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. 283 October, 2007

Current Meeting
Saturday, October 20th
Lutheran Trinity Church in Chelmsford, MA
Doors open at 9 am

Map and driving directions are on page 4

Next Meeting
Saturday, November 17th
Lutheran Trinity Church in Chelmsford, MA

For information regarding **MEETING CANCELLATION** due to inclement weather, contact:
Michael Swanson
(413) 773-3867
msmicros@crocker.com

MMNE SECRETARIAL REPORT Saturday, September 15, 2007

President Mike Swanson brought the business meeting to order at 11:05 with eleven members attending.

A discussion developed regarding ways in which the MMNE might encourage and foster an interest in micromineralogy among young people. In some ways, members thought the new Trinity Lutheran location was too much out of the public eye and that it isolated us from a public awareness of our activities. On the other hand, it was felt that the church offered the club opportunities to make itself known. It was generally agreed by the end of the discussion that the club should make an effort to reach out to the church community to let youngsters affiliated with it know of our pastime through displays and meetings. Jim Parella suggested putting up a photo display ahead of time. He said that photos of plain old "rocks with holes" compared to photos of beautiful microminerals IN the holes would be a graphic way to show to kids the wonders of micromineralogy. Members also suggested that the club should still try to schedule at least a meeting or two per year at the Chelmsford Public Library to again get out in a different and more open venue.

Tom Mortimer (the Trinity facility key holder) wondered if a procedure should be in place to get the key to another member in the event he would not be able to attend a meeting. It was suggested that perhaps Trinity would issue a second key to be left with another member. Tom said he would look into it.

A lively discussion ensued concerning the need to raise dues to help cover the increased cost of the newsletter. Tom Mortimer said that anyone who can eliminate the need for a mailed newsletter should be encouraged to do so. Others were of the opinion that those who receive a printed and mailed newsletter might be expected to pay a different yearly membership fee. At this point Gene Bearss asked for the treasury balance and strongly enunciated that there was no need to raise dues. The matter was tabled.
Mike Swanson asked the members present how they felt about the possibility of purchasing a digital projector to encourage members to photograph their minerals and to make club presentations. There was no dissent and members spoke quite positively regarding the matter. (A "detour" regarding methods of storing images gave the technologically experienced members a chance to share their knowledge.) Mike questioned whether the purchase should be moved immediately or to wait a "couple of months" to see if the idea would incite (excite?) members to come up with a program or two in advance of the purchase. All agreed it was a matter that could "percolate" a while.
The meeting ended at 12:15

Respectfully submitted,

Bob Wilken, Secretary

The ***Newsletter*** is the official publication of the Micromounters of New England (MMNE). The last by-laws revision was April 19, 2003. 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.

Officers for 2007-2008

President: Michael Swanson, 646 Greenfield Rd., Leyden, MA 01301-9400		(413) 773-3867	msmicros@crocker.com
Vice President: Joseph Mulvey 24 Skyline Drive Nashua, NH 03062-3516		(603) 880-4018	bassmeister_2000@yahoo.com
Treasurer: Anna Wilken, 79 Meadow Lane, Campton, NH 03223		(603)536-2013	microxl@mfire.net
Secretary: Robert Wilken, 79 Meadow Lane, Campton, NH 03223		(603)536-2013	microxl@mfire.net
Directors:			
(2006-2008)	Gene Bearss, 33 North Ave., Sanford, ME 04073-2943	(207) 324-3610	
(2006-2007)	Gordon Jackson, PO Box 600, Canterbury, NH 03224-0600	(603) 783-4493	nhrockman@msn.com
Editor: Tom Mortimer, 3 Roberts Rd., Amherst, NH 03031		(603) 673-4039	tjmort@comcast.net
Webmaster: Joseph Mulvey 24 Skyline Drive, Nashua, NH 03062-3516		(603) 880-4018	bassmeister_2000@yahoo.com

MMNE Website: http://www.micromountersofnewengland.org

2007 CALENDAR OF UPCOMING EVENTS

October 2007

20 – MMNE meeting, Trinity Lutheran Church, Chelmsford, MA, doors open at 9 am

November 2007

17 – MMNE meeting, Trinity Lutheran Church, Chelmsford, MA, doors open at 9 am

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Gene Bearss Specimen and Photograph

The Micro Collector's Workshop

Micro-mineral Photography "On The Cheep"

Tom Mortimer

Part of the fun of micro-mineral collecting is the enjoyment of showing your specimens to others. Attending our Micromounters meetings a great way to do this, but your audience is limited to the 10 to 20 members that typically attend. Photographing your specimens and attaching the digital images to e-mails sent to fellow collectors greatly expands your sharing domain. Ultimately, you may choose to post your shots to the world via mindat.org, (which presently boasts over 108,000 specimen photos, a significant percentage of these are micro specimens.)

In 2005, Scott Whittemore gave an excellent presentation at our May Symposium meeting on the art of Digital Microphotography. With a top-end Meiji trinocular microscope, a state-of-the-art digital camera, and a meticulous attention to detail, Scott was able to achieve superb photos of his micro specimens. Many of Scott's photos are presently posted on mindat.org, (http://www.mindat.org/gallery-2504.html). Scott has invested many thousands of dollars in his professional level set-up.

A desire to take digital photos of my micro-specimens, coupled with a desire to not break the family budget, (and maintain domestic tranquility), has motivated me to explore the micro-photography results I could obtain with a low-cost set-up. In December 2005, I took advantage of a Walmart pre-Christmas "door-buster special" to purchase a 5.1 M-pixel digital camera, (HP Photosmart E317), for $88. At the time, this was a very low price for a 5.1 M-pixel digital camera. The camera has a F3.5, 7.7 mm lens. It is a pretty minimalist digital camera: no optical zoom, auto focus only, no expansion memory card slot. My original plan was to remove the camera body and lens and experiment with positioning the camera's CCD image sensor above the eye-piece of my microscope. I might destroy the camera in the process, but if my experiment failed I would be out only $88. After I got my camera home and played with it a bit, I became reluctant to take it apart. I thought I would see what kind of results I could get by building an adapter to hold the camera at the optimal spot above my microscope eye-piece. I knew the attachment, once in place, must allow for no movement between the camera and the scope. Further, the alignment of the optical axis of the camera lens and the microscope eye-piece would want to be near perfect. The camera attachment needed to be easy to engage and remove, and be repeatable with a minimum of "fiddling". My completed camera adapter, is shown below, (Figure 1), and, fitted to my scope, (Figure 2).

Figure 1: Adapter with mounted digital camera.

Figure 2: Adapter, digital camera, and microscope.

Adapter Construction

For my scope attachment method, I chose to press fit a plastic piece onto the eye-piece holder of my American Optical brand scope. The plastic material I selected was a piece cut from a small nylon kitchen cutting board, (purchased for $3, from my local hardware store). This material is 3/8 inch thick. Since my attachment is to be a tight friction fit, the matching hole size in my nylon piece needed to be near perfect. Fortunately, a standard 1 ¼ inch hole saw turned out to be just right. My finished nylon attachment piece is shown in figure 3 and fit to the scope in figure 4.

Figure 3: Nylon press-fit microscope attachment piece, (approx 4“ x 2 ½ “).

Figure 4: Nylon press-fit microscope attachment piece on American Optical microscope.

Next, two holes were drilled in the end of the nylon piece and tapped for 6-32 screws. These holes enable the attachment of a 4 inch by 5 inch piece of ¼ inch Plexiglass at a right angle to the nylon piece. All that now remains is to attach the camera to the Plexi piece. My HP camera, like most sold today, have a threaded hole in the base for attachment to a tripod. The hole is threaded for a standard ¼ - 20 bolt. A bolt hole through the Plexi piece for the camera mount must be positioned accurately, so the camera lens aligns with the hole in the nylon piece. The left-right distance of this bolt hole, (relative to the 1 ¼ Plexi hole), is critical. The front to back separation distance to the nylon piece is less important, and can be compensated for, as explained later. The distance from the camera lens optical axis to the camera bolt mount hole is unique to each camera model. This distance must be accurately determined in order to position the bolt hole in the Plexi piece. I used a 2 inch long ¼ - 20 bolt for my camera attachment. A pair of ¼ - 20 nuts adjust the camera vertical position relative to the Plexi piece, (and thus the camera lens vertical position relative to the nylon piece hole). A third ¼ - 20 nut locks the camera in position to the top of the bolt.

Adapter Alignment

This section describes the x, y, and z axis positioning of the camera relative to the microscope eyepiece lens. First, pick a high contrast subject to view, such as a section of printed text. Focus your microscope as usual, then place the camera with the adapter on the scope. Turn on the camera and observe the image on the camera display. Each axis positioning is described separately below. I have found the camera to microscope alignment to be an iterative process. I alternately made adjustments to each axis position until I achieved the best alignment.

The distance from the camera lens to the eyepiece lens, (I’ll call this the z axis), may be adjusted by how far the adapter is pressed onto the scope eyepiece holder tube. An incorrect distance may result in “vignetting”, i.e. the microscope image appears in a circle on the camera display. Once the optimal position is found, a “stop” may be fit onto the scope eyepiece tube, so the same z axis position is achieved

each time the adapter is attached. I used my 1 ¼ hole saw and several thicknesses of hobbiest basswood for this, (figure 5).

Figure 5: Basswood adapter "stop" on microscope

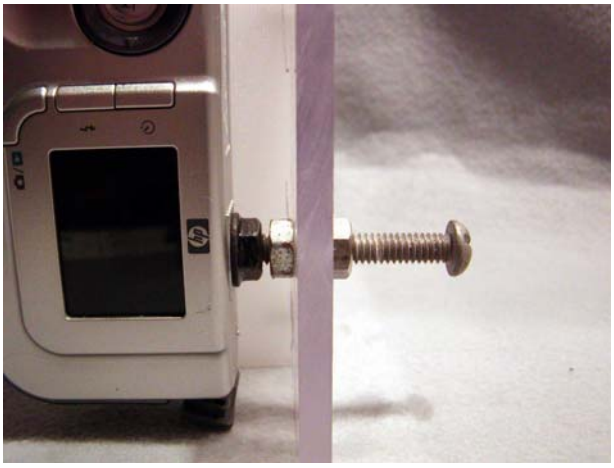

Figure 6: Camera mounting bolt with "y" position adjustment nuts.

The up-down position of the camera lens, (I'll define as the "y" axis), is simply adjusted using the two ¼ - 20 nuts on the mounting bolt, Figure 6.
The left-right ("x" axis) may require adjustment if the bolt hole in the Plexi piece is not positioned exactly, (based on your measurement of the camera lens optical axis to the camera bolt mount hole described above). To enable this adjustment, a bit of extra work is needed. The holes for the 6:32 screws in the Plexi piece must be elongated to permit the nylon piece to slide in the "x' direction. These elongated holes are shown in figure 7.

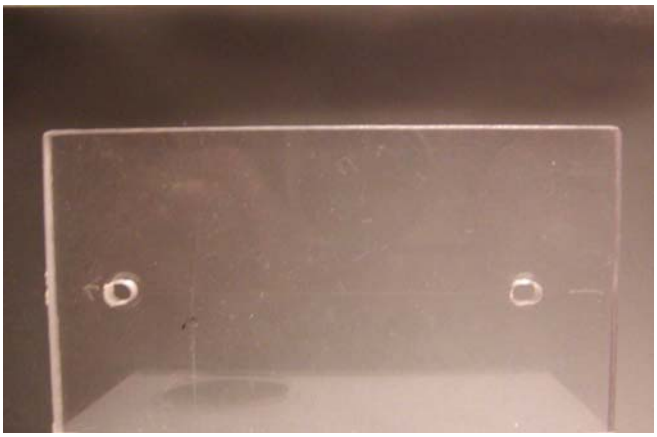

Figure 7: Elongated holes in Plexi piece for "x" axis adjustment.

Taking Pictures

Focus your specimen as normal, then attach your adapter-camera set-up. If your camera has an autoflash, turn it off. Use your camera's delay trigger shutter to eliminate any camera vibration when snapping the picture. You may also wish to adjust the scope focus up and down slightly, taking multiple shots, then choose the best focused one when viewing the results on your PC.

A couple of photos I have taken with my set-up are shown in figures 8 and 9. (I have Photoshop to add red text to my pictures.)

I will bring my adapter and camera to the October, 2007 MMNE meeting.

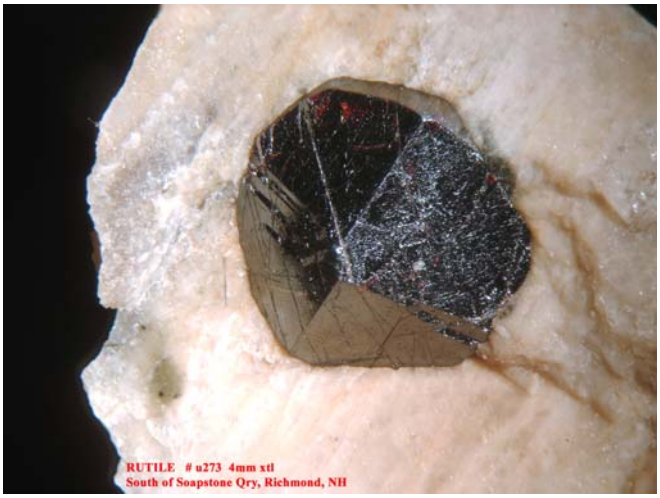

Figure 8 Rutile, 4 mm XL, Soapstone Quarry, Richmond. NH

Figure 9 Gahnite, 3.5 mm XL, Davis Pyrite Mine, Rowe, MA

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Gene Bearss Photograph

Milarite, Oliver Trench, WMNF, Moat Mtn., Hales Location, NH
Gene Bearss Specimen and Photograph

DIRECTIONS TO TRINITY LUTHERAN CHURCH, 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. If things go according to plan, we should be able to use the entrance on the far left side of the church. Our meeting room is just inside this entrance.

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.

Tom Mortimer
Editor, MMNE *Newsletter*
3 Roberts Rd
Amherst, NH 03031