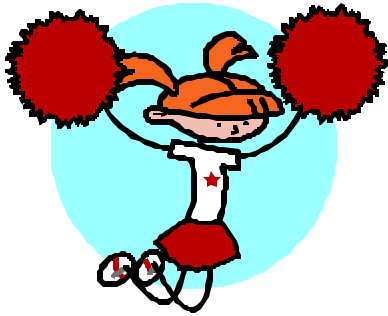


St. Croix Rockhounds  
Doug Olson, Editor  
211 Interlachen Way  
Stillwater, MN 55082



## First Class

# September, 2006

Please send exchange bulletins to:

Doug Olson, Editor  
211 Interlachen Way  
Stillwater, MN 55082

**September 19<sup>th</sup>** - Is this month's meeting date.  
**The program: SILENT AUCTION**



St. Croix Rockhound's

# LEAVERITE NEWS

Vol. 31, Issue 7; September, 2006

Member of:



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# 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!

**September 19<sup>th</sup>:** St. Croix Rockhounds club meeting will be at the Stonebridge Elementary School. The program will be Silent Auction – bring in your donations for the club’s most successful (and only) fundraiser.

## COMING ATTRACTIONS

**September 16<sup>th</sup>:** Agate City rock show in Two Harbors, MN. 9-5 at the Agate City Rock Shop.

**October 1-31<sup>st</sup>:** Sword and the Stone store closing sale. 120 East Main Street, New Prague, MN 952-758-6885

**October 14-15<sup>th</sup>:** Anoka County Gem & Mineral Club at the Har Mar Mall, Rosedale, MN.

**October 17<sup>th</sup>:** St. Croix Rockhounds club meeting will be at the Stonebridge Elementary School

**October 21-22<sup>nd</sup>:** Minnesota Mineral Club rock show at the National Guard Training and Community Center, 8180 Belden Blvd in Cottage Grove, MN. For info call Alan Olson 612-729-8331.

**November 4-5<sup>th</sup>:** Racine Geological Society Show at the Knights of Columbus Hall, 13249 Washington Ave, Sturtevant, WI. For info call John Lowman 262-554-5370

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

**December 9-10<sup>th</sup>:** Anoka County Gem & Mineral Club at the Faribo West Mall Show, Faribault, MN

“Rockhounds: The Movie” – a 55 minute featurette. For info see [www.rockhoundsmovie.com](http://www.rockhoundsmovie.com)

# Minutes of the St Croix Rockhounds

## May 16<sup>th</sup>, 2006

**Meeting was called to order** by Doug Olson, president pro tem at 7:40.

No **treasurer's report**.

**Minutes** were approved as published in the Leaverite News.

**Tonight's program** will be an agate slide show presented by Pete Rodewald.

**Refreshments** were provided by Eloise Kimball and Jerry McDougal.

**Sunshine:** No news

**Field trip:** A field trip has been planned for the Upper Peninsula Michigan to be led by Pete Rodewald.

**Field trip:** a group outing for Agate Days are in Moose Lake is planned for Saturday, July 15<sup>th</sup>. Meet at Tobie's in Hinckley at 10 am.

**Newsletter:** Doug will send the newsletter by e-mail to anyone who so desires it. Notify him at [doug@implan.com](mailto:doug@implan.com).

**Silent Auction:** September's meeting will be Silent Auction. Bring food and rocks to sell.

**Picnic:** will be in either July or August. Brad Bonse's house has been volunteered. We will let you know if he is willing. Jerry McDougal and Pete Rodewald volunteered to give and educational talk and demo on sawing and polishing rocks.

**Meeting was adjourned** at 7:40.

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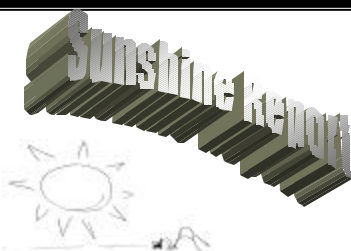
*If paying dues by mail, send to treasurer:*

**Lin Rawlings**

**850 Woodduck Rd**

**Woodbury, MN 55125**

If you have news -  
good or bad  
- please call Marie  
at (651) 439-7809.



