

Mineralogy FAQs

Why does mineralogy matter? The asbestos debate

It is estimated that nearly \$100 billion has been spent on removal of asbestos-bearing materials from schoolrooms, public and commercial buildings, and homes. This removal continues to this day despite the publication of an advisory document in 1990 by the U.S Environmental Protection Agency that states most removal is unnecessary and is even counterproductive both in terms health protection and costs. Concern over low exposure to substances that are designated as carcinogens is based on the false concept that even the smallest exposure to such substances can increase cancer risk. The expression "one molecule of a chemical or one asbestos fiber can possibly produce a tumor" is repeated over and over until it is accepted as a truth. Over 1400 air samples taken in 219 North American school buildings show the average fiber level to be 0.00022 fibers per milliliter of air. Using the most pessimistic models and attendance in the school for 6 hours a day, 5 days a week, for 14 years, the calculated risk is one excess cancer death per million lifetimes. In contrast, the risk of dying from a lightning strike is 35 deaths per million lifetimes. Ambient air asbestos concentrations measured in the chrysotile asbestos mining towns of Quebec are 220 to 2200 times greater than that measured in the average schoolroom, yet the women living their entire lives in these towns show no increased cancer risk. The asbestos abatement program in the United States is a public policy debacle...

Health effects of asbestos: The adverse human health effects of mineral dusts, especially asbestos dusts, have received much study over the last 35 years. The high incidence of cancer and asbestosis reported among many groups of professional asbestos workers was particularly important in establishing a public concern over the possible health effects of asbestos dusts outside the workplace in the non-occupational setting. The fact that asbestos causes cancer among heavily exposed workers, coupled with the hypothesis that there is no known exposure threshold for the induction of a tumor by a carcinogenic substance, justified a multi-billion dollar program of asbestos removal in United States schools, homes, and commercial buildings. The public was led to

believe that a schoolchild's exposure to asbestos fiber, even in minute quantities, could later cause that child to develop cancer...

The Nature of Asbestos-Related Disease: Of the six types of asbestos, only three have been used to any significant extent in commerce. These three are: chrysotile asbestos ("white" asbestos), crocidolite asbestos ("blue" asbestos), and amosite asbestos ("brown" asbestos). Chrysotile asbestos is a member of the serpentine mineral group and is distinctively different in chemical composition and atomic structure from crocidolite and amosite asbestos; the latter two belong to the amphibole group of minerals. Between 1870 and 1992 approximately 150 million tonnes of asbestos have been mined world-wide, of which over 90 percent is chrysotile, the white variety. Combined production of blue and brown asbestos amounted to approximately five percent of the total world asbestos production.

The three principal diseases caused by inhalation of asbestos dusts are: (1) lung cancer, (2) mesothelioma, a cancer of the pleural and peritoneal membranes that invest the chest and abdominal cavities, and (3) asbestosis, a condition in which the lung tissues become fibrous and thus lose the ability to function (Skinner and others, 1988). These three diseases are not equally prevalent in the various groups of asbestos workers that have been studied: the amount and type of disease depends on the duration and intensity of exposure and particularly on the type or types of asbestos to which the individual has been exposed. Lung cancer is caused by exposure to chrysotile, crocidolite, and amosite asbestos; however, increased risk of this disease is particularly found in those who smoke. Asbestosis is caused by all three forms of asbestos, whereas mesothelioma is principally caused by exposure to crocidolite asbestos and to a lesser extent by amosite asbestos. Selikoff and others (1979), in a major study of North American asbestos trades workers who were exposed to mixed asbestos fibers, reported that of the 2,271 deaths, 486 were due to lung cancer (106 expected), 175 were due to mesothelioma (none expected), and 168 were due to asbestosis (none expected). McDonald and others (1993) reported on a study of a large cohort of asbestos miners and millers who were employed in two Quebec mining towns and were exposed mostly to chrysotile asbestos. Of the reported 2,827 deaths within this cohort, 321 were due to lung cancer (229 expected), 25 were due to mesothelioma (none expected), and 48 were due to asbestosis (none expected). In a more recent follow up study of this Quebec cohort, 37 deaths due mesothelioma are now

recorded; 5 of these deaths were among individuals who worked in a factory processing crocidolite and many of the other 32 cases appear be related to exposure to tremolite asbestos, a mineral that occurs locally in some of the Quebec chrysotile deposits

(McDonald and McDonald, 1995)...

Non-occupational exposures to asbestos in the Quebec mining districts: Mines within the towns of Thetford Mines and Asbestos, located in the province of Quebec, Canada, have produced about 40 million metric tonnes of chrysotile asbestos since first opening in 1878. Many mines have closed, but several large capacity-mines are still producing asbestos. These two towns have a combined population of 30,000 people and a large number of the male residents work, or have worked, in the asbestos mines and mills. Most of the asbestos workers are male; very few are female. Until the 1970's there was very poor dust controls, thus the town residents were continually exposed to asbestos dust from the nearby mines, mills, and mine waste dumps. Prior to the introduction of modern dust control technology in the 1970's, the 24-hour-a-day non-occupational exposure to chrysotile asbestos was approximately 0.05 to 5 fibers per milliliter 220 to 22,000 times the average levels found in schools. A mortality study was made by Siemiatycki (1982) of 1130 deceased women who had lived in these two towns but did not work in the asbestos industries. This study shows that the health of these women was unaffected by these very high non-occupational 24-hour-a-day lifetime exposure to asbestos dust. The SMR for all cancer in these women is 0.91, for lung cancer 1.07, for digestive cancer 1.06, and for non-malignant respiratory disease 0.58. None of these SMR's are statistically different from the control cohort composed of unexposed women living outside the asbestos mining townships. A previous study by Graham (1981) also showed no excess cancer among the female residents of these Quebec mining towns (also see Ross, 1984, p. 82-85)... ...Several epidemiological studies of asbestos trades workers have now been published that show no significant incidence of asbestos-related disease in individuals exposed to asbestos dust levels much higher than levels observed in schools and in other non-occupational settings...

By Malcolm Ross. Excerpted from "The Schoolroom asbestos abatement program: a public policy debacle", The Science & Environmental Policy Project, 4084 University Dr., Suite 101,

Fairfax City, VA 22030 <mrdrr@earthlink.net> Used by permission.

Call For Papers: FM Symposium in Tucson 2003

Papers and proposals for talks are solicited for the annual FM-sponsored Symposium held in conjunction with the 2003 Tucson Mineral Show. The Symposium will be held on Saturday Feb 15th, 2003, in the Tucson Convention Center, starting at 10 a.m. Announced theme is "Gems and Minerals of the Andes Mountains." Send all Abstracts to Dr. Robert B. Cook who will edit them and send them along to Wendell Wilson. Email submittals are fine, send via email to <cookrob@auburn.edu> or by U. S. mail to Dr. Robert B. Cook, Department of Geology and Geography, 210 Petrie Hall, Auburn University, AL 36849. Phone is (334) 844-4282. Abstracts should be 200 - 300 words long.

From the Editor: Welcome to the Friends of Mineralogy Newsletter. Things are a little rough and a little slow as I'm trying to come up to speed as Newsletter Editor, but with your patience and your help, we'll produce a newsletter which is both interesting and informative. As I have done in this issue, I'd like to start off each newsletter with a short article on some aspect of mineralogy. To that end, I'd like to encourage everyone to submit one- to two-page articles for consideration for publication in the FM Newsletter. Please send submissions directly to Dr. Andrew A. Sicree, Penn State Earth & Mineral Sciences Museum, 112 Steidle Bldg., University Park, PA 16802, (814) 865-6427 or email <sicree@geosc.psu.edu>.

This newsletter will be posted at FM National's website:
www.friendsofmineralogy.org/.

Dues Notice: Dues are past due as of April 1. If you haven't paid your dues yet, please do so now. Please fill out and send in the form in this newsletter along with your dues. Former members of FM are strongly encouraged to re-join.

Reports

FM at AGI Member Society Forum on K-12 Earth Science Education

FM National President Susan Eriksson represented our society at a forum on K-12 Earth Science Education this past spring (April 12, 2002). The purpose of the forum was to explore how our societies can address the issues associated with earth science education across the nation. The discussion revolved around the new publication *Revolution in Earth and Space Science Education; Blueprint for Change*. The entire publication can be viewed or downloaded from www.EarthScienceEdRevolution.org

Forum leaders asked participants to consider two questions: 1) How do your goals in your society relate to the revolution? 2) How can your society become involved in the revolution? The goal of the meeting is to help Member Societies think about using the Revolution Blueprint as a guide to produce materials and provide services that give teachers what they need (support for reform of teaching and learning), not just what they want (classroom activities).

A second question, “Why change?” addressed why we should put efforts into a ‘revolution’. Over the last decade, the national standards and benchmarks have encouraged education reform. The National Science Education Standards were published in 1996. They provide a guide to how things should change. For example, Earth science is one-third of the content in the standards. The problem is that standards are only guidelines. The Revolution report is way to get standards implemented. Some surveys show that 88percent of high school students take biology but only 7 percent take Earth science. This is based on limited available data. New technologies and resources (for example, visualizations, computer models, etc.) support Earth systems science education. Several factors support change: standards and a report that provides a framework for changing education (and what happens in the classroom).

Because the main activities of Friends of Mineralogy reside in individual chapters and with individuals, I encourage you and your chapter to look

at the 'Revolution' document and to see if any of its goals resonate with members.

Earth Science Week is October 13-19. This annual event is a way for individuals and chapters to be involved in Earth Science Education in K-12 at whatever level of involvement is appropriate. The website www.earthsciweek.org has suggestions on how you can be involved. Please let me know if you do any activities related to this national event.

Education is one of our national goals for FM. Individually and collectively we CAN make a difference.

Susan C. Eriksson, President

Mississippi Valley Chapter June 2002 Meeting Report

Minutes of the June 15, 2002 MVC FM meeting held at the Missouri Mines Museum site in Park Hills, MO. Mark Sherwood opened the meeting at 9am CST. 12 members present. Minutes from last meeting held (Mar. 2002) read and accepted as printed in the most newsletter. Treasurer's report: as of 05/31/2002 balance was \$1576.63. Ted to provide Mark with a financial statement for year 2001.

Old Business: Mark still working with the state of Missouri in regards to the tax exempt status of our chapter. The National FM web site is up now ---www.friendsofmineralogy.com. Carol provided updated list of member roster names and addresses for 2002. Carol to send email listing of email addresses. Mark and Bruce continue to work on the Kansas locality index.

New business: Motion to donate \$200 to the historic Missouri Mines Museum Society was made, seconded and discussed and passed. Check presented to Art Hebrank trustee of the Society; the money to be used at his discretion. Fund raisers: Larry to check on pricing for T shirts with a logo. Larry has the 2000 guidebook info and Carol to email Mike Howard for the 2001 Arkansas guidebook info. 2002 Fluorite district Seminar: Bruce continuing work on this. He will take a trip to the area to confirm accommodations and prices for the meeting room, etc. Speakers would include Bruce Stinemetz, Dean Stone, possibly Eric Livingston (Larry or Bruce to check with Eric). Tentatively, the event will

start Sat. Oct. 19 at 8am with breakfast meeting speaker and orientation and itinerary. Field trip to a few sites during the rest of the day and then evening meal with speaker, and a business meeting in there somewhere. Sunday field trip to the Clement Museum in Marion, KY a short hop across the Ohio River on the car ferry boat.

Symposia

Colorado Chapter Symposium: September 7-10, 2002

"Gemstone Deposits of Colorado and the Rocky Mountain Region" is the topic of the upcoming symposium to be held at Colorado School of Mines, Golden, Colorado, September 7-10, 2002, sponsored by Friends of Mineralogy, Colorado Chapter. To receive further information about symposium registration and the details about the program and field trips, or to offer to present a paper at the symposium, please contact any of the following: Paul Bartos, CO School of Mines, 303-273-3823, <pbartos@mines.edu>; Dan Kile, U.S. Geo. Surv., 303-541-3029, <dekile@usgs.gov>; Jack Murphy, Denver Museum, 303-370-6445, <jmurphy@dmns.org> ; Pete Modreski, U.S. Geo. Surv., 303-236-5639, <pmodreski@usgs.gov>; or write to Colorado Chapter - FM, P.O. Box 5276, Golden CO 80401-5276.

Pacific Northwest Chapter Symposium: September 27-29, 2002

The 28th Annual Pacific Northwest Friends of Mineralogy Symposium will be held at the Red Lion Hotel in Kelso/Longview, Washington September 28-29, 2002. Featured topic this year is "The Inside Story - Inclusions", with guest speakers John I. Koivula and John S. White. Main floor dealers to include Harvey Gordon Minerals, Lehigh Minerals, The Aesthetics Underground, and Oxcart Minerals. For Symposium fliers, please contact Jade Wieting <pdxpounder@hotmail.com>. For additional information about the Chapter, contact Sharleen Harvey at <bill-sharleenharvey@att.net>. Jim Etzwiler, President.

FM Mississippi Valley Chapter Seminar: October 19-20, 2002

AGENDA

Saturday October 19:

8:00-9:30 a.m. Welcome and speaker. Continental Breakfast available.

9:30 a.m. Depart for the American Fluorite Museum in Rosiclare.

10:00-11:00 a.m. Tour the Museum.

11:00 a.m.-5:00 p.m. Field Work --bring sack lunch, drinks and tools.

6:30 p.m.-9:00 p.m. Supper at San Damiano Ctr.;
Speaker(s)/program/business meeting/ discussion.

Sunday October 20:

8:00 a.m. Meet at the Ferry at Cave-in-Rock. Travel to the Museum in KY.

9:00 a.m. Tour the Clement Fluorite Museum in Marion, Kentucky...

10:00 a.m. until ?? Field Workbring sack lunch, drinks and tools.

The San Damiano Retreat Center is located in Golconda, 1 hour south from Marion, Illinois. Take Hwy 57 south to Hwy 24 south to Hwy 146 east to the intersection of Hwy 146/34, go south approximately 3 miles. The Retreat Center offers lodging that ranges in price from \$61 per night to \$148 per night. The more expensive cabins/rooms offer fireplaces, whirlpool tubs and full kitchen. Mailing address: San Damiano Retreat Center, Rt. 1, Box 106, Golconda, IL 62938, phone 800-716-1558 or 618-285-3507. Other lodging options include Super 8 and Comfort Inn at Harrisburg, IL. Or the Budget Inn or Ramada Ltd. in Vienna, IL. Camping in the Shawnee National Forest and the Dixon Springs State Park available. Questions? Email Carol Ferguson at hbkcpnc@msn.com.

**MISSISSIPPI VALLEY CHAPTER FM OCTOBER SEMINAR 2002
REGISTRATION FORM**

Name:

Address: _____

City: _____ State: _____ Zip:

Registration Fees:

MVC 2002 member: \$50 (includes Continental breakfast Sat. AM, Sat. supper, field guide book, Sunday entry fee to the Clements Fluorite Museum, and collecting fee at the Columbia Mine). Non-member: \$65 (includes Continental breakfast Sat. AM, Sat. supper, field guide book, Sunday entry fee to the Clements Fluorite Museum, collecting fee at the Columbia Mine and FM-MVC member dues)

Field Guide Book: \$10

- I am unable to attend the Seminar but would like the Field Guide Book:

Number of copies: _____ Please enclose appropriate fee(s) and \$2 for postage.

Total amount enclosed: _____

Make checks/money orders payable to: Friends of Mineralogy. Send fees to: Ted Ferguson, 3912 Queen Ridge, Independence, MO 64055A
Release of Liability form must be signed before you are allowed to participate in any of the field trips.

Pennsylvania Chapter Symposium: November 1-3, 2002

The Pennsylvania Chapter of FM will hold its annual Mineral Symposium on the weekend of November 1-3, 2002. Symposium theme will be pegmatites. Speakers are now being arranged as well as a field trip site. Other symposium events will include a few dealers, give away table, and an auction to benefit the Chapter Student Research Grant

Fund. For more information contact George Rambo at 302-798-4163 or write to 17 N. Avon Drive, Claymont, DE 19703.

Mineral Notes

Tunisian “Barite” is Really Celestite

If you haven't heard already, crystals labeled as blue barite from Tunisia are actually Celestine. Energy Dispersive Spectrometry (EDS) done on three specimens showed that all were Celestine. The spectra showed a large amount of strontium, but only a trace of barium. Dan Weinrich reported in Mineral News identification as Celestine, based on spectrometry and specific gravity measurement. According to Steve Shailer (Ream, 1999) the corrected label for these materials should be:

Celestite
Hammam Zriba Mine
Hammam Zriba, Gouvernerat of Zaghaoun
Tunisia, North Africa

References: Weinrich, Dan, 1999, Tunisian barite or celestite. Mineral News 15:10:9; Ream, Lanny, 2000, Tunisian Celestite. Mineral News 16:10:4. Contributed by Mark Sherwood, FM- MVC Newsletter, Spring 2002.

SPECIAL RECOGNITION FOR EDUCATIONAL CASES

At the Tucson Gem and Mineral Show, the Friends of Mineralogy sponsors non-monetary recognition for cases which help explain an aspect of mineralogy. There is no restriction on the theme, but the case should have some special “instructive” or “educational” feature. In keeping with the high standards of the TGMS, they should be aesthetically pleasing and contain specimens worthy of the show. Two certificates are awarded, one for private collections and one for museums, and the winners are honored at the Saturday night banquet. Educational/Instructive cases help the hobby grow and underline its scientific basis. Exhibitors at Tucson, both individuals and institutions, are asked to consider seriously such a feature for their cases.

See You in Denver:

Informal FM Meeting & Social

Friends of Mineralogy sponsors an informal meeting and social, complete with coffee and donuts, during Denver's Gem & Mineral Show. Meet Sat., Sept. 14, at 11:00 a.m., in the Aisle "F" Meeting Room at back of the hall. All are welcome to attend. Bring along a non-member friend and invite them to join the FM.

Bill Basbagill. Long-time Friend of Mineralogy, Bill Basbagill of Lakewood, Colorado, died July 20 of a massive heart attack while in Townsend, Washington, for the American Federation Show. Since his retirement a few years ago, volunteering (especially for mineral-related activities) had become a way of life for Bill. He freely gave of his time to the mineral community on the local, regional, and national level. This included being perennial chairman of the benefit silent auctions held for Rocks & Minerals at both Tucson and Denver. Bill was a long-time member of FM and was a true Friend of Mineralogy. He will be missed. FM extends its condolences to his family.

Membership

Friends of Mineralogy Application for Membership (or Renewal) / Member

Data Sheet

Last Name: _____

First Name: _____

Street Address: _____

City: _____

State/Province: _____

Country: _____ Zip/Postal Code: _____

Telephone: _____(Home)
_____ (Office)

FAX: _____(Home) _____(Office)

E-mail address: _____ Chapter

Affiliation Desired: _____

Signature: _____ Date

Friends of Mineralogy, Inc., is composed of members of 7 local chapters, plus national members not affiliated with a chapter. Prospective national members should send their application and \$10.00/year dues to Jim Hurlbut, 2240 S. Adams St., Denver, CO 80210-4912. Phone 303-757-0283. Prospective members of a chapter may submit form directly to the chapter contacts (Colorado, Midwest, Pacific NW, Miss. Valley, SouthEast, Pennsylvania, or Southern Calif.), to Jim Hurlbut who will forward it to the appropriate chapter. (You will be billed for your chapter dues, since they vary with individual chapters.)

Please Note: Dues are past due as of April 1. If you haven't paid your dues yet, please do so now. Please fill out and send in this form along with your dues. Former members of FM are strongly encouraged to re-join.

National Officers

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FM Web Site Address: <http://www.friendsofmineralogy.org/>

Chapter Contacts

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Southern California Chapter: Jack Nieberger, 25231 Pico Vista Way, Moreno Valley, CA 92557, (909) 242-1777; Bob Reynolds, 220 South Buena Vista St., Redlands, CA 92373-5129, (909) 798-8570, <Jreynolds@empirenet.com>; website: <http://www.mineralsocal.org/scfm/welcome.htm>.

Mississippi Valley Chapter: Mark Sherwood, P. O. Box 436, Oak Grove, MO 64075-0436, (816) 690-8226, <msherwood@swbell.net>; Ted and Carol Ferguson, 3912 Queen Ridge, Independence, MO 64055 (816) 478-6418, <Hbkcphe@aol.com> or <Tferg62953@aol.com>.

Southeast Chapter: David Babulski, 2677 Colony Circle, Snellsville, GA 30078, (770) 985-1772, <dbabulsk@lanier.com>; Rockbytes online: <http://members.cox.net/fomse01>

Tucson Society: Peter Megaw <Tgmsgb@azstarnet.com>.

Friends of Mineralogy, Inc., is affiliated with The Mineralogical Record Magazine, The Mineralogical Society of America, and the American Geological Institute.

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