MICROMOUNTERS OF NEW ENGLAND NEWSLETTER

The MMNE was organized on November 8, 1966 for the purpose of promoting the study of minerals that require a microscope

No. 309 October, 2010

Current Meeting
Saturday October 16
Trinity Lutheran Church
Chelmsford, MA

Map and driving directions are on last of this newsletter

For information regarding **MEETING CANCELLATION** due to inclement weather,
Joseph Mulvey
(603) 880-4018
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@yahoo.com

Welcome to the October Micromounters of New England newsletter! Well, the September meeting was a great time with many discussions covering everything from unknowns on Mindat to hooking up a Maine Mineral Club with a microscope courtesy of **Gene Bearss**.

The October meeting will be held on Saturday, October 16. The friendly mineral competition will be Columbite-Tantalite.

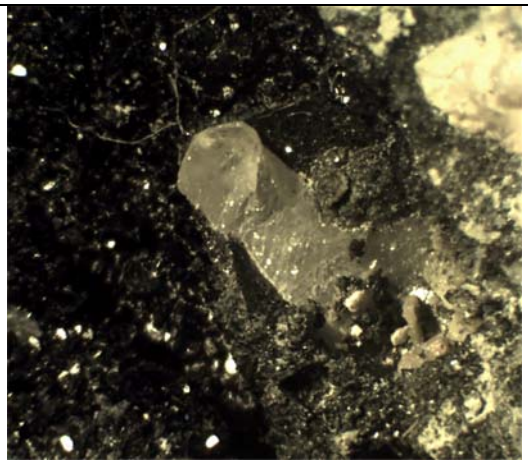
We will also discuss Milarite as Nate Martin is requesting all attendees to bring in their Milarite specimens from any location for a brief viewing with Nate's array of UV lights.

I am also asking folks to bring in any Blueberry Hill memorabilia so that I may scan or photograph your resources for incorporation into a future MMNE newsletter article.

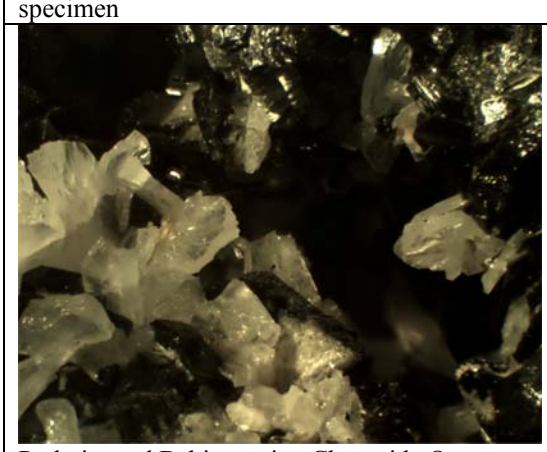
Last month was a great gathering of Babingtonites! There were too many to photograph! There were almost too many just to look at all of them in depth.

Meeting after meeting we constantly get a chance to see local specimens of such a high quality. Many of the specimens from member collections rival those seen at Harvard as well as those expensive pieces sold by John Betts. Dana Jewell and Inge Burggraf must have one of the best suites of all New England minerals. No matter what we decide to show, this pair comes in with multiple specimens, incredible stories, and vivid memories of a time when collecting quality meant stooping over to pick up what nature left behind. Thanks to Dana and Inge for sharing their collection with the club. If it weren't for them, I wouldn't believe most of what I hear about the "heyday" of mineral collecting. It also explains why people say "that place is picked clean" – it's all relative!

See you on October 16!



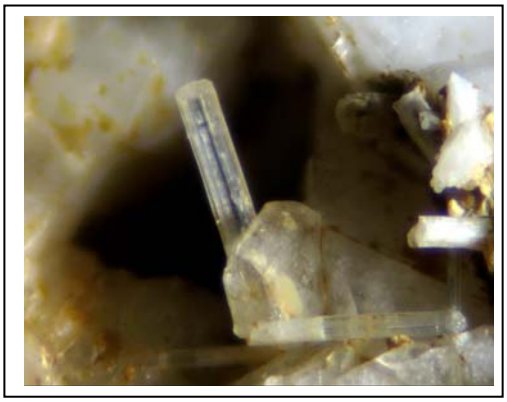
(Above) Prehnite on a bed of Babingtonite Blueberry Hill, Woburn, MA Inge Burggraf specimen



Prehnite and Babingtonite, Cheapside Quarry Deerfield, MA Inge Burggraf specimen

Babingtonite, Cheapside Quarry Deerfield, MA Hal Herard specimen

MILARITE K2Ca4Al2Be4Si24O60•H2O
Locality: Government Pit, Albany, NH
Specimen Size: 1 mm clear, prismatic, Milarite crystal
Environment: Miarolitic cavity in Conway granite
Field collected: Scott Whittemore
Thanks to Tom Mortimer and MindatNH.org



While the October mineral "competition" will feature columbite-tantalite, member **Nate Martin** is requesting attendees bring in their milarite specimens to allow him a quick test for fluorescence. **Please help Nate out by bringing in your specimens**.

Nate writes "I'm researching the fluorescence of milarite under mid-wave UV light and I'm trying to find out how widespread the phenomenon is. I'll bring in my specimens from Moat Mountain and Trumbull CT along with my UV light to show people what I have observed."

The Complete Guide to Micromounts
by Milton Speckels

Thanks to the gracious permission of Gemguides (http://www.gemguidesbooks.com/), we have been allowed to scan in this great book from the 1960's for sharing among the club. We have permission only for the members to access this file. I strongly request you not share it with non-members as that is not part of the agreement with Gemguides. Download the Speckels Book in the Members Only area of the MMNE. Be aware that this Acrobat PDF file is about 37 meg in size and will take days to download if you don't have broadband access.

Access to the member's area is still with the following account:
login: 2009member password: optic

The ***Newsletter*** is the official publication of the Micromounters of New England (MMNE). The last by-laws revision was May 16, 2009. The MMNE is a member of the Eastern Federation of Mineralogical and Lapidary Societies (EFMLS) (http://www.amfed.org/efmls) and the American Federation of Mineralogical Societies (AFMS) (http://www.amfed.org). Material from the *Newsletter* may be copied in other rock and mineral publications if credit is given to the author and the *Newsletter* and permission has been obtained from the author. If there are questions regarding copying contact the editor. The club address is c/o the Secretary. Meetings are held monthly, September through May, except for December, and usually on an informal basis in July. Meeting sites may change and will be posted in the *Newsletter* as far in advance as possible. Visitors are welcome to attend all meetings. Bring a microscope and light source if you have one.
DUES are $12/year for a single person and $16/year for a family membership, levied on a calendar basis. The family membership includes two adults and all children under 18 living at the same address. One copy of the *Newsletter* will be sent on a family membership.

A Photo Stacking Aid - Tom Mortimer

Mineral stacking software has been in use by micro-mineral photographers for several years (http://www.micromountersofnewengland.org/pdfs/stacking-software.htm). My personal choice for image stacking is the Helicon Focus product (http://www.heliconsoft.com). I have found it quite easy to use. Stacking software combines multiple images (taken at a sequence of specimen focal planes) to produce a final photo with greatly enhanced depth of field. The procedure is to start at one specimen focal limit (e.g. the top-most area to be in sharp focus) and take a sequence of photos until the other focal point limit is reached. The sequence of digital camera images from the different focal points is called a "stack." A micro-mineral photo stack may span a specimen depth range of less than a millimeter to several millimeters. My stacks typically contain three to a dozen separate images. I often shoot and process several of these stacks to get a satisfactory final photo.

It is desirable to shoot a stack in equal focus steps; for example covering a 1 mm depth of field in five 0.2 mm steps or ten 0.1 mm steps. Changing a stereo scope focal point by one or two mm typically requires rotating the focus knob less than one-eighth of a turn. Accurately performing this knob rotation span in five or ten equal steps is difficult.

A solution to this difficulty was inspired by a note I read on the web, perhaps on a mindat.org message thread (I have since been unable to relocate it.) The essence of the solution was to raise/lower the specimen on a small platform attached to a digital read-out caliper. The read-out would accurately indicate the focus displacement, allowing the photographer to accurately take a photo at each increment step. A satisfactory quality digital read-out caliper may be purchased on the web for $25.00 and up (Figure 1). These calipers provide a read-out in either millimeters or inches. The read-out on mine has a resolution of 0.01 mm.

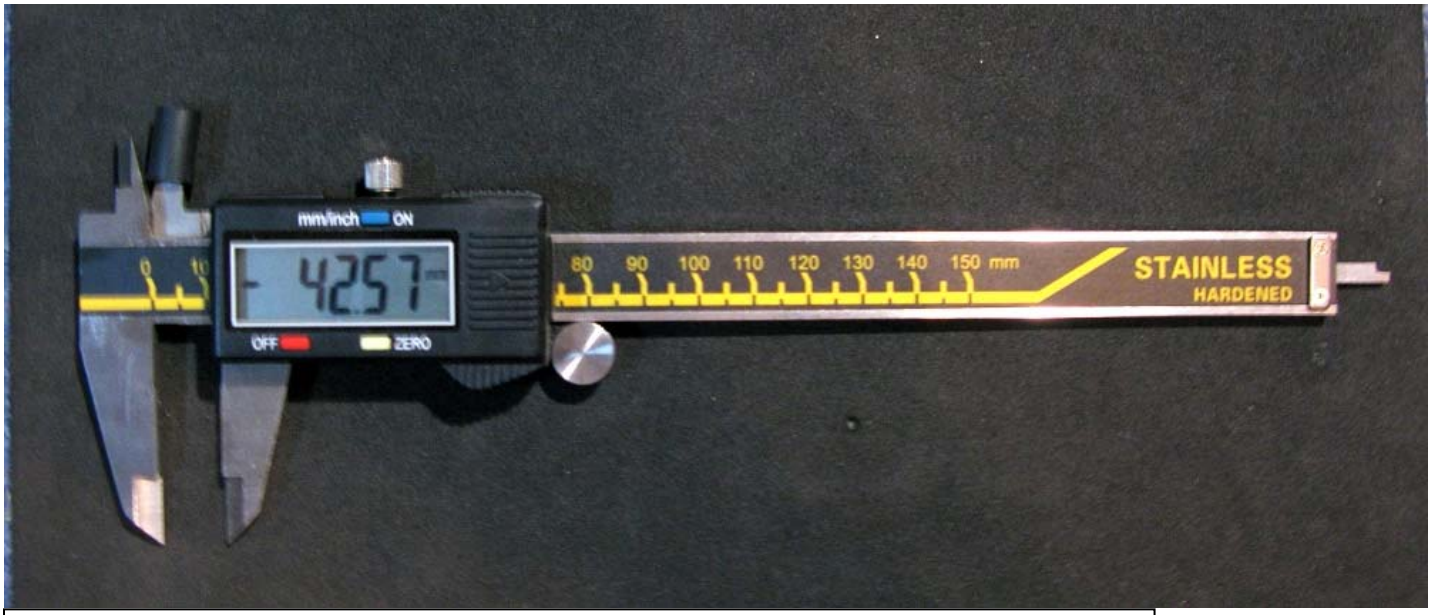


Figure 1: Digital caliper, purchased on the web.

After considering the difficulties of building a stable, independent z-axis, specimen platform that could be affixed to the base of my scope, I conceived a simpler alternative: the fixed end of the caliper could be attached to the stereo scope base and the slider end of the caliper attached to movable optics end of the scope. When the caliper is thus constrained, the read-out would accurately indicate the scope z-axis displacement as the scope focus knob is adjusted. The design detailed below works with my Meiji EMZ-5TR model scope. No modification, (e.g. drill holes), were required to my scope or the caliper. As every scope is different, another make/model may require a somewhat different approach.

My Meiji scope has holes in the base for a pair of specimen holder spring clips (Figure 2).

Figure 2: Slide holder clamps – typical of many stereo scopes.

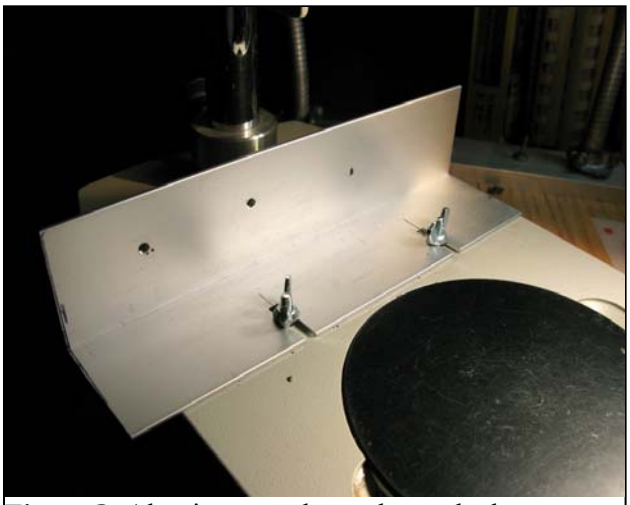


Figure 3: Aluminum angle stock attached to microscope base with a pair of machine screws and wing nuts.

These holes provide a means of attachment for a length of 1½ inch aluminum angle stock (Figure 3). A piece of ½ inch thick Teflon cutting board, (- a favorite hobby construction material of mine - -you could substitute a piece of wood), plus a pair of machine screws, (Figure 4) are assembled to form a clamp to hold the caliper fixed end in a vertical position (Figure 5).

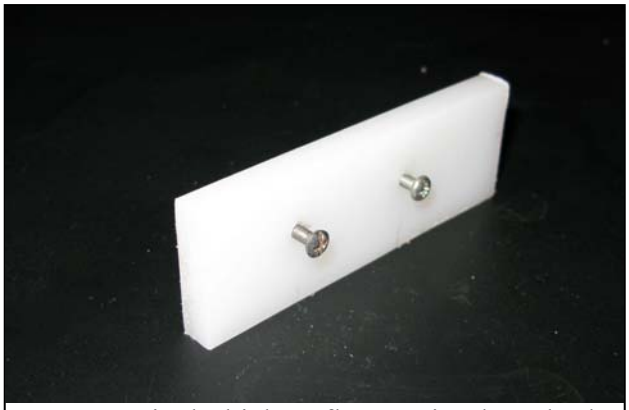
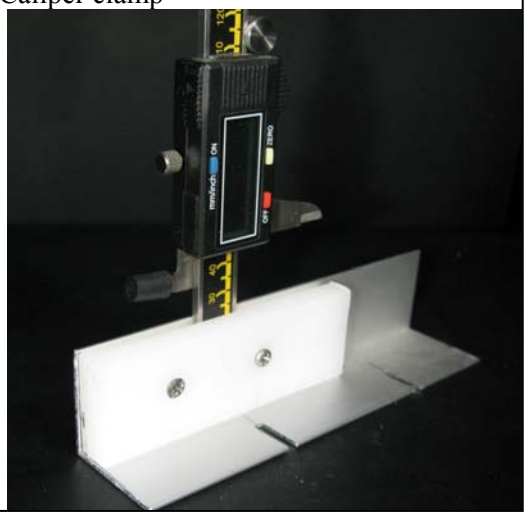


Figure 4: ½ inch thick Teflon cutting board, plus a pair of machine screws.

Figure 5: Caliper clamp



I used 6:32 screws and tapped the holes in the angle aluminum - - you could just as well use a pair of 6:32 nuts here. Note the hole slots in the angle aluminum and the vice clamp nature of the of the caliper attachment allow two degrees movement freedom for alignment of the caliper with the movable scope optics.

What now remains is to attach the movable end of the caliper to the movable scope optics. Here, the Meiji fortuitously has a convenient tapped hole in the vertical mobile stage. (Figure 6) (The Meiji, being of Japanese manufacture, has metric hardware, and thus metric threads. A trip to my local hardware store quickly located the correct machine screw for 15¢.) A slotted piece of Teflon board (3" x ½" x ½") was cut out (Figure 7).

Figure 6: tapped hole in the vertical mobile stage of Meiji scope.

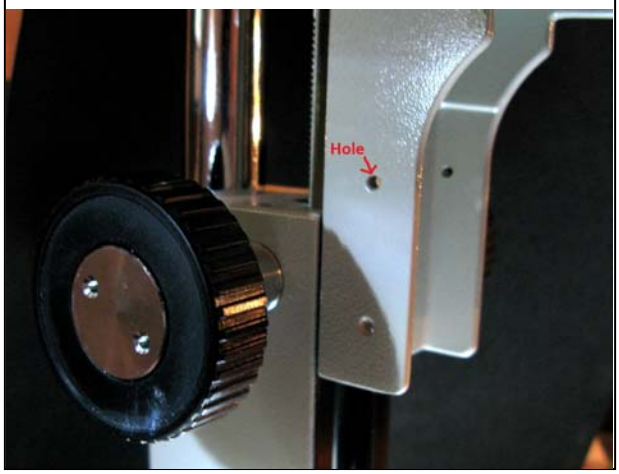


Figure 7: A slotted piece of Teflon board (3" x ½" x ½")

A machine screw was inserted across the lower end of the slot to function as a squeeze vice. A hole was drilled in the upper end of the piece for my metric screw attachment to the scope, (Figure 8). Assembling all the pieces together provides the configuration illustrated in figure 9.

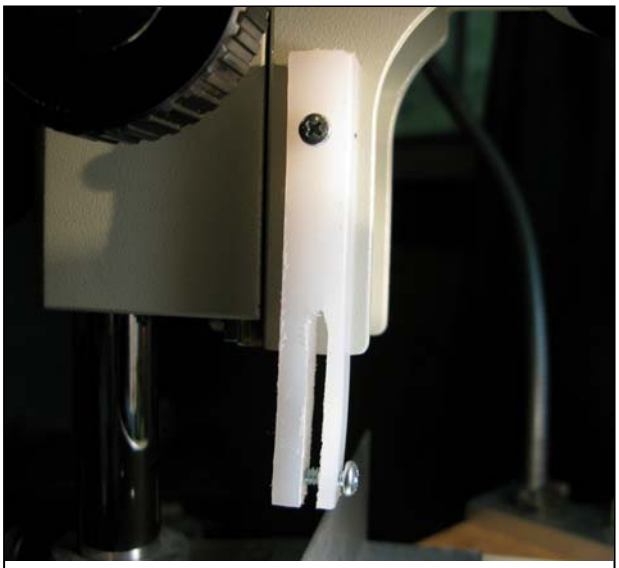


Figure 8: Caliper movable stage clamp.

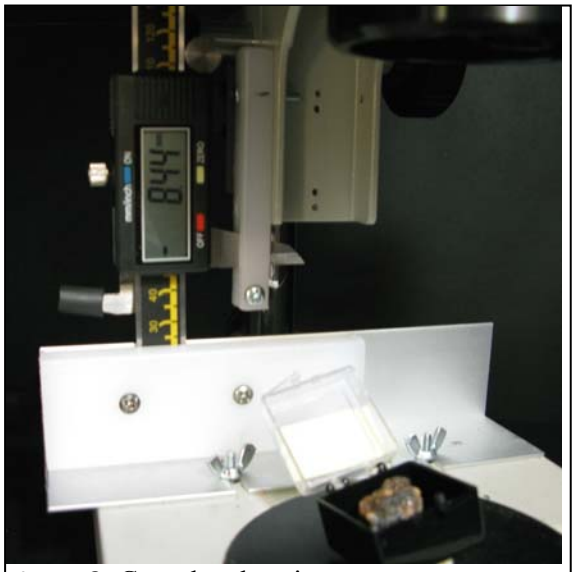


Figure 9: Completed project

Using the set-up:

1. Position the specimen to be photographed on the scope base and arrange the lighting for your photo.
2. Adjust the scope focus so that the top-most zone of the crystal (or specimen zone) to be photographed is in focus.
3. Turn on the caliper display (a push-button) and zero the display (another caliper button). I work in the caliper mm mode (vs. inch mode). Check the caliper is in the mm mode.
4. Adjust the scope focus to the lowest zone of the crystal that is desired for image focus. The caliper now reads the depth of field to be traversed for your photo. For example the caliper might read 1.20 mm for a typical micro crystal.

5. Decide how many images you would like for your stack. You might try six. The 1.20 mm depth of field in the example could be covered in six 0.20 mm steps or twelve 0.10 mm steps.
6. Return the scope to focus on the top-most part of your crystal (the caliper readout should again read 0.00 mm) and take your first photo.
7. For the six 0.20 mm step case, drop your scope focus until the caliper read-out indicates 0.20 mm and take the next photo.
8. Continue dropping the scope focus, taking photos at 0.40 mm, 0.60 mm … 1.20 mm.
9. Import your six image stack to your PC/mac and apply your stacking software.

Some final notes

Set your camera to the manual focus mode, otherwise the camera auto focus will (partially) defeat your effort to define the focal plane. Also, use the shutter delay feature of the camera (I use a two second delay) so the action of depressing the shutter does not induce vibration to your set-up.

Biographical Portrait of a BMC & MMNE Member: Gunnar Bjareby (1899-1967)

By Nathan C. Martin

The Boston Mineral Club and the MMNE both have a rich history of producing amateur mineralogists and mineral collectors that have made significant contributions to our understanding of mineral species and their geologic environments. Alfred Gunnar Bjareby was one of these remarkable individuals. Over the next several months we will be posting (with permission) on the BMC and MMNE websites selections from a series of eight articles that Bjareby wrote for Rocks & Minerals Magazine from 1959 until 1965. This series was entitled "50 Years of Mineral Collecting". It offers many interesting tidbits of information about many New England collecting localities from a much earlier time. I hope that you will enjoy reading them as much as I have. The first article, to be posted in early October in the members-only section of both the BMC & MMNE websites, actually is the 5th article in the series. However, it is a good place to begin because it presents some interesting information about the Boston Mineral Club and some of its early fieldtrips. The descriptions of his collecting trips to the Lane quarries in Westfield and West Springfield are especially interesting. Times have certainly changed!

To give you some perspective on the author of these articles, I have obtained permission from the Mineralogical Record to include the following biographical note written by former MMNE members, Steve and Janet Cares, for the Mineralogical Record, Vol. 8, No. 2, pg. 129. The text was taken from the Min. Record website at http://www.minrec.org/labels.asp?colid=175. There you can also find a photo of Bjareby at age 24 and copies of some of his specimen labels.

Alfred Gunnar Bjareby was born in Forslovsholm, southern Sweden on February 11, 1899 and began collecting minerals at the age of ten, after having seen the collection of a local 12-year-old. He peddled his bicycle to quarries and outcrops where he and his friend could find specimens and try panning for non-existent gold. He emigrated to the U.S. in 1923 and settled in the Boston area, spending much of his spare time studying the minerals in the Harvard Mineralogical Museum and the (now gone) New England Museum of Natural History. He collected at many sites in the Boston area which are now closed, and joined the Boston Mineral Club in 1937, to take part in their organized field trips to famous mines and quarries, and to associate with the great mineralogists of Harvard (Palache, Berman, Frondel, Hurlbut) while they were in their prime and actively field collecting.

During the last 30 years of his life Bjareby accumulated one of the finest private mineral collections in New England at that time. He was an avid micromounter with a huge collection containing over 1,000 species, and over 1,000 specimens from the Palermo mine alone. He was also a charter member of the Micromounters of New England (formed in 1966, a year before his death), and was inducted into the Micromounters' Hall of Fame in 1985.

Bjareby was also an accomplished artist by profession, specializing in oil-on-canvas paintings, murals for private homes and commercial establishments, illustration and sculpture. He received training at the Museum School in Boston in the 1920's, and then traveled to Paris to study at the Academie Julian. He exhibited paintings at the Paris Salon in the spring of 1933, and then returned to Boston. He frequently traveled to Gloucester and Rockport where he painted beautiful plein air scenes of the landscape and fishing industry of the time. He exhibited larger studio versions of these oils at museums and artist associations in Boston, Gloucester and Ogunquit, Maine, and received a number of awards at various exhibitions.

After his death in June of 1967 the bulk of his collection was purchased by a private collector in Chicago, Glenn D. Commons, and his micromounts went to the University of Chicago. The Commons collection was later purchased by mineral dealer David H. Garske. Researchers at the University of Chicago came across a specimen Gunnar had collected at the Palermo mine in 1947 and marked as being of questionable identity; the microcrystals proved to be a new species, which Paul Moore and others named *bjarebyite* in 1973, proclaiming Bjareby to be "among the most outstanding of 20th-century amateur mineralogists."

AFMS Code of Ethics

• I will respect both private and public property and will do no collecting on privately owned land without the owner's permission.
• I will keep informed on all laws, regulations of rules governing collecting on public lands and will observe them.
• I will to the best of my ability, ascertain the boundary lines of property on which I plan to collect.
• I will use no firearms or blasting material in collecting areas.
• I will cause no willful damage to property of any kind - fences, signs, buildings.
• I will leave all gates as found.
• I will build fires in designated or safe places only and will be certain they are completely extinguished before leaving the area.
• I will discard no burning material - matches, cigarettes, etc.
• I will fill all excavation holes which may be dangerous to livestock.
• I will not contaminate wells, creeks or other water supply.
• I will cause no willful damage to collecting material and will take home only what I can reasonably use.
• I will practice conservation and undertake to utilize fully and well the materials I have collected and will recycle my surplus for the pleasure and benefit of others.
• I will support the rockhound project H.E.L.P. (Help Eliminate Litter Please) and Will leave all collecting areas devoid of litter, regardless of how found.
• I will cooperate with field trip leaders and those in designated authority in all collecting areas.
• I will report to my club or Federation officers, Bureau of Land management or other authorities, any deposit of petrified wood or other materials on public lands which should be protected for the enjoyment
of future generations for public educational and scientific purposes.
• I will appreciate and protect our heritage of natural resources.
• I will observe the "Golden Rule", will use "Good Outdoor Manners" and will at all times conduct myself in a manner which will add to the stature and Public "image" of rockhounds everywhere.

Call For Resources: Blueberry Mountain Quarry, Woburn, MA

A future feature article for the MMNE will hopefully be a compendium of information on the Blueberry Mountain Quarry which has been closed for years. Since it was so accessible for so many years, it certainly deserves the recognition of our club for what it offered in its heyday.

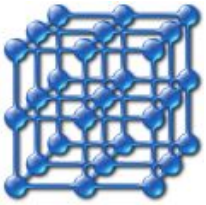
If you have photos, minerals or stories about Blueberry Mountain Quarry, please bring them to the October meeting or contact Joe Mulvey to arrange a meeting.

Columbite-Tantalite

Niobium was discovered in 1801 by Charles Hatchett in an ore called columbite which had been sent to England in the 1750s by John Winthrop the Younger, the first governor of Connecticut. Hatchett called the new element columbium. He was not able to isolate the free element. There was then considerable confusion concerning the distinction between niobium and tantalum as they are so closely related. This confusion was resolved by Heinrich Rose, who named niobium in 1846. The name niobium is now used in place of the original name "columbium". The metal niobium was first prepared in 1864 by Blomstrand, who reduced the chloride by heating it in a hydrogen atmosphere. The origin of the name is from the Greek word "Niobe" meaning "daughter of Tantalus", since tantalum is so closely related to niobium in the periodic table.

Charles Hatchett (b. January 2, 1765,

Cell Structure of Niobium



Space group: Im-3m (Space group number: 229) **Structure:** bcc (body-centered cubic)

Cell parameters:

a: 330.04 pm
b: 330.04 pm
c: 330.04 pm
α: 90.000°
β: 90.000°

Columbite is the most widespread niobium mineral and makes for an important ore of the industrially useful metal. Niobium, Nb, is used in alloys for improved strength. It also has shown superconductive properties and is being studied with other metals for a possible breakthrough alloy in this new industrial field. Niobium had been called columbium hence the name columbite. The official name was made niobium in the 1950's after a century of debate, although some groups still do not recognize the official name and still refer to it as columbite. Of course most geologists still refer to its name sake mineral as columbite instead of the proposed "niobite".

Columbite forms a series with the mineral tantalite. In fact the two are often grouped together as a semi-singular mineral called columbite-tantalite in many mineral guides. A series is where two or more elements can occupy the same places within a crystal structure and their respective percentages can then vary. Columbite is the more niobium rich end member and tantalite is the more tantalum rich end member. The two minerals of this series have similar properties since they have the same structure and similar chemistries (tantalum and niobium are very similar elements).

Tantalite's greatest difference from columbite is its much greater specific gravity, 8.0+ compared to columbite's 5.2. Other properties that vary slightly are color, transparency and streak. Both minerals can be found more or less together in granitic pegmatites rich in lithium and phosphorus minerals with columbite concentrated at the edges of the pegmatite and tantalite enriched in the core.

Columbite is a series within a series. The iron, manganese and magnesium amounts vary considerably without much effect on properties. However the end members are recognized as distinct minerals although collectors have found this to be rather cumbersome and generally prefer columbite to the non-unique names of ferrocolumbite, manganocolumbite and magnocolumbite.

Tantalite is the most widespread tantalum mineral and makes for an important ore of the industrially useful metal. Tantalum is used in alloys for strength and higher melting points, in glass to increase the index of refraction, and in surgical steel, as it is non-reactive and non-irritating to body tissues.

Tantalite has a series of its own. It forms a series between Tantalite-(Fe) and Tantalite-(Mn). The iron and manganese amounts vary considerably without much effect on properties. However the two end members are recognized as distinct minerals although collectors have found this to be rather cumbersome and generally prefer tantalite to the non-unique names of ferrotantalite and manganotantalite.

Columbite-Euxenite Group

COLUMBITE-(Fe)	Fe++Nb2O6
COLUMBITE-(Mg)	(Mg,Fe++,Mn)(Nb,Ta)2O6
COLUMBITE-(Mn)	(Mn,Fe++)(Nb,Ta)2O6
EUXENITE-(Y)	(Y,Ca,Ce,U,Th)(Nb,Ta,Ti)2O6
FERSMITE	(Ca,Ce,Na)(Nb,Ta,Ti)2(O,OH,F)6
KOBEITE-(Y)	(Y,U)(Ti,Nb)2(O,OH)6 (?)
LORANSKITE-(Y)	(Y,Ce,Ca)ZrTaO6 (?)
POLYCRASE-(Y)	(Y,Ca,Ce,U,Th)(Ti,Nb,Ta)2O6
QITIANLINGITE	(Fe++,Mn)2(Nb,Ta)2W++++++O10
TANTALITE-(Fe)	Fe++Ta2O6
TANTALITE-(Mg)	(Mg,Fe++)(Ta,Nb)2O6
TANTALITE-(Mn)	Mn++Ta2O6
TANTEUXENITE-(Y)	(Y,Ce,Ca)(Ta,Nb,Ti)2(O,OH)6
URANOPOLYCRASE	(U,Y)(Ti,Nb,Ta)2O6
YTTROCRASITE-(Y)	(Y,Th,Ca,U)(Ti,Fe+++)2(O,OH)6

Tantalite has a dimorphic relationship to another mineral called tapiolite. A dimorph is a mineral that has the same chemistry but a different structure. Tapiolite has a tetragonal structure as opposed to the orthorhombic structure of tantalite although it has exactly the same chemistry, (Fe, Mn)(Ta, Nb)2O6.

PHYSICAL CHARACTERISTICS:

•Color is dark black, iron-black to dark brown.

•Luster is submetallic.

•Transparency: Crystals are nearly opaque being transparent in thin splinters.

•Crystal System is orthorhombic; 2/m 2/m 2/m

•Crystal Habits include stubby prismatic crystals with complexly faceted or rounded terminations. Also very flat tabular crystals often aggregated together in parallel or nearly parallel groups. Can also be granular and massive.

•Cleavage is good in one direction.

•Fracture is subconchoidal.

•Hardness is 6

•Specific Gravity is approximately 5.0 to 5.3+ when near pure columbite (very heavy for non-metallic minerals).

•Streak is brown to black.

•Other Characteristics: Some specimens may demonstrate weak magnetism.

•Associated Minerals include albite, spodumene, cassiterite, microcline, lepidolite, apatite, beryl, microlite, tourmalines and amblygonite.

•Notable Occurrences include Newry, Maine; San Diego Co., California; Colorado and Amelia, Virginia, USA; Renfrow County, Ontario, Canada; Madagascar; Sweden; Norway; Brazil; Argentina; Kugi-Lyal, Pamir, Russia and Finland.

•Best Field Indicators are crystal habit, streak, associations and specific gravity.

Tantalite-(Mn) : MnTa2O6
Photo Copyright © Chinellato Matteo
Locality: Tetezantsio pegmatites (Antetezantsio), Tetezantsio-Andoabatokely Pegmatite Field, Andrembesoa Commune, Betafo District, Vakinankaratra Region, Antananarivo Province, Madagascar
Nice 2 mm Tantalite-(Mn) on Liddicoatite matrix.
Photo Credits are Chinellato Matteo - ChinellatoPhoto

Tantalite-(Mn) : MnTa2O6
Photo Copyright © O. Dziallas 2005
Locality: Bell Pit (Bell Quarry), Newry, Oxford Co., Maine, USA
Picture width 3mm. Photographer and collection O. Dziallas.

Anders Gustaf Ekeberg

Born 16 Jan 1767; died 11 Feb 1813. Swedish chemist who in 1802 discovered the element tantalum. After graduation from the University of Uppsala (1788) and travels in Germany, Ekeberg returned to Uppsala and began teaching (1794), introducing the chemistry of Antoine-Laurent Lavoisier. Though he was partly deaf from a childhood infection and had been blinded in one eye by an exploding flask (1801), he carried on admirably. Perhaps his greatest contribution to chemistry was the discovery of the talent of his student Jöns Jacob Berzelius.

Niobium was discovered in 1802 by Anders Gustaf Ekeberg, but many chemists thought niobium and tantalum were one and the same. Some felt that perhaps tantalum was an allotrope of niobium. Later, Rose, in 1844, and Marignac, in 1866, showed that niobic and tantalic acids were two different acids. Tantalum is derived from the Greek word "Tantalos" meaning "father of Niobe.

The first relatively pure tantalum was produced by von Bolton in 1907. Tantalum metal has a number of important uses. It is used to make steels with desirable properties such as high melting point, high strength, good ductility. These find use in aircraft and missile manufacture.

It is very inert and so useful in the chemical and nuclear industries to line reactors. Tantalum wires were those used first for light bulbs (now tungsten is preferred).

The metal is immune to body liquids and the body tolerates the metal well. Therefore, tantalum has widespread use for surgical use. For instance, it can be used in sutures and as cranial repair plates. The metal is used in the electronics industry for capacitors.

The oxide is used to make special glass with a high index of refraction for camera lenses.

TANTALITE-(Fe)

Locality: Un-named pegmatite, near Bryant Pond, Canaan, NH

Specimen Size: 5 cm complete, crude, Tantalite-(Fe) crystal. Display specimen is thin, left-most, section of xl.

To author's knowledge, this is the only known, confirmed, New Hampshire Tantalite-(Fe) specimen.

Field collected: Tom Mortimer

The Evil Side of Columbite-Tantalite

Whether it is coal miners in China, diamond laborers in South Africa, oil drilling in the Gulf of Mexico or anywhere else where geology can make millionaires out of people, I guess human nature can also lead to bad decisions, carnage, human rights violations, untimely death and horrible disfigurements. Even our own California Gold Rush caused problems. For every millionaire made there were 1000 people who left with no more than that with which they arrived. And while we may remember a few characters in text books, the real impact of the period is the environmental damage and lack of reclamation practices.

The miners trapped in Chile all summer are a very lucky group. They anticipate a rescue by the end of October, having spent 90 days underground after an explosion sealed them off from sunlight and their families. Mining is not a glorious profession. It is one of the most dangerous jobs a person can perform.

When the price of tantalum goes up people die.

In Central Africa columbite-tantalite is referred to as coltan. The value of coltan is astronomical in a myriad of high-tech fields. Many reclamation projects are underway to recover rare-earth elements from disposable tech equipment. Yet guerillas and small armies continue to invade innocent villages and force labor at gun point into the jungle to unearth these desirable elements. Whole swaths of land are deforested, rivers polluted, the people drawn into a way of life their elders had never conceived. With these startling changes come the typical problems of urban strife as we see it in United States cities, but in the wilds of Africa, there is never any hope of governmental support or intervention.

While end users in the tantalite industry have been requested to only purchase elements from morally upstanding businesses the best protection for people may have come on the backs of gorilla protection. Sad to say, more people are up in arms about the deforestation of land that gorillas inhabit than the welfare of fellow human beings.

Tantalite

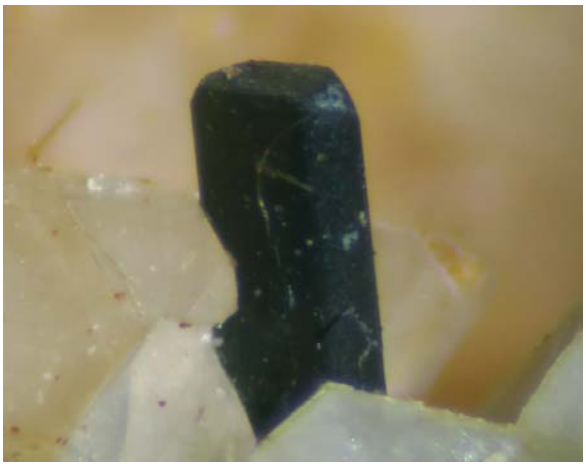
Tantalite ((Fe, Mn)(Ta, Nb)2O6 : Iron Manganese Tantalum Niobium Oxide) is the most widespread tantalum mineral and makes for an important ore of the industrially useful metal. Tantalum (Ta) is a gray, heavy, and extremely hard metal. When pure, it is ductile and can be drawn into fine wire, which is used as a filament for evaporating metals such as aluminum. Tantalum is almost completely immune to chemical reaction at temperatures low temperatures (sub-150 degrees C), and is reactive only with hydrofluoric acid, acidic solutions containing the fluoride ion, and free sulfur trioxide. At higher temperatures, Tantalum becomes much more reactive though it has a melting point exceeded only by Tungsten and Rhenium. Tantalum is used to make a variety of alloys with desirable properties such as extremely high melting points, extreme strength, good ductility, etc. Tantalum has good "gettering" ability at high temperatures, and tantalum oxide films are stable with good rectifying and dielectric properties.

Tantalum is used mainly in the manufacture of condensers and micro-electronic technology (chips and processors), cell phones and nuclear reactors. It is also used in the production of steel varieties having a high heat tolerances, like those used in the engines of aircraft. Whereas it was formerly only one secondary product of the exploitation of Tin, Tantalum became today, under the terms of its specific characteristics, a very required element.

Besides Congo, COLTAN is mainly extracted in Australia, Brazil, Canada, and China. The principal modern extraction takes place in Australia, in the Wodgina mine, where the annual production of Ta2O5 reaches approximately 150,000 tons. In 2000, the ore typically sold on world markets for approximately $330.00 USD per kilogram. The recent technology boom and low availability of COLTAN caused a substantial increase in the price to almost $400 USD per kilogram at one point, as supply struggled to meet the demands of companies such as Nokia and Sony.

Little information is currently available regarding the amount of radiation absorbed by the body via the inhalation of dust during the treatment and extraction of COLTAN. It is known however that the radioactivity is found almost entirely in the residue of the ore, and not in its finished products (GSM, computers, etc.).

COLUMBITE-(Fe) FeNb2O6
Locality: EE Smith Mine, Alexanderia, NH
Specimen Size: 3.5 cm specimen
Environment: Granite pegmatite
Field collected: Curt LaPlante



COLUMBITE-(Mn) (Mn,Fe)(Nb,Ta)2O6
Locality: Corson Mine, Nottingham, NH
Specimen Size: 1 mm crystal on Albite
Environment: Granite pegmatite
Field collected: Tom Mortimer

References:

MindatNH.Org, Tom Mortimer's New Hampshire Specimen Collection gallery
Mindat.org
About.com/geology - http://geology.about.com/od/conflictminerals/a/coltan.htm
Galleries.com - http://www.galleries.com/minerals
Today in Science.com - http://www.todayinsci.com/1/1_16.htm
Athena Minerals.com - http://un2sg4.unige.ch/athena/cgi-bin/minfind?n=GROUP&s=Columbite-Euxenite%20Group
Engineering.com -
http://www.engineering.com/Library/ArticlesPage/tabid/85/articleType/ArticleView/articleId/83/Columbite-tantalite-COLTAN.aspx
Web Elements.com Periodic Table - http://www.webelements.com

Special thanks to permission for portions of this article and photography granted by Matteo Chinellato, O. Dziallas , Tom Mortimer and Andrew Alden

Worcester Mineral Club Annual Show

November 20-21, 2010 **Worcester, MA** Worcester Mineral Club. Saturday 10am to 5pm and Sunday 10am to 4om at National Guard Armory, 701 Lincoln Street, Worcester, MA Take I-290, exit 22, Main Street Shrewsbury towards Worcester, through light, up hill, armory and parking lot on left. Contact: WMC, P.O. Box 2278, Worcester, MA 01613 413-477-0107

Rhode Island Gem and Mineral Show: Dinosaurs & Crystals

October 23rd 10am - 6pm, October 24th 10am - 5pm at the Community College of RI - Knight Campus

2010 Gold and Treasure Show

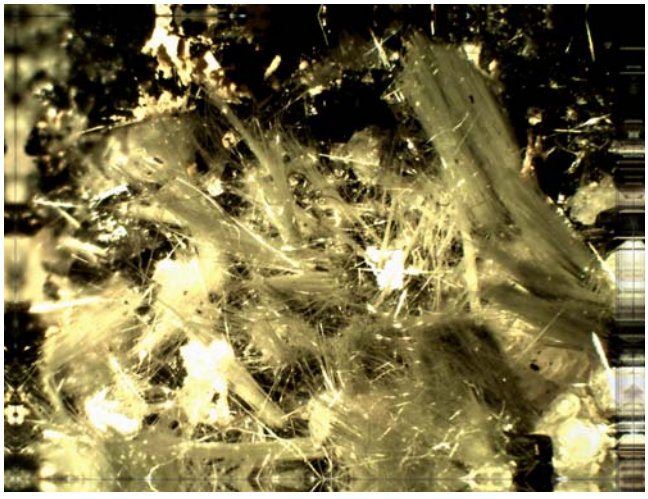
The 2010 Gold and Treasure Show is coming to the Northeast for the first time. These shows have been held all over the country for over 40 years. This years Show is on Oct. 16&17. The Gold Prospectors show will be held this year at the Cumberland Fairgrounds, 197 Blanchard Road, Cumberland, Maine 04021. It will be held in the exhibition hall on the fairgrounds. During the show, major prizes are given away on Saturday at 4pm and Sunday at 3pm. The prizes are a Tesoro Lobo Super Traq metal detector, Fisher Gold Bug metal detector, Garret Scorpion Gold Stinger metal detector, and a Minelab U. S. A. Eureka Gold Metal Detector. Also as prizes are a Gold Buddy motorized Highbanker Sluice, a Camel motorized Mountain Goat Trommel, an A&B Prospecting Falcon

MD20 Detector, a Keene Engineering Deluxe Prospecting Starter Kit,and an Airheadz Wireless Passport Modular Headphone System. YOU MUST BE PRESENT TO WIN. Gold Show hours are Saturday 10am to 5pm and Sunday 10am to 4pm. General admission $5.00 Children 12 and under are FREE. The show is being sponsored by the Central Maine Prospectors, an affiliate of the GPAA.

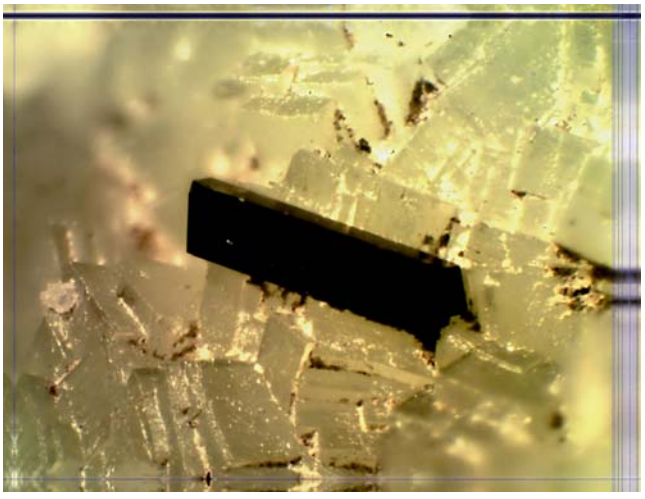
FIELD TRIP TO MONT ST HILAIRE QUARRY

FIELD TRIP TO MONT ST HILAIRE QUARRY, CLUB DE MINERALOGIE DE MONTREAL
WE ARE PLEASE TO ANNOUNCE THAT WE HAVE RECEIVED THE AUTHORIZATION FOR A FIELD TRIP ON OCTOBER 11TH 2010 AT MONT ST. HILAIRE (THE FORMER POUDRETTE QUARRY) REGISTRATION BETWEEN 8 A.M. AND 9 A.M. THE QUARRY CLOSES AT 4 P.M. ADMISSION FEE: 10$ PER PERSON SAFETY EQUIPMENT: IT'S COMPULSARY TO WEAR STEEL- CAP BOOTS, SECURITY VEST, SAFETY GOOGLES, AND A HARD HAT ANY ONE OVER 18 YEARS OF AGE CAN PARTICIPATE IN THIS FIELD TRIP.. THERE IS A NEW POLICY THIS YEAR AT THE QUARRY. NO ONE UNDER THE AGE OF 18 IS PERMITTED. PLEASE CONFIRM YOUR PARTICIPATION AT gordianmtl@yahoo.ca YOU CAN CALL MRS. MADO LAFOND AT OUR CLUB FOR ANY ADDITIONAL INFORMATION OR CONFIRMATION AT 514-353-0101
REGARDS FIELD TRIP LEADER TONY GORDIAN

More Babingtonite Photos from September's Competition



Inge Burggraf Peabody Ma



Mt Tom Quarry Hal Herard

New CNMNC- IMA Nomenclature: The Pyrochlore Supergroup

Peter Cristofono

The following is a summary of changes in nomenclature by the CNMNC-IMA recently published in the *Canadian Mineralogist,* for members of the pyrochlore group of minerals.

The "pyrochlore group" is now renamed the "pyrochlore supergroup."

The former mineral names **Pyrochlore**, **Microlite**, **Roméite**, **Betafite**, and **Elsmoreite** are now to be used as group names within the pyrochlore supergroup, and are no longer the names of individual species.

The minerals listed below under each group name are further subdivided by status. *Valid species* are those which have been described completely and are accepted by the IMA. These are new names. *Not yet valid species* (my term, not the CNMNC-IMA) are also new names. These are minerals awaiting complete description; currently only chemical or crystal-structure data is available, but not both. For these minerals, a type specimen needs to be defined. These species will not be considered valid until and if these requirements are met. *Not valid/discredited species* are former names that are being discontinued, and these minerals have lost species status. Following the group lists is an additional list of minerals which are no longer valid species.

Pyrochlore Group

Valid Species
Oxycalciopyrochlore
Hydropyrochlore

*Not Yet Valid Species**
Hydroxycalciopyrochlore,
Fluornatropyrochlore
Fluorcalciopyrochlore
Fluorstrontiopyrochlore
Fluorkenopyrochlore
Oxynatropyrochlore
Oxyplumbopyrochlore
Oxyyttropyrochlore-(Y)
Kenoplumbopyrochlore

Not Valid/Discredited
Bariopyrochlore
Bismutopyrochlore
Ceriopyrochlore-(Ce)
Kalipyrochlore
Plumbopyrochlore
Strontiopyrochlore
Uranpyrochlore
Yttropyrochlore-(Y)

Microlite Group

Valid species
Fluornatromicrolite
Hydroxykenomicrolite
Oxystannomicrolite
Oxystibiomicrolite

*Not Yet Valid Species**
Fluorcalciomicrolite,
Oxycalciomicrolite
Kenoplumbomicrolite
Hydromicrolite
Hydrokenomicrolite

Not Valid/Discredited
Bariomicrolite
Bismutomicrolite
Plumbomicrolite
Stannomicrolite
Stibiomicrolite
Uranmicrolite

Roméite Group

Valid species
Hydroxycalcioroméite

*Not Yet Valid Species**
Fluornatroroméite
Fluorcalcioroméite
Oxycalcioroméite
Oxyplumboroméite.

Betafite Group

Valid species
None

*Not Yet Valid Species**
Oxycalciobetafite
Oxyuranobetafite

Not Valid/Discredited
Calciobetafite
Plumbobetafite
Stibiobetafite
Yttrobetafite-(Y),

Elsmoreite Group

Valid species
Hydrokenoelsmoreite

*Not Yet Valid Species**
None

The following additional mineral names are now no longer valid:

Alumotungstite
Bindheimite
Cesstibtantite
Ferritungstite
Jixianite
Monimolite
Natrobistantite
Partzite
Stetefeldtite
Stibiconite,

* Awaiting complete description; only chemical or crystal-structure data available. Type specimen needs to be defined.

Reference:

• Atencio, D., Andrade, M.B., Christy, A.G., Gieré, R., Kartashov, P.M. (2010): The pyrochlore supergroup of minerals: nomenclature. *Canadian Mineralogist*, **48**, 673-698. (abstract)

MMNE 2010 Web Stats ***01/01/2010 - 09/30/2010***	***MMNE 2009 Web Stats*** ***01/01/2009 – 12/30/2009***
Hits Total Hits 173,508 Average Hits per Day 630 Average Hits per Visitor 6.61 Cached Requests 1,047 Failed Requests 18,387 **Page Views** Total Page Views 30,989 Average Page Views per Day 112 Average Page Views per Visitor 1.18 **Visitors** Total Visitors 26,246 Average Visitors per Day 95 Total Unique IPs 7,464 **Bandwidth** Total Bandwidth 20.73 GB Average Bandwidth per Day 77.20 MB Average Bandwidth per Hit 125.29 KB ***Average Bandwidth per Visitor 828.27 KB***	**Hits** Total Hits 166,109 Average Hits per Day 453 Average Hits per Visitor 6.68 Cached Requests 2,684 Failed Requests 14,527 **Page Views** Total Page Views 26,696 Average Page Views per Day 72 Average Page Views per Visitor 1.07 **Visitors** Total Visitors 24,882 Average Visitors per Day 67 Total Unique IPs 7,542 **Bandwidth** Total Bandwidth 15.80 GB Average Bandwidth per Day 44.21 MB Average Bandwidth per Hit 99.76 KB ***Average Bandwidth per Visitor 665.98 KB***

MMNE Secretarial Report for September 18, 2010

The September MMNE meeting was brought to order with fourteen members in attendance at the Chelmsford Trinity meeting location.

A half-hour, informal club discussion preceded the business meeting. Topics included the identification of a Newry, ME mineral from a photo on Mindat, guidelines for purchasing a microscope and cleaning tips for phosphates including the use of "Super Ironout". The mineral-of the month (Babingtonite) photo presentation was part of the discussion. Ideas regarding he President's micromineral book creation proposal as outlined in the summer newsletter were also exchanged.

Joe began the business meeting at 11:05 with some proposals to change the date and location of the Annual May Meeting. For personal reasons and also due to low turnout at the most recent meeting Joe said he would like to move the meeting to the second Saturday in June. He suggested that as a cost-cutting move the club might consider holding the "Symposium" at the Trinity Lutheran site in Chelmsford. He continued, saying that we might also cut our past catering expense by having take-out style food such as deli platters. There appeared to be little objection to any of the ideas and the matter would be taken up at subsequent meetings. There was the suggestion that the proposed moves might even lower admission cost to members. Tom Mortimer volunteered to look into the cost of renting the Trinity Lutheran cafeteria.

In regard to possible May Meeting presenters, the President said that he liked the morning/afternoon presentation setup that was used this past spring. He said that Ed Clopton had a presentation on ice the he could likely give. And, he also wondered if member Pete Cristofono could give a presentation. When asked, there were no immediate speaker suggestions from the members present.

Joe asked the members how they felt about the club door prize (C-clamp mineral splitter) that was won by Pat Barker. All agreed it was great. Ideas suggested for the next Symposium door prize were: a fiber optic light, a quality mineral specimen or another splitter.

A brief discussion explored the idea that the club might think about creating some of its own DVD programs. Suggested topics were "Blueberry Hill", "Minerals of the Moat Granite Pluton" and "The Mascot Mine". Bob Janules would be well positioned to do programs on the latter two.

Upon the suggestion from Gene Bearss the October Mineral-of-the-Month will be the Columbite/ Tantalite group.

The meeting was adjourned at approximately 11:40.

Respectfully submitted,
Bob Wilken, Recording Secretary

Directions to the Trinity Lutheran Church in Chelmsford, MA

170 Old Westford Rd., Chelmsford, MA.
From Rt. 3, take Exit 32, (The "Drum Hill Rotary").
From Rotary, Take Old Westford Rd. towards Westford for about .85 miles to Grandview Rd.
Entrance for Trinity Lutheran Church on left.
Proceed up rather long driveway to parking area.
Our meeting room is at the far end of the low building.

Those coming from the south may want to try an alternate route, exiting from Rt. 495 at Exit 33, then taking Rt. 4 north to a left onto Davis Rd. See map below.

Fall Meetings are at Trinity Lutheran Church in Chelmsford, MA. Meetings start at 9am and wrap up around noon.

October 16

November 20

No Meeting in December

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Membership in the MMNE runs from January 1st to December 31st. Dues are payable on or before January 1st for the upcoming year. Failure to renew on time will result in cancellation of membership including the subscription to the Newsletter. Please fill out this form and return it with your payment.

Name: _____

Street/PO Box Address: _____

City/State/Zip : _____

Telephone: _____E-mail address: _____

___ Hard copy via USPS or ____ via email to above address

Membership type: Individual $ 12.00 Family $ 16.00
Family membership includes two adults residing at the same address and all children at that address under the age of 18. Only one copy of the Newsletter per family membership.
Newsletter: The Newsletter is available as hard copy sent through the mail, or via email, which may have color photographs included. Please indicate choice of format. The Newsletter is published in January, February, March, April, May, Summer Issue (June), September, October and November (no December issue), and is send out approximately two weeks prior to the next scheduled meeting.
Please remit payment to Treasurer Tom Mortimer, 3 Roberts Rd., Amherst, NH 03031

Joe Mulvey, Newsletter Editor
Micromounters of New England
24 Skyline Drive
Nashua, NH 03062

TO: