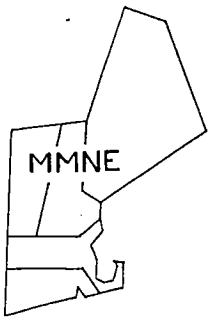

MICROMOUNTERS OF NEW ENGLAND

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

March 1996 Newsletter #189

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Dues are $6.00/year and due on January 1st, payable to the treasurer.

News items for the Bulletin are welcome and should be submitted to the Editor. The Bulletin may quoted if credit is given. The Club address is c/o Editor

Upcoming Meetings
April 13, 1996 - Northboro, MA public library

May 11, 1996 - Ashland, MA 4-H Conference Center

MMNE MEETING ANNOUNCEMENTS

The **MARCH** meeting will be held at the Hudson, MA public library on March 19, 1996. A map is on the back of this page. Bob Janules will speak on the microminerals of the Conway Granite.

The **MAY** meeting will again be held at the Ashland, MA 4-H Center. Our featured speaker will be Dan Behnke, a nationally known microphotographer and micromounter. Dan will be giving two lectures. The morning talk will be on phosphate minerals from several well known localities including the Tip Top Mine (Custer, SD) and the Palermo Mine (North Groton, NH). The second talk, on microphotography, will begin at about 4pm. A registration sheet for the May meeting is enclosed. Please indicate if you plan to attend the second session.

Our **JULY** meeting, which has traditionally been held at the home of John Reiner in Center Harbor, NH, will be held this year on Saturday, July 13 at the summer home of Herb and Julia Fielding on Lake Winnesquam, which is just south of Laconia, NH. Full details and a map will come in a later issue of the Newsletter.

MEMBERSHIP NEWS

It is with a great deal of sorrow that we report the recent passing of two of our members, Larry Pitman and Don McKenna. Our condolences go out to their families.

FROM THE EDITOR

If the date after your name on the mailing address is not "96", you have not yet paid your 1996 dues and are not included on the enclosed membership list. Please remit dues to our treasurer, Janet Cares. Please review the data on your membership listing and contact the editor to make changes or add to the information sections.

There was extensive discussion at the February meeting regarding a formal name for the MMNE newsletter. Several possibilities were mentioned including "The MicroMounter", "Micro World", "MMNE Newsletter", and "The No See 'Em's Newsletter". Despite rumors to the contrary, there is no contest with an all-expense paid collecting trip to Loudville as the prize. Be prepared to offer suggestions and cast a ballot at the next meeting.

The last day for contributions to the MMNE ***cookbook*** is the March meeting. Pat Barker also needs to know how many copies of the cookbook each of you want to order.

We need sales items and give-aways for the May meeting. Please bring materials to either the March or April meeting if at all possible so that they can be priced or prepared ahead of time. Items valued at $5.00 or more will not be reduced to half price after lunch as has been done in the past. Items items can be reclaimed by the donor if not sold. Please get your items in early and put reasonable prices on them. We can use mineral specimens, books, photographs and any other mineralogically related items for sale or in the silent auction.

The March meeting is your last opportunity to sign up for extra copies of the ***Rocks and Minerals*** "Vermont" issue at half price ($3.00). See Janet Cares for details.

The nominating committee has proposed the following slate of officers for the 1999-97 year: president: Jim Clark; vice president: Mike Kieron; Pat Barker: secretary: Janet Cares: treasurer; Mike Swanson: editor.

Please contribute to this newsletter. Anything relative to micromounting is fair game, including comments about a collecting site, book or journal reviews, testing techniques.

UPCOMING MEETINGS AND SHOWS

North Shore Rock and Mineral Club Micromounters meet the 2nd Tuesday of each month at the home of John and Margaret Stewart, 244 Mill St., Burlington, MA. For more information call John or Margaret at (617) 272-0854.

March 9: 20th Annual '96 Micromount Swap-Sell-Learn sponsored by the Rock & Mineral Club of Lower Bucks Co., Fairless Hills First Methodist Church, 80 Trenton Rd., Fairless Hills, PA. Contact Ralph Thomas, 11 Riverdale Rd., Yardley, PA. (215) 295-9730

March 29-31: 24th Annual Atlantic Micromounters Conference, sponsored by the Micromounters of the National Capitol Area. To be held at the University of Maryland, College Park, MD. Contact Fred Schaefermeyer, PO Box 10119, Alexandria, VA 22310-0119. (703) 971-3080.

April 18-21: Rochester Mineralogical Symposium, Rochester, NY.

