# *The Mineralogical Society of the District of Columbia*

# *THE MINERAL MINUTES*

***Vol. 74, No. 5*** ***Founded 1942*** ***May 2015***

**Meeting Dates, Time, and Location:** The first Wednesday of each month. (No meeting in July and August.) The National Museum of Natural History, Smithsonian Institution, 10th Street and Constitution Ave, Washington D.C. We will gather at the Constitution Avenue entrance at 7:45 PM to meet our guard who will escort us to the Cathy Kirby Room. Street parking: **THERE ARE NOW PARKING FEES, PAYABLE AT THE KIOSKS, AND ENFORCEMENT EXTENDS UNTIL 10 PM.**

***Pre-Meeting Dinner***: Join us at 6:00 p.m. for dinner before the club meeting. Location: Elephant & Castle, 1201 Pennsylvania Avenue, NW. Please contact Dave Nanney, or Steve Johnson, *StevikJ@gmail.com,* to make a reservation if you wish to attend.

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## Program for the May Meeting:

**Wednesday, May 6, 2015 7:45 pm**
**Smithsonian Natural History Museum** 10th Street and Constitution Avenue, NW

### Title of Presentation: "Color-changing diamonds"

Natural diamonds are discovered in a whole spectrum of beautiful colors. However, describing a diamond's color is not always as simple as just saying "yellow" or "green" – sometimes, a diamond's color can change completely (and sometimes we can change it back!). I will talk about photochromism (color-change with light) and thermochromism (color-change with heat) in diamonds, including my own research on natural pink and 'chameleon' diamonds. Why do certain diamonds change color? And what do we learn from studying this change?

**Presenter: Dr. Keal S. Byrne** is a Postdoctoral Fellow with the Division of Mineralogy of the Smithsonian National Museum of Natural History. He earned his doctoral degree from the University of Western Australia (Perth) and as a mineral scientist has been researching the origin of color in natural diamonds.

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## Synopsis of 1 April 2015 Business Meeting and Program Presentation

**By Andrew D. Thompson**

**Business Meeting**

President Steve Johnson called the meeting to order and asked if members had old business which needed to be discussed. With no response, he then asked if there was any new business and again no issues were raised.

Treasurer's Report – Rebecca Siegal reported that the club's finances were in good shape. The check book's balance was in flux due to several recent membership payments and two reimbursements including one for the yearly expense of the club's web domain.

Steve then said a few explanatory words about the relationship between MSDC and the Eastern Federation and introduced Matt Charsky, a long-time official with EFLMS and the President Elect of the national body of mineral clubs, the American Federation. Matt had recently returned from the annual meeting of the Eastern Federation of club epresentatives and brought with him certificates of appreciation for the published efforts which the committee of Bulletin Editors judged as worthy of awards. These included the literary and service contributions MSDC members made throughout 2014. Sheryl Sims received numerous awards including for her editing of MSDC's Mineral Minutes which was in the category of a large bulletin. She also received an award for her scrap book which documented club activities. Sheryl also received awards for several non-technical articles. Ann Cameron Siegal and Andy Thompson received awards for educational articles published in the club's Mineral Minutes during 2014.

American Federation President Elect Matt Charsky with award recipients Sheryl Sims, Andy Thompson, and Ann Cameron Siegal

Matt concluded his presentation with a description of the scholarships the Eastern Federation provides yearly for twelve undergraduate geology students. He then alerted attendees to next year's Eastern Fed annual meeting which will be in Rochester, New York and to the American Federation meeting which will be held in Austin, Texas. All expressed their gratitude to Matt for the work he has done locally and nationally to promote mineral clubs, for his being a strong link

between the clubs and for taking the time to deliver the above mentioned awards to our MSDC members.

"Geology in the News" was Steve's next agenda item but no one had any events to report. He then welcomed several new guests who were first-time attendees at a MSDC monthly meeting. Peter Vogt, Brian Silver and Amy introduced themselves and indicated their particular mineralogical interests in attending. Steven then called for a vote to close the business meeting. Have received that, he then turned the meeting over to Dave Nanney, the V.P. to introduce the program: **"Introduction to the Rosetta Mission – Chasing the Comet"**

Dr. Thomas Gautier as he speaks to the MSDC membership

Sheryl Sims photo

By way of providing an introduction of himself, Dr. Thomas Gautier shared the following. A native of France, Thomas said he currently is a post-doc working at NASA Goddard Space Flight Center supporting research on the Rosetta project and specializing in working to develop instrumentation for analysis of future exploration of the solar system including Titan's aerosol (the atmosphere of Saturn's largest moon). Its atmosphere or smog, as currently being analyzed from data collected as part of the Cassini project, is somewhat similar to earth's atmosphere except it is devoid of oxygen and water.

Thomas graduated from Versailles University in 2010 with a major in planetary science and received his PhD in 2013 with a focus on laboratory synthesis of Titan's aerosol analogs. He then went to the Max Planck Institute for Solar System Research in Göttingen, Germany to work on the COSAC instrumentation of the Rosetta/Philae mission to study organic molecules on the surface of comet 67P/Churyumov- Gerasimenko, the comet featured in tonight's program.

By way of an overview of comets, Thomas noted that within our solar system there are three sources for these dense ice objects. They originate in distant areas known as the Jupiter family, Kuiper Belt (home of Halley's comet) and the Oort Cloud.

The purpose of this evening's presentation is to introduce MSDC to the ongoing international collaborative research project sponsored by the European and U.S. and Canadian space agencies. After years of preparation, the Rosetta probe launched in March of 2004 and was destined to make a ten year journey to rendezvous with comet 67P/ Churyumov-Gerasimenko as it circled the sun every six and a half years. After having caught up with and flown beside the comet for several months, in November of 2014 the Rosetta orbiter deployed a secondary probe to attempt the first-ever soft landing on a comet. The landing was a success.

On a personal note, Thomas mentioned that once mission control sent the command for the orbiter to deploy Philae, the small lander, it took seven painstaking hours before a message came back indicating that a soft landing has been achieved. During those hours, Thomas said, time seemed to stand still while the scientists waited to learn the fate of their decades of planning and execution.

Thomas also shared some of the challenges particular to this first of its kind endeavor. The relatively tiny size of the comet meant its gravitational field was very weak. As a result, the Philae lander, which weighed several pounds while on earth, now would weigh a mere 7 grams on the surface of the comet. Despite the planners' calculations, as a result of this relatively weightless probe, the photographic record of its landing indicated Philae bounced several times and came to rest some distance from the target zone and in the shade of an ice cliff. That in turn meant without regular exposure to sunlight, recharging the batteries was sporadic at best. Unlike the motorized mobile rovers that earlier were successfully deployed on Mars, Philae was designed to be stationary. Due to the shortage of electricity, scientists put it to sleep and will probably not awaken it until July of 2015. By then the comet's natural orbital flight will have turned thereby giving the probe additional sunlight which will allow for recharging and allowing Philae lander to get on with its work.

One of the interesting findings to date, Thomas said, is that the ice molecules on Comet 67P are relatively rich in deuterium, an isotope of hydrogen and the key component of heavy water. Deuterium is relatively rare on earth and so difficult to extract from earth's water. This suggests, Thomas noted, that comets such as 67P could not be a major source of the earth's water as some scientists had previously speculated.

The photographs which the orbiter has sent back to the earth have raised many questions. For example, MSDC members, along with Thomas, wondered what could have caused the clearly visible regular wave-like ripples in the comet's surface. Also, Philae landed in an area named Hapi, among a field of round ice boulders. Yet there were no visible signs of impact or trails indicating how round ice boulders had gotten into their present location. Thomas suggested the photographs taken from the orbiter raised many fascinating questions that have surfaced due to the new-found wealth of information about this particular comet.

As to the ultimate fate of the Philae lander, Thomas expressed doubt that it would survive this year as the comet circles the sun and heads back out into space. For the orbiter itself, he said it might be possible for it to survive for a longer period especially if it were directed into a higher orbit.

MSDC members then asked several follow-up questions concerning unanswered puzzles such as the waves in the surface which, without an atmosphere, could not have been made by wind. Attendees were also interested in the propulsion and navigation system used by the orbiter. The thrusters, Thomas noted, were modest in their capability due to the economizing and down-sizing necessitated to accomplished the ten year voyage.

Steve and Dave then thanked Thomas for his presentation and all joined in and expressed their gratitude with applause.

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## The Rosetta Comet Project: What's in a Name?

**By Andrew D. Thompson**

Many readers will recognize the often-quoted line in Shakespeare's play *Romeo and Juliet*, "a rose by any other name would smell as sweet". Juliet urged Romeo to look beyond the feud between their two families because, she said, the names of things, such as their family names, do not determine or define who or what they are as individuals. With that literary caveat in mind, have you ever wondered why scientists so often use ancient language names to identify projects and objects pertaining to their study of the solar system?

In the beginning of astronaut flight, for example, NASA scientists chose the names Mercury, Gemini and Apollo. Those exploratory flights have been followed by more than 200 U.S. and internationally sponsored unmanned fly-bys which have probed planets, moons, asteroids and comets.

The most relevant case in point is the decades-long effort to discover the nature of comets as a key to understanding the origin of our solar system. International collaboration between the European and U.S. space agencies has accomplished a first, the soft landing of a probe onto the surface of a comet. And what was the name the scientists gave to this project? They called it the Rosetta Project and it included two crafts, the Rosetta orbiter, and a smaller lander Philae. Both names are ancient Egyptian references. Of course, it helps when doing international collaborative work if the projects' names are politically neutral. But sometimes there is significance beyond avoiding conflict.

In November of 2014, the Rosetta orbiter deployed the probe which successfully landed on the surface of the 67P/C-G comet. The name Rosetta, of course, refers to the engraved stone which helped linguists crack the previously undeciphered hieroglyphics. Further evidence the scientists really got into the parallel between these two puzzles, hieroglyphics and comets, is they named one of the main instruments on the Philae lander "Ptolemy."

The spectacular nature of this most recent achievement and its prominence in today's media invite us to drill down a little into these two names and consider whether they shed light on the nature of this interplanetary project. In other words, to what extent do the names Rosetta and Philae enhance the Shakespearian "sweetness" of the scientists' pursuit and recent success? Readers can be the judge.

Comets have captured the imagination of humans at least since the beginning of recorded history. Even the name "comet" (from coma or kome) meaning "hairy star," is fanciful, as is the meaning given it by early astrologers who believed a comet's appearance foretold the imminent death of a king. Leaving such random mythology behind, today's international focus has been to systematize all known comets and name them after the individuals who discovered them or were first to correctly predict their reappearance and the period of their recurring visitations as they circled close to the sun, their perihelion.

For the comet in question, P67/C-G, it was first identified by two Soviet astronomers, Klim Ivanovych Churyumov and Svetlana Ivanovna Gerasimenko. They saw it on photographic plates in 1969 and so it was named Churyumov-Geraskmenko. The "P67" designation is a reference to how this comet is indexed. So its shorthand name is P67/C-G.

What some readers may find particularly interesting is how the comet project came to be named "Rosetta". It is common knowledge that what enabled linguists to interpret hieroglyphics and the origins of the Egyptian culture was the discovery in 1799 of a three-foot high dark granite stone. It contained essentially the same text in three languages praising the deeds of King Ptolemy V. The texts included hieroglyphic pictures, a later non-hieroglyphic Egyptian script similar to early Coptic, and ancient Greek. The French emperor Napoleon had invaded and conquered Egypt in 1798 and one of his soldiers found the Rosetta stone. The British soon arrived, defeated the French and transported the stone to the London museum where the stone has been its most celebrated and visited display since 1803.

