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. 258 October, 2004

Next Meeting

Saturday, October 16
Home of Vera Fogg
Dunbarton, NH

Map and directions are on the back page

For information regarding **MEETING CANCELLATION** due to inclement weather, contact President Jim Cahoon at (978) 897-8221 or cahooncj@aol.com

MINUTES OF MMNE MEETING, SATURDAY, SEPTEMBER 18, 2004

The meeting was called to order at approximately noon by president Jim Cahoon with nine members present. No formal treasurers report was available, but a verbal report indicated a stable treasury balance since the last report following the May Meeting.

No old business was discussed.

The venue for the May meeting was discussed, and there was a concensus that the Elks Club site from this year was a better choice in terms of accessibility and space, but concerns were raised about the ability to black-out the windows and whether there are adequate electrical outlets. These issues will be pursued. Discussions were held regarding a possible speaker and/or topic for next year's meeting.

A motion to donate $100 to the Rocks and Minerals Color Fund in memory of Walter Lane was made, seconded and passed unanimously. Following the motion, the meeting was adjourned.

SPECIAL MEETING NOTE

The following is from MMNE member Gordon Jackson regarding the upcoming Sunapee (NH) Gem and Mineral Show.

The Sunapee G&M Festival is a two day affair - Saturday, October 9, 9am to 5pm and Sunday 10am to 4pm. The micromounters have always met the first day only. There has been dwindling interest from the micromounters. I thought if the idea of making it a swap meeting - it is open to anyone who is interested in micro's - that there might be some renewed interest, but this would only happened if the micromounters made it happen. It is also an opportunity to potentially sign up some new members for MMNE. Anyway, the Capital Club makes space available for the micromounters.

There will be a silent auction featuring the deaccessioned Benjamin Shaub collection for Harvard. They will be running the auction twice each day the auctions will run one hour each - Sat 10 - 11 & 3 - 4 and Sun 11-12 & 2 - 3. Also Bob Whitmore will have his Palermo book for sale and signing. Gordon

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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 and August. Sites rotate 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 $10/year for a single person and $15/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.

SHOWS

October

9-10 – 41st Annual Gem and Mineral Festival. Capital Mineral Club. Sat. 9-5. Sun. 10-4. Sunapee State Park, Rte 103, Newbury, NH. Adults - $3, Seniors - $2, 12 and under free with adult.

MICROMINERAL RELATED CONFERENCES AND SYMPOSIUMS

October

8–10 - Baltimore Micromounters Symposium. Contact Cal Pierson for information. Phone (410) 472-9406 or e-mail cpierson@mhaonline.org.

16 – MMNE meeting at the home of Vera Fogg, Dunbarton, NH. 9AM until ?. Pot luck lunch. Bring scopes, cords, swap and brag, etc.

22-24 – Mont St.-Hilaire collecting trip(Saturday and Symposium) and Symposium

November

5-7 – Micromineral Society of the Cleveland Museum of Natural History, I Wade Oval, Cleveland, Ohio. Contact: George Simmons at SIMMONSGandb@cs.com. (440)257-6406
9440 Headlands Road, Mentor, OH 44060

20 – (Saturday) MMNE meeting, Chelmsford, MA library, 9am – 3pm

April 2005

1-3 – Atlantic Micromounters Conference sponsored by the Micromounters of the National Capitol Area. Contact Steve Weinberger at cweinber@bcpl.net.

From the Membership Chairman:

Welcome new member: Lynn Bannon. 68 Mountainview Street, Westfield, MA 01085
(413) 568-8740. lynnbannon@earthlink.net

Please note the following address changes:
Anna/Bob Wilken, 79 Meadow Lane, Compton, NH 03223 effective the end of October
Al Elvin, 256 Jackson Pines Road, Jackson, NJ 08527 (e-mail unchanged)

Dues time is fast approaching. A renewal form is enclosed.
Memberships expire January 1, 2005. If dues are not received by January 15, 2005 your membership will be discontinued, and no further newsletters will be sent.

