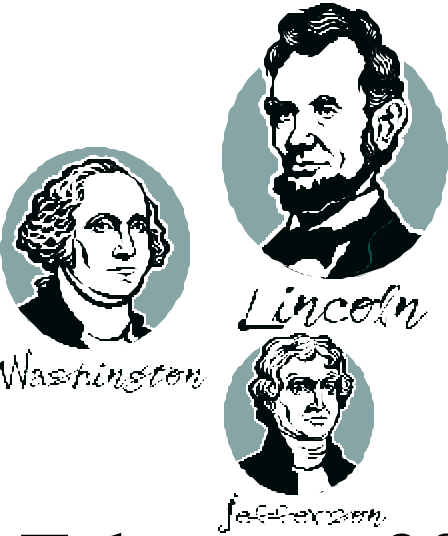


St. Croix Rockhounds  
Doug Olson, Editor  
211 Interlachen Way  
Stillwater, MN 55082



**First Class**

February, 2006

Please send exchange bulletins to:

Doug Olson, Editor  
211 Interlachen Way  
Stillwater, MN 55082

**February 21<sup>st</sup>** - Is this month's meeting date.  
***The program: Pete Rodewald's  
Munich Agate Slide Show***



St. Croix Rockhound's

**LEAVERITE NEWS**

Vol. 31, Issue 2; February, 2006

Member of:



&



# ST.CROIX ROCKHOUNDS

**MEETINGS:** Club meetings are held the third **TUESDAY** of each month, at Stonebridge Elementary School on W. Elm. St. in Stillwater, MN at 7:15 P.M.. Everyone is welcome.

**MEMBERSHIP:** Full membership for a single person over 16 is \$7.50 per year. Family membership is \$10.50 per year.

## OFFICERS:

President	Brad Bonse	(651) 439-6832
Vice President	Vic Martinsen	(715) 247-3700
Secretary	Doug Olson	(651) 430-9035
Treasurer	Lin Rawlings	(651) 735-4691
Program Committee	Mark Rasmussen	(651) 275-0607
	Bill Cordua	(715) 425-9544
	Victor Martinson	(715) 247-3700
Show Committee	Bill Cordua	(715) 425-9544
Refreshments	Freya Kask	(651) 777-6371
Librarian	June Young	(651) 429-3887
Historian	John Parsons	(651) 257-2724
Sunshine Committee	Marie Newlander MN	(651) 439-7809
Tour Director	Susan Dustin	(651) 430-3933
Liaison Officer	Freya Kask	(651) 777-6371
Newsletter Editor	Doug Olson	(651) 430-9035

The purpose of our organization is to bring together rock and mineral enthusiasts on a regular basis through membership and through pooling of individual knowledge, talents and skills, to improve the lapidary skills of participating members. Affiliation: American Federation of Mineralogical Societies and Midwest Federation of Mineralogical and Geological Societies.

## COMING UP!

**February 21<sup>st</sup>:** St. Croix Rockhounds club meeting will be at the Stonebridge Elementary School. The Program will be Pete Rodewald's Munich Agate Slide Show. The business portion of the meeting will need to be short to take full advantage of these marvelous slides.

## COMING ATTRACTIONS

### 2006

**February 21<sup>st</sup>:** St. Croix Rockhounds club meeting will be at the Stonebridge Elementary School

**February 25-26<sup>th</sup>:** Anoka Gem and Mineral Club Har Mall pre-spring show in Roseville, MN

**April 8<sup>th</sup>:** St. Croix Rockhounds club show at the Valley Creek Mall in Woodbury, MN

**May 19-21<sup>st</sup>:** Midwest Federation convention and show in Southgate< MI

**June 9-10<sup>th</sup>:** California Federation convention and show in Angels Camp, CA hosted by the Calaveras Gem & Mineral Society

**June 9-11<sup>th</sup>:** Rocky Mountain Federation convention and show in Stillwater, OK hosted by the Stillwater Mineral & Gem Society

**July 14-16<sup>th</sup>:** Northwest Federation convention and show in Longview, WA hosted by the Southern Washington Mineralogical Society and the Mt. Hood Rock Club

**August:** South Central Federation convention and show in Bossier City, LA

**August 14-20<sup>th</sup>:** Southeast Federation convention and show in Nashville TN

**November 18-19<sup>th</sup>:** Eastern Federation convention and show in West Palm Beach, FL hosted by the Gem & Mineral Society of Palm Beaches, Inc.

# Minutes of the Saint Croix RockHounds

January 17th, 2005

**President pro-tem** Vic Martinsen called the meeting to order at 7:18 pm.

**Minutes** for the previous meeting were approved as published.

**Treasurer's report** was approved. Dues and insurance will be paid this month to Mid-West Federation.

**Tonight's program** will be "Find of the Year". Contestants are to talk about their entry after the contest.

**Show Chairman** – Bill Cordua reports that the Show is still set for April 8<sup>th</sup> at the Valley Creek Mall. The Easter bunny will be there.

**Refreshments** – Freya reports that tonight's goodies were provided by Marie Newlander and Freya Kask. Next month's refreshments are to be provided by June Shalander and Elaine Martinsen.

**Sunshine Committee** – A card for Vi deAngelo, who is ailing was passed around to be sent to her.

**Tours** – Susan Dustin is tour guide. Trips to South Dakota (Brad's prairie agate searching grounds), eastern Montana for Moss Agate (June?) and to the UP in May are in the works.

**Programs** – Pete Rodewald presented a program to Minnesota Mineral Club and is volunteering to present it to us – possibly for April at the University of WI – River Falls.

**New/Old Business** – none.

**Door prizes** were cabs provided by LeRoy Betlach. Winners were Elaine Martinsen, Reuben Shalander, Susan Dustin, Joe Moore and Lin Rawling.

Meeting was adjourned at 7:32 pm.

**WINNERS for the Find of the Year!!!**

**Open Class** – Vic Martinsen; Copper/Datolite from the Caledonia pile in the UP.

**Fossil Class** – Lin Rawling; Stromatolite from near Lake Power in Woodbury.

**Lake Superior Class** – Lin Rawling; from the Lake Elmo pit.

**Congratulations to all the winners.**

**Minutes** submitted by Doug Olson, secretary

The Dustins are in Malaysia enjoying their new grandchild.



*If paying dues by mail, send to treasurer:*

**Lin Rawlings**  
850 Woodduck Rd  
Woodbury, MN 55125

## Celebrate!

February Birthstone : Amethyst

The ancient Greeks believed that this gemstone held many powers, among them protection against intoxication. In fact, the word Amethyst comes from the Greek word "amethystos," meaning sober. In ancient Greece, the gemstone was associated with the god of wine, and it was common practice to serve this beverage from Amethyst goblets in the belief that this would prevent overindulgence. Even today, Amethyst is considered a stabilizing force for those struggling to overcome addictive behaviors.

Once considered more valuable than diamonds, Amethyst is a member of the quartz family, occurring naturally as crystals within rocks.

**February birthdays:** None

**February Anniversaries:**None

**Upcoming field trip ideas** were discussed, and there was interest in exploring mine dumps in Houghton, Michigan, hunting prairie agates in South Dakota, and petrified wood and agates in Eastern Montana. The Montana trip will be during the last week of May (since several of us would like to use Memorial Day weekend as part of the trip) with Pete Rodewald making arrangements to "hunt" and Susan Dustin coordinating the other plans. It may be combined with the South Dakota trip as well if there is interest. These trips will be discussed more at future meetings. - **Susan Dustin**

**Those who wish to receive the Leaverite News via e-mail can send an e-mail to the editor: [doug@implan.com](mailto:doug@implan.com). If you should later decide you prefer hard copy, send another e-mail so stating.**

## **Rare Calcite Find, Minnesota Copper Mine, Ontonagon, County MI by Pete Rodewald**

Yes it is spelled with but one n, because of an early mine organizational formation typing snafu by a secretary that stayed permanent.

It all began on August 11 2005 on the fourth day of field collecting during “ THE RED METAL RETREAT and KEWEENAW WEEK “. There, tours to dozens of copper mine dump locals, from the famous Delaware on the north end to the Victoria and Rockland Mines on the south end, nearly 100 miles apart, took place.

These tours required tremendous undertaking to get the hundreds of participants scheduled & assigned to four mines each day from Monday the 8<sup>th</sup> thru Saturday am the 13<sup>th</sup>. Excavations were arranged for twice a day. The digs are from 9 to 12 am and 1 to 4 pm or later if your energy lasts. Sign up time for this annual event begins in earnest with entry forms sent out February or March to past participants who get first pick of their favorite mines or locations. It is best to schedule yourself at one end a day to limit travel time between tours.

In years past, the CCRMC (COPPER COUNTRY ROCK AND MINERAL CLUB) did all the work of scheduling and shuffling to equalize the digs to 25 to 30 collectors. In 2005 the A. E. Seaman Mineralogical Museum at Michigan Technological University in Houghton, armed with a new energetic staff, took on the task, especially, since the Museum is always the bigger financial benefactor of this annual gathering.

On this Thursday am we, Victor Martinsen, my every year collecting pal, and I, were scheduled to be at the Minesota at 8:30am for a 9am start, 60 miles from our Houghton area motel, and then the Rockland at 12:30 for 1pm start. We’ve been to many a tour of this mine before and collected amongst the many huge chunks of Minesota Conglomerate that are strewn everywhere - which make nice cutting material with native copper formed between clasts in the conglomerate. But one of the main attractions are chisel chips from the mining separation process of chiseling apart huge copper masses, up to a world record 425 tons in one mass alone, that formed in a fissure that cross cut the conglomerate lode. Copper & silver crystals are what everyone really hopes to stumble upon, and they are always possible, but unfortunately uncommon. The crowd of, metal locator laden collectors, excitedly await the tour directors words to go on the bulldozed pile and start. And start they do, stampeding to all parts of excavation area to be first to a given area and the metal detector choir sounds off. I tell myself, don’t be in such a hurry, we’ve got three hours, and they subsequently leave the leading edge area alone and rush right over it. Happens every time, that I, one in thirty, get 10% of the pile to myself and I’m always accused of being the “luckiest” rockhound alive in Copper Country, a lovely accusation to look forward to every August. The year 2005 was no exception, for upon finding a chisel chip 6 inches long within 20 feet of the parked cars this rounded geode nodule like specimen appeared next in front of my eyes, not 10 feet from the end of the excavation, 15 feet from a collectors 4 door, 4 by 4 pickup. The specimen was immediately recognized as all calcite that probably was not a complete filling between conglomerate clasts or boulders, so there are pockets of crystals. No close hand lens study was done on sight as there is collecting to finish, in this case a bad mistake. Upon unwrapping, what was wrapped at the mine sight, a month later at home, did the realization come to me that this was not the usual calcites, they looked astonishingly like octahedrons, an impossibility in calcite. On the evening of September 20 a phone call was placed to my, always reliable, friend Dr. Bill Cordua, who lives only 7 miles away, explaining to him what was seen. He was intrigued and two nights later he would have time at home to examine the piece. Upon first seeing it, he was a bit puzzled then without hesitation went for a crystal habit reference book that only a mineralogy PhD, who teaches, would have in his private library. A page in the book dealt with this exact habit, explaining that when a basal pinnacoid face occurs along with three rhombohedron faces all of equal size it can look suspiciously “like” an octahedron. This nodules interior has hundreds and as Bill explained, “they are rare as hens teeth.” It takes a very special set of circumstances in the vicinity of this nodule’s formation for this to happen. It has been documented very few times in mineralogical history, but there is a place in Mexico that has produced many specimens, but never from Copper Country which is also famous for its lustrous copper included and water clear, very complicated calcite crystals. A Copper Country first.

The nodule was only ¾ complete, as found, so realizing that ¼ of it might still be at the sight of discovery a trip back on emergency basis seemed needed given the gravity the situation. A phone call was placed to Richard Whiteman, owner of Red Medal Minerals and owner of the Minesota pile for mineral rights, to obtain permission to go on sight to try retrieving the remainder, after explaining what I had found. He granted permission and promised not to disturb the area with any of his equipment. Six am October 1, 2005, I and my closest neighbor Ed Heit left for the Minesota, 275 miles away. We arrived at 11 am, spent an hour and a half on the area in question but it had been dug up. Not necessarily by Rich, more likely by locals who scavenge after the tours, trespassing to find what the tour people missed. No remnants of the specimen could be located. But bear in mind it would be valuable to a dealer in Tucson. The nodule in hand was

**Rare Calcite Find, Minnesota Copper Mine, Ontonagon, County MI continued...** flawed by a fracture that if pried apart would separate  $\frac{1}{4}$  of it off thus exposing more pockets and more crystals. With a stiff pocket knife, no pun intended, the separation surgery was done as neat as a whistle. This smaller specimen was then delivered all the way to Houghton to be donated permanently to the Museum, with Dr. George Robinson the curator. George is a friend and world famous in mineralogy. He then could offer his thoughts, which in thanks he did. He said that only once had he seen this habit and that he had written of it in a past issue of Mineralogical Record. It was from a mine in Northern Quebec and that it was dolomite not calcite.

Well, we made the round trip in one day with an e-mail from George the next explaining his acceptance and verification of these calcites. In the mean time an article in a past issue of Rocks and Minerals was recalled and searched for and found. The article was about unusual calcite crystal habits but didn't touch on this particular habit. The author is was a well known article writer from Oberlin, Ohio named Dr. R. Peter Richards an expert and professor of crystallography. A phone call to him was met with congeniality. Peter consented, somewhat anxiously, to measure the crystal habit angles on a special goniometer, that when entered into the computer would give exact drawing of the crystals. Crystal size not a concern as most are 5 mm or smaller. Three examples were sloughed off carefully and sent to him. I instructed him to keep for micro-mounting for himself the two not used in measurement and return the one used and the rest is history with articles concentrating on the morphology, not the find, by Pete Richards forthcoming.

### **Pseudo-octahedral Calcite from Copper Country by Pete Richard**

A recent letter from Peter Rodewald from northern Wisconsin reported that he had found calcite crystals that looked octahedral while collecting the dumps of the Minnesota Mine, a copper mine located in the Keweenaw Peninsula of Michigan. The calcite crystals were found in August in a small pocket in a conglomerate boulder, and apparently are a one-time find – he has since returned to the dumps seeking further specimens, but focused effort has not produced any more material. Peter sent me a couple of small specimens to characterize using the optical two-circle goniometer.

I have written about pseudo-octahedral calcite before (Spar Box, Vol. 13 No. 1 and Vol. 15 No. 2), but most samples I have seen before did not really look that much like octahedra, to my eye. These crystals really do look like octahedra. They are small (1 mm or so), colorless, translucent crystals, and their faces are frosted with a second mineral, probably a silicate. The first impression one has when looking at them under the microscope is that they are octahedral fluorite crystals. More careful examination reveals that some (but not all) of the faces are “bent”, and are really composed of two different planes. This shows that the isometric symmetry which would be required for the crystals to be true octahedra is only an illusion – they are pseudo-octahedral.

One crystal was selected and mounted for examination on the optical goniometer. I can't begin to provide all the background on crystal symmetry and crystallography needed to fully describe this procedure, but let me try to sketch out some of the more important information. The optical goniometer is a device that allows one to measure the position of each face of a crystal in terms of two angles, a procedure which is not too different from characterizing the location of a place on the Earth in terms of degrees of longitude and latitude. Some mathematical calculations then convert these two angles into Miller indices, the sets of 3 numbers (or 4 in the case of calcite) that crystallographers use to identify and describe the faces on crystals. Involved in this calculation is the unit cell for calcite, the smallest unit of the calcite structure that can be thought of as being stacked up (in huge numbers) in three directions to build the crystal. Two unit cells for calcite are in common use, one based on the structure, and an older one inferred from the external geometry of calcite crystals. The size of a “morphological” unit cell cannot not be inferred by studying the crystal faces, only its shape. The shape of this particular morphological cell is characterized by the fact that calcite has a unique three-fold symmetry axis, called the c-axis, at right angles to three equivalent two-fold axes, called the a-axes, and that the c-axis is 85.43% as long as any one of the a-axes. This is expressed in crystallographic shorthand by saying that the c:a (axis) ratio is .8543. This ratio must be known in order to identify the faces on the calcite crystal, or to accurately draw a crystal using SHAPE or other software. But of course, it is known, and can be looked up in many mineralogical reference books. The Miller indices reported below were calculated using this morphological unit cell, rather than the structural cell. Well, the measurements were made, the calculations carried out, and it was determined that these crystals are composed of three forms: the common pinacoid {00.1}, the common negative rhombohedron {02.1}, and a steep negative rhombohedron that could not be identified unambiguously, but for which the indices {0 17 . 1} were chosen. In addition, one or two tiny faces belonging to the common positive rhombohedron {10.1} were noted. (For convenience, the third Miller index, which is always equal to the sum of the first two, is omitted here, and its position is indicated by a period). *Continued on the following page...*

*Pseudo-octahedral Calcite from Copper Country continued....* An idealized crystal with these forms is shown in Figure 1. It may not look that much like an octahedron, but if you focus just on the upper half of the crystal, and imagine that's all that was showing on the specimen, I think you can see the octahedral appearance. In Figure 2, the crystal has been redrawn, emphasizing certain faces and eliminating others, to maximize the similarity to a true octahedron. Side and top views are provided, in each case with the calcite on the left and the true octahedron on the right. The calcite is oriented by taking an axis which is perpendicular to one face of {10.1} (this form is shown only in Figure 1) and passes through the center of the crystal, and placing in the vertical position. This is one of the pseudo-fourfold axes of the pseudo-octahedral calcite. You can see that the calcite crystal is shortened slightly on this axis, relative to a true octahedron, but the differences are not great, and certainly are not obvious when one looks down onto the tops of the real crystals, which tend to show just four major faces. With the crystal in this orientation, the four faces on the top of the calcite crystal deviate from the corresponding octahedral faces by  $10^{\circ}08'$  ( $\circ$ ),  $4^{\circ}09'$  ( $\phi$ .),  $5^{\circ}56'$  ( $\Psi$ .), and  $4^{\circ}09'$  ( $\phi$ .). Mineral collectors with an interest in the shapes of crystals seem to have special attraction for minerals that appear to be more symmetric than they really are, especially if they appear to have a shape that is not possible given their true symmetry. Examples include pseudo-octahedral calcite from the Pyrenees Mountains in Europe (Spar Box Vol. 12 No. 4 and Vol. 13 No.1); pseudo-cubic quartz from several locations including the Pecos River valley in New Mexico and St. Lawrence County, New York; pseudo-cubic calcite described by Charles Palache from the Upper Peninsula of Michigan; and calcite that mimics a cube with octahedral corners and dodecahedral edges such as I described in my earlier Spar Box note, from Rensselaer, Indiana. Now these little crystals from the Minnesota Mine have provided another example of pseudo-octahedral symmetry. They test our ability (and willingness) to see things as they are, not as they seem to be.

**Figure 1. Ideal, undistorted crystal of pseudo-octahedral calcite from the Minnesota Mine.**

## Pseudo-octahedral calcite Minnesota Mine

Calcite forms	
$\circ$	{0001} basal pinacoid
$p.$	{101 $\bar{1}$ } positive rhombohedron
$\phi.$	{0221} negative rhombohedron
$\Psi.$	{0.17.17.1} negative rhomboedron

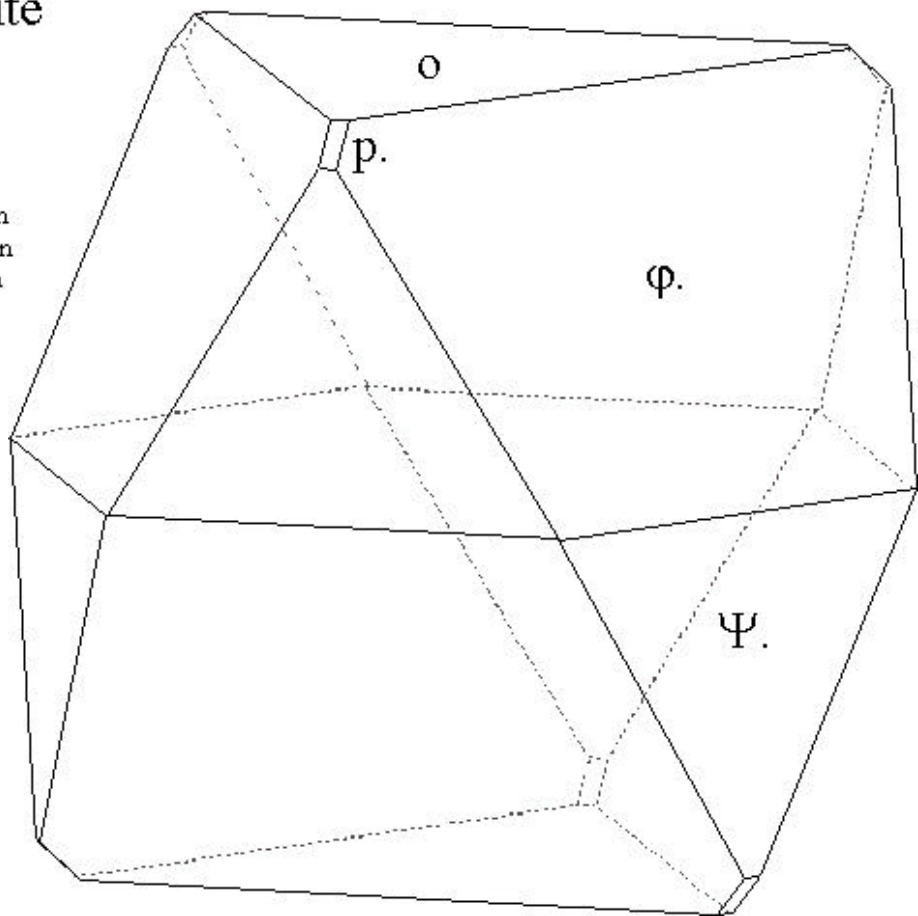


Figure 2. Left: Pseudo-octahedral calcite showing selected faces only, oriented to emphasize its similarity to an octahedron. Right: a true octahedron. Top, side view; bottom: top view