It took two decades of scholarly discernment and international competition among linguists before the mysterious Rosetta hieroglyphic text was successfully translated in 1822. That translation depended on the study of other hieroglyphic texts found on several Egyptian monuments. The main code-breaker, Jean Francois Champollion, used a text on an Egyptian obelisk that had been discovered in 1815 and named Philae after its place of discovery. This Philae obelisk, like the Rosetta stone, also contained hieroglyphic pictures and a Greek text. By scrutinizing the Rosetta stone in light of Philae and other Egyptian texts, Champollion finally was able to crack the code that had puzzled scholars for the many centuries after hieroglyphics had fallen into disuse and its meaning forgotten.

The scientist who initially proposed the name "Rosetta" for the current probe was Professor Eberhard Grun, a renowned expert on comets and interstellar dust. He was also an interdisciplinary scientist and a native German who worked in Heidelberg. The idea occurred to him in 1986 and he first publically proposed it in 1987. His suggested name met with immediate acceptance. Grun described that moment in the following words.

"When this idea first crossed my mind, towards the end of 1986, I went to the library at the University of Heidelberg to learn more about the Rosetta Stone and how it revolutionized the study of Ancient Egypt. There was clearly a parallel with comets and their role to interpret the history of the solar system, and besides, the name 'Rosetta' was much more powerful than what we had before . . .so it stuck pretty quickly. "

Comets are the most primitive elements in our solar system. They seem to have remained unchanged from the time before our sun ignited and our planets began their formation. So comets were recognized as the key to understanding our solar system's origin.

Like Champollion in the early 1800s, today's scientists studying 67P/C-G also use two main sources of information, data from the orbiter and from the lander. By comparing the data they can better understand the comet's chemistry and the origin of our solar system. My own opinion is that the use of these two ancient classical names, Rosetta and Philae, does evoke the sense of struggle with unknowns, and also the confidence there will be an optimistic triumph

over the obscurity of our solar system's origins. In that sense, perhaps these ancient Egyptian names do add a bit of sweetness to the on-going story of comet exploration, Shakespeare to the contrary.
Here are two mineralogical footnotes to the above story. The first is that it is still a bit early for scientists to be reporting on Rosetta's findings as to the mineralogy of comets except that they are rich in deuterium.

The second concerns the mineralogy of the actual Rosetta stone itself. It had presented scientists with a bit of a mystery for the first century after its discovery in the 1800s. Initially many thought it was granite. Later public opinion changed to say it was basalt. Even today, many current articles describe the Rosetta stone as basalt due perhaps to earlier reports of its black color. In fact, however, the dark appearance was artificially introduced in the early 19th century when the stone was covered with layers of black ink that were repeatedly applied to make copies of the texts. Later it was covered with wax to protect the stone from the greasy fingers of all who wanted to touch this piece of history.

After a careful cleaning in the 20$^{th}$ century, the natural color turned out not to be black but a dark gray. Its mineral composition was then identified as actually granodiorite, an intrusive igneous rock containing more plagioclase feldspar than granite's orthoclase feldspar. It also contains black biotite, dark-gray hornblende, white plagioclase and gray quartz. It has traces of pyrite whose oxidized iron gives the stone a faint rusty tint. Its mineral name, granodiorite, designates it as closely related to two similar minerals, granite and diorite. Mineralologists have solved the early confusion although the misidentification "basalt" commonly appears in today's public literature.

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## DC's National Treasure: The Smithsonian Institution

**By Sheryl E. Sims**

As we move into spring, and warmer weather, let's not forget our own national treasure, The National Museum of Natural History. It's free, it's close by, and it's always interesting. I never tire of visiting it as it is my favorite museum.