HAMMER SAFETY

William Klose, EFMLS Safety Chair
From the EFMLS News – September 2004

Hammers used by rockhounds come in every size, type and construction, and include rock hammers, bricklayer or mason's hammers, blacksmith or sledge hammers, machinist's peen hammers, jeweler's hammers, setting hammers, soft faced hammers, trimmer's and welder's hammers, lead or copper faced hammers, and a variety of mallets such as rawhide, rubber and tinner's. I have even seen napping hammers (a three pound high carbon steel hammer with tapering faces used for forming stones during road construction) and railroad track mauls (used for driving railroad spikes) in the field. As it is hard to anticipate what a rockhounds "favorite weapon" will be, I thought I would present a list of general hammer safe practices followed by the proper use of some of the more common hammer types.

1. Always select he proper type, size and weight of hammer for the task.
2. Always wear eye protection, safety shoes and protective clothing.
3. Always strike a hammer blow squarely, avoiding glancing blows, and over and under strikes. A hammer's striking face should be parallel with the surface being struck.
4. When striking a chisel, punch or wedge, the striking face of a hammer should be 3/8" larger than the struck face of the tool. Both the striking face and the struck face of the tool should be free of oil.
5. Do not strike another hammer with a hammer.
6. Do not strike a harder surface with a hard surfaced hammer.
7. Never use a hammer or a struck tool with dents, cracks, mushrooming or excessive wear. Do not redress a hammer head – replace it.
8. Replace worn or damaged handles. A qualified person should replace hammer handles. Most hard ware stores will replace hammer handles for a nominal price. They can also provide a rubber sleeve for sledge hammers, which will prevent handle damage adjacent to the head.
9. Be aware of others in the vicinity of the hammer's arc of swing, and ensure that they are also wearing safety eye protection, safety shoes and protective clothing.

Bricklayer's or mason's hammers are designed for setting or splitting bricks, masonry tile, and concrete blocks. Never use them to strike metal or drive tools, such as chisels. The blade of a bricklayer's hammer should be kept sharp by redressing at a 40° angle with a bench grinder. Keep the metal cool while grinding by quenching often in water which will protect the metal's tempering.

Hand drilling hammers are used with chisels, star drills, punches and hardened nails. Never use a common nail (claw) hammer for striking metal, such as chisels, as they are designed for driving unhardened nails, and their shape, depth of face and balance make them unsuitable for other uses.

Machinist's peen hammers (ball, cross, or straight) are designed for striking chisels, drills, and punches, and riveting, straightening and shaping metal.

Blacksmith's or sledge hammers are designed for striking wood, metal, and concrete or stone, depending on size, weight, and shape.

When using a hammer, grip the handle near the end where it is designed for gripping. This will give you the best control and impact with the least effort. Watch your hands, shins and feet. Wear gloves, a long-sleeve shirt, apron, safety glasses and face shield, and high lacing safety shoes for protection from flying debris and sharp shards.

When storing hammers for a period of time, lightly lubricate metal parts, but wipe away any oil or grease from rubber mallets or rubber handle grips to prevent damage to the hammer. Before using a hammer, wipe away all oil from the striking surface(s).

A couple of other thoughts (from your editor, and sometimes the school of hard knocks):

Purchase a good hammer which is designed for the project in mind. Shock absorbing grips are necessary for a long day of hammering. A belt clip is indispensable. Remember, you will get what you pay for.

Do not use a hammer which is too heavy for you or which has too long a handle. Either of these can cause significant hand, wrist and elbow injuries from torque forces (the voice of experience).

Stone (and metal) fragments and splinters can carry for twenty or thirty feet from where you are working. Make sure you know who is within striking distance and warn them that you will be hammering.

HILAIRITE FROM MONT SAINT-HILAIRE, SOME NEW INFORMATION

By Tony Steede

Hilairite was found at and named for one of the most prolific mineral sites in the world, the quarry at Mont Saint-Hilaire, Quebec. It has been known as occurring in two forms; a distinctive trigonal crystal with three pyramidal terminal faces, and a six sided form. In the latter form the faces can be quite equidimensional, in which case it can be mistaken for a dodecahedron, much like a light brown garnet. Fortunately, garnets of this colour have not been described from MSH. These forms are very well demonstrated in the *Mineralogical Record* article by Horvath and Gault (1990). Hilairite has also been found twinned. Mandarino and Anderson (1989) state that twinning is "…common according to two twin laws, $[201]_{180^\circ}$ and $[001]_{180^\circ}$. Crystals are often multiple twinned according to both laws and may involve four, eight or more individuals." An excellent description of the mineral is provided by Horvath and Pfenninger (2000) who state in part "It is a late stage mineral most commonly found in altered pegmatites and rarely in miarolitic cavities. Hilairite occurs as sharp, vitreous, transparent, brown, pale yellow and pink to rose, short to elongated, trigonal or hexagonal prisms terminated by the rhombohedron…."

Several years ago Pete Richards mentioned to me that he had found some colourless hilairite. I was intrigued as I too had found some tiny colourless crystals that looked somewhat like hilairite, but they fluoresced exactly like gaidonnayite (green, long and short wave). I had never heard of hilairite fluorescing, so I queried Pete about the identification and he stated that Bill Henderson had done optics on these crystals and he was sure of the identification. Well, Bill is an expert on optics, and I should not have questioned his judgment; nevertheless, I was not convinced.

Pete kindly supplied me with a specimen of the subject material at the last Canadian Micro Mineral Association conference. Some of it certainly looked like hilairite, but it too fluoresced just like gaidonnayite. This material came from the hornfels next to the Poudrette pegmatite. It contained both single crystals and twins, and was associated with beryllonite plates, cordylite, and tiny balls of saponite.

Chemically, hilairite and gaidonnayite are almost identical. Hilairite is $Na_2ZrSi_3O_9 \cdot 3H_2O$ and gaidonnayite is $Na_2ZrSi_3O_9 \cdot 2H_2O$. This makes it impossible to differentiate by energy dispersive spectroscopy (EDS) or micro probe. However, their crystal structures are different and I was able to persuade Malcolm Back at the Royal Ontario Museum to do X-ray diffraction (XRD) on one of Pete's crystals (given the constraints on Malcolm's time lately, this was a huge favour to me – thanks Mal).

The colourless crystals are, indeed, hilairite – Bill, my apologies for ever doubting your analysis, I should have known better. So, not only do we now have colourless hilairite, we must add it to the list of fluorescing minerals from MSH.

The story is not quite over; I have checked all the "gaidonnayites" that I added to my collection from around the Poudrette pegmatite and have at least four (from both the pegmatite and the nearby hornfels) that are more likely the colourless hilairite than gaidonnayite. Also, just last year I found light brown and transparent crystals with the hilairite morphology from two separate **igneous breccia** boulders. On one occasion they are associated with labuntsovite. These provide EDS signatures of either hilairite or gaidonnayite and fluoresce slightly in short wave ultraviolet radiation. Are they hilairite? Given the morphology and the new knowledge that hilairite can fluoresce, I have little doubt.

References:

Chao, G.Y., Watkinson, D.H. and Chen, T.T. (1974): Hilairite, $Na_2ZrSi_3O_9 \cdot 3H_2O$, A New Mineral from Mont St. Hilaire, Quebec. *The Canadian Mineralogist*, Vol, 12, 237-240.

Horvath, L, and Gault, R. (1990): The Mineralogy of Mont Saint-Hilaire, Quebec. *The Mineralogical Record*, Vol. 21, No. 4, 284-359.

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A SIMPLE TEST TO DISTINGUISH BETWEEN SOME OF THE WHITE FIBROUS MINERALS AT MONT SAINT-HILAIRE

By Tony Steede

The challenge of Mont Saint-Hilaire isn't just becoming familiar with the huge number of minerals that can be found there; it is that so many of them come in a variety of habits and can look like other minerals found at the location. An example of this is dawsonite.

Dawsonite can be found at MSH as nice euhedral, colourless crystals. But, it can also be found as masses of white, fairly compact powder; as well as masses of white oriented but intertwined fibres (like an aggregate of tight curls). The latter are visually identical to some franconite (and, probably, hochelagaite).

As dawsonite is a carbonate, a simple acid test will distinguish between it and the other two. Indeed, because of the large amount of surface area, the powder and fibrous forms of dawsonite effervesce rapidly, even in very dilute hydrochloric acid. Franconite and hochelagaite are niobates and do not effervesce in acid.

But, I have been looking for another white fibrous mineral, micheelsenite, which occurs in some of the same mineral assemblages in which both dawsonite and franconite/hochelagaite are found (pegmatites, miarolitic cavities, hornfels, and marble xenoliths). Micheelsenite also occurs in several forms, but the usual ones from Mont Saint-Hilaire are "…acicular to fibrous crystals in loosely packed spherical aggregates…and in bundles of randomly oriented, hair-like matted fibres….", which sounds very much like some of the franconite/hochelagaite and dawsonite.

As another carbonate, micheelsenite effervesces in acid; hence, the need for a distinguishing test between it and dawsonite. Fortunately, the chemical composition of dawsonite is very accommodating. It is $NaAl(CO_3)(OH)_2$. When dissolved in hydrochloric acid the acid breaks down the CO_3, carbon dioxide is liberated, and the sodium from the dawsonite forms with the chlorine from the acid to form NaCl - halite (or common salt). If the solution is now dried, tiny little cubes of halite precipitate out and can be seen in the dried residue. As micheelsenite does not contain sodium, halite will not form in its dried residue. This is a very sensitive test; very little of the mineral is required to be dissolved.

I should mention that there are, by my count, 47 other sodium bearing carbonates that can be found at MSH. I haven't tested them all but most should effervesce or dissolve in HCl. Hence, this test may help in identifying them as well. There are 33 additional carbonates that do not contain sodium, but with the possible exception of thaumasite, none of these should be confused with micheelsenite.

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Horvath, L & Pfenninger, E. (2000): I minerali di Mont Saint-Hilaire. *Rivista Mineralogica Italiana*, Vol, 24, No. 3, 140-202.

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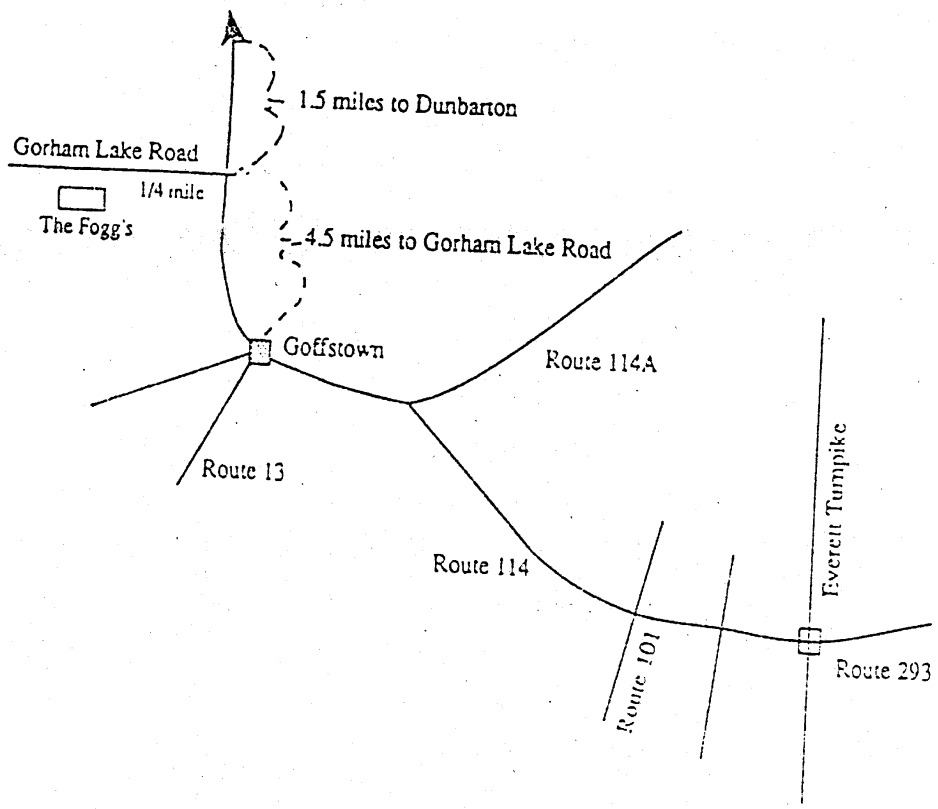

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