

CHIP & LICK

Official Publication of the Miami Valley Mineral and Gem Club



VOLUME 54, NUMBER 5

Remember Mother's Day May 11th!

May, 2008



MEETINGS: Second Sunday of the month except July and August.

PLACE: Small Business Development Center, 300 E. Auburn Ave., Springfield, OH 45505. Phone: 322-7821

TIME: 2:00 P.M.

Guests are always welcome!

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Purpose and Memberships

The objectives of the Miami Valley Mineral and Gem Club are:

To promote interest and increased knowledge in the fields of mineralogy, geology, and the lapidary arts.

To further the art of mounting and setting stones.

To encourage the collecting, identifying and displaying of specimens in these fields.

The annual dues are \$10.00 for an individual membership, \$15 for a couple, or \$17 for a family membership.

This club is a member of the Midwest Federation of Mineralogical and Geological Societies (MWF), which is a member of The American Federation of Mineralogical Societies (AFMS).



Newsletter “Mineral of the Month” – Olivine



Olivine is usually named for its typically olive-green color (thought to be a result of traces of nickel), though it may alter to a reddish color from the oxidation of iron. It has a conchoidal fracture and is rather brittle. The hardness of olivine is 6.5–7, its relative density is 3.27–3.37, and it has a vitreous luster. It is transparent to translucent.

Transparent olivine is sometimes used as a gemstone called peridot, the French word for olivine. It is also called chrysolite, from the Greek words for gold and stone. Some of the finest gem-quality olivine has been obtained from a body of mantle rocks on Zabargad island in the Red Sea.

Olivine/peridot occurs in both mafic and ultramafic igneous rocks and as a primary mineral in certain metamorphic rocks. Mg-rich olivine crystallizes from magma that is rich in magnesium and low in silica. That magma crystallizes to mafic rocks such as gabbro and basalt. Ultramafic rocks such as peridotite, and dunite can be residues left after extraction of magmas, and typically they are more enriched in olivine after extraction of partial melts. Olivine and high pressure structural variants constitute over 50% of the Earth's upper mantle, and olivine is one of the Earth's most common minerals by volume. The metamorphism of impure dolomite or other sedimentary rocks with high magnesium and low silica content also produces Mg-rich olivine, or forsterite.

Fe-rich olivine is relatively much less common, but it occurs in igneous rocks in small amounts in rare granites and rhyolites, and extremely Fe-rich olivine can exist stably with quartz and tridymite. In contrast, Mg-rich olivine does not occur stably with silica minerals, as it would react with them to form orthopyroxene ((Mg,Fe)₂Si₂O₆).

Mg-rich olivine is stable to pressures equivalent to a depth of about 410 km within Earth. Because it is thought to be the most abundant mineral in Earth's mantle at shallower depths, the properties of olivine have a dominant influence upon the rheology of that part of Earth and hence upon the solid flow that drives plate tectonics. Experiments have documented that olivine at high pressures (e.g., 12 GPa, the pressure at depths of 360 kilometers or so) can contain at least as much as about 8900 parts per million (weight) of water, and that such water contents drastically reduce the resistance of olivine to solid flow; moreover, because olivine is so abundant, more water may be dissolved in olivine of the mantle than contained in Earth's oceans.

Mg-rich olivine has also been discovered in meteorites, on Mars, and on Earth's moon. Such meteorites include chondrites, collections of debris from the early solar system, and pallasites, mixes of iron-nickel and olivine. The spectral signature of olivine has been seen in the dust disks around young stars. The tails of comets (which formed from the dust disk around the young Sun) often have

the spectral signature of olivine, and the presence of olivine has recently been verified in samples of a comet from the Stardust spacecraft.

Crystal structure

Minerals in the olivine group crystallize in the orthorhombic system (space group *Pbnm*) with isolated silicate tetrahedra, meaning that olivine is a nesosilicate. In an alternative view, the atomic structure can be described as a hexagonal, close-packed array of oxygen ions with half of the octahedral sites occupied with magnesium or iron ions and one-eighth of the tetrahedral sites occupied by silicon ions. There are three distinct oxygen sites, two distinct metal sites, and only one distinct silicon site.

High pressure polymorphs

At the high temperatures and pressures found at depth within the Earth the olivine structure is no longer stable. Below depths of about 410 km olivine undergoes a phase transition to the sorosilicate, wadsleyite and, at about 520 km depth, wadsleyite transforms into ringwoodite, which has the spinel structure. These phase transitions lead to a discontinuous increase in the density of the Earth's mantle that can be observed by seismic methods.

The pressure at which these phase transitions occur depends on temperature and iron content (Deer et al. 1992). At 800°C the pure magnesium end member, forsterite, transforms to wadsleyite at 11.8 gigapascals (118 kbar) and to ringwoodite at pressures above 14 GPa (140 kbar). Increasing the iron content decreases the pressure of the phase transition and narrows the wadsleyite stability field. At about 0.8 mole fraction fayalite, olivine transforms directly to ringwoodite over the pressure range 10–11.5 GPa (100–115 kbar). Fayalite transforms to Fe_2SiO_4 spinel at pressures below 5 GPa (50 kbar). Increasing the temperature increases the pressure of these phase transitions.

Historical and mythical uses

The Septuagint names *chrysolithos* as a stone on the Hoshen in the verse Exodus 28:20; the masoretic text has the word *tarshish*, which has uncertain meaning, in the same place. According to the New International Version and Rebbenu Bachya, the word *tarshish* refers to chrysolite (olivine) and Rebbenu Bachya claims it was the stone representing the tribe of Asher. However, Chrysolite took its modern meaning much more recently, and in Greek times just meant *golden stone* (*chryso-lithos*), and could refer not only to yellowish olivine, but also to Topaz, Amber, yellow Jasper, yellow Serpentine, or even lapis lazuli which has golden flecks within its mainly blue surface and fits with the targum descriptions of the *tarshish* stone as being sea-colored. *Tarshish* probably refers to Tarshish, a place, though this doesn't identify the stone much more. In the Biblical account, there is a stone, on an earlier row, that scholars think was translucent and yellow, so scholars think that *chrysolithos/tarshish* here is unlikely to refer to olivine, because that would place two translucent stones next to each other, and be quite jarring; instead scholars favour yellow Jasper or Serpentine. There is a wide range of views among traditional sources about which tribe the stone refers to.

Uses

A worldwide search is on for cheap processes to sequester CO_2 by mineral reactions. Removal by reactions with olivine is an attractive option, because it is widely available and reacts easily with the (acid) CO_2 from the atmosphere. When olivine is crushed, it weathers completely within a few years, depending on the grain size. All the CO_2 that is produced by burning 1 liter of oil can be sequestered by less than 1 liter of olivine. The reaction is exothermic but slow. In order to recover the heat produced by the reaction to produce electricity, a large volume of olivine must be thermally well isolated. Then it can produce power, while at the same time removing CO_2 . The end-products of the

reaction are silicon dioxide, magnesium carbonate and small amounts of iron oxide. The mineral **olivine** (also called **chrysolite** and, when gem-quality, **peridot**) is a magnesium iron silicate with the formula $(\text{Mg,Fe})_2\text{SiO}_4$. It is one of the most common minerals on Earth, and has also been identified in meteorites and on the Moon, Mars, and comet Wild 2.

From Wikipedia

Ideas to try out

EDITOR'S NOTE: The source of these tips and hints are other club bulletins. Be careful when trying out any new idea. They have not all been tried by this editor.

To keep your specimens safe when traveling to shows, etc., go to your grocer and ask him/her to save some Gerber Baby Food boxes (the 24 oz jars) for you. These boxes are divided into 24 compartments and are just the right size for most specimens.

A safety razor makes a handy sander. Remove the blade and wrap a piece of sanding paper around the curved blade holder. Tuck ends under the teeth and tighten the handle. This is ideal for sanding small surfaces especially if they are curved.

When reaming a bead to enlarge the hole, place the bead in the small hole of a wood spring clothespin. The wood does not mark the bead and holds it securely, permitting you to frequently dip the bead in a basin of room temperature water to lubricate and prevent overheating. This method keeps one hand dry for handling the power tool. We use old dental diamond burrs for drills.

Chet & Margery Carlton, MMSLD

To clean pyrite and try to make it look nice and brassy, first wash it carefully in water. Put it in a plastic bowl, dish, etc., and pour vinegar over the specimens, making sure all pyrite is covered. Turn the specimens over several times. When they look clean and shiny, rinse with water, then put on paper to dry. This method is safe for children to use.

Source of all the above items: Strata Gem – October 2003 / Rock Chips 11/07

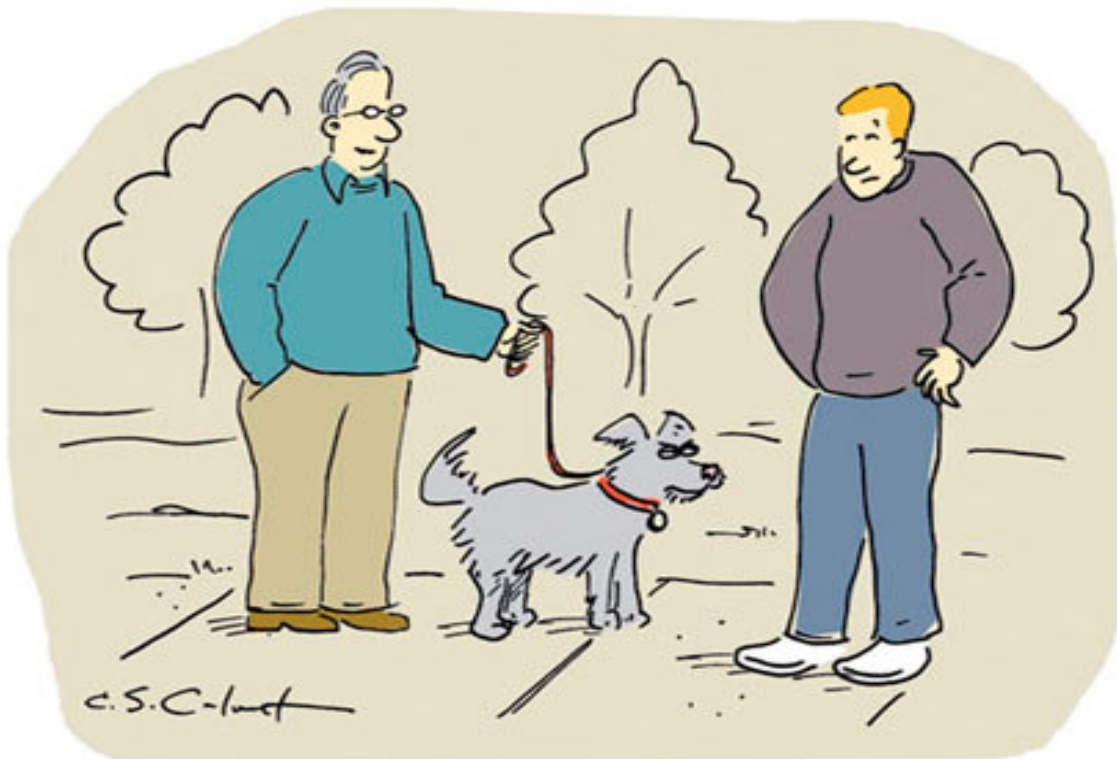
April RECAP.....

See the “minutes” section of this newsletter for details.





Funny!



"He dislikes the term 'mutt' - he prefers to be called a 'hybrid'."

From www.rd.com

Mineral Cleaning Solution- The Waller Solution

By John Betts / FOM

This method of mineral cleaning was first introduced to me by Roland Franke as a simple method of cleaning iron stain from minerals. Further research reveals different methods of using the basic solution. As originally described by Roland, the solution is made by dissolving in one liter of distilled water:

8.4 g Sodium bicarbonate

17.4 g Sodium dithionite

5.9 g Trisodium salt of Citric acid

Once mixed, the minerals are immersed in the solution. Cleaning action can be accelerated by placing it in an ultrasonic cleaner*. This solution is not appropriate for indoor use, because once mixed, there is a strong odor of rotten eggs (hydrogen sulfide). Use only outdoors or in an area with proper exhaust venting. As usual, read and comply with all precautions on the individual component packages. *Ed Note - Not recommended for fragile specimens.