## Celebrate!

**September's birthstone – Sapphire.**

Sapphire is a variety of the mineral species corundum. Sapphires occur in all colors of the rainbow with the exception of red, which is ruby. The name corundum comes from the ancient Sanskrit "kuruvindam", while the name "Sapphire" comes from the Persian word "safir", meaning "beloved of Saturn", (or Greek sapphiros).

Sapphires are commonly heated to improve their color and reduce cloudiness that is caused by rutile inclusions. The rutile inclusions are responsible for the "star" or "cat's eye" in star sapphires.

Sapphires were once believed to be protection against snakes. It was said that if poisonous reptiles and spiders were placed in a jar containing the stone, the creatures would immediately die.

**September birthdays:**

Helen Betlach – 3<sup>rd</sup>

Gregory Logajan – 8<sup>th</sup>

Freya Kask – 11<sup>th</sup>

Pete Rodewald – 13<sup>th</sup>

Elaine Martinsen – 15<sup>th</sup>

Victor Martinsen – 25<sup>th</sup>

**September Anniversaries:**

Leroy & Helen Betlach – 12<sup>th</sup> (60<sup>th</sup>!!!!)



St. Croix Rockhounds silent auction at the regular club meeting – September 19<sup>th</sup> - 7:15 pm at the Stonebridge Elementary School in Stillwater, Minnesota.

All are invited to attend!!

Bring in your extra rocks, supplies, equipment or perhaps some goodies.

**Bring your friends and neighbors!**

**A Note of Thanks.**

**I would like to thank Victor and Elaine Martinsen for hosting this year's annual potluck picnic.**

**This was my first picnic and I can honestly say I had a really good time. The weather was nice and the location was spectacular.**

**Vic gave a short demonstration on rock polishing and Pete brought some really awesome samples of copper and agates.**

**Good food, great conversation, and the weather cooperated as well. In my opinion a good time was had by all.**

**Thanks, Jerry McDougal**



# Muonionalusta Meteorite

Class IVA Fine Octahedrite

Pajala, Norrbotten, Sweden (Lapland)

By *Pete Rodewald*

Muonionalusta is located north of the arctic circle in extreme northern Sweden. The area is now a semi-forested land with glacial gravels covering the earth and characterized by at least partial permafrost. The very surface thaws a bit in brief summer.

In 1906 two children were tending cattle, near the village of Kitkiojarvi. While kicking stones about, that lain on the ground, they encountered a stone of rusty heavy material, which with inquisitiveness they took home to the village. It was later identified and described as an iron meteorite by Högbohm (1910) under the name Muonionalusta. Much later Malmqvist (1948) conducted studies after another meteorite was found in 1946 near Kitkiojoki, where the foundation of a house was being excavated. After these two finds another interested person, Wickman, concluded that an impact crater must exist. Extensive ground searching proved fruitless. But, while hopes dwindled, Wickman learned of an oral tradition regarding another much earlier find back in the 1870's and 80's, however, this stone was lost and discarded. Wickman published pamphlets and spread them to every household in the area alerting all of the possibility that meteoric irons were strewn about the gravel. Eventually in 1963 a third was found during construction of a logging track not far from Kitkiojoki. All the meteorites found, to this date had been described by Wickman (1963, 1964) and Bucknell (1975). Chang & Wanke in 1969 established a terrestrial age of one iron meteorite at 800,000 years. An aircraft search for a crater was implemented but again to no avail, as extreme northern Sweden was repeatedly glaciated over the past one million years. The meteorite specimens have been subjected to complex glacial transport. Wickman encouraged Lagerback, an expert of the area glacial geology to join the search from the air in 1989 and also came up empty. The previous year the story of another find circulated about. This involved a stone crusher partaking in roadwork near Kitkiojarvi. The crusher was in a lonely area NW of Muodoslompola and

became jammed by a piece of soft iron which split into two pieces. One was lost while the other was saved. Today the continued search goes on with very sophisticated metal locators. In Sweden a permit and license are needed to metal locate and permission from landowners is necessary. Upon finding a meteorite the landowner must be notified as that person owns half rights to the specimen. The locators are able to find very small specimens down to 9 feet. Digging in the permafrost gravel under these circumstances is done by hand.

