

# *The* **BULLETIN**

**OF THE NEW YORK MINERALOGICAL CLUB, INC**

**Volume 131 No. 2  
February 2017**



**MEMBERS'  
SHOW & TELL**

**RARE  
QUASICRYSTALS**

**METEORITE ON  
MARS**

**HOT POTTING??!!**

**HÜBNERITE**

**MEMBERSHIP  
RENEWAL FORM**



*America's Oldest Gem & Mineral Club*

**Founded 1886**



**Incorporated 1937**

# Bulletin of the New York Mineralogical Club

Founded 1886 ♦ New York City, New York ♦ Incorporated 1937  
*America's Oldest Mineral & Gem Club*

Volume 131, No. 2

February 2017

**February 8<sup>th</sup> Meeting:  
Annual Members Show & Tell!**

**NYMC Meeting Activity**  
**Members' Showcase!**  
*Show & Tell by the Members of the New York Mineralogical Club*

**Wednesday, February 8, 2017**  
**Watson Hotel (Holiday Inn) - 6:30 pm**

At each year's **Members' Showcase** everyone has a chance to share something interesting with his/her fellow members. Although there are no specific topical restrictions, here are some areas on which we would encourage members to focus on with their short presentations:

- ♦ Recent Acquisition(s)
- ♦ Recent Show Purchase(s)
- ♦ Field Collecting Stories
- ♦ Museum/Exhibit/Show Visits
- ♦ Recent Creations/Designs
- ♦ Gem/Jewelry Topics
- ♦ Book/Magazine Suggestions

If you intend to participate in the Showcase, it would be helpful if you let Mitch know so he can put you on the agenda and thereby give everyone adequate time to speak. Please telephone or email him (see last page for numbers/email address). This year you can expect to hear the following presentations:

- ♦ **Rich Rossi** will show his favorite recent acquisitions;
- ♦ **Pauletta Brooks** will present some of her favorite recent acquisitions;
- ♦ **Anna Schumate** will have some relevant surprises to share with us;
- ♦ **Roland Scal** will share some recent findings regarding synthetic gems;
- ♦ **Mitch Portnoy** will display some of the Club's archival treasures;
- ♦ **Rhoda Krosite** will thrill us with her collection of red minerals.

## Special NYMC Benefit Sale Scheduled on February 12, 2017

By Mitch Portnoy

I am very pleased to report that on Sunday, February 12, 2017, the NYMC will be having a benefit sale of minerals, crystals, gems, jewelry, fossils, books and more!

Once again, we have to thank member and mineral dealer **Nik Nikiforou** (Globe Minerals) for his overwhelming and continued generosity to the Club.

Nik donated 20 flats (!) of worldwide minerals of an astonishing species variety and quality. Most are what I call "New York City mineral collector size" – thumbnail, miniature and small hand specimens.

His donation also included a lot of time and work on his part before the flats arrived in my apartment. The minerals are clearly labeled and neatly boxed and packaged. This made it extremely easy for several of us to price them (with Nik's experienced counsel). *And believe me, they are priced to sell!*

Before I forget, I want to thank **Rich Rossi** for driving up to New Paltz, where Nik now lives, and delivering them to my apartment.

In addition to Nik's gift, we are adding the following items from which you can make your eager purchases:

- ♦ All donated books, magazines, posters and other external publications;
- ♦ All the larger (HUGE!) specimens we have received during the past year;
- ♦ All the jewelry, gems and cabochons from previous donations;
- ♦ Additional mineral specimens from previous donations.
- ♦ All available Club items: publications, CD-ROMs, note card packs, gemstone floaty pens, drawstring backpacks, etc.
- ♦ And some surprises & freebies!

Please take note that this is a members only event! Members in good standing for the year 2017 can, of course, bring their family and/or interested friends as in the past. 2016 NYMC members must pay their annual dues before making selections or at

least agree that they will be renewing their membership for 2017 when we tally up their purchases.

Also remember that you may not purchase the donated minerals on credit – cash or check is required before you leave. We are not equipped for you to use PayPal or a credit card. (Perhaps next year for this . . .)

The bulk of the donation is composed of the most popularly collected species: quartz, hematite, calcite, fluorite,

galena, pyrite, barite, sphalerite, vanadinite, tourmaline, zeolites and garnet. I did, however, notice some of the rarer species as well as many oddities and minerals with unusual habits and associations. **Believe me, there is a great deal of color here!**

The locality range of the specimens includes: China, Morocco, India, Mexico, Namibia, Bulgaria (!) and much more!

### Some Sale Highlights:

- ♦ Condor Agate (Argentina)
- ♦ Calligraphy Stone - Fluorite (China)
- ♦ Jasper (Mexico)
- ♦ "Pagoda" Calcite (China)

This is indeed a special sale for true mineral collectors as well as a true benefit for you as a member of the NYMC.

Hope to see you at the event!



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## President's Message

By Mitch Portnoy

### What's in a Name?

In February 2017, the Holiday Inn Midtown, the location of our meetings, auction, banquet, shoes, etc. will be renamed the Watson Hotel. All contracts and arrangements we have with them will remain the same. I've already received two panicked calls asking where our "new" meeting place is located! Relax!

### Club Theme for 2017: *Leveling Up!*

The NYMC is in remarkably good shape in terms of finances, membership and participation. We are in a position to enhance or enlarge our current activities or start entirely new ones. This will be one of our main mantras for this year.

With this in mind, we have decided to produce two bulletins during the summer, a single issue for July and a single issue for August rather than a combined one. This means all members will receive 12 newsletters rather than "only" 11!

### It's Right to Write

I want to strongly encourage members to write for the Bulletin! I know we are currently blessed with the regular and prolific articles by **Diana Jarrett** and **Vivien Gornitz** but there is still room for more.

If you have an idea or an opinion, go for it! I promise to help with the editing and any illustrations you may need.

### Chinese Auction 2017 Results

This was the third year that we have had a Chinese Auction in January and it was again very well received. **The Club netted \$275.** We have **Richard Rossi** to thank for this wonderful result as he took it upon himself to "level up" the event by donating an entire flat of high quality minerals.

### Send in Your 2017 Club Dues

It is time to send in your 2017 club membership dues! All memberships run from January 1 to December 31 of each year (with a few exceptions). If your mailing label says "2016", you owe your 2017 dues. Please take the time now to mail in your dues in order to prevent uninterrupted delivery of your bulletin. A handy form appears on page 12. Dues are \$25 for individual, \$35 for family. Mail to: Membership Coordinator, N.Y. Mineralogical Club, P.O. Box 77, Planetarium Station, NYC, NY 10024-0077.

Renew Online with PayPal!



## Club Meeting Minutes for January 11, 2017

By Vivien Gornitz, *Secretary*

Attendance: 47

President Mitch Portnoy presided

### Announcements

- ◆ This meeting included an upgraded "Chinese Auction" with about 25 lots; lucky winners were selected throughout the meeting. Tickets cost \$5.00 per sheet of 25 chances.
- ◆ A NYMC Website update was given focusing on the Historical Archives.
- ◆ Members were reminded that dues for 2017 were due.
- ◆ A Special Benefit Sale (for members in good standing ONLY) will be held on February 12, 2017. The bulk of the minerals was donated by **Nik Nikiforou** of Globe Minerals.
- ◆ The day's and month's historical events were presented.
- ◆ The evening's game about minerals of Mohs hardness 7 was played. Prizes included a framed reproduction of Warhol's "Gems." (These prizes related to the meeting's lecture topic.)
- ◆ Items and books available for sale at the meeting were listed.
- ◆ The delayed *End of Year Awards* from 2016 were presented.
- ◆ Upcoming Club events were announced.

**Special Lecture: Mitch Portnoy:**  
**"Minerals, Gems, Geology & Jewelry in Popular & Artistic Culture"**



In a fun-filled presentation, Mitch Portnoy, Club President and ever-popular speaker, spanned the centuries illustrating the multi-faceted roles minerals, gems, and rocks played in art, literature, and popular culture. A wealth of examples abound—from fine art to pop art, operas to advertising jingles, novels to movies, comics, cartoons, and TV shows.

Gems and jewelry were featured in some classic 19<sup>th</sup> century novels, such as "The Moonstone" (actually a large stolen Indian diamond), by Wilkie Collins, "The Necklace", by Guy de Maupassant, and

"The Adventure of the Blue Carbuncle" by famed mystery writer Arthur Conan Doyle. (Blue? Carboncles, or garnets, are generally red). Moving to the 20<sup>th</sup> century there is "The Diamond as Big as the Ritz" by Scott Fitzgerald, "Lord of the Rings" by Tolkien, and "The Pearl" by John Steinbeck. "Breakfast at Tiffany's" by Truman Capote was also made into a movie of the same name, starring Audrey Hepburn.

(Continues on page 11)

## Members in the News

- ◆ **Alan Bronstein** has been elected president of the Natural Colored Diamond Association.

**Mel Pollinger**, of the North Jersey Mineralogical Society, has decided to part with his mineral collection starting in January 2017. He will be selling the pieces individually. For more information, please contact Mel at [pollingmel@optonline.net](mailto:pollingmel@optonline.net) (preferred contact method) or (201) 791-9826.

## Welcome New Members!

Fred Haynes . . . . . Rochester, NY  
*(Editor, Wayne County Gem & Mineral Club)*

## Coming Next Month . . .

**NYMC Meeting Lecture**

"Meteorites: The True Extraterrestrials"

Prof. Steve Okulewicz

Educator, Geologist & Magician

**Wednesday, March 8, 2017**  
**The Watson Hotel – 6:30 p.m.**

## And a New Game Series!

Mineral Streak

A Mineral & Gem ID Game

The New York Mineralogical Club

Based on a Suggestion by Diane Beckman

## The World of Minerals

The *World of Minerals* is a monthly column written by Dr. Vivien Gornitz on timely and interesting topics related to geology, gemology, mineralogy, mineral history, etc.



### Minerals and Life's Beginnings

#### Part I: The Birthplace of Life

Earth, like the other Solar System planets was born around 4.6 billion years ago. Our planet emerged from a fiery hailstorm of asteroids that culminated around 3.9 billion years ago. A mere hundred million years later, c. 3.7 billion years ago, life's imprint was already stamped on the most ancient rocks.

Although the origin of life is lost in the mists of time, the first living entities must have been assembled from abundant raw materials from the surrounding environment: carbon, hydrogen, oxygen, nitrogen, sulfur, and phosphorus. All living creatures, from microbes to man, share three fundamental characteristics: 1) a carbon-based biochemistry, 2) the same basic genetic code, implying a common ancestry, and 3) essential bio-molecules, such as DNA and RNA, that are tightly interwoven into a highly integrated system. Minerals performed essential tasks in the initial steps leading to the beginning of life on Earth: they provided shelter and scaffolding for assembly of critical molecules, acted as catalysts to jump-start important reactions, and ultimately became part of the living cell. But where exactly did life originate?

#### A warm, shallow pool vs. the ocean floor

In a now classic experiment in 1953, Nobel-prize-winning chemist Harold Urey and his then-graduate student Stanley Miller, University of Chicago, mimicked an early Earth atmosphere of methane, ammonia, water, and hydrogen in a flask and passed an electrical spark (i.e., lightning) through the mixture. The resulting tarry goo contained a number of amino acids, like those found in proteins. Subsequent experiments with slightly different ingredients produced adenine—one of the bases found in DNA and RNA. These early experiments gave rise to the popular theory that life arose in a warm, shallow tidal pool at the Earth's surface.

