

BEEHIVE ROCK & GEM CLUB
DAVID HARRIS, EDITOR
2208 NORTH 700 WEST
OGDEN, UT 84414



Come to our annual potluck dinner

Jan 26th at 6 pm!

Annual dues past due!

Thanks to those who have already paid!

**TIME VALUE DO NOT DELAY
FIRST CLASS MAIL**



P.O. BOX 1011
OGDEN, UTAH 84402

VOL. 40 No. 1

Website: <http://www.beehiverockandgem.com>

January 2012

**MEMBER OF UTAH FEDERATION OF MINERALOGICAL SOCIETIES
ROCKY MOUNTAIN FEDERATION OF MINERALOGICAL SOCIETIES
AMERICAN FEDERATION OF MINERALOGICAL SOCIETIES**

The Beehive Rock & Gem Club began in April of 1970.

The purpose of our club is: To collect, cut and polish rocks, to gather fossils, mineral specimens, to discuss and impart our knowledge of the different phases of collecting, polishing and displaying-

To promote, organize and hold meetings, outings, trips, and similar events. To enjoy and protect our natural resources.

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Dues are now *OVERDUE!*

Thank you to those who have already paid!

DUES

Due: October 1
 Single - \$11
 Couple or
 Family - \$16
 Junior - \$5
 Overdue: January 1



Winter Party

January 26th

BRING YOUR POTLUCK DISHES

Remember to bring your plates and tableware.

Set-up 6:00 to 6:30 pm

Plan to eat at 6:30 pm

The club will provide drinks.

Program Note:

As in past years, we will show some pictures of the 2011 year Field Trips at the end of our dinner . Also there will be some interesting video segments of several of our members filmed by Americas Hobbies which are on the internet.

“Rocky” Ray, Program Chairman



See ya all Thursday night the 26th.

Board Meeting Minutes January 3, 2012

Update from Joe about some of his recent travels. Our President will be out of town for a couple months, and Steve will be conducting the Monthly Club Meetings.

Discussions about possible Field Trip locations and possible dates. Nothing set in concrete yet..

Ray Rutledge brought up that if a person would like to donate rocks, etc., to the club, they can get a Donation Letter from the Club that will allow them to take a deduction on their Taxes.

Harold Victor Jackson passed away. Several of the older members remember him.

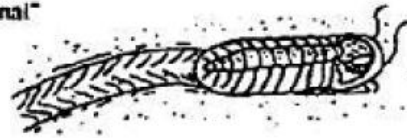
This month will be a Club Potluck. Ray Rutledge will be doing a slide show of Pictures taken from some of the Field Trips in 2011. Members are asked to bring their own Utensils and Plates, and the Club will provide drinks.

Dave Offret, Secretary

MODE OF FORMATION OF CRUZIANA

(Trilobite Cruisin' Tracks)

"Traditional"



"Advanced"



Source: Maps Digest Feb 97, via T-Town Rockhound Jul 97,
via Golden Spike News Jan 12

February Birthdays & Anniversaries



Source: JJ Harrison, Wikipedia.org

Amethyst. Magaliesburg, South Africa

BIRTHSTONE – Amethyst for sincerity. Silicon dioxide, a variety of quartz. Mohs scale hardness of 7. Amethysts are found in many states in the U.S. It is used in faceting, cabochons, carving and art objects.

Anniversary – 17th

Flower – Violet, The African violet lends color and cheer, even on winter days.



**DUES ARE
NOW
OVERDUE!!**

Quips

by Ernie Hopfinger

My back is tired, my hands are sore.
I'm digging slower than before.
At first I'm kneeling, then I sit.
I begin to think it's time to quit.
From up the hill there comes a cry
A new-found rock is held up high.