April 26-28: Eastern Federation. IBM Country Club & Conference Center, Johnson City, NY. Contact Betty Jones, RR#3, Box 3063,Rome, PA 18837. (717) 247-2613.

April 27-28: Shower of Gems and Minerals. Nashua Mineral Society. Holiday Inn, Rte 3, Exit 4, Nashua. NH.

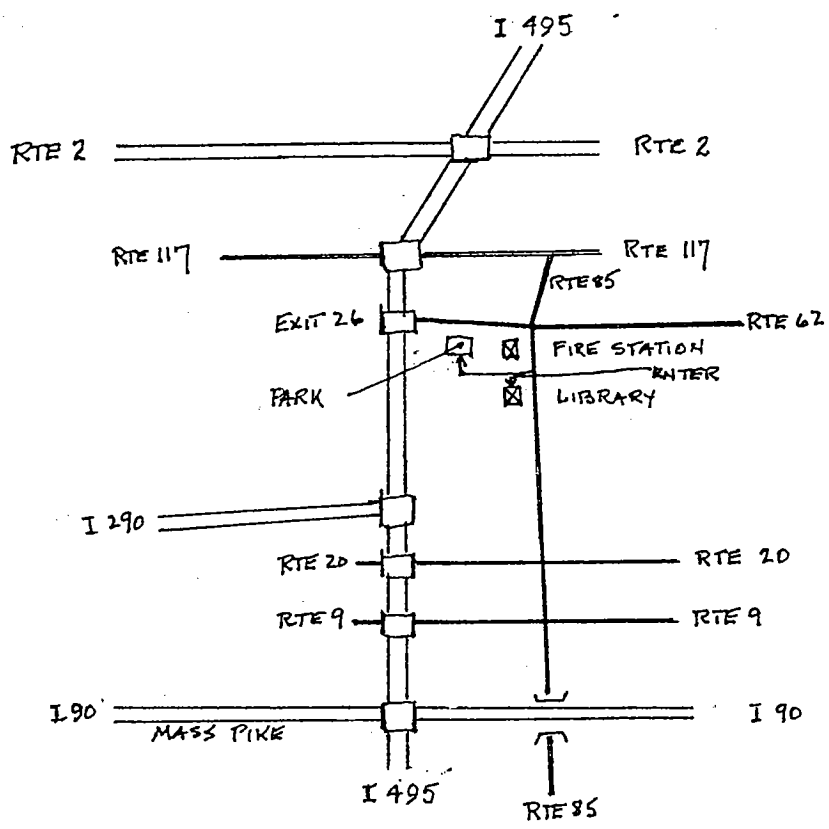
May 3-5: CMMA 33rd Annual M/M Conference. Brock University, St. Catharines, Ontario.

May 3-5: 7th Annual Maine Mineral Symposium. The Senator Inn & Conference Center. Western Ave. & Rte. 95, Augusta, ME. Contact Robert Hinckley, Yarmouth Road, Gray, ME 04039. (207) 657-3732.

CLASSIFIED ANNOUNCEMENTS

This space is avaliable to active members of the MMNE at no cost. Contact your editor with any sale items (no minerals), trades, want items, etc. The announcement will run for 2 issues of the Newsletter.

- Sale: *Mineralogical Record*, 102 back issues, comprising: Vol 4, #5 (1973) through Vol 22, #6 (1991), less two missing issues, Vol 5, #5 (1974) and Vol 17, #5 (1986); $1200. Cost from dealers about $1510 in 1993. Bill Henderson (203) 245-0489. (1/96)



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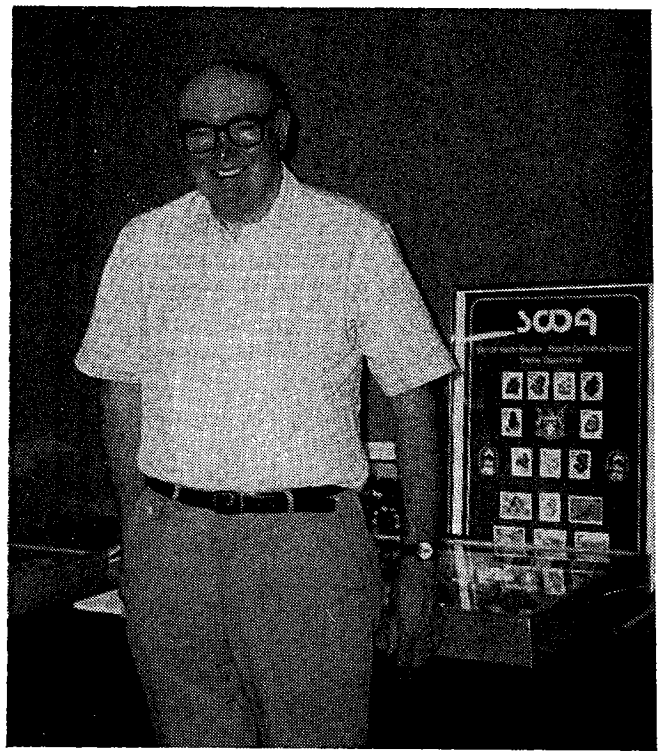
NORTH