I first learned of the existence of this curiously named meteorite at an Anoka Club selling show at Har Mar Mall in Maplewood, Minnesota on 2/25/06. John McArdle PhD., owner of ZRS Fossils, and trusted friend, had out for sale, in a Ryker box, an exquisitely etched "Muonionalusta Meteorite" slice with no labeled gram weight. It turned out to be 95 grams and thus priced at less than \$4.00 a gram was A VERY GOOD PRICE. Without knowing the grams and unable to resist, it was purchased. Upon arriving home "Muonionalusta Meteorite" was immediately searched for with curiosity on Google. I discovered similar slices from Sweden selling for more than \$8.00 a gram. Only a few private collections contain these specimens. These irons are special because they have the best expressive Widmanstätten octahedral intersecting lines. As a result, museums swallow them up with glee and very few collectors and dealers are exposed to them. John has friends and contacts in this far away place that are searching, for themselves, these very meteorites this summer. They sold him the one I purchased. ZRS Fossils is promised to have opportunity to purchase more slices and small whole Muonionalusta Meteorites as they become available. They are the lone U.S.A. market outlet,

One very interesting fact concerning all specimens found to date is the Widmanstätten lines do not have octahedral patterns but are much closer to tetrahedral patterns. In some cases they reveal lines of displacement where a line abruptly ends at a fault and commences again at another location along the fracture. This is explained as compression impact, which can occur four different ways. Initially, the iron / nickel mass was contained as core material in  
*continued on next page....*

## *Muonionalusta meteorites continued...*

a previously orbiting planetary body such as Earth and the other three inner solar system rocky planets. The planets Mercury, Venus, Earth and Mars are rather equally distributed outwardly from the sun. Between Mars and Jupiter are two missing equally distributed gaps filled by asteroid belts of debris. It is logical to presume that two more rocky planets once occupied these gaps and during early solar system development they impacted each other. This initial impact was the most violent of all, spewing stony material and inner metallic material into the orbiting asteroid belts in their place. Another impactation may have occurred between chunks meandering about the solar system and creating secondary collisions in space. Pictures of large asteroids, taken by NASA, depict impact craters on these massive asteroids such as the planets and their own orbiting moons do. The third impact theory, the weakest, is the action entering Earth's atmosphere. This imparts large objects into much smaller particles regardless of speed and angle of entry, which varies greatly with every meteorite that is vacuumed up by the planet's gravity. The fourth, of course, is surface impact on good old mother Earth. Meteor strewn fields usually reveal clues about entry angles and speeds via the amount of material recovered, its frequency, overall size and shape of the strewn field and location of differing sized chunks within the strewn field. In the case of Muonionalusta, glacial action has re-scattered all this material making such determinations difficult.

Generally, it is believed the compression took place in space.

A fifth impact of absolute certainty is when iron meteorite meets diamond blade and some acid for etching, which reveals the evidence for the first four impacts.

Muonionalusta Meteorites contain eleven documented mineral species to date. They are listed as follows in alphabetical order:

*Akaganeite* (Fe O OH) - iron hydroxide which is a terrestrial corrosion product.

*Daubreelite* (Fe<sub>2</sub> CR<sub>3</sub> S<sub>4</sub>) which is an extra-terrestrial iron chromium sulfide. Also found at Mt. Morris meteorite site in Washara Co., Wisconsin.

*Gersdorffite* (Ni As S) - which is extra-terrestrial nickel arsenic sulfide.

*Goethite* (Fe<sub>3</sub> (OH)) - iron oxide which is another terrestrial corrosion product.

*Iron* (Fe) - native iron which was the original element (extra-terrestrial).

*Kamacite* (Fe Ni) - native iron-nickel which is an original element combination (extra-terrestria ).

*Lepidocrocite* (Fe O (Oh)) - iron hydroxide which is a terrestrial corrosion product.

*Magnetite* (Fe Fe<sub>2</sub> O<sub>4</sub>) - ferrous ferric iron oxide a terrestrial alteration product.

*Stishovite* (Si O<sub>2</sub>) - silicon dioxide which is a very high pressure alteration polymorph product of quartz found at many impact sights, such as Arizona Meteor Crater. It is thought to be strictly terrestrial.

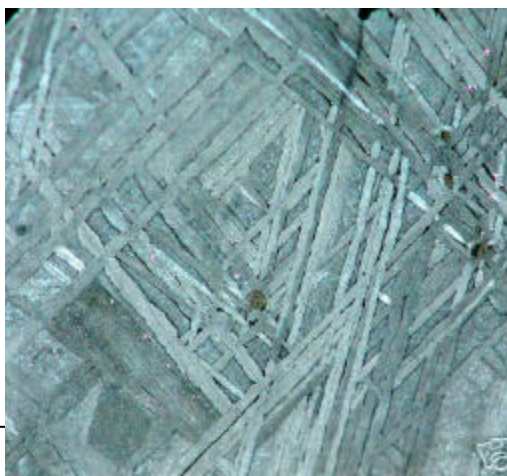
*Taenite* - another native iron nickel but differs from kamacite in mixture percentages (extra-terrestrial).

*Troilite* (Fe S) - extra- terrestrial iron sulfide

*Nickel* (Ni) whose content in Muonionalusta Meteorites is relatively high at 8.42 %, regardless of the unstated iron content.

High nickel content galvanizes the iron, to some degree, against corrosion which helps explain their longevity on Earth (coupled with the protective cold environment). Normally irons would rust away in 800,000 years leaving little evidence of their existence. Consequently these meteorites are well preserved for their terrestrial age. I am indeed fortunate to have one.

Source: information gathered and condensed from the internet.



# IN MEMORIUM: Geology Loses a Legend

by Judith Washburn, MWF Geology Chair

Frederick H. Pough 1906–2006. Two months before his 100th birthday, Frederick Pough (pronounced Poe) passed away doing what he loved best – attending a mineral symposium, with the people he loved best – rockhounds. He was attending the Rochester Mineralogical Symposium in Rochester, NY, at the time of his death on April 7, 2006.

Shortly after arriving at the symposium and talking with a few friends in the lobby, Fred collapsed. He was given CPR within seconds by someone with 30 years of ER experience and another nurse and was then transported to the local hospital where he passed away about an hour later. And just who was Frederick Pough? Anyone truly interested in rocks and minerals probably grew up with a copy of the Peterson Field Guide Series' A Field Guide to Rocks and Minerals written by Frederick Pough in their possession. Published first in 1953, the guide is in its fifth edition. It is a definitive guide to rocks and minerals. Hundreds of minerals are described, with details such as geographic formations, geographic distribution, physical properties, chemical composition, and crystalline structures—virtually a rockhound's Bible.

Fred enrolled at Washington University in 1934 and transferred to Harvard the following year. He graduated cum laude in 1928. His family moved to St. Louis, MO, around 1930, and Fred worked there briefly as an insurance salesman, then returned to Washington University for graduate school. He did his Master's work at the Rueppele iron mine in Stanton, MO. He spent the years 1931-1932 in Heidelberg, Germany studying mineralogy under Victor Goldschmidt. He was awarded his M.S. (1934) and PhD (1935) degrees by Harvard on the basis of his studies with Goldschmidt.

Fred taught mineralogy for a while at Harvard, and then took a position as Assistant Curator at the American Museum of Natural History in New York. During the war, he worked as a field mineralogist for the Manhattan Project in Brazil and served in the Army Signal Corp in 1943. Returning to his post in the American Museum following the war, he was promoted to chairman of the Department of Geology and Mineralogy in 1952. From 1955 to 1964 he was President of Gem Irradiation Laboratories in New York, doing pioneering work on the irradiation of diamonds.

Fred left New York for California, and he served as Director of the Santa Barbara Museum of Natural History from 1964 to 1967. He then worked as an organizer of mineral-oriented tours for a San Francisco travel agency, and as consulting mineralogist for such companies as Harry Winston and Bulova and was thereafter self-employed as a consultant.

Over the years, Fred also wrote hundreds of popular magazine articles (many laced with humor), and numerous articles in technical mineralogy journals. He also supplied the mineralogical, gemological, and geological definitions of terms for various dictionaries and encyclopedias and even produced educational films.

Fred Pough was a legend in mineralogy and mineral collecting. His name and works are universally known. He remained active, energetic, and feisty in his old age and traveled and lectured widely. He will be sorely missed. *from the Midwest Federation Newsletter 05/06*

## Sources:

1. <http://www.minrec.org/labels>. Adapted biographical information.
2. Weinberger, Carolyn. E-mail communication of April 9, 2006.

# Stolen Gems *St Croix Rockhounds Leaverite News*

**Bacterial Alchemy:** Scientists in Australia have discovered that certain types of bacteria play a very important role in the formation of secondary gold grains (and helping to initiate the precipitation of gold from solution). Dr. Frank Reith analyzed bacteria found among the gold grains and in solution from the Hit or Miss Mine in Queensland, Australia and discovered 30 unique species that were significantly different from bacteria found in the surrounding soil. When Dr. Reith placed one species of bacteria, *Ralstonia metallidurans*, in a petri dish, he was able to observe the gold precipitating from solution. As the article notes, this may have some benefits to the mineral exploration industries since current models relating to gold deposits do not account for the precipitation of gold from a solution due to biological activity. *By Paul Schmidt from the Geology News web site via the Trilobite 9/06*

**Rock Trimmings:** Don't throw away the bits of rock you trim off. Smooth the edges and cut the shapes one or two inches one way and about 3/4" the other. Tumble polish these and you have a pretty collection of free-form pieces. Glue a magnet to each and you have a nice collection of refrigerator jewelry for yourself, a gift, or even a door prize. *from Rockhound Rambling 6/06 via Rock Chips 7/06*

**Storage Solution:** One of the most aggravating of all lapidary chores is finding a place to store silicon carbide sanding discs. An old-timer has found the perfect solution. Take an old magazine and store the discs between the pages. These "sanding books" can then be stacked flat and ready to go when you need them. *from Rockhound Rambling 6/06 via Rock Chips 7/06*

**Another Storage Solution:** Need somewhere to store you 6" sanding and polishing discs? Use an inexpensive music CD case. The discs fit in the pockets perfectly, and you can label each pocket with a different grit. *from Rockhound Rambling 6/06 via Rock Chips 7/06*

**A good all-around glue:** for gluing bails, pin backs, bell caps, etc. is Elmer's Stix-All. It is non-toxic, nonflammable, flexible and strong, as well as, impact resistant. While it sets up fast, complete curing takes 24 hours. Stix-All can be purchased at most gem shops, hardware stores, and variety stores. *from T-Town Rockhound 6/06 via Rock Chips 7/06*

**Random Bumber Stickers** *from the Fractured Agate 06/06-6*

Driver carries no cash. He's married.

If you can read this, I've lost my trailer.

For every action, there is an equal and opposite criticism.

It takes a Viking to raze a village.

Living on Earth is expensive, but it does include a free trip around the sun.

Witches use brooms because nature abhors a vacuum.

**Plaster of Paris:** Let's say you have a small rough rock and no matter how you mount it in the saw, you can't get a good angle for the cut. Consider suspending the rock in plaster of paris and then securing the composite in the saw. Use a wax coated milk carton for a mold and, after mixing the plaster of paris with water as directed, pour approximately 3/8" of plaster between the edge of your rock and the edge of the mold, and on top of the rock. Let this set up for several days and then slab. After the plaster has hardened, you can slice through the carton, the plaster, and the rock just like you were slicing a loaf of bread. When the slab is completed, the plaster of paris breaks off the rock fairly easily. *from Emerald Gems 05/06.*