MICROMOUNTERS OF NEW ENGLAND

The MMNE was organized on November 5, 1966 for the purpose of promoting the study of minerals that require a microscope.

January 1991 Newsletter #146

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Dues are $6.00 per year and are due on January 1st, payable to the Treasurer

Contributions of news items for the Bulletin are welcome and should be sent to the Editor.

NEXT MONTH

The next meeting of the MMNE will be Saturday, February 9th, at the Northborough Public Library.

The next meeting of the Micromounters of New England will be **Sunday, January 6, 1991**, at Boston University. (In the remote chance of our having snow, the meeting date will be Sunday, the 13th.). Janet Cares will present this month's Mini-Talk on simple tests and observations which can help in identifying minerals. Each member is invited to bring a specimen which he/she has been unable to identify. For each unkown, the form found in another part of this notice should be filled out as far as possible, and an attempt will be made to find out what it is. The program will begin at 11 AM in order to allow more time for members to perform some tests following the presentation.

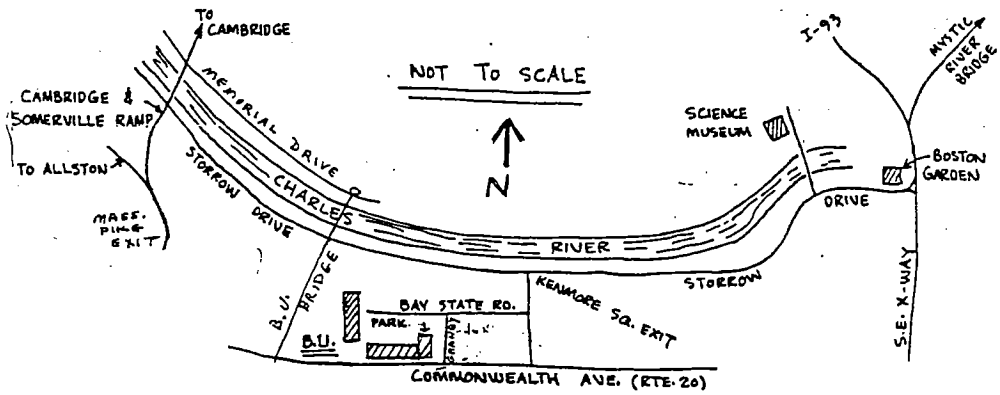
Our club voted to donate a folding table to the Auburn Public Library. This has been purchased, and it will be delivered to the Library at the March 9th meeting. Our thanks to the Stewarts for the use of their car-top carrier and to Norm Biggart who helped with the heavy lifting.

At the November meeting, it was learned that John S. White, Curator of Minerals at the Smithsonian, and founder of the Mineralogical Record, will be the speaker at our Northeast Meeting, May 11, 1991. His topic will be: "The Microminerals of the Foote Mine".

An article on Mine Falls Park in Nashua, NH, written by member Scott Whittemore, appeared in the Sept./Oct. issue of Rocks & Minerals. A number of zeolites, rare in NH, were recently found there, and specimens appeared in club giveaways, thanks to Scott and Bob Janules.

DUES ARE NOW DUE. Please bring your dues ($6 per member) or mail them to our Treasurer (address in adjacent column). Checks should be made payable to: Micromounters of New England.

WELCOME NEW MEMBER:
Ingaborg Burggraf
100 Lynn Fells Pkwy
Melrose, MA 02176



NIOBIUM-BEARING MINERALS

[Aeschynite-Ce]
[Aeschynite-nd]
[Aeschynite-Y]
Ashanite

[Baotite]
[Bariomicrolite]
Bariopyrochlore
[Behierite]
[Belyankinite]
[Betafite]
[Bismutomicrolite]
[Bismutotantalite]
Bornemanite

Calciobetafite
Ceriopyrochlore
[Cesium kupletskite]
Changbaiite

Epistolite
Euxenite-(Y)

Fergusonite-beta-(Ce)
Fergusonite-beta-(Nd)
Fergusonite-beta-(Y)
Ferrocolumbite
[Fersmanite]
Fersmite
Foordite
Franconite

Gerasimovskite
Hochelagaite

Illimaussite-(Ce)
Ilmenorutile
[Irtyshite]
Ishikawaite
[Ixiolite]

Jinshajiangite
[Joaquinite-(Ce)]
Johnwalkite

Kalipyrochlore
[Karnasurtite-(Ce)]
[Kimrobinsonite]
[Kobeite-(Y)]
Komarovite
[Kupletskite]

[Labuntsovite]
Latrappite
Liandratite
Lithiotantite
[Loparite-(Ce)]
Lueshite

Magnocolumbite
[Manganbelyankinite]
Manganocolumbite
[Manganotapiolite]
Mongolite
[Murataite]
[Murmanite]

Na-Kamorovite
[Natrobistantite]
Natroniobite
Nenadkevichite
Niobo-aeschynite-(Ce)
Niobo-aeschynite-(Nd)
Niobophyllite
Niocalite

Olmsteadite
Perraultite
Petscheckite
[Plumbobetafite]
Plumbopyrochlore
[Polycrase-(Y)]

Polymignite
Pyrochlore

Qitianglinite
[Rankamaite]
[Rynersonite]

Samarskite-(Y)
[Scheteligite]
[Shcherbakovite]
[Simpsonite]
[Sosedkoite]
[Stannomicrolite]
[Staringite]
[Stibiobetafite]
Stibiocolumbite
[Stibiomicrolite]
Strontiopyrochlore

[Tantalaeschynite-(Y)]
[Tanteuxenite-(Y)]
[Tapiolite]
[Tundrite-(Ce)]
[Tundrite-(Nd)]

[Uranmicrolite]
Uranpyrochlore
Vigezzite
Vuonnemite

[Wodginite]
[Wohlerite]

[Yttrobetafite-(Y)]
Yttrocolumbite
Yttropyrochlore-(Y)
[Yttrotantalite-(Y)]

[Zimbabweite]
[Zirkelite]
[Zorite]

Brackets [ ] indicate that niobium is not a primary element, but follows another in parentheses in the formula. JWC

INCLUSIONS IN MINERALS

For those collectors whose collections contain all of the known mineral species from all of the world's localities, or for those who may want to collect something a little different, try collecting minerals with inclusions.

Inclusions are found in minerals from all environments; from pegmatites such as mica books in beryl from Afghanistan to sedimentary such as fluorite crystals containing two-phase inclusions - gas and liquid - from the Lockport dolomite in New York and Ontario. They are found in virtually every mineral species. However, the most noticeable are those included in transparent to translucent minerals, especially those with polished surfaces, such as polished gem stones or smooth crystal faces.

The inclusion may be a solid, gas or liquid and sometimes a combination of these types, as the fluorite mentioned above. Inclusions became such under different circumstances and are classified as follows:

1 Protogenic inclusions -- pre-existing minerals became enclosed when later mineralization occurred, an example being epidote crystals in quartz. Protogenic inclusions are always mineralic.

2 Syngenetic mineral inclusions -- formed at the same time as the host crystal and were imprisoned by them. They belong to the same geochemical rock association as the host crystal.

3 Epigenetic inclusions -- formed after the host crystal's formation was completed, an example being foreign substances seeping into cleavages and fissures and then drying out, leaving their dissolved deposits as amorphous to crystalline inclusions. Goethite and quartz are examples.

Inclusions have been studied for many years. Several books on inclusions were written in the 1850s by Blum and E. Söchting. In the early part of the twentieth century the study of inclusions became important to the gem industry and has continued so to this date. It is primarily to people in the gem industry that the majority of today's books can be attributed.

The study of inclusions is also important to the academic community to further the knowledge of the conditions under which minerals were formed. This type of information leads to the discovery of new deposits of commercial value.

The following is a partial list of recent books on inclusions, most of which are in print:

Gübelin/Koivula -- Photo-atlas of Inclusions in Gemstones, 1986.

Gübelin -- Internal World of Gemstones, 1974 (out of print).

Roedder -- Fluid Inclusions, 1984.

Chudoba/Gübelin -- Edelsteinkundliches Handbuch, 1974.

Eppler -- Praktische Gemmologie, 1984.

Leeder/Thomas/Klemm -- Einschlüsse in Mineralein, 1987.

Weibel -- Edelsteine and Ihre Mineraleinschlüsse, 1985

By Donald Cooke, from CMMA MICRONEWS, November 1990, Muriel & Eric Wood, Editors.

Recently, I received a letter from Horst Windisch, Editor of "Micro News and Views". He included some comments on Dana Morong's article (Sept. 1990) concerning a list of minerals that could or could not be soaked in oxalic acid. Horst said that he did not have such a list, but he sent an article written by one of his club's members regarding cleaning minerals which also includes a table of minerals soluble in various liquids. Although "oxalic acid" is not specifically mentioned in the article, all minerals with the remark "any acid" are PROBABLY soluble in oxalic acid. I will begin the article this month, and will continue in successive issues.

A GUIDE TO MINERAL CLEANING by E. L. Steyn

Many mineral collections could be enhanced considerably in looks as well as value if they are scrutinized thoroughly to see whether the inherent beauty of said specimens have been properly revealed. Most specimens could be improved by a knowledgeable cleaning.

Encrustations could be loose surface dirt, or else an associate mineral that has formed at a later date on the specimen. With a careful study of the specimen as to its chemical composition, as well as the composition of the unwanted element, it is possible in most cases to enhance the beauty of that specimen, without harming it in any way.

Before cleaning, make sure that the encrustation is not a valuable addition or an unique association of that specimen. This is very true of many of the Tsumeb minerals, the associations being often more unique than the parent mineral, and usually these can only be seen to their best under magnification.

Before cleaning, try a small piece first, or if not possible, work on an unobtrusive spot, thus saving the specimen from any damage. Note at all times the effect of any treatment by using a magnifying glass, and make a note of it.

PHYSICAL CLEANING

Pick, scrape or shake off any surface dirt first, using small screwdrivers, sharpened nails, or wire brush. Check the chemical composition to see if water can be used. If so, and if the material is sturdy enough, use the garden hose, starting gently, then, if possible, use full force. It pays to pick and hose alternately, getting into all the crevices. It would also help to soak the specimen in water for several days, then hose off. If any clay or mud still remains, chemical methods will have to be employed.

Ultrasonic cleaning, if available, is another method to be used, but follow the maker's instructions. For water-soluble minerals, alcohol is the first solvent to be employed, and this is to be used in a well ventilated area, away from fires or smokers. Acetone or lacquer thinners may also be used in certain cases, this being especially true if there is any oil or grease present. The fire hazard is also present here, only more so.

Be most careful of fine hairlike crystals, use a gently touch, and if in doubt, leave well alone. As for cleaning tools, the following may help:

Dental tools are very handy. Ask your dentist for his throwaways.

A variety of needles with their eyes imbedded in short dowel sticks as handles will get in most crevices.

Bamboo slivers will not scratch most specimens, yet are quite strong.

Artists' paint brushes for the very fine crystals, tooth brushes for the more robust, scrubbing brushes and welder's wire brushes are for the big hard stuff.

Abrasive grains such as pumice for the soft materials, silicon carbide for the harder stuff may be used in conjunction with these brushes.

Toothpaste can be employed as well.

Ensure the specimen is not scratched by examining the result, using a ten power loupe.

Check all operations at all times and keep a record.

SAFETY PRECAUTIONS WHEN USING CHEMICALS

Before doing anything with either acids or alkalies, find out the chemical composition of both the mineral to be cleaned as well as the unwanted element. This is of the utmost importance if one is to succeed at all. If it is decided to employ chemicals at all, then we must observe strict safety measures if we are to enjoy doing this. Safety First must always be above anything else, even if it means the loss of the specimen, as long as one does not suffer any ill effects from using any of these chemicals. Treat all chemicals with the same respect as the acids; then one cannot go wrong. Poisonous gasses can be made by the mixtures of certain acids and alkalies. If in doubt, don't.

All work should be carried out in a well ventilated area, preferably outdoors, and if there is any wind, keep on the upwind side so that all fumes are blown away from oneself. If possible use a fan to blow away any fumes. When working indoors, a fan is a must, and so is an open window.

Protect the eyes with goggles, and the hands with rubber gloves. These items are cheap; eyes and flesh come more expensive, so do be careful. Bare arms or legs are a no-no, so wear either overalls or an apron, preferably both. Keep children and pets away, as well as any spectators. All chemicals must be labelled properly, and when not in use, must be stored in a safe, locked place.

While working, keep a bucket of water handy and use this promptly when splashed with any chemical. If it is serious, get under a shower immediately, clothes and all, or else use the garden hose, quickly -- time is of the essence. Bicarbonate of soda is the general antidote for acids; apply it generously, and always keep it at hand when working. A bottle of vinegar is the general antidote for the alkalies, so keep this handy as well. If any splashes are serious, see your doctor at once and tell him the cause so that the correct treatment may be given.

continued next month.....

CLUES TO MINERAL IDENTIFICATION

Every mineral collector has specimens he is unsure of. Most of us rely on the opinion of other collectors, or on visual examination in the hope that we'll see a resemblance to a known specimen or photograph. Even if you have an "in" with someone who has the equipment and ability to test and identify your specimen, you have still learned only what that particular one is, and you're back to the beginning on the next one. It should also be emphasized that THERE IS NO ONE TEST THAT WiLL IDENTIFY EVERY SPECIES WITH CERTAINTY.

Today's program is intended to convince at least a few people that they know much more about their unknowns than they realize, and that they are capable of learning much more by applying a few simple tests and orqanizing their observations. The form below will serve as a checklist, and the discussion will cover the various items on it. Demonstrations will be given of some of the less familiar tests, and you'll have an opportunity to perform some of them yourself. By putting all the information together and using a little reasoning you may even be able to identify one or more of your unknowns with a good degree of certainty.

Specimen No. Possible Species:

Locality:

Description (Color, luster, XL shape, etc.):

Associated Minerals/Rocks:

Cleavage, Fracture:

Striations: Inclusions:

Fluorescence (LW/SW): Rare Earth Spectrum:

Magnetism: Conductivity: Radioactivity:

Specific Gravity: Hardness: Streak:

Acid Reaction:

Fusibility: Flame Color: Fluoride Etch:

Closed Tube Test:

Other tests or observations: