one. Wear gloves if there is any suspicion that a specimen may contain harmful elements.

Three methods can be used to spot some hazardous minerals. Color is one indicator. If a specimen is an unnatural looking neon yellow, yellow orange or green (such as tyuyamunite, realgar, autunite and torbernite), it is probably a radioactive mineral. Radioactivity, which is found in over 200 minerals, can be easily detected with a Geiger counter. Even though most fluorescent minerals are not radioactive, sometimes fluorescence can be an indicator, as the radioactive agent (such as uranium salts) can be fluorescent. Generally, only long term exposure or ingestion would cause problems, but, as the guys at the Smithsonian say, don't put them in your pockets either. Radioactivity can affect fertility in men.

Unless you work extensively with quartz, cristobalite, tridymite or quartz bearing rocks like granite; asbestos minerals (amosite, chrysotile, tremolite, actinolite, anthophyllite and crocidolite); or coal, you are unlikely to be at risk for silicosis, asbestosis or black lung. The hazard from these and other minerals is in the airborne particles that get caught in the lungs or migrate to other areas of the body. Lapidaries should work in a well ventilated space, and they should be especially concerned with avoiding the fumes from working with materials like malachite, natural cinnabar and many shells. Wearing masks can help too. When working any new material, always check John Sinkankas' Gemstone and Mineral Data Book for precautions and possible toxicity. Be safe not sorry. ✿



Name Badges...

Price per badge is \$5 which includes the badge itself and engraving of up to two lines of text: one line for your first and last name and, if you wish, a second line for nickname or if applicable, your opal related business name. These engraving options give members flexibility to include many types of identification.

Please allow 3 to 4 weeks for completion of engraving. ✿

Tips for Cutting Mintabie Opal

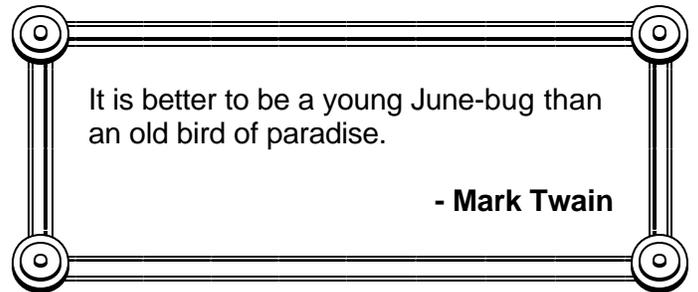
The opal bearing ground in Mintabie is a very hard sandstone. Heavy equipment and explosives are necessary when mining in this type of environment. Needless to say, some cracks are inevitable and need to be worked around.

Begin by grinding most of the matrix away from the stones, to get a good look at the interior. Next hold the stone near the edge of a lampshade or flashlight, until the interior of the stone lights up. This should illuminate any cracks in the stone and allow you to work around them.

Study the stone carefully, and mark the fractures and sand pockets with a black magic marker so that they can be seen during the cutting process. You may need to cut smaller stones to accommodate the structure of the opals.

Using a small thin blade, cut through the cracks or sand pockets. I have many lovely cabochons from Mintabie opal, although some were smaller than originally planned. ✿

(from The Opalfield Newsletter Spring/2000)



PLEASE NOTE!!! The American Opal Society assumes no responsibility for injury or damage due to accidents or carelessness. Members and guests assume all risks during club activities.

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Editor---Russ Madsen
Please address all inquiries to:
The Opal Express, P.O. Box 382, Anaheim, CA 92815-0382
E-mail 76550.1366@compuserve.com
(Deadline for items: 15th of the month prior to each issue)

ITEMIZATION

ITEM: FOR SALE RUBBER CASTING MOLDS These molds were donated to the club and we are offering them as follows: approximately 1,000 rubber casting molds – many types – rings, pendants, assorted others. Priced (in small lots) at \$3.50 per mold; contact Wes Roth by email for pricing of large lots up to entire quantity. Wes Roth can be reached at <wesroth@earthlink.net>. ❁

ITEM: OPAL SHOW GUESTS – MOTEL ROOMS Anyone planning to visit the show from out of town who needs a room at the Quality Hotel where the show is held, please contact the hotel as soon as possible and make your reservations (616 W . Convention Way, Anaheim, CA 92802 714-750-3131). We have been advised they are holding fewer rooms than in the past for out of town AOS show guests. There are also several other motels within convenient walking distance. ❁

ITEM: An article titled "Cat's Eye Opal" appeared in the April, 2000 issue of **Rock & Gem** magazine. The main subject of the article is the phenomenon of a cat's eye effect in opal. However the article includes another assertion that must be addressed. The author, Steve Beitman, takes the position that water molecules in an opal account for color play. He writes, "Long ago, it was established that the presence of water in opal *is responsible for* (emphasis added) the fire and play of color."

I was quite surprised to read this because everything I have heard for a decade has discussed the role of the uniform arrangement of opal's silica spheres which then function as a diffraction grating to break up light into spectral hues.

While it is certainly likely that the presence of water impacts the combined effects of light transmittal, diffraction, and reflection back to a viewers eyes, it does not follow that this water is the cause of color play. I have seen increases and decreases in color play exhibited by different stones with changes in water content. These changes progress in both directions: with some opals, more water = more color play, with others, more water = less color play — and as a stone dries out visa versa. Some stones gain color play as they dry, others do not.

Furthermore, if water in fact 'causes' the spectral colors of opal to appear as happens when light encounters rain droplets resulting in a rainbow (refraction), how might one explain contra luz color play?

This matter will be the subject of an expanded article in a future issue of the *Opal Express*. ❁

ITEM: AOS HAS NEW CLUB PO BOX Effective now, the Opal Society has a new Post Office Box. Our new address appears below.

American Opal Society

P.O. 4875

Garden Grove, CA 92842-4875

This location is expected to facilitate our response to incoming mail. We will keep both PO boxes for approximately a year to aid the transition. However, we do ask that everyone please take note of the change.

Thank you! ❁

ITEM: RE: Spencer Opal Following up on last month's articles about Spencer opal, here are two more items which appeared in **Lapidary Digest**. First Hans Durstling, whose article "Kitchen Table Triplet" was reprinted in these pages, shares a variety of comments...

<MSG11>

Hi Folks,

I wrote the "Kitchen Table Triplet" mentioned in the last issue of the Lapidary Digest (as seen in the "Eclectic Lapidary" - go to <http://www.bovagems.com> and then go into the "archives"). It describes my own method of making triplets. Let me just correct one statement in that: I don't use silicon carbide PAPER in lapping down the elements, but rather silicon carbide grit, in water, on a sheet of plate glass as substrate. I lap down to

(Continued on page 6)

NOTICE:

**OPAL SHOW
GUESTS FROM
OUT OF TOWN**

**– PLEASE
RESERVE
MOTEL ROOMS
AS SOON AS
POSSIBLE –
(SEE ITEM ABOVE
FOR DETAILS)**

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What's happening???

Calendar of Upcoming Events Dates and Locations of Shows

May 6 10AM-7PM May 7 10AM-4:30PM Searchers Gem and Mineral Soc, Brookhurst Community

May 6 – 7 10AM-5PM Kern County Mineral Soc, Kern County Fairgrounds, Ming Ave & South P

May 19 – 20 – 21 Palomar Gem & Mineral Club, 1352 W Valley Pkwy (next to Sports Authority),

May 20 9AM-5PM May 21 10AM-5PM Conejo Gem & Mineral Club, Borchard Park Community Center, 190 Reino Rd., Newbury Park, CA

June 3 10AM-6PM June 4 10AM-4PM Glendora Gems, Goddard Middle School, 859 E. Sierra Madre, Glendora, CA

June 3 – 4 10AM-5PM Rockatomics Gem and Mineral Soc, Boeing Recreation Center, 8500 Fallbrook Ave., West Hills, CA

July 8 10AM-6PM July 9 10AM-5PM Culver City Rock & Mineral Club, Culver City Veterans Memorial Complex, 4117 Overland Ave., Culver City, CA

Aug 4 - 6 CFMS Gold & Gem Show, hosted by Valley Prospectors, Riverside Convention Center, Riverside, CA

✧ Nov 4 10AM-7PM Nov 5 10AM-4PM ✧

AOS Opal & Gem Show

**Quality Hotel 616 Convention Way,
Anaheim, CA**

Workshop schedule

Be sure to check here for workshop schedule updates. The dates listed below are those available to the AOS in our NEW WORKSHOP AT WALKER Jr HIGH SCHOOL. The shop can be opened to members on Monday and Wednesday nights. **Please continue to contact Stan McCall by calling him at Gems & Opals (714) 827-5680 if you plan to attend a shop session.**

May 2000

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

= Available Workshop dates = General Meeting date

WORKSHOP RULES

Please see calendar above for monthly shop schedule.

- ⇒ 1) Shop may only be used by AOS members.
- ⇒ 2) Shop users must sign liability waiver.
- ⇒ 3) Shop users must sign in. Shop supervisor will maintain sign-in list and collect usage fees.
- ⇒ 4) Shop usage fees: effective immediately...SHOP USAGE FEE IS \$3 PER SESSION.
- ⇒ 5) To assist us in scheduling, shop sessions need to be reserved in advance. Please contact Stan McCall or any member of the board of directors to reserve shop time.

AUSTRALIAN OPAL AT ITS BEST

Part 11

by Barb Whyre

John Landers named "Light of the World" in 1928, mined at the Grawin by Bill Klein and Kurt Stevens. The men had taken time out from mustering on "Munderoo", then owned by John Young Bell, whose granddaughter, Joan Bell in Maroubra, recalled his involvement in the exiting opal find in 1997.

This was the largest chunk of opal found to that date, as big as the flat of a hand, weighing in at 16 ounces rough, 2250 carats (another account says 22 oz). As a perfect specimen of black opal, the gem contained the outline of a woman's figure in the middle, surrounded by tinges of indescribable beauty. The lucky miners got an offer of 1000 pounds in the rough, but the nominated Snowy Brown to cut the lump, greatly reducing the weight.

Several beautiful pieces were trimmed off, including five perfect chips, calculated to be stones of 87 carats and worth 350 pd. Snowy polished the exquisite stone, "Light of the World", which weighed 233 carats and displayed an incredible rolling flash. She was estimated to bring anything from 3000-5000 pd. Because of a sandpatch, the stone was hollowed out like an ashtray and a slice taken off 1/4 inch down. "Light" and her chips were on view in Walgett for an admission of 6 p. and attracted an enthusiastic throng of viewers.

In the end, Klein sold his share of "Light" to Stevens for 200 pounds. Percy Marks bought the stone for 460 pounds! In 1931 she was valued at 2000 pounds; in 1947, at 10,000 pounds; and in 1964 US \$225,000.

Klein's father Ludwig was an early opal buyer, splitting his time between white Cliffs and Germany. Stevens was a storekeeper in Cumborah by 1933, having used the proceeds of "Light" to set up a bakery.

John Bell's father and brother actually dug Steven's grave in Walgett Cemetery 1944, during a grave digger's strike. Klein and Stevens' hut became Ron Gardiner's Bushmoozeum, the Grawin, in the 1960's, and Steven's cycle polisher was still to be seen at Kenny Fisher's Bushmoozeum, Lightning Ridge, in 1998.

Each *Opal Express* presents an account of discovery as researched by Barbara Moritz, Secretary of the Ridge Historical Society, in her quest to unravel the early history of the black opal fields in New South Wales, Australia. Should you have any constructive information, please email: barbeemitz@yahoo.com or write to Box 1, L/Ridge 2834 Australia.

ITEMIZATION

(Continued from page 4)

about 220 grit, that's all. Leaving the stone, the base and the cap a little rough I feel (without having any scientific proof) gives the epoxy a better gripping surface and makes for a better bond. The epoxy makes the roughness invisible.

The thing worth pointing out is that the number of variations on the basic theme that have been described here in the Lapidary Digest, all of which appear to lead to successful doublets and triplets, indicates that the process is actually rather forgiving. Probably the worst wrong thing you can do is get oil or bubbles in the epoxy; oil being fatal for the bond, bubbles for the appearance.

Cheers & thanks

Hans Durstling <sinico@nbnet.nb.ca>, Moncton, Canada

<MSG11>

Subject: RE: Spencer Opal

Hi Jed, Noel, and all,

Great piece on Spencer opal triplets Noel! Thank you. I have a couple of points worth mentioning. In as much as Jed is on a tight budget, here is a very cheap suggestion for flat lapping. Heck I use it even when money is not tight, because it works so well. Diamond laps are pricey, even after one lays out the money for a machine.

Jed, your iron lap will work great for rough grinding but will not produce a reliably "flat" surface. Regular use grinds channels in the lap surface. Iron laps are never "flat" enough unless you have the laps turned at a machine shop on a regular basis.

I suggest using a glass plate and loose grit (silicon carbide of course). A local glazier will usually be happy to cut a few eight-inch squares from his scrap. I like to use 3/16 or 1/4" thick glass. 1/8" should work just fine too. It is important to bevel the sharp edges and corners so you don't cut yourself. Glaziers are usually quite happy to do it for you (for a small additional charge, of course) or you can sand the edges with coarse emery cloth.

I like to use 320 mesh silicon carbide for rough grinding and 600 mesh for a finer finish. I keep a separate plate for each grit as courser grits create a rougher grinding surface on the glass. A finer finish also helps eliminate light scattering between the opal surface and the bottom of the cap. Too much light scattering can produce a slight blurring of the opal. However the epoxy will not adhere as well to a polished surface. 600 grit is a good compromise. It is important to utilize the entire surface of each glass plate to prevent the grinding surface from becoming concave with use. Once that happens it is impossible to grind a truly flat surface. Oh well, flip the glass over and use the other side for a while. One should be able to pick up glass plates and silicon carbide grit for well under \$20.

I have worked with a few Spencer opals and my experience is not equal to others, who haunt this list. I have a couple of tips,

(Continued on page 7)

though, that originate from my work experience as a petrographic technician (I have produced around 25,000 to 30,000 thin sections to date). It is critical to keep two things in mind when making opal triplets:

- 1) Keep all mounting surfaces parallel to the fire layer, and
- 2) Grind all surfaces flat. By flat I mean flat to the point of ridiculous. The strength of the bond between the opal and its backing and cap depends, in part, on the precision of their fit. How well you capture the fire layer depends on how precisely your ground surfaces match to the fire layer.

I like glass, it's cheap, flat, and no guilt tossing it when I've used it up.

Good luck Jed, I hope this helps.

Paul Boni, Boulder, CO <bonip@colorado.edu> ✪

ITEM: *Anglic Gemcutter*, a monthly magazine "Of, For & About Gemcutters Interests; may our Global Tribe prosper". (503) 632-4826 Ph/FAX/Mess. information; DISCOVER/Visa/MC accepted by telephone/FAX/letter. Editor Rick Ford,



Opal Pineapples

By Cathy Gaber

In the March issue of the *Opal Express*, Barbara McCondra referred to opal pineapples as pseudomorphs of opal after gypsum. While I think most mineralogists would agree that the pineapples are pseudomorphs, there has been some confusion about just what mineral the opal replaced. This is the first time I have heard of gypsum as the original mineral.

One of my all time favorite specimens at the Smithsonian is a hand size opal pineapple. When I first saw it ten years ago, it's label read 'Opal after Glauberite'. As the years passed, I began to notice that authors were calling the pineapples opal after ikaite. (I actually earned a free book for catching a typo in Fred Ward's *Opal* book by catching the misspelling of ikaite.) Now Barbara says gypsum. Who really knows?

Anyway, I still covet one, but I will have to win the lottery to get one. There was an opal pineapple at the TGMS show in Tucson for only \$35,000, definitely out of budget. While in Tucson, I also saw an article in the *Metal, Stone and Glass Australian Lapidary Magazine* by Graeme Dowton entitled "Pineapples, a Bountiful Crop", which I decided to follow up on. I e-mailed the magazine and got a response that pineapples are far from abundant, but that if I acted quickly, I could buy a really nice one for only \$15,000, but I still had to decline the offer. Prices generally run \$20,000 to \$120,000 for a really colorful one. They come only from White Cliffs in N. S.W. and are usually only available from private collections. The magazine is planning a future article on the history of opal pineapples. That, I can afford! (Subscription information available at msg@powerup.com.au.)

The McCondra Report

By Barbara McCondra

OPAL FOSSILS OF AUSTRALIA – Part 3

(continued from the March 2000 *Opal Express*)

Lightning Ridge, N.S.W. (often called The Ridge), is especially interesting because unlike the other opal fields of Australia where mainly fossils of extinct marine reptiles are found, The Ridge produces finds of freshwater, terrestrial, and marine animals and plant life. This leads authorities to believe that the sediments of these black opal fields gathered in a near-shore or estuarine (freshwater) environment. For instance, tiny cones 1/3 to 1/2 inch in diameter, of a pine-like plant, most probably an araucarian similar to the presently living kauri pine, are unearthed in the mining process. Experts put their age at approximately 100 million years old. The fossil band is not the most favored of strata that a miner encounters as it is often holds very sludge-matrixy and sandy opal, or is mostly potch. This is not to say that magnificent gem opal is not found in fossil form. The paleontologists are thrilled with the clear patterned fossil and the miners are pleased when a top black opal pine cone can cut into a perfect gem two-carat cabochon. Many superb specimens meet their doom on the cutter's grinding wheel.

The years that I mined opal in Lightning Ridge tweaked my interest in the fossils of the area. I could not comprehend most miners' lack of interest in the fossils. However, as I began to incur much indebtedness to fuel merchants, I better began to appreciate the need to sell your opal as a stone for there was not much of a market for fossils, at least not at the price per carat that the fossil cut as a stone would bring. A few fossil aficionados were on the fields and saved what they could. Often they bought cheaply from the desperate, but a few paid dearly to save the unique, and paid cash for those less gem-filled specimen shapes while some miners sniggered at the purchase of valueless potch. The museum could once in awhile purchase a collection or two.

The Galman Collection was just one such group of fossils. Alan and Dave Galman, opal miners of Lightning Ridge who saved their fossils and bought many from others, offered their collection of opalized plants, shells, bones and teeth. The museum identified turtle, dinosaur, crocodile, fish and possible pterosaur (flying reptile) bones in the brothers' collection. When the array of fossils was brought to Sydney for inspection by the Museum, Dr. Ritchie spied one particular specimen and later, in 1985, wrote in an article, "the hair literally stood up on the back of my neck!" This emotional find turned out to be a small lower jaw with three teeth still in place. The cusps had several sharply pointed cusps! Completely opalized, the jaw and teeth belonged to a mammal the size of a small cat. His article went on to say that the three-centimeter long fossil was subsequently identified as a monotreme, not a marsupial. The monotremes are egg-laying mammals. Their counterparts of modern day Australia are the platypus and the echidnas. This important discovery shook the scientific community as the oldest other specimen ever found was in 24 million year old sediments. The opal bearing clay sediments of Lightning Ridge are known to be of Early Cretaceous age that dates

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The McCondra Report (cont)

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at about 100 million years old. The Museum bought the collection which also included well preserved lungfish teeth, several types of opalized cones, and other representations of the flora and fauna of the region 100 million years ago.

Many of these representations of life in prehistoric times, are not of gem opal but instead are common opal called potch that shows no play of color or fire. The exquisite detail of shape and easy identification make them collectible indeed. The Australian government made it illegal to export such fossil material from their country without official approval but such laws are difficult to enforce because the opalized fossils are often very small and far too easy to transport. These fascinating shapes are easy to tell from the usual nobby that miners look for in their mining at Lightning Ridge. The nobby shape is somewhat bulbous or flattish on bottom and pointed like a Chinaman's hat.

Opalized phalanges and metatarsals (toes and fingers) were often picked out of the tailings to be popped into my specimen jar during those many hours of tailing out at the agitator in Lightning Ridge when my energy and enthusiasm for mining was young and fresh. One of my larger favorites is a fist sized head of a femur. It is solid low grade sunflash opal. One particular shape took my mind off my aching back every time I spied one in the tailings. It looked like a button; concave on one side and convex on the other. Often the most electric brilliant opal color flashed from the dome. It barely needed cutting to shape it and many were turned into cabochons to pay for fuel. One particular beauty that came my way belonged to Terry and Lance Barclay, well respected, veteran opal miners of Lightning Ridge. It was a magnificent red cat's eye black opal. It looked like a crystal but there was darkness in its depths. What a beauty. They sent it to be studied by Robert Jones at the Australian Museum of Natural History in Sydney.

While Robert was analyzing the fossils, I was out yabby-ing on a riverbank and made a scientific discovery of my own. I ate the freshly caught crayfish for my dinner and fed a yabby head to the cat. In the morning I found two porcelain looking, porous and lightweight caps the size of a small button that the cat had spit out. Eureka! These were identical in shape to opalized fossils that I'd been saving for years. For years I had been eating crayfish and did not find these "caps". I wrote to Dr. Ritchie who questioned the paleontologists in the crustacean department. Crabs' eyes was the answer.

Crab's eyes are crustacean grinding or milling elements found in the stomachs of crustaceans such as crayfish or crabs. About this time, Robert Jones informed the Barclays of the milling elements that are found in the nests of and around dams and inland waterways where cranes and water fowl prowl. In Mediaeval times, crabs' eyes were considered a cure-all and powdered to be one of the unusual ingredients that are in the apothecaries' "materia medica."

A March 1959 article by Frank McNeill in the *Australian Museum Magazine* explains that these gastroliths by definition are "calcuous concretions in the stomach". If the yabby died and sank into the silt 135 million to 65 million years ago, the chances were slim that it would become an opalized gem fossil and the odds were really stacked against being found with a gouger's pick. Nevertheless, when gemstone quality petrification happens, it's because magmatic waters saturated with dissolved minerals percolate through the sedimentary overburden. One theory of opalization proposes that the resulting silica gel replaces the fossil material. Another theory suggests that the electrolyte in the magmatic waters facilitates the metamorphosis of existing fossil material into opal. Either way the gem gastroliths await the opal miners' jackhammer and shovels to bring them to light and Lady Luck's decision as to whether they are destroyed on the lapidary's wheel.

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These lens-shaped gastroliths come in pairs. They are located on each side of the stomach cavity enclosed between the tough, horny lining of that cavity and the skin of the stomach wall. The convex sides face the lining while the concave sides are turned toward the stomach cavity. The Aussies refer to them as yabby teeth or yabby pearls although no pearl-like iridescence is present.

These calcareous masses provide a mineral source for the newly formed hardening exoskeleton after the old exoskeleton is shed in the growth process. The gastroliths are fully developed just before crustacean ecdysis (shell casting). The horny chitinous lining of the stomach is also shed during shell casting and drops the stones into the stomach to be digested and used to build the exoskeleton. The grinding down of the gastroliths in this digestive process is accomplished by the gastric mill that all crayfish and lobsters have. This mill consists of a chitinous stomach lining thickened in places to make a system of levers connected with three strong teeth set in the narrow opening between the two chambers of the stomach.

Many a gem opal gastrolith has been cut into a cabochon and traded its cradle of horny chitinous lining for a bed of gold and diamonds.

Fossil mud-casts of shells containing no opal fire or potch abound in certain fields at The Ridge. That aquatic giant reptile, Plesiosaur really got around the pre-opal fields, as gem plesiosaur ribs and the famous Pandora opal which is reputed to be the shoulder blade of a plesiosaur were also found there. Many fossils appear to be coral or sponge or the patterned skin of a reptile or fish but are really desiccation, a deterioration process that leaves these patterns. Throw down such a fossil in front of the visiting museum specialists at the annual Opal Expo in Lightning Ridge and watch the lightning flash as the experts argue over which is desiccation while the mining partners argue over whether to cut it or save it for posterity. ✿

(From Outback Report 7/98)

THE SEARCH FOR THE ELUSIVE COMMON OPAL DEPOSIT

By Bob Halahan

During Len Cram's stay here in the states, I was fortunate to be able to take him on two trips. One to the local mines, Nowak and Barnett's. The other was the search for the elusive common opal deposit.

It was Tuesday morning when I picked Len up at 7 to leave. We headed to Mojave, turned east toward Barstow and drove another sixty miles. Just before Barstow, we took a dirt road heading toward Opal Mt. Len wanted to photograph the common opal deposit because it was supposed to be a very large one.

As it turned out, we had the craziest adventure you can imagine. When we came to the spot where we were supposed to turn, we did but ended up on the wrong road. Not only that, we got bogged down in 2 feet of sand. After about a half hour, we were able to dig our way out.

We headed onto another road leading in the same direction. We got a surprise about a mile along this road. It was heading up the hill all right but it was getting narrower and narrower. It finally got to a point where my van was wider than the road. Not only that, it was about a 75 ft. drop on both sides.

I casually said to Len, "I think we are on the wrong road."

"Yep, let's try another."

Our third attempt led us on another wild goose chase. I called it 'the road to nowhere'. This one was a good road that eventually led to somewhat of a dead end. We had gone quite a ways on this road up to there. Now comes the problem. If you have ever been to the desert, you know that you need another road to turn around if you decide to go back. If you go off the road, you will get stuck. We had no luck finding another road to turn around and I wasn't about to dig myself out again. You guessed it! I had to back up about a mile. Soft sand was everywhere. Still, I didn't give up.

We finally found the right road and the adventure that lay ahead was just beginning. O.K. – we finally found the right road. We drove about five miles and guess what? We reached the crest of the mountain and found that it had a radical drop – one that would scare a mountain goat!

The sign said, "Not recommended for campers or trailers."

Len looked at me, kind of smiled, and said, "It would take a parachute to get down, and a jet engine to get back up." I thought that to be pretty good dialogue for a guy who came from down under.

At this point, I said to Len, "There is a road at the bottom of the other side of the mountain that seems to be heading in the direction we want to go."

"O.K., lets go," was Len's reply.

We drove for about another mile, made a left turn, and seemed to be heading in the right direction. Since everything seemed to be going right, I was just waiting for something to happen. Did you ever have one of those days that after so many things go wrong, you sort of anticipate something else will happen before it's all over? Well it did!

We rounded a bend. And discovered Nature was about to give us a little surprise. There, right before our eyes, was a huge lava flow. I asked Len, "do you want to go for it?"

"We have come this far and endured all the other hardships, so why quit now?" I saw the Aussie spirit of adventure coming out. Sometimes I am a little bit curious as to where people are coming from and the make up of their fortitude.

He could have walked across the lava fields but he chose to ride. This made him an O.K. guy in my "fortitude book".

We had one lane and it "looked" like we could make it. I started to negotiate this lane slowly, dropping down from one boulder to the next. The van was "moaning and groaning" as it descended the lava beds.

Then Len said to me, "My stomach has knots in it."

I said, "We will make it O.K. I have a lot of faith in this 24 year old van." I don't think that last statement helped out the knots in his stomach.

Now we were about 20 miles out in the middle of nowhere on a path which another vehicle might travel once a year. We had five gallons of water, 2 packages of tortilla chips, and two sandwiches. As you can see, we were ready for any type of emergency.

As we descended the lava flow, I saw different expressions appear on Len's face while the van moved from side to side down the treacherous slope. I never did ask what he was thinking but I am sure there were a few prayers in his thoughts and maybe the question, "What am I doing here?"

We finally made it to the bottom. I could see the look of relief come over Len's face and even noticed a little smile. After the lava flow, it was a short way to where the Lost Common Opal Deposit was supposed to be.

But when we arrived in the area, it wasn't there. We looked all over the place, nothing. However as we were looking, Len came upon a surface deposit of common white opal. I think we should call this spot "Opal Knob." We were both very excited for the moment. Then the troubled thought in both our minds emerged.

In his Aussie accent, "You know mate, I was just thinking - the way to survive on the desert is to find a cool place during the day and travel by night." From that statement, I kind of felt that he still had that crazy knot in his stomach. He honestly said to me, "I think we are really going to have a hard time making it back up the lava flow."

Then I said to him, "why don't you hike to the top of the lava formation and take some pictures of this crazy adventure?"

"O. K., you talked me into it." I thought to myself, that was a very quick agreement on his part.

The van ascended the lava flow from boulder to boulder. We felt that the steep slope would make the wheels slip and slide on the rocks. It did certainly that, but with my desert knowledge of being in tough places, I was able to make it to the top and save our Australian visitor.

We hit the main road just about the time it got dark and made it home at about 11 o'clock that night. The entire adventure and all its tribulations lasted about 16 hours.

It's only about 4 hours round trip. The other 12 hours were spent trying to get out of trouble. Len documented all the trials and tribulations of the trip with his camera. He will not only have pictures of this adventure, but I am sure the experiences we had will be etched permanently in his thoughts. I think this adventure will be one of the "US Highlights" in the book he is writing on "Opals of the World." I know in my heart, that after today, he has truly had an "American Outback Experience" that he can take back home to the land down under. ☸

Bob Halahan 1994

(AOS members may recall Len Cram speaking of this adventure when he presented a slide show to the club a few years ago – a video of Len's presentation is in the AOS library)