***Whose back is tired? Whose hands are sore?
I'm digging faster than before!***

Source: Midland Gem & Mineral Mar 04,
via Rock Chips May 04, via Strata Gem Jan 06

Show Dates

January - February 2012

26-12—TUCSON, ARIZONA: Wholesale and retail show; Eons Expos RLLLP; 22nd St., at I-10; Thu. 9-6 daily; free admission; minerals, fossils, dinosaurs, crystals, gems, jewelry, meteorites; contact: Christine Coyle, 38 Fox Ridge Rd., Sparta, NJ 07871, (516) 818-1228; e-mail: lowellcarhart@yahoo.com; Web site: www.22ndstreetshow.com

28-11—TUCSON, ARIZONA: Arizona Mineral & Fossil Show; Martin Zinn Expositions; Ramada Ltd., 665 N. Freeway; Thu. 10-6 daily; free admission; more than 400 dealers, free shuttle among locations, Artists' Gallery at the Hotel Tucson City Center; contact: Martin Zinn Expositions, PO Box 665, Bernalillo, NM 87004-0665; e-mail: mzexpos@gmail.com; Web site: www.mzexpos.com

February 2012

25-26—BOISE, IDAHO: Annual show; Idaho Gem & Mineral Club; Expo Idaho; 5610 Glenwood, corner of Glenwood and Hwy. 20; Sat. 10-6, Sun. 10-5; adults \$3, children (under 12) free; contact Charlie Smith, PO Box 1264, Riggins, ID 83549, (208) 628-4002; e-mail: tetongems@frontier.com

March 2012

3-4—CALDWELL, IDAHO: Show and sale, Owyhee Gem & Mineral Society, O'Conner Field House, 2200 Blain, Caldwell, ID. Carolyn Roberts, email: ncrobertsrp@msn.com

8-11—DEMING, NEW MEXICO: 47th annual show and sale; Deming Gem & Mineral Society; SWNM Fairgrounds; Raymond Reed Blvd.; Thu. 9-5, Fri. 9-5, Sat. 9-5, Sun. 9-5; free admission; more than 100 dealers, displays, geode cutting, gold panning, spinning wheel, silent and live auctions, door prizes, raffle, guided field trip; contact Maurice Crawford, 713 W. Spruce PMB 726, Deming, NM 88031, (575) 546-0056; e-mail: mauryjudy@yahoo.com; Web site: dgms.bravehost.com

10-11—FILER, IDAHO: 61st annual show; Magic Valley Gem Club; Twin Falls County Fairgrounds; 215 Fair Ave.; Sat. 9-6, Sun. 10-5; adults \$2, children (under 12) free with adult; contact Shirley Metts, (208) 423-4827; e-mail: rmetts@cableone.net

16-18—ALBUQUERQUE, NEW MEXICO: Annual show; Albuquerque Gem & Mineral Club; New Mexico State Fairgrounds; CAC Bldg., San

Pedro Ave. entrance; Fri. 10-6, Sat. 10-6, Sun. 10-5; adults \$3; more than 40 dealers, crystals, jewelry, fossils, rocks, minerals, decorator items, jewelry, books, supplies, beads, mineral ID booth, visits by a well-behaved and socialized wolf, NM Bureau of Geology and Mineral Resources educational booth, kids' grab bags, silent auctions, about 20 displays; contact Paul Hlava, PO Box 13718, Albuquerque, NM 87192, (505) 255-5478; e-mail: paulhlava@q.com; Web site: www.agmc.info

16-18—SPANISH FORK, UTAH: Show and sale; Timpanogos Gem & Mineral Society; Spanish Fork Fair Grounds; 475 S. Main St.; Fri. 10-7, Sat. 10-7, Sun. 10-5; free admission; Wheel of Fortune, rock Grab Bags, rock display table, auction, Dinosaur Man; contact Vickie Hathaway, 693 E 1 South, Spanishfork, UT 84660, (435) 820-2672; e-mail: jamnjelleze@gmail.com

23-25—SANDY, UTAH: Annual show; Gem Faire Inc.; South Towne Expo Center; 9575 S. State St.; Fri. 10-6, Sat. 10-6, Sun. 10-5; adults \$7, children (11 and under) free; jewelry, gems, beads, crystals, silver, rocks, minerals, exhibitors from all over the world; contact Yooy Nelson, (503) 252-8300; e-mail: info@gemfaire.com; Web site: www.gemfaire.com