IN MEMORIUM

Many of you may not know that one of our members has put away his microscope for the last time. My quiet, patient husband and friend **Donald J. McKenna** died on January 20th, after 5 weeks in the hospital. Two teams of doctors plus more worked desperately to decipher his problem, and finally solved it just one day before he died.



Don had maintained superb control over his diabetes for 30 years, but it took a malignant lymphoma to subdue him. Your prayers are welcomed, and if you care to donate a pint of blood to replace the two he needed, it certainly will be appreciated.

Please indulge me for a minute.....Friends say that I introduced Don to a world he would never have known, but it works both ways. Our shared activities led us to experiences neither of us could ever have anticipated. Together we have met people from all over the globe because of the "Minerals on Stamps" collection. Despite the work involved, he enjoyed displaying it at mineral shows all over the area -- 62 times altogether. He really enjoyed showing his micromounts on the lazy susan trays at our annual show, especially Rhode Island specimens.

The fact that Don's world rotated around his hobbies was evident to the end. Angie Teixeira suggested that he should have a mineral specimen resting with him, so on top of the coffin sat a basket of holly with about a dozen of his favorite colorful miniatures nestled in among the berries.

At the wake, there were attendees from the R. I. Philatelic Society, the Coin Club of RI, R. I. Postal History Club, the RI Mineral Hunters, Micromounters of new England, and Philagems International. His bearers were also representatives of the clubs.
We enjoyed fifteen years of fun, and I will miss him.

Jean K. McKenna

IN MEMORIUM

Lawrence Clymer Pitman of Sudbury (MA), a former consulting engineer at Raytheon Co. in Bedford, died Tuesday (February 6, 1996) in Emerson Hospital of cancer. He was 66.

Mr. Pitman was born in Williamsburg VA and received a bachelor's degree in chemical engineering from Virginia Polytechnic Institute and a master's degree in electrical engineering from Northeastern University. After graduation, he served in the Army as a teacher in the Guided Missile School at Redstone Arsenal in Huntsville AL. When he joined Raytheon, he was responsible for the technical management of the Air Hawk Defense System. He also conducted weather research in the Mideast. In 1990, he received the Raytheon Award for Excellence in Technology and was promoted to consulting engineer, the highest level engineering job in the company.

After an early retirement, he worked at Harvard University as a researcher in the Department of Earth and Planetary Sciences where he published findings on minerals. He was a member of the Mineralogical Society of America, the Harvard Mineralogical Museum Association, the Micromounters of New England and the Boston Mineral Club.

He leaves his wife, Ursula (Wall) of Sudbury. Funeral services were private.

The Boston Globe, Sunday, February 11, 1996

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CONTINUED FROM LAST NEWSLETTER

- ***Sodium sulfite*** (Na_2SO_3), ***sodium metabisulfite (AKA sodium pyrosulfite)*** ($Na_2S_2O_5$). Any one of these is useful for removal of manganese oxides. A hard clay coating which will not come off with normal cleaning techniques can often be removed by a gentle boiling in a strong solution of sodium sulfite (one part sodium sulfite to four parts H_2O by weight). It is used as a concentrated solution and is a weak acid. Skin contact is usually not a problem with prompt water washing, but it does generate sulfur dioxide which is a very toxic gas, and therefore it should be used with good ventilation present. Care should be taken with minerals such as carbonates and phosphates which are acid sensitive. These materials are sold in hardware stores as Iron Out™ (Ace Hardware) and Power Rust Remover™. The use of Pyrex™ containers is recommended because the acid may etch metal containers.

- ***Soft Scrub***™ is a cleaner which has calciuim carbonate particles suspended in a cleaning solution. It has been used with a tooth brush for removing hydrocarbon scale from serandite. Some varieties of it contain bleach. Has anone tried this as a dilute solution in an ultrasonic cleaner?

- ***Spray/foaming cleaners*** (such as Bon Ami™) are reported to work well for removing adherent dirt. Spray the substance on the specimen, let it soak for a few minutes, and then wash it well, using an ultrasonic cleaner if necessary. (Ark. Rock News) Your editor has no personal experience with this technique.

REMOVAL OF OXIDES AND HYDROXIDES

Most techniques for rust removal depend upon the increased solubility of ferric oxides in acidic solutions and the subsequent sequestration of the ferric ions by another anion. Attempts to terminate the process with alkali will result in the formation of ferric hydroxide which will leave deposits on the specimen. These are often harder to remove than the original rust deposits. Use copious and prolonged H_2O rinses at the end of the cleaning process for termination of the chemical reaction.

If a rust cleaning solution starts becoming dark, the specimen should promptly be removed and placed in fresh solution because the now dissolved iron or other coloring agents can work their way into cracks and crevices where they can produce new stains.

- ***Ascorbic acid*** (Vitamin C). This serves as a chelating agent which solubilizes metal cations. Use approximately 1/2 tablespoon of powder in a cup of warm H_2O. This will remove most ***manganese*** oxides in less than a minute. Removal of stubborn stains can be enhanced by the use of the ultrasonic cleaner. Make only as much solution as you plan on using because it will turn yellow and lose its effectiveness in about 12 hours. If the powdered form is not available, vitamin C tablets can be ground up to make the solution.

- ***Hydrochloric acid*** in a dilute form will often remove manganese oxide coatings.

- ***Oxalic Acid*** ($COOHCOOH{\cdot}2H_2O$). This is another chelating agent. It is strongly recommended that distilled H_2O be used for making oxalic acid solutions because calcium will be precipitated rom tap water as insoluble oxalates. A solution of 1 cup of oxalic acid crystals per gallon of H_2O can be used to chemically remove ***iron*** stains. If simple soaking does not work, heating the solution to just under the boiling point for about 1/2 hour may help. Some collectors have advocated actual boiling of the specimens for up to 2 hours in an oxalic acid solution. Do not permit the specimen to stay in the bath as it cools because the fluid may be drawn into pores in the specimen with later weeping, encrustation, and staining. Move the specimen into a bath of distilled H_2O of approximately the same temperature, changing the H_2O frequently. Others have recommended a saturated solution of oxalic acid rather than the somewhat dilute solution recommended above. The saturated solution can be made by adding oxalate crystals to hot H_2O until no more crystals will dissolve. As the solution is brought down to room temperature, crystals will form in the container indicating that it is saturated. Do not use metal containers with oxalic acid as it will etch the metal. A tap water rinse after oxalic acid treatment will precipitate insoluble oxalates on the specimen.

Oxalic acid, as its name states, is an acid, and thus can react chemically with many species especially carbonates and phosphates. If any question exists about the potential for acid reaction with the specimen, test a disposable specimen first. Occasionally you will end up with a psuedomorph of some oxalate after the desired species. Failure to totally remove all traces of the acid will allow continued leaching and discoloration, particularly with iron bearing minerals, and may even result in the deposition of insoluble oxalates in cracks and crevices. If the cleaning solution becomes yellow, exchange it promptly for a fresh solution since the dissolved iron may precipitate out as stains of insoluble oxalate on the specimen.

Oxalic acid will generally not damage clothing, and minimal skin exposure with dilute solutions is generally not a problem although a burn can occur with concentrated solutions. Taken internally it is a poison. Oxalic acid is capable of corroding stainless steel, so any cleaning should be done in a glass container inserted into the cleaner tank.

- ***Sodium sulfite*** (Na_2SO_3)***, sodium metabisulfite (AKA sodium pyrosulfite)*** ($Na_2S_2O_5$). Any one of these is useful for removal of manganese oxides. A hard clay coating which will not come off with normal cleaning techniques can often be removed by a gentle boiling in a strong solution of sodium sulfite (one part sodium sulfite to four parts H_2O by weight). It is used as a concentrated solution and is a weak acid. Skin contact is usually not a problem with prompt water washing, but it does generate sulfur dioxide which is a very toxic gas, and therefore it should be used with good ventilation present. Care should be taken with minerals such as carbonates and phosphates which are acid sensitive. These materials are sold in hardware stores as Iron Out™ (Ace Hardware) and Power Rust Remover™. The use of Pyrex™ containers is recommended because the acid may etch metal containers.

- ***Sodium dithionate*** ($Na_2S_2O_6 \cdot 2H_2O$) (method of Robert Waller). This technique works at an optimal pH of 7.3, and therefore is ideal for removing rust stains from acid sensitive species such as carbonates and phosphates. Make up a stock solution consisting of 71 gm sodium citrate and 8.5 gm sodium bicarbonate in one liter of H_2O (this is a stable solution). Place the specimen to be cleaned in the smallest container possible (a plastic bag may be used) and add a premeasured volume of stock solution, enough to cover the specimen. Add 1 gm sodium dithionate to each 50 ml of stock solution. Each 50 ml of solution is capable of removing up to 0.5 gm of ferric oxide. If small volumes are adequate, as for a couple of micromounts, the stock solution may be diluted as a 2:1 ratio of H_2O to stock solution (still add 1 gm of sodium dithionate). Further dilution reduces the efficacy of the method. The dithionate containing solution will remain active for about 12 hours, but most rust removal will be accomplished in 3 to 4 hours. If stains persist at the end of 12 hours, fresh solution must be used. The cleaned specimens should be rinsed in distilled H_2O for at least 36 hours, with water changes every 12 hours. The cleaning process can be speeded up by performing several washes in an ultrasonic cleaner using H_2O (deionized is even better). The used solution may be washed down the drain since it is not ecologically harmful and it will not damage pipes.

  The sodium dithionate reduces ferric iron to ferrous iron. The sodium citrate sequesters the ferrous ion, and the sodium bicarbonate buffers the solution. Sodium dithionate is broken down by the humidity in the air, and thus the lid must be sealed carefully after each use. Citrate will also sequester calcium ions, so slightly soluble calcium minerals such as calcite and messelite may be dissolved or damaged by the process. ***Test first!***

- ***Sodium dithionate*** ($Na_2S_2O_6 \cdot 2H_2O$) (Mogens Hansen's variation on the method of Waller). Because of the unpleasant sulfur-containing fumes generated by the Waller method and because minerals containing heavy metals with dark sulfides (e.g. lead) could become contaminated on the crystal surface with a grayish coating, the following modification of Waller's method was developed.. The stock solutions consists of 59 gm sodium citrate and 28 gm sodium bicarbonate in 1000 cc deionized H_2O. For each 30 ml of stock solution used, 1 gm sodium dithionate is sprinkled over its surface. After 5 minutes, another 1 gm is added in the same manner. The specimen is left at room temperature for 24 hours and then the solution is discarded. The specimen is first washed with a little buffer solution and then several times with H_2O, preferably using an ultrasonic cleaner. Because many unwanted coatings on minerals contain iron (not just oxides and hydroxides) many types of coatings can be successfully removed with this method leaving lustrous surfaces.

CLEANING SOLUTIONS (ACID)

The reactivity of acids is dependent on the concentration of acid, pH, particle size and temperature. The rate of reaction rises rapidly with an increase in temperature and decrease in particle size. Room temperature or an unspecified temperature is assumed to be approximately 72°F. Solutions may be kept chilled in a refrigerator if a cold reaction is wanted. The temperature can be raised by the application of heat. Sometimes placing an incandescent bulb close to the solution is all that is needed to raise the temperature of the solution enough to speed up the reaction. The energy generated by the cleaner will rapidly increase the temperature of the solution. Raising the temperature of the solution may also increase its reactivity with the container, so if an ultrasonic cleaner with a stainless steel tank is being used, a glass bowl (Pyrex™ is best) should be used like a double boiler to hold the solution whenever chemicals are involved. Any double boiler, whether for use in the ultrasonic cleaner or on the stove, should have the inner glass container elevated off the bottom by a minimum of 25 mm.

Many times dilute acid will do just as good a job as a more concentrated solution with less effect on other areas of the specimen. Start with dilute solutions and room temperature or a lower temperature particularly with species which have a tendency to react to acid.

Dropping very reactive minerals such as calcite directly into strong HCl can cause widespread spattering of the acid or even rupture of the vessel because of the sudden generation of heat. Because of the release of CO_2, a mineral and an acid should never be placed together in a tightly closed container. When diluting acid always add the acid to water, to avoid splatter of the acid.

Acids are particularly useful for removing calcite or other carbonate overgrowths from other minerals which are acid resistant. With some carbonates other than calcite, the process can be slow. This may be speeded up by either gently heating the solution or using the energy from an ultrasonic cleaner for a few minutes. Alternatively, everything not to be etched can be coated with paraffin. This can be removed later by melting or dissolution in paint ti
hinner.

A single crystal in calcite matrix may be exposed by digging a well around the crystal with a pick and then putting drops of HCl or vinegar into the well until the crystal is exposed.

All acids can work their way into cracks and cleavage planes. Failure to adequately rinse all traces of the acid away with distilled water can leave an ongoing reaction. Etching, stains, and deposition of salts, particularly insoluble oxalates can occur. Cleaning in H_2O using the ultrasonic cleaner will speed up the removal of the acid. Do not try to neutralize the acid with alkali as this may result in the deposition of insoluble silica gels and other materials.

To minimize further reactions thoroughly flush all specimens cleaned in acid with copious amounts of water and then neutralize with a dilute solution of alkali.

Many acids (particularly HCl, HNO_3, and acetic acid) are volatile. They can be very irritating to both the eyes and nasal passages, and may damage microscope optics.

- ***Ascorbic acid*** (vitamin C). Discussed under "Removal of oxides and hydroxides.".

- ***Acetic acid*** (CH_3COOH). Vinegar is about 5 % acetic acid but may contain some additives (use white vinegar). Acetic acid can be used as a mild acid substitute for HCl and is stronger than citric acid. Glacial acetic acid (28%) diluted 1:1 with H_2O is much more effective than vinegar, particularly when warmed up, and there is no heat hazard with its dilution. If the cleaning solution starts to turn

yellow, exchange it for fresh solution to prevent the precipitation of stains on the specimen. It can cause serious burns, irritation of the mucus membranes, and eye damage. Glacial acetic acid can be obtained from chemical or photographic supply houses. Sodium bicarbonate is the neutralizer. Vinegar is particularly useful for the removal of calcite from a specimen when other species are present which might be damaged by stronger acids.

- ***Citric acid*** ($C_6H_8O_7$). This is a weak acid which is usually available through a pharmacy. It is particularly useful for etching away calcite when the mineral to be etched out is also acid sensitive, but to a lesser degree than the calcite. Neutralize with water.

- ***Hydrochloric acid*** (Muriatic acid, HCl). Most etching work, particularly with small specimens, can be done with commercial grade muriatic acid (about 35% by weight), which is usually available through swimming pool suppliers or paint stores. Reagent grade is 36% acid. Do not cover the container where the reaction is taking place tightly because of the generation of CO_2. Cover the container loosely with a sheet of glass to prevent splashing. Complete removal of all acid at the end of the cleaning process is very important to prevent further leaching and stains. The acid can slowly permeate through plastic containers as fumes unless they are coated with an impervious lacquer finish (not always done). These fumes can attack metals in the vicinity ***including your microscope or light source***. The acid should be transferred to glass containers whenever possible. It can be stored at room temperature in a polyethylene container.Sodium bicarbonate is used to neutralize it.

  An oxalic acid rinse (10%) can remove the iron stains left after an initial cleaning with Hcl. Follow this with an extended rinse in distilled water.

- ***Nitric acid*** (HNO_3)can dissolve some materials which HCl cannot. The same precautions should be taken with it as with HCl, and, in addition it releases the reddish vapors of nitrogen oxide which are very toxic. Nitric acid is such a powerful oxidant that it can cause spontaneous combustion if spilled on finely divided organic material. Nitric acid will decompose on exposure to sunlight, so it needs to be stored in a brown glass bottle or in the dark. There is little reason to keep this in the home laboratory for the cleaning of micromounts since HCl will almost always do the job as well and is much less dangerous. Neutralize with sodium bicarbonate.

- ***Oxalic acid*** ($COOHCOOH{\cdot}2H_2O$) Discussed under "Removal of oxides and hydroxides."

- ***Sulfuric acid*** (H_2SO_4). This is the most dangerous acid to dilute because of heat generation and secondary splatter. In concentrated form it will absorb as much as 100% of its own volume of water from the atmosphere, causing containers of acid to overflow. Like nitric acid, this acid has little value over HCl to the micromounter because of its dangerous characteristics.

- ***Aqua regia*** and ***hydrofluoric acid***. These two acids will often clean up silica encrustations, but they are so dangerous and limited in their use that they are not recommended as stock items for the micromounter.

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Home Phone: (516) 799-6309
Collecting interests: Loudville (MA), Sugar Grove (WV), barite, quartz
Trade interests:
Special Interests:

John & Jean Downing 95
144 Cancellaro Drive
Wolcott, CT 06716
Home Phone: (203) 879-6708
Collecting interests:
Trade interests:
Special Interests:

John C. Ebner, Jr. 96
PO Drawer J
Manasquan, NJ 08736-0640
Home Phone: (908) 681-3451
Collecting interests: Silver, phosphates, cacoxenite, Tiger AZ
Trade interests:
Special Interests: Historical mounts, specimens mounted by person named after

M/M Alfred Elvin 96
2 Cambridge Circle
New Milford, CT 06776
Home Phone: (203) 798-5531
Collecting interests: Laurel Hill (NJ)
Trade interests:
Special Interests: Chemical testing, polarizing microscopy

Herbert L. Fielding 96
48 Butters Row
Wilmington, MA 01887-3341
Home Phone: (508) 657-7463
Collecting interests: General, sand
Trade interests:
Special Interests:

Forrest & Vera Fogg 96
1040 Gorham Pond Road
Dunbarton, NH 03045-4508
Home Phone: (603) 774-6450
Collecting interests:
Trade interests:
Special Interests:

James Grandy 96
524 Brooksvale Avenue
Hamden, CT 06518-1232
Home Phone: (203) 287-2669
Collecting interests:
Trade interests:
Special Interests:

William A. Henderson, Jr. 96
47 Robin Ridge Drive
Madison, CT 06443
Home Phone: (203) 245-0489
Collecting interests:
Trade interests: Swap NE, USA, St.-Hilaire for overseas micros
Special Interests:

Harold Herard 96
2 Betty Street
Auburn, MA 01501
Home Phone: (508) 755-5947
Collecting interests:
Trade interests:
Special Interests:

Les & Marge Hitchings 96
10 Church Street
Saugus, MA 01906-2474
Home Phone: (617) 233-4968
Collecting interests:
Trade interests:
Special Interests:

Ken Hollman 96
P.O. Box 134
Center Rutland, VT 05736-0134
Home Phone: (802) 747-1443
Collecting interests:
Trade interests:
Special Interests:

Muriel Hopkins 96
370 High Street
Somersworth, NH 03878-1408
Home Phone: (603) 692-2256
Collecting interests:
Trade interests:
Special Interests:

Bob Janules 96
17 Woodward Road
Merrimack, NH 03054
Home Phone: (603) 424-9269
Collecting interests: Conway granite minerals, Be & RE minerals, St.-Hilaire
Trade interests:
Special Interests:

Dana & Inge Jewell 96
100 Lynn Fells Parkway
Melrose, MA 02176
Home Phone: (617) 665-2756
Collecting interests:
Trade interests:
Special Interests:

William Kelly 96
4 Lawndale Road
Stoneham, MA 02180
Home Phone: (617) 245-2014
Collecting interests:
Trade interests:
Special Interests:

Michael W. Kieron 95
38 Merritt Road
E. Providence, RI 02915
Home Phone: (401) 434-0281
Collecting interests:
Trade interests:
Special Interests:

Walter & Carolyn Lane 96
RD 1, Box 245B Gore Road
Alfred, ME 04002-9750
Home Phone: (207) 324-5934
Collecting interests:
Trade interests:
Special Interests:

Frank & Phyllis Leighton 96
10 Templeton Road
Phillipston, MA 01331-9704
Home Phone: (508) 249-4261
Collecting interests:
Trade interests:
Special Interests: Microphotography

Edna Lerer 96
68 Pompositticut Road
Stow, MA 01775-1107
Home Phone: (508) 897-2630
Collecting interests:
Trade interests:
Special Interests:

Jean McKenna 96
125 Poplar Drive
Cranston, RI 02920-5563
Home Phone: (401) 944-9391
Collecting interests: Quartz, general
Trade interests:
Special Interests:

Eugene Mechler 96
RR-1, Box 1132
Bridgton, ME 04009-9758
Home Phone: (207) 641-2640
Collecting interests:
Trade interests:
Special Interests:

Eugene Mechler 96
640 Orange Blossom Lane
Deland, FL 32724-7533
Home Phone:
Collecting interests:
Trade interests:
Special Interests:

Paul M Adams, Editor MICROBITS 96
126 S. Helberta Avenue, #2
Redondo Beach, CA 90277-3448
Home Phone:
Collecting interests:
Trade interests:
Special Interests:

Muriel and Eric Wood, Editors MICRONEWS 96
3 Orangewood Cres.
Agincourt, Ontario M1W 1C5 Canada
Home Phone:
Collecting interests:
Trade interests:
Special Interests:

Martha M. Finta, Editor, MINERAL MATTER 96
17 Clark Street
Rockport, MA 01966
Home Phone: (508) 546-9641
Collecting interests:
Trade interests:
Special Interests:

Frederick Stohl, Editor MINI-MINER 96
10 Millen Drive
Toms River, NJ 08753
Home Phone:
Collecting interests:
Trade interests:
Special Interests:

Shelley & Bob Monaghan 96
12 Conant Drive
Brockton, MA 02401
Home Phone: (508) 586-3541
Collecting interests:
Trade interests:
Special Interests:

Dana Morong 96
117 Piscataqua Bridge Road
Madbury, NH 03820-6805
Home Phone: (603) 742-0270
Collecting interests: Buzzo Q.(Strafford, NH)
Trade interests: Mico euhedral tourmaline inclusions in muscovite
Special Interests: Blowpipe & chemical testing, Philip C. Foster, Charles A. Brown

Frances & George Morrison 96
182 Pine Street
Pawtucket, RI 02860
Home Phone: (401) 726-2931
Collecting interests:
Trade interests:
Special Interests:

James Parella 96
32 Pattison Street
Worcester, MA 01604
Home Phone: (508) 756-6619
Collecting interests: New England, St.-Hilaire
Trade interests:
Special Interests:

Richard Pershken 96
150 Surrey Drive
Bristol, CT 06010-7621
Home Phone: (203) 583-3909
Collecting interests:
Trade interests:
Special Interests:

Meredith & Armand Porro 96
55 Bulfinch Street
Lynn, MA 01904
Home Phone: (617) 592-1481
Collecting interests:
Trade interests:
Special Interests:

Emile Rappa 96
15 Spring Street
Chicopee, MA 01013-2610
Home Phone: (413) 594-4847
Collecting interests:
Trade interests:
Special Interests: Mineral photos

Violet Robinson 96
15 Walnut Avenue
E. Rochester, NH 03868-8427
Home Phone: (603) 332-0519
Collecting interests:
Trade interests:
Special Interests:

Marjorie Saums 96
24 Joseph Street
Manchester, CT 06040
Home Phone: (203) 649-5443
Collecting interests:
Trade interests:
Special Interests:

Palmer and Betty Sevrens 96
PO Box 397
Plymouth, NH 03264
Home Phone: (603) 536-2050
Collecting interests:
Trade interests:
Special Interests:

Elaine Sole 96
188-02 89th Avenue
Hollis, NY 11423-1906
Home Phone: (718) 776-3823
Collecting interests:
Trade interests:
Special Interests: Photography of micros

Richard E. Spellman 96
28 Godfrey St.
Willimantic, CT 06226
Home Phone:
Collecting interests:
Trade interests:
Special Interests:

Robert Sproule 96
20 Rolling Hills Drive
E. Bridgewater, MA 02333
Home Phone: (508) 378-9061
Collecting interests: New England
Trade interests:
Special Interests: Lost localities

Margaret & John Stewart 96
244 Mill Street
Burlington, MA 01803-1838
Home Phone: (617) 272-0854
Collecting interests: Francon, St.-Hilaire
Trade interests:
Special Interests:

Michael Swanson 96
29 Chestnut Hill
Greenfield, MA 01301-3003
Home Phone: (413) 773-3867
Collecting interests: General, St.-Hilaire, New England
Trade interests: Trade through mail
Special Interests:

Johannes Swarts 96
P.O. Box 246
E. Randolph, VT 05041
Home Phone: (802) 728-3336
Collecting interests:
Trade interests:
Special Interests:

Bettee Taparowsky 96
404 Westford Drive
Southport, CT 06490
Home Phone: (203) 254-2508
Collecting interests:
Trade interests:
Special Interests:

Angie Teixeira 96
33 Kossuth Street
Pawtucket, RI 02860
Home Phone: (401) 722-4545
Collecting interests:
Trade interests:
Special Interests:

Jack Nelson THE MINERAL MITE 96
17300 Hughes Road
Poolesville, MD 20837
Home Phone: (301) 972-8504
Collecting interests:
Trade interests:
Special Interests:

Marcelle & Charles Weber 96
1172 West Lake Avenue
Guilford, CT 06437-1342
Home Phone: (203) 457-9810
Collecting interests:
Trade interests:
Special Interests:

Robert Whitmore 96
Route 2
Weare, NH 03281
Home Phone: (603) 529-2621
Collecting interests:
Trade interests:
Special Interests:

Scott Whittemore 96
8 Goldfinch Lane
Nashua, NH 03062
Home Phone: (603) 888-1174
Collecting interests: Rare earths, late-solution granitic minerals
Trade interests:
Special Interests:

Anna & Robert Wilken 96
32 Red Cedar Drive
New Milford, CT 06776
Home Phone: (203) 355-4010
Collecting interests:
Trade interests:
Special Interests:

Horst Windisch 96
PO Box 17273
Grooenkloof, South Africa
Home Phone:
Collecting interests:
Trade interests:
Special Interests:

Joel Yancy 95
19223 Lomond Blvd.
Shaker Heights, NY 44122
Home Phone: (216) 283-5159
Collecting interests:
Trade interests:
Special Interests:

Kerry Yellin 96
172 N. Lake Shore Drive
Brookfield, CT 06804
Home Phone: (203) 775-2125
Collecting interests:
Trade interests:
Special Interests: