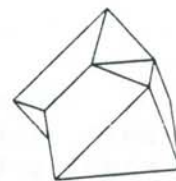


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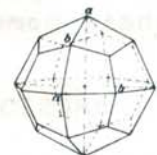
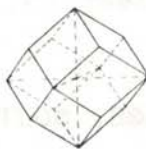
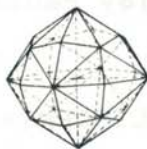
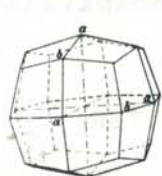
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Crystal of the Month Quiz

## 14TH ANNUAL FM-TGMS-MSA MINERALOGICAL SYPOSIUM ON GARNET

Karen J. Wenrich, FM Board Member and chairman of the symposium, reports a full slate of papers that are scheduled for Saturday, February 13, 1993 between 10:15 AM and 2:00 PM in conjunction with the Tucson Gem and Mineral Society's Annual Show. The papers, all on garnet, include such topics as: nomenclature and classification of gem garnets, crystal structure, chemistry, and properties, color, inclusions, geologic occurrences, garnets in architectural paints, garnets from pegmatites in San Diego County, California, garnets in Magnet Cove, Arkansas, a new locality for Garnets in Connecticut and the McBride Property.

For a complete schedule of papers and times see the MINERALOGICAL RECORD, January-February issue, 1993 or the program for the Tucson Gem and Mineral Society Show. The symposium is free to all and if you have never been to one you are missing a special treat. This year's symposium looks particularly good so do not miss it.



## THE ANNUAL MEETING OF FRIENDS OF MINERALOGY

The annual meeting of Friends of Mineralogy will occur in conjunction with the Tucson Gem and Mineral Society Annual Show at the Tucson Convention Center on Friday, February 12, 1993 at 5 PM in the Turquoise Ballroom. Chapters should designate an individual who plans to attend the show to give brief reports on activities of the past year and planned events and projects of the coming year.

So if you plan to be in Tucson, plan to attend, your input and your support are welcome and appreciated.

Also remember that dues are due for 1993. Ten dollars for National Members. Chapter members pay theirs to their individual Chapters and rates will vary. Current year for dues received will eventually be on the upper right hand corner of the mailing label.

### CRYSTAL QUIZ

(from The Dodecahedron: A Newsletter for Florida Mineral Collectors, October and December 1992, Abe Rosenweig, editor.)

1. What is this mineral? Is it a twinned crystal? If yes, what is this twin called? If no what form(s) are present.

2. What simple habit would a single crystal of these twins display? The twin law, a rotation of 180 degrees around a 3-fold symmetry axis bears the name of a common mineral. What is that mineral? Name at least one other mineral that displays such twins. answers inside.

## PENNSYLVANIA 1992 FALL SYMPOSIUM

(from the F.M., PA Chapter Newsletter, Juliet C. Reed, editor) The well attended Friday night social and "What's New" review was highlighted by a talk given by Heyward Wharton, on a rediscovered Delaware County chromite occurrence.

Saturday, Dr. David Gold of Pennsylvania State University, who grew up in South Africa, spoke on the carbonate minerals of the carbonatite rocks crystallized from igneous melts, illustrating the talk with slides of African localities. Ronold Sloto reviewed the mineralogy of the Phoenixville Lead Mines, nearby in Chester County, Pennsylvania and mineralogist Vandall King, of Rochester, described the Consolidated #1 Pegmatite-Quarry Group, Topsham, Sagadahoc County, Maine, as well as introducing the audience to another talk, to Benjamin Vaughan, "Grandfather of American Mineralogy and Patron of Cleaveland". Maureen Sherlock, a geologist with the U.S. Geological Survey reviewed the services of the Minerals Information Office in Washington, D.C. and Jay Lininger, publisher of the magazine of historical mineralogy, *Matrix*, spoke about collectors and localities associated with the 100-year-old Philadelphia Mineralogical Society.

Before lunch, the audience had the pleasure of seeing Dr. Seymour Greenberg (West Chester State University, retired), our longtime host for the Symposium, win not one, but two of the raffle prizes. At noon, members and guests enjoyed a luncheon and a laughter-provoking, cartoon-illustrated talk on how others see geologists and geology, by Dr. William Brice, of the University of Pittsburg at Johnstown.

After the afternoon lecture session, some very good buys were available at the auction. Sunday's field trip to Adams County, led by Jay Lininger was very worthwhile, and ended with the opportunity to see Jay's exceptional Pennsylvania collection, and enjoy Paula's hospitality at their home in Dillisburg.

## PRESIDENT MIKE GRAY'S MESSAGE, SOUTHERN CALIFORNIA CHAPTER

As more and more people populate our country, our resources become more and more limited. Laws are changed, or are enforced differently, and effect the way we are use to doing things. Three of the changes that have taken place during the past few years will alter the availability of minerals from certain localities for field collectors, as well as the "silver pick" variety.

Senator Alan Cranston wants to withdraw a large tract of California's desert land from all recreational uses, including rockhounding as well as commercial mining. Senator Mex Baucus has a bill in the Senate (S-3107) that would limit vertebrate fossil collecting on public lands. The Bureau of Land Management started requiring additional forms to be filed out for mining claims, catching some mine owners off guard. There is talk in Congress of eliminating the Mining Law of 1872 (and subsequent amendments relating to the law).

Are these laws bad because they keep us from pursuing our "rights" to collect from the public lands, or are they for the greater public good, keeping resources for our children? Certainly one has to question the way some of these laws have been enacted or interpreted, such as the BLM forms that were announced only in the Congressional Record (we all get that periodical, don't we?), and then not making the forms available when doing the assessment filing. Several miners have lost long-standing claims that the government took back into the public lands, because of the lack of the unknown form. The interpretation of existing laws have been somewhat questionable in the case of the recently excavated Tyrannosaurus Rex by the name of "Sue" in South Dakota. The passage of the California Desert

Protection Act would eliminate hundreds of known collecting localities around Death Valley.

The Southern California Friends of Mineralogy Chapter had the following topic at their annual symposium at the M.S.S.C. show in Pasadena in November 1992:

Dr. Michael O. Woodburne of the BL, "Status and Changes of California Mining Laws".

Bob Wilwod, BLM, "The Interpretation of S-3107".

Elden Hughes, Director of the California Desert Protection League, "How Mining is Affected by the California Desert Protection Act.

Sugar White, "What's New in Minerals in Southern California.

## THE U.S. GEOLOGICAL SURVEY'S INFORMATION OFFICE (1)

**Maureen G. Sherlock, Geologist, U.S.G.S.**

The Minerals Information Office (M.I.O.) is the primary Federal clearinghouse for inquiries related to mineral resources and mining. The Office was established in 1988 in Washington, D.C., as a cooperative effort between the U.S. Geological Survey (U.S.G.S.) and the U.S. Bureau of Mines. The U.S.G.S. has subsequently established four other Minerals Information Offices in Tucson, Denver, Reno, and Spokane. All the offices provide a wide spectrum of mineral resource information to government organizations, the exploration and mining industry, other private sector groups, and the general public. Each office is staffed by professional geologists and information specialists, who provide information in formats appropriate for each particular client.

M.I.O.s feature the U.S.G.S.'s Mineral Resources Data System (M.R.D.S.), a continually growing computer data base of geologic and site-specific information for some 91,000 mineral occurrences, prospects, and mines worldwide. The data are part of the Survey's ongoing mineral resource studies and include information for over 76,000 mineral sites in the United States, of which more than 10,000 occur along the eastern seaboard. Information can be extracted from M.R.D.S. by searching for geographic area, commodities, ore mines, host rock, and other geologic information, and can be printed in tables or full descriptions and plotted at various scales.

Additionally, M.I.O.s provide lists of general references by State, indexes to areas where the U.S.G.S. has finished mineral resource studies, and specialized reference searches in U.S.G.S. publications about mineral resources.

Inquiries about mineral resources can be made to a M.I.O. by phone, by mail, or by visiting any office. The Washington, D.C., M.I.O. is located in the main Department of Interior Building, at 1840 C Street, N.W., Washington, D.C. 20240 (use the 18th and E Street entrance), phone 202-208-5512.

(1) Abstract from the "Program with Abstracts," F.M., Pa. Chapter, 1992 Fall Symposium.

### ANSWERS TO CRYSTAL QUIZ

1. The crystal is a cruciform penetration twin of pyrite with one individual rotated 90 degrees relative to the other. It bears the name "iron cross" or "eisenkreuz".

2. The simple habit is an octahedron. The crystal is a spinel twin. Two other minerals that may show spinel twins are diamonds and copper.

## ON-LINE COLLECTING

Members of CompuServe interested in minerals, gems, and geology have begun meeting in the Geology Section of the Science Forum. Experience and knowledge ranges from professional to novice and they are located all over our nation. We are seeking more members, especially from CompuServe's growing overseas membership.

This is truly a unique communications medium. It is as fast as faxing, can be cheaper than ordinary mail, and if you want, it's "on display" like a classified advertisement in an instantaneous worldwide newspaper. Programs, documents, databases, and spreadsheets can be transmitted in ready-for-computer-use form. Messages are directed to a person, not a place, so travelers can receive it anywhere they have the use of a computer with modem and a phone line. This medium is uniquely ideal for trading, buying, and selling specimens as well as exchanging information. In the short time since we have become active we have arranged numerous cross-country trades, given and received directions for collecting sites, identified minerals for each other, and made available free mineral/locality identification databases with a document on use of data bases in all aspects of the collecting hobby.

No other communications medium seems as well suited to the needs of a far-flung organization like the Friends of Mineralogy. Newsletters, meeting minutes, and other information could be easily posted. Then members, regardless of where they are, even overseas, could read it when ever they choose.

Computers are growing cheaper and easier to use all the time. Have you priced them lately? CompuServe is rapidly growing in membership, range of services, and ease of use. If you have not tried it since CIM arrived in early 1992, then you have not really tried it. Computers have many uses for the collector. They can be used as an aid to identify specimens, to locate a source for them, and to organize a collection. Join our group and learn these and other uses for your computer! CompuServe has unique uses in many other areas as well. If you have a problem, you can at the press of a button join a worldwide club of people who know the subject and ask the entire membership your question in one step, often getting several answers within hours. There are other features but space prevents my mentioning them all here. Contact me, Doug Mitchell, My CompuServe ID/address is "70621,702". Via Internet that is "70621,702@CompuServ.Com". Regular mail can reach me at 19522 Sierra Canon Road, Irvine, CA, 92715.

## REMARKS FROM THE EDITOR

This will be my final issue as editor of the FM Newsletter. The three years have gone by rapidly and I have enjoyed it though at times I found the lack of input from members rather frustrating.

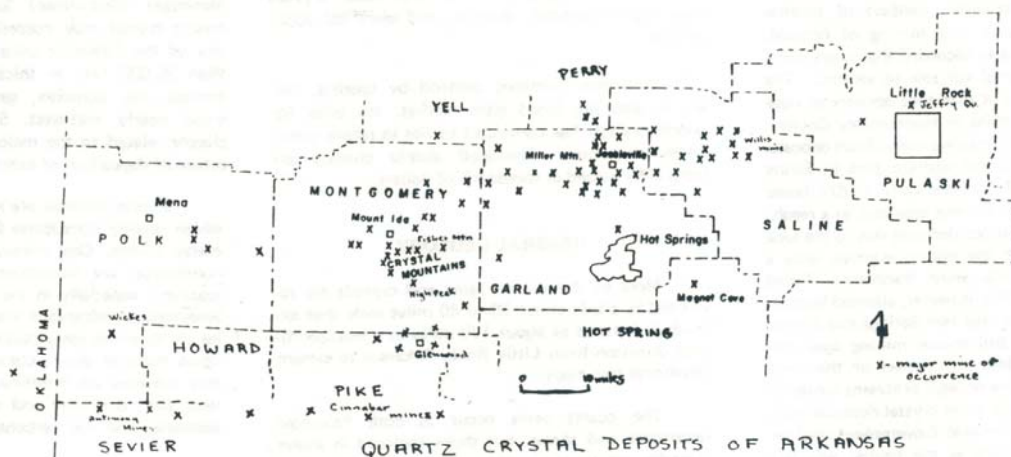
Betty Tlush, the editor prior to me, did a fine job of cluing me in to the task at hand and so I had no unpleasant surprises when taking over so I thank her for that.

I would like to thank Carolyn Jones, FM member in Denver and Bob and Laurie at Copy Cat, Denver for their help in putting out an attractive bulletin. Though they are not to be blamed for this hurried cut and paste issue that I have assembled.

I would like to thank the chapter editors for sending me their newsletters. Particulary the Pacific Northwest and Colorado chapters who were very diligent in this matter.

The new Editor will be Nelson Shaffer, Indiana Geological Survey, 611 N. Walnut Grove Avenue, Bloomington, IN 47405. Chapter editors please send him copies of your 1993 newsletters and any other information that can go into this newsletter or dates of events you want to publicize to the national membership. It disapointing to find this information published elsewhere with no time to include it here.

## ARKANSAS QUARTZ CRYSTALS



## SPECIAL QUARTZ TYPES AND ASSOCIATED MINERALS

**Enhydros** are generally very rare in Arkansas except in the doubly terminated 'Herkimer-Like' crystals found in the soil around Glenwood in Pike and Montgomery counties. Liquid included quartz crystals from this area are common. The crystals weather from calcite veins in shale.

**Faden quartz** is most common in the mines of Saline county but some may occur at any mine. Also called string quartz because the flat clear crystals look like they have a string running through them (see M.R., v. 21, n. 3, 1990).

**Japan Twins** are very rare. A few have been found in the Crystal Mountain mines and elsewhere. Good specimens command an extremely high price.

**Tabular quartz** is most common in the mines of Saline county but some may occur in most any location.

**Scepter quartz** is extremely rare. A few small crystals occur in the Glenwood area of Pike and Montgomery Counties.

**Smoky quartz** scattered through much of the quartz area. Some deposits have been found near Lake Ouachita. The lighter crystals are generally natural while most of the black crystal have been artificially irradiated except for those coming from the Magnet Cove area which have been naturally irradiated. Quartz generally does not occur in the Cove but in the surrounding novaculite where it is often associated with brookite. These crystals may be color zoned.

**Amethyst and Citrine** are not generally found in the Ouachita quartz belt. A few small crystals have been found with the Serpentine deposits in northern Saline County.

**Multiple terminated** or solution quartz has come from the Jeffrey quarry in Pulaski County north of Little Rock. These small crystals come in cavities filled with rectorite in the Jackfork Sandstone. They may occur in other location but only as isolated occurrences.

**Inclusions** of chlorite and other minerals such as pyrite, adularia, dickite, cryptomelane and goethite occur in quartz crystals. Chlorite inclusions are the most common and show a wide variation in occurrence from scattered groups of chlorite spheres of the Willis mine in Saline County to the heavily included green phantoms from locations near Jessierville in Garland County. The black phantom inclusions from the Robin's mine in Montgomery County are one of the manganese minerals probably cryptomelane. 'Sand Crystals' are tan to white heavily included crystals found at the McEarl mine, Garland County.

**Cookeite** is a lithia mica that occurs with a number of quartz locations in Saline and Pulaski Counties. Jimmy McNeil, 1175 Mt. Moriah, Memphis, TN 38117, has been mining choice green and blue spheres of cookeite on quartz from the Stand of Your Head claim, Saline county for several years.

**Jewelry points** are single small crystals 1 inch or less long that are bright and clear. They sell by the pound and command a good price, up to \$200/pound in the boom times of the 1980s.

**Candle points** are single crystals that show a 7 to 1 length to width ratio. All Arkansas deposits may produce some candle points but the Collier Creek and High Peak areas have particularly nice crystals. (Crystal City, Don Burrows, 3 miles east of Mount Ida on Hwy 270, wholesale only in crystal yard, retail shop on the highway. 501-867-3664).

**'Snow crystals'** are bright white opque crystals similar in appearance to those from the Idrado and Camp Bird mines in San Juan Mountains of Colorado. A deposit near Wickes in Polk County has produced some of these crystals.

**Doubly terminated** or 'floater' crystals are common in most deposits and are priced higher than single points if they are clear, bright and undamaged.

## ARKANSAS FEE QUARTZ COLLECTING SITES

## Garland County:

Ron Coleman Mine, formerly called old Coleman mine, Geomex. Coleman mine, Blocker No. 4, Probably the first fee mine. Location: Hwy 7 N 16 miles from Hot Springs then follow signs. 2nd shop at intersection of Hwy 70 East and 70B east of Hot Springs. Wholesale and retail. Info: 501-984-5397.

Miller Mountain mine, also called Coleman mine. Shop of Coleman crystal mines on Hwy 7 north 16 mi. north of Hot Springs. Mine about 14 miles to the west on Miller Mountain north of Lake Ouachita. Wholesale and retail, camping. Infor: 501-984-5328.

## Montgomery County:

Crystal Hill's Mining. 5 mi. east of Mount Ida on U.S. 270. Wholesale and retail. Info: 501-867-3664.

Fiddler's Ridge mine, south of hyway 270, shop on N side of hyway 7 miles east of Mount Ida, Jim and Kathy Fecho, Retail and wholesale. Info: 501-867-2314 or 867-2127.

Fisher Mountain mine Southeast of Mount Ida. Ocus Stanley and Son, Sonny Stanley, Yard is S of Hwy 270 in Mount Ida. Wholesale and retail. Info: 501-867-3556.

Robbins Mine, Mount Ida Area, shop in Mount Ida on south side of Hwy 270, Wholesale and retail. Info: 501-867-2530 or 867-2778

Ryan Mines, Shop at Pencil Bluff north of Mount Ida on Hwy 270, wholesale. Infor: 501-326-4685.

Wegner Quartz Crystal mine. E of Route 27 north of Norman 2 miles south of Mount Ida. Retail and wholesale, camping. Info: 501-326-4685.

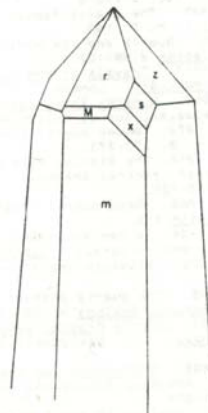


FIGURE 23.—Faces (forms) present on simple crystals in the Arkansas district. m, Prism (invariably all six prism faces are present); r and z, positive and negative rhombohedra, respectively (invariably present); s, trizonal pyramid (locally common but absent on many crystals); z, trapezohedron (locally common); M, higher rhombohedron; rpr is locally common.

Engle, 1951

## HISTORY

The existence of quartz crystal in the Ouachita Mountains has been known since humans first occupied the area. According to H. D. Miser, DeSoto's men in 1541 found that the Indians had been chipping arrowheads from quartz crystal. Nearly 300 years later, in 1819, H. R. Schoolcraft, a naturalist, described Arkansas quartz crystals. As the popularity of Hot Springs as a resort grew in the last half of the 19th century, increasing numbers of tourists and collectors stimulated the mining of crystals. In 1860, David Dale Owen recorded that many local people had quartz crystal for sale to visitors. The major source of crystal at that time appears to have been the Crystal Mountains in Montgomery County. By 1890, crystals were also being mined from deposits in Garland County and the western part of Saline County. Between 1906 and the early 1920's fewer visitors came to the Hot Springs area and, as a result, crystal mining in the district declined due to the lack of a local market. With the miners inactive, only a few noteworthy deposits were discovered. Paved highways in the late 1920's, however, allowed increasing numbers of travelers into Hot Springs and the adjacent mountain areas, and crystal mining again became a popular part-time occupation of the local residents. Few restrictions or legal problems hindered the early miners, although most crystal deposits were on land owned by the Federal Government and by timber companies. As long as the timber was left undamaged and the openings did not become pitfalls for livestock, a miner was free to dig where he dropped his pick and scratcher (an iron rod, commonly 1 to 2 feet long and bent into a right angle several inches from the point, used to scratch out the crystals).

Patented claims or leases were rarely obtained. During World War II, the critical need for oscillator grade quartz, used in communication equipment, brought about a rapid expansion in prospecting and mining. With Federal agencies and private mining companies participating, mining rights received more careful scrutiny and free-for-all operations dwindled. As a part of the Federal program to stimulate domestic production of oscillator quartz for the war effort, the Metals Reserve Company established a quartz buying station in Hot Springs in June, 1943. About 75 percent of the oscillator quartz mined in the district during 1943, amounting to more than 4,000 pounds, was tested at this station. Following

World War II, techniques were developed for growing quartz crystals artificially and the demand for Arkansas quartz was mostly limited to the expanding tourist and museum markets. Some crystals were cut into semi-precious "Hot Springs diamonds" for jewelry purposes. Production of crushed milky quartz for precast concrete products from veins in northern Saline County has also been recorded. The present major commercial use of quartz is as a high purity feedstock (lasca) for the growth of synthetic quartz crystals. These man-made crystals have many chemical, thermal, and electrical applications.

With the increased demand by tourists, museums, and the fused glass market, the price for quartz crystals has continued to rise in recent years. Some exquisitely developed quartz clusters are reportedly valued at thousands of dollars.

## GENERAL GEOLOGY

Most of the quartz veins and crystals are restricted to a belt about 30 to 40 miles wide that extends a distance of about 170 miles in a west-southwest direction from Little Rock, Arkansas to eastern Oklahoma (see map).

The quartz veins occur in both Paleozoic sandstones and shales, but those enclosed in shales typically are massive milky vein deposits that yield relatively few faceted crystals. Deposits in sandstone units may also be in the form of sheeted zones, and/or stockworks. Although these forms may contain much less quartz volumetrically when compared to deposits in shale, they may yield a relatively high proportion of clear crystals in cavities or pockets. Many of the crystal-bearing pockets are distorted or crushed due to structural adjustment in the Ouachita Mountains that occurred after initial deposition of the veins. This deformation commonly causes the veins to show complex fabrics.

The quartz veins were formed by the filling of open fissures and show little evidence of significant replacement of wall rock. Milky quartz, quartz crystals and associated vein minerals of the Ouachita Mountains were deposited from hot waters during the closing stages of mountain building, about 280-245 million years ago. The veins attain a width of as

much as 60 feet in Arkansas and nearly 100 feet in Oklahoma. They are most numerous along the central core of the Ouachita Mountains where they occur in shale, slate, sandstone and other rocks. Along and near the borders of this region, the veins are usually confined to sandstone beds lying between thick beds of shale.

Most of the better quartz crystal is obtained from deposits in the Blakely (Ordovician) and Crysta Mountain (Ordovician) Sandstones, but attractive quartz crystal may occasionally be collected from any of the Paleozoic units. These strata total more than 25,000 feet in thickness and have been deformed into complex, gently plunging folds that trend nearly east-west. Steeply dipping fractures closely related to the major folds controlled the location of deposition of most of the quartz.

Several minerals are associated with the quartz which usually constitutes 90 percent or more of the cavity fillings. Clay minerals, including dickite and nontronite, are widespread. Calcite is a common associate, especially in the parts of the veins cutting limestone or calcareous siltstone. Adularia and chlorite are found in veins cutting certain shales. Carbonaceous material also is common. Less common accessory minerals are brookite, rectorite, the sulfides of lead, zinc, antimony and mercury, the lithium mica cookeite, and the carbonates ankerite and siderite.

J. Michael Howard, 1961



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1993 NOMINEES FOR MEMBERS OF THE F.M. BOARD OF DIRECTORS

Arlene Handley (800 NW 72nd Street, Vancouver, WA 98665) is the current president of FM. She has been a mineral collector for over 35 years and is Past President of the Ft. Vancouver Gem, and Mineral Club and for 5 years she was coordinator of the Pacific Northwest Chapter of FM Symposium. She owns and operates the Handley Rock and Jewelry Supply which is family oriented.

Richard W. Thomssen (P.O. Box 1656, Carson City, NV 89120)  
Dick is a Geologist Consultant who has worked on exploration and mining projects in the U.S., Canada, Mexico, and elsewhere. He has been treasurer of FM for the past three years. He was Executive Director of the Mineralogical Record from 1983 to 1988 and has published numerous articles on geology and mineralogy. Dick is also a member of the Micromounters Hall of Fame.

Kay Robertson (10334 Ilona Avenue, Los Angeles, CA 90064)  
Kay was born in Venice Italy of German parents and she is fluent in four languages. In 1939 she immigrated to the United States and settled in the Los Angeles area. She began serious collecting of minerals in 1950 and has put together a well known collection which is particularly strong in historical localities of central Europe. She is a charter member of FM and has held national offices several times as well as offices in the Southern California Chapter.

Arthur E. Smith, Jr. (9118 Concho Street, Houston, TX 77036) Art has been a mineral collector since 1956 and is currently employed as a petroleum exploration geologist. He collects micro through cabinet sized specimens and specializes in Texas and Arkansas. Art has published numerous articles since 1961 and has been FM secretary and newsletter editor for the past three years.

Michael Kokinos (4620 Doe Street, Shingle Springs, CA 95682. Mike has retired after 30 years with the California Franchise Tax Board. He is still doing some tax planning and tax return preparations for individuals. He has a strong interest in mineral identification using physical properties, particularly optical mineralogy. His collection is primarily micro and thumbnail minerals. Mike has been president of CFMS and MSSC, is currently treasurer and Study Group Leader for NCMA and chairman of CFMS Rules Committee and member of their Financial Advisory Committee.

Nelson R. Shaffer (Indiana Geological Survey, 611 N. Walnut Grove Avenue, Bloomington, IN 47405. Nelson is a geologist with the Indiana Geological Survey where he has worked since 1974. He is active in many professional societies and has many scientific publications to his credit particularly on subjects such as Mississippi Valley type ore deposits, black shales, clays, and meteorites. He is a founding member of the Indiana Chapter of FM and has contributed much to its success though the last several years.

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1989 Ballot for Election of F.M. Directors

Six Directors will be elected with terms to expire in February 1996. Place an X next to the candidates of your choice. There are spaces for write-in votes. The ballots may be reproduced. Return them by February 6, 1993 to the Secretary: Art Smith, 9118 Concho, Houston, TX 77036

Results will be announced at the Annual Meeting February 13, 1993 in Tucson, Arizona.

VOTE FOR ONLY SIX DIRECTORS

- Arlene Handley
- Richard W. Thomssen
- Kay Robinson
- \_\_\_\_\_

- Arthur E. Smith, Jr.
- Michael Cokinos
- Nelson R. Shaffer
- \_\_\_\_\_

# FM Newsletter

**Published Quarterly by:** Friends of Mineralogy, Inc., affiliated with the *Mineralogical Record*.  
**Subscription:** Included in annual membership fee. \$10.00 national members  
**Editor:** Art Smith, Secretary, FM  
 9118 Concho, Houston, TX 77036  
**Letters to the Editor:** All letters should be sent to The Editor at the address above.  
**Printing and Typesetting** (Copy Cat - Denver, CO (303) 777-8864 - Under supervision of Carolyn Jones)  
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## Friends of Mineralogy, Inc.

### 1992 Officers

Elected board meeting, Tucson, AZ, February 14, 1992  
**President** ■ **Arlene Handley**  
 800-NW 72nd Street, Vancouver, WA 98665  
**Vice President** ■ **Karen J. Wenrich**  
 63 S. Devinney St., Golden, CO 80401  
**Secretary** ■ **Art Smith**  
 9118 Concho, Houston, TX 77036 (713) 774-1689  
**Treasurer** ■ **Richard W. Thomssen**  
 P.O. Box 1656, Carson City, NV 89702

### Board of Directors

**Until February 1993**  
**Raymond Lasmanis** ■ 800 Sleater Kinney SE, Suite 155 Lacey, WA 98503  
**Kay Robertson** ■ 10334 Ilona Ave., Los Angeles, CA 90064  
**Dan Behnke** ■ 2981 Lanwher Rd., Northbrook, IL 60062  
**Richard W. Thomssen** ■ P.O. Box 1656, Carson City, NV 89702  
**Arlene Handley** ■ 800 NW 72nd Street, Vancouver, WA 98665  
**Art Smith** ■ 9118 Concho, Houston, TX 77036

### Until February 1994

**Mike Groben** ■ 1590 Olive Barber Rd., Coos Bay, OR 97420  
**Robert Jones** ■ 3520 N. Rose Circle Dr., Scottsdale, AZ 85251  
**Bernard L. Murowchick** ■ 2428 Hollingsworth Hill Ave., Lakeland, FL 33803  
**Betty Tlush** ■ 1202 Perlon Dr., Belen, NM 87002  
**Marcelle H. Weber** ■ 1172 W. Lake Ave., Guilford, CT 06437  
**Karen J. Wenrich** ■ 63 S. Devinney St., Golden, CO 80401

### Until February 1995

**Peter J. Modreski** ■ 8075 W. Fremont Drive, Littleton, CO 80123  
**Anthony Kamph** ■ 12923 Warren Ave., Los Angeles, CA 90066  
**Marie Huizing** ■ 5341 Thrasher Dr., Cincinnati, OH 45246  
**Steven C. Chamberlain** ■ 105 Academy St., Manlius, NY 13104  
**Patricia Barker** ■ P.O. Box 810, Campton, NY 03220

### Regional Chapter Presidents

**Colorado** ■ **Pete Modreski**  
 8075 W. Fremont Dr., Littleton, CO 80123  
**Great Basin** ■ **T. Daugharthy**  
 5475 E. Camino Rd., Las Vegas, NV 89118  
**Indiana** ■ **Hal Reopke**  
 4806 W. University, Muncie, IN 47304  
**Pacific Northwest** ■ **John Lindell**  
 25741 268th Ave. SE, Ravensdale, WA 98051  
**Pennsylvania** ■ **A. Mogel**  
 RR1, Box 151M, Mohrsville, PA 19541  
**Southern California** ■ **Mike Gray**  
 P.O. Box 1110, Venice, CA 90294

### Affiliations

**Mineralogical Society of America**  
 Liaison: Gene Foord ■ 906 Cole St., Golden, CO 80401  
**The Mineralogical Society of Australia**  
 c/o CSIRO Division of Mineral Chemistry  
 P.O.B. 124, Port Melbourne, Victoria 3207, Australia

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Art Smith ■ Secretary, FM  
 9118 Concho ■ Houston, TX 77036

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