31-1—POCATELLO, IDAHO: Show and sale; Southeast Idaho Gem & Mineral Society, Bannock County Fairgrounds, Pocatello, ID, Kevin Taylor, 208-232-4269

April 2012

13-15—OGDEN, UTAH: Show and sale; Golden Spike Gem & Mineral Society; Golden Spike Event Center; Weber County Fairgrounds, 1000 North 1200 West; Fri. 9-6, Sat. 10-6, Sun. 10-4; adults \$2, students \$1.50, children free with adult; The Walking Dinos, more than 20 dealers, rocks, minerals, jewelry, beads, gemstones, equipment, supplies, gold, fossils, wood, findings, displays, exhibits, demonstrations, grab bags, wheel of fortune; contact Cindy Aeschlimann, PO Box 12835, Ogden, UT 84412, (801) 648-5060; e-mail: club@goldenspikegem.org

14-15—IDAHO FALLS, IDAHO: 47th annual show; Idaho Falls Gem & Mineral Club; Idaho Falls Recreation Center; B St.; Sat. 10-6, Sun. 10-5; adults \$2, children (under 12) free; contact Jim Bosley, (208) 520-1819; e-mail: jbosley@cableone.net

Check www.rockngem.com/showdates for other shows throughout the country.

UNDER THE ROCK PILE

Vickie Hathaway



Gem Quality
Ruby Roughs

This article pinpoints faceters, although we can all gain information from it to help us in our constant search for rough gemstone material.

Whether you are selecting rough to cut for your own collection or for sale, you should follow some of the basic precepts in order to get the highest return for your investment. This can be a daunting task for most amateur faceters, but they can do it if they educate themselves and keep their eye on the prize.

What does a gemologist look for when he examines a colored gemstone for value? Faceters must learn what the attributes are and how to pick rough that produces good finished items.



Rough
Amethyst

Gem value is based on the five "Cs" of colored stones: color, cut, clarity, carat weight, and cutting. First we need to understand the terminology the gemologist will use. Hue is a primary color. To understand hue, look at an artist's color wheel. The primary colors are red, blue and yellow; most have secondary hue undertones. The more primary the color is, however, the better the quality.



Tone represents the depth of the color, from colorless to black. The tone of the gemstone is described as light, medium-light, medium, medium-dark, or dark. Gems that fall into the medium-light, medium and medium-dark range are best. Faceters know that cutting and polishing will darken the tone of a gem, so common sense would dictate that you buy light-to medium-tone rough.

Rough Ruby Saturation of color looks at hue in terms of how it is modified by brown or gray tone. Gemologists will usually describe better gems as having "vivid" or "strong" saturation.

Clarity has to do with the amount of inclusions in a gem; we didn't want opaque or unnecessary inclusions in faceted gems. Natural gems contain combinations of trace minerals, which can affect clarity. Emerald, for example, usually has calcite and carbon inclusions. Calcite doesn't seem to detract from the value of the gem as much as large inclusions of carbon. Basically, you don't want cloudy veils or inclusions in finished gems which shouldn't be present.

Sometimes, inclusions are an important part of gem value. Included rutile creates the asterism in star sapphires and an included spider increases the value of amber. You have to study each individual gem type and learn what is accepted and what isn't accepted, and then select your rough on that basis.

A good point to make about inclusions is that if you find rough that is absent of expected inclusions, you have either found an exceptionally rare piece of gem rough or you have found a fake, so educating yourself before buying is essential to prevent being swindled.

I think it is clear that the greater a stone's carat weight, the more it is worth. It is only one factor, however, particularly in American cutting.

Cut encompasses several factors, including precision, quality of polish and symmetry, and extinction. Good workmanship will enhance value! Good Luck with your search for the perfect rough!