## Pseudo-octahedral calcite Minnesota Mine

o {111} true octahedron

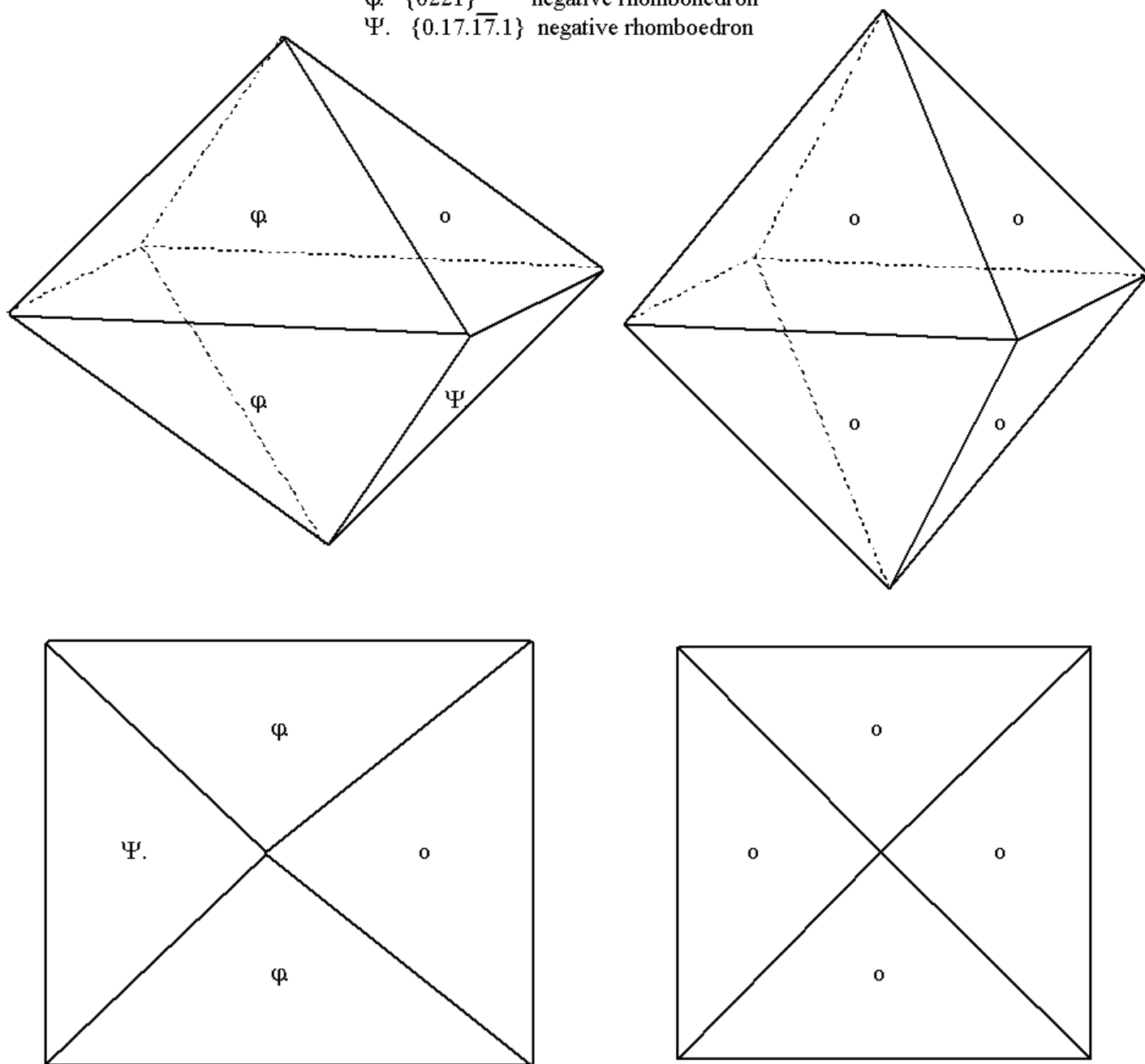
Calcite forms

o {0001} basal pinacoid

p. {10 $\bar{1}$ 1} positive rhombohedron

$\phi$ . {02 $\bar{2}$ 1} negative rhombohedron

$\Psi$ . {0.17.17.1} negative rhombohedron



**To clean and shine most drusy specimens**, use Easy Off oven cleaner (fume free is ok). Spray the specimen and then leave it overnight in a closed container or bag before rinsing. This even works on iron stained quartz crystals. *from Rocky Tales 10/05 via Rock Chips 01/06*

**Need two cabs of exactly the same size?** Glue two slabs together with paper between them. Cut to size. Separate by soaking in water. *from Rocky Tales 10/05 via Rock Chips 01/06*

**One of the most useful and versatile tools** on your workbench should be the orangewood stick. This tool is sold for the purpose of working on cuticles and is available in all cosmetic departments. It is soft enough to not mar gold or silver, yet is hard enough to use as a pushing tool in setting prongs. It will not scratch gems yet reaches into impossible places.. *from Rocky Tales 10/05 via Rock Chips 01/06*

**For your show case** -long pins and T-pins used to hold specimens in place should be colored like the lining (dipped in paint) so they are inconspicuous. Labels should be clear and sharp and readable without pressing your nose to the glass. *by Margery W. Horsfall circa 1981 from The Rockhoulder 2/98 via Ventura Gems 06/98*

**To display large rocks** on pedestal, remove the top and bottom of a tuna can and spray the can black. *from Rock Chip Reporter 8/92 via Breccia 1/98 via Ventura Gems 06/98*

**Don't discard the inner plastic rings** from scotch tape. They make handy stands for spheres. *from Source unknown via Breccia 2/98 via Ventura Gems 06/98*

**Did you drop a small stone (or bead)** on the carpet? Can't find it? Place a nylon stocking over the vacuum hose. The stone will adhere to the nylon without going up the hose. Bare feet work well, too. If the rug is a shag, get out the comb or forget it! *from Chats And Chips 05/96 via The Coral Geode Apr 98 via Ventura Gems 07/98.*

**Sabertooths were not Pussy Cats** – DNA from teeth of ancient sabertooth cats showed the distinctive-looking animals were cousins of modern-day cats, but were not direct ancestors, scientists said on August 8, 2005.

“Our results show that sabertooths diverge early and are not closely related to any living cats.” Ross Barnett of the Henry Wellcome Ancient Biomolecules Centre in Oxford, Britain, and colleagues wrote in their report, published in the journal “Current Biology”. Sabertoothed cats weren't extinct about 13,000 years ago, as did many other large cats that once roamed North American Plains, such as the Yukon scimitar-toothed cat, the American lion-like cat or *Panthera actox* and a cheetah-like cat called *Miracinonyx trumani*.

The only large cats that survived in the Western Hemisphere were the puma, also commonly called the mountain lion, cougar, and the jaguar.

Barnett and researchers are from Britain, U.S., Sweden, and Australia. Their analysis shows that the sabertooth cats diverged early on from the ancestors of modern cats and are not closely related to any living feline species. And a cat that resembled an early cheetah was not in fact a cheetah, but a relative of the modern-day puma. Sabertooths have been placed in a separate family (*Machairodontinae*) from modern cats such as lions and tigers. *from Reuters via CNN 8/9/05, excerpts from Tate Museum Geological Times 9/05 via the Trilobite 10/05.*

**Flexible Sandstone** – is a curiosity for the mineral kingdom that interests mineral collectors and laymen alike. When sawed into long thin slabs, this sandstone, called itacolumite, will bend when held at one end. The explanation is that the quartz sand grains are held together with mica, and the mica is elastic. The grains are more or less hinged, rather than cemented as on ordinary sandstone. By examining closely the constituents of this freakish rock, it is noticed that the mica plates are parallel to the lamina structure. *from Chips 'n Splinters 9/05 via Emerald Gems 10/05*