The Janet Annenberg Hooker Hall of Geology, Gems and Minerals houses an impressive collection of minerals and gemstones. Some of my favorite specimen include unusual elbaites, artifacts, and even meteorites! If you want to take something home to remind you of what you've just seen, you can always purchase a book about the exhibit called, "*The National Gem Collection*," by Jeffrey E. Post. It has wonderful photographs by Chip Clark.

Some of the wonderful gems you can see in the collection are:

The Hooker Emerald;
The Hope Diamond;
The Rosser Reeves Start Ruby; and
The Logan Sapphire.

There is also a beautiful diamond and silver crown which was a wedding gift from Napoleon I to Empress Marie-Louise, his second wife. It used to have emeralds in it when it was first commissioned, but they were replaced with Persian turquoise in the late '50s. The crown was later owned by Marjorie Merriweather Post. She collected French and Russian art, and eventually donated it to the National Gem Collection.

The collection also contains a vast array of displays of iron, copper, and gold. There are many, many, beautiful beryls, aquamarines, and topazes. I especially like the specimen that has a band of rose quartz crystals growing from a piece of smoky quartz crystal. It's called a "rose tutu." It was found in the Sapucaia mine, located in Minas Gerais, Brazil.

One of the fun parts of seeing the exhibit is being able to actually touch some of the specimens. In fact, there are signs inviting visitors to "*Please Touch!*" Whether you're into molten rocks, labradorite carvings, opals, or jade, I hope that you will make plans to visit this wonderful collection!

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## RESTARTING A FABULOUS AVOCATION

**By Ed Fisher**

Every time we turn on the cabinet lights on the mineral collection I'm amazed by how wonderful Susan's hobby is. The sheer variety and beauty of the collection literally can make my jaw drop even now. What I don't do quite as often is reflect on how the current collection began. When I do, I realize I have no one to thank (or blame) more than myself.

In our family room is a coffee table with six specimens under glass. One, by no means the prettiest, is a "nailhead" calcite from ??????????????????. It's got a little damage on some of the crystals and , by the standards of some the rest of the collection, it's not as colorful, bright or rare as most of the other calcites. For all that, it's special. It was the first in the collection, and Susan still likes it. Here is how it came about being in our home.

In early 1972 (that's right 43 years ago) I came from Ft. Riley, Kansas to Washington, D.C. to attend a U.S. Army training course at the Forrestal Building on Independence Avenue. Every lunch period during that week was spent across the street at the Smithsonian, and most of us walked back to our hotel, the Ambassador at 14th & K (thank goodness that was torn down and became something else) by way of the Natural History Museum. One afternoon, I stopped by the gift shop and saw this "rock" in the cabinet, and thought it was pretty (I had no idea what it was). I remembered that Susan said her mother had given away her collection while Susan was away at college. This was the first time we'd been apart for any period of time in our marriage, and I wanted to get her something special. I don't remember how much it cost, but it couldn't have been much since I bought it. It's a good thing that security was less stringent then than it is now. I don't know how TSA would have reacted to a rock that could not be explained by the person carrying it.

When I got home, I was informed that it was a mineral - not a rock - and the avocation in Susan was reborn. Three years later when we moved from Kansas to Ohio, the collection fit into a large metal picnic cooler. Two and a half years after that, it filled up the back of our pickup when we moved from Ohio to Virginia. Each of our two subsequent moves around the area have been successively heavier. It has reached the point that I wonder whether we CAN actually relocate the collection again.

Through it all, the main thing is to enjoy the look on Susan's face when she sees a new specimen that she has added, and once in a while to look at that chunk of calcite that restarted this fabulous avocation.

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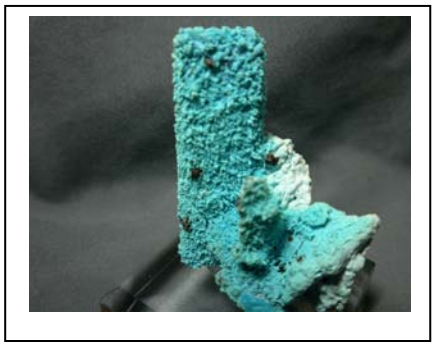
## **Mineral of the Month: Shattuckite** - Rare and Wonderfully Blue

**By Susan Fisher**



**SATTUCKITE**
after Azurite

Laputo Mine, Lubumbashi,
Katanga, Republic of Congo

(Susan Fisher specimen and photo)

Formula: $Cu_5(Si_2O_6)_2(OH)_2$
Crystal System: Orthorhombic
Color: Light to dark blue.
Hardness: 3½
Density: 4.11 g/cm $^3$

Shattuckite is a rare secondary copper silicate usually found in the oxidation zones of copper deposits. The first recorded find of this mineral was in 1915 in the Shattuck Mine (also known as the Shattuck-Denn Mine; Shattuck-Arizona Mine; or the Denn Mine), Bisbee, Warren District, Mule Mountains Cochise County, Arizona It derives its name from this mine.

Shattuckite is rarely found in single elongated crystal, but usually forms radiating, botryoidal, globular, reniform, and stalactitic crystal groups. It may also form beautiful blue lining the sides of vugs. Shattuckite frequently forms pseudomorphs after other minerals. In its massive form, it is sometimes cut for unique gem stones.

Shattuckite, although rare, is found in some well known locations. In the USA it is found in Arizona at the Shattuck mine, Bisbee, Cochise County; the New Cornelia mine, Ajo, Pima County; and the San Manuel and Mammoth-St. Anthony mines, Tiger, Pinal County as well as a few others. The famous Red Cloud district, in Lincoln County., New Mexico. has produced some great specimens. Africa has given us beautiful specimens from Tsumeb and the Kunene Region of Namibia as well as the Katanga Province, Republic of Congo. Lesser known specimens are found at Mili, Evvia Island, and Apikia, Andros Island, Cyclades Islands, Greece.

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## My Two Cent's Worth - Do Clubs Need a Newsletter?

**Editorial by Susan**

I just got back from acting as a dealer at the Rochester Mineral Symposium. It was a great symposium with wonderful speakers and marvelous displays! Everyone should try to attend at least once. As a "pseudo-dealer", I spent a lot of time between sessions sitting in my room in the dealer section with the door open and Cynthia Payne's minerals spread over the bed and tables. During one of these times, a couple of gentlemen stopped outside the door and engaged in a congenial, but rather loud, discussion about the difficulties of finding a new newsletter editor for a mineral club to which they both belong. While eavesdropping is not polite, I was a captive audience. The problem seemed to be that a long-time newsletter editor was no longer available and there were no candidates for the position. One gentleman espoused the solution of simply publishing the minutes of the meetings to the web site and sending out an e-mail notice to the membership of upcoming meetings, field trips, etc. The other gentleman felt strongly that the club would die without the unifying influence of the newsletter. Before they reached any type of consensus, they moved down the hall and left me selling minerals and considering the role of the newsletter in the current electronic age.

Before the advent of widely available personal computers and the internet, the arrival of a paper copy of an organization's newsletter was a happily anticipated event. We got news about the next meeting, upcoming events, and what our fellow members were doing in respect to the hobby as well as news on changes in rules and regulations affecting our avocation. Copies were read and reread and sometimes archived. Today, most of us receive the newsletter electronically (unfortunately along with hundreds of other e-mails, most of which are advertizing things we don't want or need!) What, if anything, makes a newsletter worth the time and trouble to put it together and publish it to the membership?

From my perspective, the answer to the question of the importance of a newsletter is a somewhat ambiguous "it depends." How important is a newsletter to the membership? Is it a vital communications means that benefits a majority of the membership, or is it simply another piece of mail, either electronic or traditional, that gets tossed immediately? Does it provide a depth of information that is not practical in short postcards or messages? Is it interesting to a majority of readers? Does it have contributions from a cross section of the membership? Does it provoke thought or action on the part of the membership? What is our motivation for publishing? In short, is it worth the time to publish it and to read it and possibly to make a contribution to it or is it something we do because we have always done it? I would certainly like to hear your thoughts.

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## Upcoming Events:

May 16-17: Leesport, PA - 47th Annual “World of Gems & Minerals” Show sponsored by the Berks Mineralogical Society. Leesport Farmers Market Banquet Hall, 312 Gernant’s Church Rd., Leesport, PA.

May 30: Towson, MD - 26th Annual Chesapeake Gem & Mineral Show. Ruhl Armory, I-695 exit 26 south., Towson, MD. 10 am - 4 pm. Chesapeake Gem & Mineral Society. 1035 York Rd, Baltimore, Maryland 21204. Free Admission & plenty of free parking

June 6: Macungie, PA - 64th Semi-Annual Spring Mineralfest Show sponsored by the Pennsylvania Earth Sciences Association. Macungie Memorial Park, Macungie, PA

July 11-12: Syracuse, NY - GemWorld 2015 This 2 day event sponsored by he Gem & Mineral Society of Syracuse will be held from July 11th to 12th 2015 at the SRC Arena and Events Center in suburban Syracuse, NY USA. The show has 45+ retail dealers and 10+ wholesale dealers.

July 11-12: Bethel, ME - Annual show; Oxford County Mineral & Gem Association, Telstar High School; RTE #26; Sat. 10 am-5 pm, Sun. 10 am-4 pm; Adults $3.00, Children under 12 are FREE!; We also offer guided Field Trips to a locale mine each day. You must be at the show to sign up for the field trip. Field trip's leave each day by 11am. Contact Dennis Gross, 178 N. Main Street, Bryant Pond, ME 04219, 207-665-2759; e-mail: mincoll@megalink.net

**Visitors are always welcome at our monthly meetings and dinners!**

## MEMBERSHIP APPLICATION OR RENEWAL
## THE MINERALOGICAL SOCIETY OF THE DISTRICT OF COLUMBIA (MSDC)

(___) Family ~ $25.00 per year. One address.
(___) Individual ~ $20.00 per year.
(___) New * (___) Renewal Dues are for Year _____*
For new members who join in the last months of the year, membership will extend through the following year with no additional dues.

**ANNUAL DUES – PLEASE PAY YOUR DUES PROMPTLY**.
Pay at next meeting or mail to:
**Mineralogical Society of DC, P.O. Box 9957**
**Alexandria, VA 22304**

**Name(s)** (First and Last)
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**Address**_____
**City** _____ **State** _____ Zip: _____
**Phone(s)**: **Home/Work/Mobile**_____
**Email(s)** _____
**OK TO INCLUDE YOU ON CLUB MEMBERSHIP LIST?**
(__) Yes – Include name, address, phone, email.
If you want any information omitted from the membership list, please note:
Omit my: (__) Email, (__) Home phone, (__)Work phone, (__) Mobile phone, (__) Address, (__) Name
**SPECIAL CLUB-RELATED INTERESTS?**
_____

## MINERALOGICAL SOCIETY OF THE DISTRICT OF COLUMBIA
**(2015 Officers & Board Members)**

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Co-Web Masters: Betty Thompson & Casper Voogt, http://mineralogicalsocietyofdc.org/

**Meeting Dates, Time, and Location:** The first Wednesday of each month. (No meeting in July and August.) The National Museum of Natural History, Smithsonian Institution, 10th Street and Constitution Ave, Washington D.C. We will gather at the Constitution Avenue entrance at 7:45 PM to meet our guard who will escort us to the Cathy Kirby Room. Street parking: **THERE ARE NOW PARKING FEES, PAYABLE AT THE KIOSKS, AND ENFORCEMENT UNTIL 10 PM.**

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Mineralogical Society of DC
% Susan Fisher
14981 Gold Post Ct.
Centreville, VA 20121

Time Sensitive Dated Material
First-Class Mail