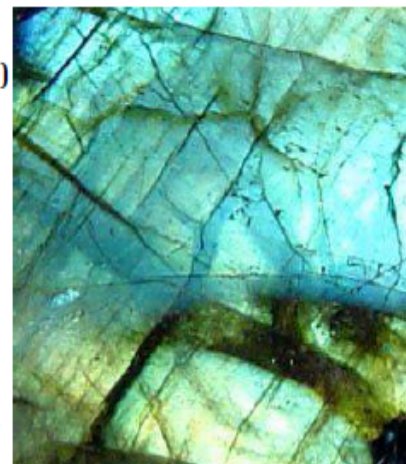


GARNET

The Feldspar Group

By Lawrence H. Skelton
Wichita, Kansas

(Labradorite)



It's quiz time! What familiar mineral may compose 60 percent of the earth's crust and forms in igneous, metamorphic and sedimentary environments? Give up? Actually, this is a trick question since it is not a single mineral that meets these criteria but is a group or family of minerals – the feldspars. The name originates from the German words “feld” meaning field and “spar,” a mining term referring to any non-metallic, cleavable, transparent mineral (calc-spar, fluorspar, etc.). The feldspar group consists of 25 or more minerals which display similar chemical compositions and generally crystallize in the triclinic crystal system (the exceptions, orthoclase and sanidine, forming in the monoclinic system). Some of the rarer members, syrovoslavite for example, crystallize in the orthorhombic system. Chemically, the feldspars are aluminum silicates combined with a Group Ia or IIa alkali metal such as sodium, potassium, calcium, strontium, barium, etc. The rare feldspars, buddingtonite and reedmergnerite respectively contain an ammonium ion (NH₄) in lieu of an alkali metal and boron in place of aluminum. Celsian is a barium feldspar.

Ten members of the group are familiar to mineral collectors: the plagioclase feldspars which are albite, oligoclase, andesine, labradorite, bytownite and anorthite and the alkali or potash feldspars: orthoclase, microcline, sanidine and anorthoclase. The potash feldspars, orthoclase and microcline are dimorphous, that is, they have the same chemical composition but form in different crystal systems. They both are potassium aluminum silicates. Microcline forms in deep intrusive rocks, granites, etc., where cooling is slow. Orthoclase crystallizes at moderate depths where cooling is faster. Sanidine, which is considered by some as a high temperature form of orthoclase, forms in quick cooling, extrusive lavas such as rhyolite and trachyte.

It sometimes happens that the two types, potash and plagioclase, form a homogeneous mixture that is half microcline and half albite. Generally but not always, as the mineral solution cools, the two separate by a process called exsolution and the sodium in albite and the potassium in microcline migrates and forms alternating layers of more or less pure albite and microcline. The result is perthite, a visibly laminated feldspar. The plagioclase feldspars form an isomorphous series with albite, a sodium aluminum silicate at one end and anorthite, a calcium aluminum silicate at the other. The remaining four plagioclases named above contain progressively less sodium and increased calcium to the end member, anorthite that contains no sodium. In pegmatites, albite sometimes assumes a platy habit and is then called cleavelandite.

Sources

One might expect that such commonly occurring minerals as feldspars may occur in large crystals and that is indeed the case. A single microcline crystal in the Devils Hole beryl mine at Keystone, South Dakota, was measured at about 153 feet in length, 113 feet high and 45 feet wide. Its estimated weight is nearly 17,537 tons. A perthite crystal at the Hugo Mine in Keystone measured 35 by 15 by 8 feet and weighed approximately 250 tons and an orthoclase crystal in the Ural Mountains of Russia reportedly was 33 by 33 by 1.3 feet and weighed around 120 tons. A microcline crystal in the Karelia area of Russia weighed more than 2,000 tons. These measurements were taken on the exposed portions of the crystals so proven dimensions may be less or greater.

Feldspar is an important industrial mineral. World production for the year 2010 is estimated to be a little more than 22 million tons, 55 percent of which is mined in Italy, Turkey and China in that order. Other foreign producers are Thailand, Japan, Spain, France, the Czech Republic and Mexico. United States production during 2010 was 628,317 tons valued at about 36 million dollars. The most important feldspar mining district in America is in North Carolina which has “led the pack” since 1917. Together, North Carolina, Virginia and California produced 89 percent of national output. Other feldspar producing states are: Georgia, Idaho, Oklahoma and South Dakota which jointly accounted for 11 percent of America's 2010 feldspar production.

The Spruce Pine Mining District is in Mitchell, Avery and Yancey counties in western North Carolina which is

part of the Blue Ridge physiographic province and is the source of much of that state's feldspar which occurs in a granitic rock called alaskite. Alaskite is a deep-seated igneous rock which erosion has brought to the surface. It is composed of 60 percent feldspar (40 percent oligoclase and 20 percent microcline), 25 percent quartz and 15 percent muscovite mica. Alaskite, by definition contains few if any dark minerals although a small percentage is to be found in some areas of the exposure. Pegmatites in the area consist of the same proportional contents as the alaskite and were formed from the same magma. The overall geology in western North Carolina is rather complex and resulted from repeated plate tectonic movements over the nearly half-billion years from late Precambrian to the end of the Paleozoic era. The alaskite and pegmatites were emplaced 380 to 390 million years ago during the Devonian period and are among the youngest igneous rocks in that part of the Blue Ridge.

Feldspar originally was separated from pegmatites or alaskite by hand cobbing. The rock was extracted and broken up by regular mining methods; then the feldspar and other minerals were separated and segregated by hand. That time-consuming and labor intensive method continued until 1946 when a froth flotation process was developed and put into commercial use. "Giant" crystals such as those found in the Black Hills pegmatites and previously mentioned were mined and crushed, requiring little additional treatment. Such massive deposits are limited resources so larger less pure deposits such as alaskite formations with their large proportions of feldspar must be used.

Commercial volumes of feldspar in Hancock County, Virginia are extracted from aplite, a fine grained granitic rock of which plagioclase feldspar (anorthosite) is the major component, comprising 85 to 90 percent of the rock. A coarse-grained phase, the Montpelier metanorthosite was intruded into the aplite during Precambrian time. It contains plagioclase crystals ranging from 10 to 14 inches in length.

The present-day feldspar resources of California, Idaho and Oklahoma are surprisingly in the form of sand eroded from granitic rocks. Some sandstone and stream delta sand deposits in California contain quartz and feldspar which ranges from 10 to 35 percent of the total volume. In Idaho, production is from a lacustrine (lake deposited) sand that contains an estimated 30 percent feldspar. Feldspar comprises 25 percent of Arkansas River sand being mined in Oklahoma. Georgia's feldspar production is from two granite intrusions: the Siloam granite in Greene County and the Shadydale granite in Jasper County. The Siloam is composed of 75 percent feldspar in the form of 47 percent microcline, 25 percent plagioclase and three percent perthite. Feldspar from both deposits is blended to create a high-potassium product.

Uses

With present world consumption of 22 million tons per year, we should expect feldspar to have a wide variety of uses. Major end uses are in the glass and ceramics industries. In glass manufacturing, feldspar acts as a flux to lower the melting point of silica, thus reducing the amount of energy required to achieve a molten condition. It provides resistance to chemicals and the alumina content of the feldspar increases the hardness of glass. The greatest use is in container glass (jars, bottles, etc.) but feldspar also is used in manufacture of flat glass (plate glass, window panes, automobile glass, etc.).

The ceramics industry is another important consumer of feldspar minerals. Ceramic products such as tiles, porcelain and chinaware ranging from dishes to commodes and sinks have feldspar mixed with the clay from which they are made. The feldspar lowers melting temperatures and acts as a cement in the crystalline phase of other ingredients. Much of the clay itself is a weathering product of the feldspar component of granite. Ceramic glazes are principally albite feldspar that fuses to a glass-like finish on ceramic items. Other important uses are as fillers in paper, textiles, plastics and rubber. The coating on welding rods is made with feldspar which also forms a part of urethane and latex foam. Feldspar is used as a bonding agent in manufacturing grindstones. A surprising use is for poultry grit. Labradorite and anorthosite, an igneous rock composed almost totally of plagioclase are slabbed, polished and used for decorative building stones.

Both potash and plagioclase feldspars find use as gemstones. Moonstone, known for its bluish adularescence is a mixture of albite with oligoclase or orthoclase. The adularia moonstone is a variety of orthoclase. It may be transparent and colorless. High quality New Mexico moonstone may have a tan to light brown if colored. The best moonstone is said to be from India and Sri Lanka. Amazonite is a green microcline popular for gems and carving. The blue to green color may



be due to trace amounts of lead plus water. However, there is some evidence that traces of rare earth metals may have a role in the color. Sodium impurities in microcline may separate by exsolution into layers of albite, the thin white banding frequently visible in amazonite. In the U.S., excellent amazonite occurs in pegmatites in the Pikes Peak area of Colorado and at Amelia County, Virginia.

At present, the most desirable feldspar is the faceting grade sunstone from Oregon. It is an orange to red labradorite colored by nano-size inclusions of metallic copper. The best faceted sunstones presently retail at \$100.00 to \$500.00 per carat depending on color and size. Labradorite from this area also occurs in colorless to yellow and green transparent crystals. It should be noted that labradorite and andesine from Mongolia reportedly are being artificially infused with copper to produce a red, green or bi-colored gemstone which is being introduced as sunstone to unwary buyers.

Andesine, bytownite, orthoclase, oligoclase (orthoclase and oligoclase also form varieties of sunstone), anorthoclase and albite may occur in transparent, colorless to tinted crystals from which attractive gems may be faceted.



The "mixability" of the feldspars leads to exsolution and subsequent forming of thin laminations (lamellae) within a common crystal. The lamellae vary in refractive index between the very thin layers of feldspar types, a condition leading to a play of colors in some specimens and the labradorescence in labradorite. The best of this labradorite is marketed as "spectrolite."

Suggested reading

- Bateman, Alan M., 1950. *Economic Mineral Deposits*: New York, John Wiley & Sons, p. 706 – 708.
- Kraus, E. H., Hunt, W. F., & Ramsdell, L. S., 1959. *Mineralogy – An Introduction to the Study of Minerals and Crystals*: New York, McGraw-Hill Book Co., p. 405 – 413.
- Mersch, Carl E., 1997. *Geology of Yancey County*: Raleigh, North Carolina Geological Survey, Geologic Note No.5, 22p. (www.geology.enr.state.nc.us/yancey.../Geology_of_Yancey_County.doc).
- O'Donoghue, Michael., 1988. *Gemstones*: Cambridge, Eng., University Press, 372p.
- Potter, Michael J., 2006. Feldspars in Kogel, J.E., Trivedi, N.C., Barker, J.M. & Krukowski, S.T., eds. *Industrial Minerals and Rocks: Commodities, Markets and Uses*: Littleton, Colorado, Society of Mining, Metallurgy and Exploration, p. 451 – 461.
- http://www.minerals_n_more.com contains a list of feldspar minerals.

Via *Strata Gem* January 2012, via *Quarry Quips* August 2011,
via *Wasatch Gem Society News and Views* January 2012

World's Largest Opal Matrix Found in Australia

A behemoth of an Opal Matrix has just been found in the opal fields of South Australia. The stone which is a whoppingly unbelievable 55,000 carats in size is currently in Australia and was found by noted designer Stuart Hughes and his associates. The opal is about 30 cms in length with a height of 15-20 cms and a 4 cm thickness. Its estimated value is at least 1 million dollars USD. However as far as opals go, this one has set the benchmark which is certainly going to remain for the next few years. Historically, the largest opal found so far was just 6,100 carats in size. The current one is nearly ten times that size.



Source: News.yahoo.com November-10,-2011,
via *Emerald Gems* Nov 2011,
via *Rockhound Rumbings* January 2012

"The Basics of Making a Cabochon"

By Ruby Lingelbach

The art of lapidary has its own language the same as any other art or discipline. Some of these will be familiar to a lot of you, but bear with me because some people are just learning.

EQUIPMENT

The following information about equipment is very general. There are many types of each with catalogues for all or each.

In order to make a cabochon, "cab" for short, you will need to make a slab by sawing your nice piece of rough with a slab saw. The thickness of the slab should be 1/4 to 3/8 inch thick.

The slab saw usually has a blade 10 to 12 inches in diameter, but blades can go on up to 36 or more inches. The saw has a cover to keep the cooling-oil from spraying all over the area, starting with the operator of the saw. There is a vise to hold the rock while sawing. Vises come in a number of different kinds of arrangements for holding the rock, which must be held in position during the sawing. If the rock should slip it could damage the blade, which is not cheap.

The trim saw used by most lapidarists has a 6 inch blade. This is the machine you will use to cut out the preform after the size you want is marked onto the slab using a template.

A blade is a circular piece of metal with diamond dust embedded in the outer 1/4 inch of the blade. Diamond is the hardest material known (Check the Mohs Scale). Children, and many grownups have said, "The blade must be awfully sharp to cut a rock!"; but diamond cuts by degrees of hardness. It has a hardness of 10, the highest rating on the Mohs Scale, and will cut any rock on the scale, including diamond. A person can lightly touch the running blade with a finger and will not be cut. (but the action can alarm the inexperienced observer). Pushing hard with your finger on the blade will cut or bruise your finger, though.

A template is a sheet of metal or plastic with holes for the standard sizes for jewelry. Sizes are given in millimeters (mm). The oval used the most is a "30 x 40", meaning it is 40mm long and 30mm wide. So when you hear a rockhound say something about a "30 x 40" he/she means an oval cab of that size.

Cutting oil -- Almag is the 10 weight oil from Texaco that most rockhounds use in their saws. It is needed to cool the blade as well as the rock. The blade and the rock can be ruined if either gets too hot. The blade needs oil about 1/4 inch up on it in order to create the mist or stream up to the cutting surface.

Now that you have the equipment how do you make a cab?

The first thing is to get a rock. This is called the rough. You can get these on field trips, from rock shops, from a friend, etc. It should be at least fist-sized, although some small rocks with a good pattern, texture, and color can be used. The texture should be smooth, not porous. It should not be filled with cracks or fractures. One of the most exciting events in the rockhounding hobby is being able to see the secret colors and patterns God has hidden inside the rock; and you are the very first rockhound to see it!!

A cab, by definition in the *AFMS Uniform Rules* is, "[It] shall be lapidary material of a size that can be worn for jewelry, cut free hand without having been tumbled." "cut free hand" means you hold the cab or dop stick yourself. (There are machines that can make any number of cabs from a single cab used as a pattern.)

From rough to slab to cab is your chance to show your artistic talent. Take your template and go over the slab to see what develops. Many times you don't really see a good spot until the template comes to a good place. The design is better if any darker portion is placed at the bottom. If you have a small enough fortification pattern, keep it as a whole unit. You can get portions of a design from the larger motifs. The design should be large enough to be seen well.

Beginning cabbers sometimes spot a tiny figure, say a cross, appearing naturally in the stone and they want to make the tiny thing the center of the cab. A 1/4 inch cross in the center of a 30x 40 will not show up from two feet away. Also, unless you can see that the design goes completely through the slab, your design can be entirely different, or gone when it is ground down and polished. (A good article, "Composition Essential For Better Cabochons" can be found in *Gem Cutting Shop Helps*. SMGS's copy of this publication is in the "no longer there" column in the Public Library holdings. The Editor has one she will try to remember to bring to the meeting.)

Decide what shape of cab you want to make. No matter what shape, it is best to use some sort of

template, not only to mark it with your aluminum scribe but to check for size as you grind it to shape.

Types of cabs

Traditional cabs have a domed top and must have at least one plane of symmetry.

Modern cabs can have a domed top or a flat top. Plane of symmetry is not essential.

Creative cabs --The sky is the limit. Just see what you can do. Some rockhounds do oak leaves, animals, etc. but they have been making cabs for a long time.

Plane of symmetry -- If a mirror is placed on a center line of a cab it would show the same shape. Shapes showing symmetry include hearts, crosses, "S" shapes, etc.

Trim out the shape you have marked along straight lines you have drawn around the curved lines. A curved-line-attempt with a straight-sawing blade is a big NO! NO! unless, of course, you are fond of buying expensive new blades.

The first bit of grinding is to get the outside shape of the cab. Ovals are easier to do for beginners. After you have mastered ovals then you can branch out. Get the outside shape true to the template. The forming of your cab is sometimes referred to as "peeling the apple". That is, go one time around the oval about 1/3 the width. The next round is about the same distance from the first and what will be the curved top. (The second round of "peeling the apple") Many people tend to scimp on the second grind which produces a flat top that doesn't polish the way you want it. The third grind is the top. Gently move your cab back and forth until you have a smooth, continuous curve across the top in all directions. Use the light on your machine as a guide. It should reflect a smooth line as you move the reflection along. If the reflection jumps around you have not finished your grinding.

Whether you use diamond or silicon carbide the steps are the same. Silicon carbide wheels are good for many types of grinding that cannot be done with diamond. It does wear away and if you want to make a marble, you can wear a groove to hold and grind the round shape; or if you want a larger concave curve these wheels can form the curve you want. Diamond wheels are made by applying a diamond dust mixture to the surface of hard metal or hard plastic wheels.

Some hints and tips: A "heavy hander" is someone in a hurry who has lots of money to buy new

blades. Hard pushing on the slab makes your hands tired and wears the diamond-bearing metal down too fast.

"Kissing the blade" --the amount of pressure to use when introducing the slab to the blade. When the saw has created a starting groove the slab does a good job of feeding itself on through with very little pressure.

"Climbing the Blade" -- What the slab does if you are pushing too hard on the back edge of the slab. You can also tell if your hands get tired or if the saw sounds labored.

"Groadies" --The type of clothes you should wear when trimming. The first thing one notices when trimming is that oil tends to fly everywhere, so don't wear your best shirt. -- And ladies, don't trim right after getting your hair done.

Ear muffs -- Rifleman's ear muffs are good to cut out some of the noise of the saws but will still let you hear conversations, or the phone ringing. They also help save your hearing.

Silicon Carbide is a man-made material that is mixed with a bonding material such as shellac, resin, rubber silicate or a vitrified ceramic bond. Lapidary wheels are nearly always the vitrified ceramic bond. The grit is determined by the size of silicon carbide grains used. A 100 grit means the grains used are of a size that will pass through a screen with 100 openings to the linear inch. 200 grit has 200 openings, etc.

Grade of a wheel -- This refers to the softness or hardness of the binding agent. As the grinding is done, worn grains will break away exposing new, sharp grains. Hardness is identified on the new wheel by the number between A (the softest) to Z (the hardest. (See *Lapidary Journal* 7/73 for more information.)

Diamond grinder/polisher -- The diamond unit of choice by a great many rockhounds is the Genie. It is a grinding and polishing unit complete with motor, integrally mounted wheels, and coolant system. Metal grinding wheels are 80 grit for coarse grinding, 220 for fine grinding. Sanding and polishing wheels are resin-bond with diamond grit sizes 280, 600, 1200 and 14,000. Each side has a tray water with a pump to keep to keep the stone and wheels wet.

A "must" to remember: Heavy pushing when grinding and sanding with diamond results in deep grooves that must come out for effective polishing. "You should live so long as to polish out 220 grit scratches" is an excellent quote from somebody.

Source: *The Rockhound Gazette*, January 2006