The solution is good only about 24 hours and should be discarded after that. Since a liter of solution may be more than you need, the Geological Museum of Copenhagen (Hansen 1984) suggests a variation - you can prepare stock buffer solution of water, 28g sodium bicarbonate and 59g sodium citrate. Then when ready, place our specimens in a container, pour in buffer solution to cover the

specimens, then carefully sprinkle on to 1g sodium dithionite for every 30 ml of buffer solution. After five minutes, add another 1g of sodium dithionite in the same way. They also recommend sealing tightly with a lid and keeping at room temperature to avoid the formation of sulfides and sulfur. If you have heavy iron staining, a specimen may require several treatments in succession as the solution becomes saturated and loses effectiveness. After your piece is clean, wash in distilled water for an equal amount of time that the specimen was in the solution. Then wash in running (or regularly changed) tap water. Apparently the cleaning works by reducing Fe+3 to Fe+2 and then dissolving the Fe+2 in the citric acid. The sodium bicarbonate balances the pH to neutral. This last point means that, theoretically, you can clean any material in it without worrying about etching. Practically though, caution should be taken by testing on samples prior to immersing your best pieces.

Reference: Hansen, Morgan, "Cleaning Delicate Minerals", Mineralogical Record, March-April 1984, p103

From New York Mineralogical Club Newsletter via The Opal, October 1996.

MIAMI VALLEY MINERAL AND GEM CLUB, INC.

2008 OFFICERS

President	Tim Fosberg	849-4471
Vice President	Andreas Ruben	390-2081
Corresponding Secretary	Katrin Ruben	390-2081
Recording Secretary	Phil Lind	408-3744
Treasurer	Joyce Perry	372-8228
Editor	Tom Bolka	372-3365
Librarian	Joyce Perry	372-8228
Curator-Historian	Tim Fosberg	849-4471
Trustee (2005)	Marie Shinabarger	426-2289
Trustee (2006)	Becky Dobbs	372-9022
Trustee (2007)	Hugh Fulton	322-1021
Trustee (2008)	Hugh Fulton	322-1021
Trustee (2009)	Udean Babyak	

2008 COMMITTEES

Anti-Litter	All Members
Canceled Stamps	Kay Faux
Chaplain	Udean Babyak
Field Trips/ Safety	Phil Lind
Field Trips/ Safety	Tom Bolka
Field Trips/ Safety	Tim Fosberg
MWF Liaison	Hugh Fulton
Photographer	Andreas Ruben
Program	Andreas Ruben
Refreshment	Joyce Perry
Scholarship	Joyce Perry
Show Chairman	
Spring Banquet	Udean Babyak
Sunshine	Joyce Perry
Swap	Hugh Fulton
Webmaster	Katrin Ruben
Christmas Party	Katrin Ruben

Events to Celebrate!!!!

May Birthdays

Tim Fosberg, Katrin Ruben, Udean Babyak

May Anniversaries

Andreas & Katrin Ruben



MIAMI VALLEY MINERAL & GEM CLUB MINUTES

As you all probably know the April meeting was held (our spring banquet) at the Cracker Barrel restaurant in Springfield. I am sure that all who were present had a wonderful time talking and sharing stories. No formal minutes of this event were kept. Thanks to Udean for setting up this gathering.

MAY PROGRAM SCHEDULE

Program: – A PowerPoint program on Fluorescent Minerals



REGIONAL UPCOMING SHOWS & EVENTS:

MAY:

16-18: SOUTHGATE, MI. 2008 SOUTHEASTERN MichigaN Gem and Mineral SHOW, hosted by the Midwest Mineralogical & Lapidary Society, Southgate Arena, 14700 Reaume Parkway. Fri. 4:00-8:00, Sat. 10:00-6:00, Sun. 11:00-5:00. This year's theme is "Michigan Rocks." 20 dealers, 15+ educational demonstrations, special exhibits by A. A. Seaman Mineral Museum, Wayne State University, the Cranbrook Institute of Science, and the Detroit Salt Company. For kids, the very popular and FREE "Minerals for Minors," where kids get to pick from 20 different kinds minerals and start their own mineral collection! Also for kids, there are grab bags, and a "Gold Mine," where mine cars go into the mine and return with gold-laced sand! The kids sift out the gold and keep what they find! There are hourly door prizes and a food concession. Admission: Adults \$4, Senior Citizens \$3, Teens (13-17) \$1, Kids (under 13) FREE! CONTACT: Norm Hanschu, 6607 Sturbridge Lane, Canton, MI 48187, (734) 455-8596, nwhanschu@prodigy.net, or Mike Bomba, (313) 381-8455.

17-18: Berea (Cleveland), OH. Parma Lapidary Club 40th Annual Cleveland Area Gem & Mineral Show, Cuyahoga County Fairgrounds, 164 Eastland Road (use Bagley Road entrance.) Sat. 10:00-7:00, Sun. 11:00-5:00. 26 dealers, demonstrations, kids corner and kid's treasure dig. Admission: Adults \$5, FREE to Kids 12 or under (with an adult) or Scouts in uniform. Find more information at the club web site: www.parmalapidary.com. Contact: John Zaborowski (440) 949-8242, jjzabor@roadrunner.com.

17-18: Wauwatosa, WI. Wisconsin Geological Society 51ST ANNUAL GEM , MINERAL, & FOSSIL SHOW, Muellner Building in Hart Park, 7300 W. Chestnut Street. (The Hart Park entrance is at 72nd & W. State Streets.) Sat. & Sun. 10:00-5:00. Theme: "Rocks at Work." 20 dealers from all over the Midwest selling lapidary supplies, tools, books, rough material, slabs, finished specimens, cabochons, jewelry, carvings, fossils, and more. Special exhibit on the use of Wisconsin rocks in construction,

industry, and our daily lives. Special guest Joseph J. "PaleoJoe" Kchodl, noted paleontologist, author, and lecturer, will be exhibiting, selling his books, and giving a free presentation each afternoon at 2:30 pm. Admission: Adults \$3, 2 for \$5.00, accompanied Children under 16 FREE. Contact: Paul Schmidt, 8213 Red Arrow Court, Wauwatosa, WI 53213, (414) 771-8668, pvs@wi.rr.com.

24-25: WHEATON, IL. Chicagoland Gems and Minerals Association (CGMA) 32ND ANNUAL SHOW AND SALE, DuPage County Fairgrounds, 2015 W. Manchester Road. Sat. 10:00-6:00, Sun. 10:00-5:00 (*Memorial Day Weekend*). This show is presented by a group of 7 Chicago area gem and mineral clubs, including [Chicago Rocks & Minerals Society](#), [Des Plaines Valley Geological Society](#), [Elgin Rock & Mineral Society](#), [Fox Valley Rock Club](#), [South Suburban Earth Science Club](#), and [West Suburban Lapidary Club](#). There will be 20+ nationally known dealers selling beads, books, cabochons, equipment, findings, fossils, gemstones, handcrafted jewelry, minerals, supplies and tools. Live demonstrations of faceting, fossil preparation, gem trees, glass fusing, jewelry making, micro mounts, scrimshaw, silver smithing, opal cutting, and wire wrapping. There will be outstanding exhibits of minerals, fossils, lapidary and gems, PLUS silent auctions, door prizes, and special children's activities in the "Kids Korner." Admission: Adults \$5, Students (13-17) \$3, Seniors \$3, Service Personnel and Children (under 13) FREE. FREE parking. Go to the show web site, www.chicagolandgemshow.org, for additional information. CONTACT: Rich Dillon, (630) 377-0197, cgma@sbcglobal.net.

5/31-6/1: Columbus, OH. Central Ohio Mineral, Fossil, Gem, and Jewelry Show, Veterans Memorial, 300 W. Broad Street. *PLEASE NOTE THE NEW DATES!!* Sat. 10:00-6:00, Sun. 11:00-5:00. Sponsored by the [Columbus Rock and Mineral Society](#) and the [Licking County Rock and Mineral Society](#). Theme: "The Angry Earth: Volcanoes, Earthquakes and Crashing Continents." 27 quality mineral, fossil, and jewelry dealers, ID booth, swap area, educational/children's area, silent auctions, exhibits, demonstrations, and displays. Talk by Dr. Mike Barton on the 1783 Laki (Iceland) Volcanic Eruption! Admission: \$7 (2-day pass, \$12), Golden Buckeye (Senior) Discount, \$3 for Youth 6-16 (under 6 FREE), Scouts and 4-H Members in uniform FREE. Contact: Ken Harsh, (614) 433-9778, karmakenha@aol.com, or Sue Guirl, (614) 262-1484, sguirl@yahoo.com.

5/31-6/1: VIROQUA, WI. Coulee Rock Club 15TH ANNUAL SHOW, Viroqua Jr. High School, 100 Blackhawk Drive. Sat. 9:00-5:00, Sun. 9:00-4:00. 14 dealers will be offering fossils, minerals, jewelry, carved stone, agates, and lapidary equipment (new & used.) Geode cracking will go on all day, and there will be wire wrapping demonstrations. Phil Oliver will bring two special exhibits: an exhibit of fabulous banded agates from his private collection and a Braille Mineral Exhibit, where all labels are in Braille. The attendees can feel the minerals. For Kids, the special Kids Table will have grab bags and special children's activities. There will be a silent auction, door prizes (*about every 15 minutes!*), and food. Admission: FREE; donations are accepted. FREE parking! CONTACT: Gary Krause, 606 E. Court Street, Viroqua, WI 54665, (608) 632-0973, garyjkrause@yahoo.com.





FEDERATION NEWS

Everyone should be receiving a copy of the MWF newsletter by email. If not, it is always available at the monthly meetings.



SCHEDULED FIELD TRIPS

See the field trip committee, several trips are being planned in conjunction with other clubs. If there is any interest, the big dig at the Clement Mineral Museum in Marion Ky. is scheduled for June 6 & 7th. 5 mines are supposed to be available for digging.



FIELD TRIP REPORTS

TRIP REPORT FROM 03 MAY 2008

(Submitted by P. Lind)

Well, the Dayton Rock Club had a field trip planned for May 3rd to IMI Quarry near Anderson, Indiana to collect clear and honey-colored calcite. The weather Friday night did not look promising, however, after a conversation with Tom and Clyde the three of us decided to make a go of it. Maybe it won't rain to hard?

Saturday morning at 0430 Tom arrived at Phil's house in a sprinkle of rain. We packed up the truck and headed off to pick up Clyde and pray a little that it wasn't the beginning of a downpour.

Arriving at Clyde's we saw no signs of any lights, but we knocked on the door and Clyde was ready and waiting. Throw in some more supplies and we are off. By the time we got on the interstate the rain was getting heavy. Can't stop now we're already up! We cross the state line into Indiana and the rain stopped. Drove a little further and it started again. We're not sure what to think?

A quick stop for breakfast and we're off again, no rain. We arrived at the quarry at a little after seven and no signs of anyone else. No problem, the collect doesn't start until eight. Small amount of grumbling because we could have sleep another 30 minutes or so.

At about ten until eight another car arrives, then another and two more. The trip leader Kathy states that we all here and checks in with the quarry host. After a safety talk and signing of the waivers. He leads us to the location where we can collect and gives a few final warnings and advice on what to look for. Let the collecting begin.

Phil walks over and immediately picked up a fossil that was complete and free of the need to be cleaned. Then we all started to find clear and honey-colored calcite, some pyrite, marcasite, a what's this and a number of different fossil types. Still no rain, a little breeze, however, it is getting warm and sunny.

Wow, what a beautiful morning! Before quitting time (12:00 o'clock) everyone had a number of what we thought were collectibles.

Kathy had made arrangements for us to go to a second quarry for the afternoon. It is approximately 40 miles away and we need to be there at one o'clock. A quick stop for lunch, a few wrong turns, and we were there by 1:30. No problem, our leader (Kathy) had been in touch with the quarry and they would wait on us. This quarry (Pipe creek) near Swayzee is noted for fossils, and we aren't all fossil hunters, but it is a beautiful day and who knows what we might find.

Again we got our briefing on safety and saw a display case of fossils and some blue-gray calcite. That perked up the non-fossils participants; however, we were told that we wouldn't be going to that part of the quarry.

They then lead us to the collecting area where we collected numerous fossils including corals, and a few trilobites. We also collected natural asphalt, pisolite and a few other things.

At some point Kathy was talking to our host and he decided to take us to the section called the pipe creek sinkhole. There we found the blue-grey calcite and everyone got a number of samples hoping for the one perfect sample. The wind started to blow hard causing a lot of dust and it got chilly. The next thing we know is that it is time to quit. A few thanks to our host and Kathy for arranging the trip and we all scattered for various ways home.

What a great trip!!!!!!!

At this time we have a few other trips planned, however, they all require the mine safety course and at this time those with the Dayton Club require membership. If interested let Phil or Tom know and we will see about getting you involved.



A sign-up sheet will be available at the monthly meeting refreshments, displays, and programs. Please sign up. I know each of you has a specialty that would interest the entire club.

Tom Bolka - EDITOR
2275 Capestrano Dr.
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SAVE COMMEMORATIVE STAMPS