However, the Earth's primordial atmosphere, rather than a mix of methane and ammonia, more likely consisted of carbon dioxide and nitrogen, also the principal gases on Mars and Venus. More recent findings also show that life exists under extreme conditions—in miles-deep rocks, encased in ancient salt deposits, in boiling hydrothermal pools like in Yellowstone Park, and at active hydrothermal vents on the ocean floor. The ability of organisms to survive under such drastic conditions vastly expands the range of possible birthplaces of life.

#### Black smokers

Active deep-sea hydrothermal vents are home to prolific ecosystems. Extremely primitive heat-loving microbes at the base of the food chain derive their nourishment through *chemosynthesis*—the conversion of volcanic carbon dioxide, hydrogen sulfide, and iron into organic molecules by means of chemical energy. They can therefore live in environments far removed from the Earth's surface. Their lifestyle contrasts with that of plants that derive their energy from the Sun through *photosynthesis*, which evolved much later. In photosynthesis, plants use the Sun's energy to turn carbon dioxide and water into sugars and oxygen. This fundamental chemical reaction eventually gave rise to the oxygen in our atmosphere.

Molten lavas erupting at 2000°F onto the seafloor may have provided a favorable high-energy environment for chemosynthesis. Cold seawater that seeps through cracks and fissures in the still-hot, cooling lavas reacts chemically with the basalt, leaching out metals, such as Fe, Cu, Mn, and Zn, as well as H<sup>+</sup> ions. Sulfate in seawater is reduced to elemental S and H<sub>2</sub>S, while CO<sub>2</sub> is emitted by the volcanism. These hot, acidic, oxygen-deficient “black smokers” are home to very primitive, heat-loving microorganisms, which prosper at temperatures above 176°F and which may be examples of the most ancient of living creatures. This deep ocean home would have provided a safe haven from the merciless assault by asteroids then underway at the Earth's surface and, more importantly, would have supplied the necessary raw materials for life's birth.

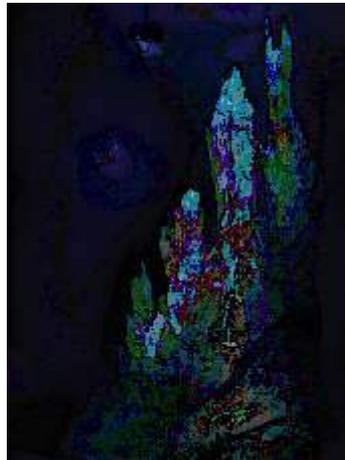
#### White smokers

However, a different kind of hydrothermal vent could provide an alternative abode for the earliest life. “White smokers” are much cooler, more alkaline (with a pH like that of household ammonia), calcium-carbonate-rich vents that build massive white chimneys. These vents form where mantle rocks, such as peridotite, emerge on the seafloor. One such locale is “Lost City”<sup>1</sup>, part of the Atlantic Massif in the North Atlantic Ocean. Seawater seeping into the exposed olivine-rich peridotite alters it to serpentine, releasing gases such as hydrogen, methane, and hydrogen sulfide. Reactions involving these gases have yielded a number of simple organic molecules such as methane, ethane, and propane; also organic acids such as formate and acetate. Sharp gradients in temperature, energy, and oxidation state near the vents would have driven chemical reactions leading to the formation of amino acids and nucleotides. Nitrogen gases, including ammonia, would also promote the production of amino acids, the building blocks of proteins. Iron sulfides, present in the porous rocks, would have acted as important catalysts. These elements also exist within proteins and other bio-molecules. The porous vent rocks could have furnished natural microcompartments that might have served as the original cell walls. In sum, the interface between the alkaline vents and the ancient ocean could have readily fostered a primordial biochemistry.

White smoker habitats, such as Lost City, may have been fairly commonplace in the early earth ocean. Back then, the planet was much hotter and more volcanically active. Therefore more peridotitic mantle rocks could have been transported to the seafloor. Thus, the original life-forms could have been born in a warm, alkaline carbonate-rich environment, like that of Lost City.

#### Further reading

- Bradley, A.S., 2008. Expanding the limits of life. *Scientific American*, December 2009, p. 62-27.  
 Lane, N., 2009. The cradle of life. *New Scientist*, October 17, 2009, p. 62-67. (Continued next month)



**Hydrothermal vent ecosystem appears barren but hosts a wealth of microbes, many of which flourish independent of energy from sunlight.**

(1) So-named because of the rain of sulfide minerals accompanying the build-up of the chimneys.

## Hübnerite on Stamps

Daniel Rabinovich  
drabinov@uncc.edu

Minerals and gems on stamps are an integral part of my “chemistry” collection, which I tend to define quite broadly, probably too broadly... I especially like stamps that show the name, and sometimes even the chemical formula, of the specimen displayed. Some minerals are particularly popular among stamps, perhaps because of their abundance, value, or inherent beauty, and I have at least a dozen different stamps showing samples of pyrite, quartz, or malachite.

A few months ago I received from a friend in Peru the stamp shown below, which shows a sample of hübnerite, a mineral that I had never heard of before (well, I’m a chemist not a mineralogist). I immediately thought that that will be good enough reason to learn something new and write a note for PCP, and I asked my friend, who is a very conscientious philatelist and stamp dealer in Lima, to try to find for me a First Day Cover too. It turns out that First Day Covers for this stamp did not go on sale to the public until some three months after (!) the stamp was officially issued (on April 28, 2006), so it’s only now that I can finally write this story...



The hübnerite stamp (left); The first day cover (right) of the hübnerite stamp, inexplicably, shows in the lower left corner a nice-looking specimen of an iron pyrite ( $\text{FeS}_2$ )! Fool’s gold indeed . . .

I was attracted to this stamp for several reasons besides its bright colors: it shows a nice sample of the mineral and it includes both its name and chemical formula ( $\text{MnWO}_4$ ). This mineral, formally a manganese(II) tungstate, was first described in 1865 and named after the German metallurgist Adolf Hübner. It is the manganese-rich member (having at least 80% Mn) of the wolframite series of mixed manganese/iron tungstates,  $(\text{Mn}, \text{Fe})\text{WO}_4$  and it forms reddish brown to black prismatic crystals. The stamp even shows the correct metrical parameters that define the monoclinic crystal system to which hübnerite belongs! This crystal system is one of the seven basic lattice points groups and is described by three vectors of unequal length ( $a \neq b \neq c$ ), two of which are mutually perpendicular ( $\alpha = \beta = 90^\circ$ ) but the third makes an angle other than  $90^\circ$  with the plane formed by the first two.

### Tungstates on Stamps

I was happily going to close my hübnerite story when I realized that there may be other stamps out there displaying specimens of tungstates, all of which are of course minerals that contain one or more tungstate anions ( $\text{WO}_4^{2-}$ ). It turns out that there are several such minerals known, some of which are listed in the following table:

Mineral	Formula
Wolframite	$(\text{Mn}, \text{Fe})\text{WO}_4$
Ferberite	$\text{FeWO}_4$
Sanmartinite	$(\text{Zn}, \text{Fe})\text{WO}_4$
Cuprotungstite	$\text{Cu}_2(\text{OH})_2\text{WO}_4$
Scheelite	$\text{CaWO}_4$
Phyllotungstite	$\text{CaFe}_3\text{H}(\text{WO}_4)_6 \cdot 10\text{H}_2\text{O}$
Stolzite	$\text{PbWO}_4$
Raspite	$\text{PbWO}_4$
Russellite	$(\text{BiO})_2\text{WO}_7$

As mentioned above in the table, wolframite is the generic name used for minerals of intermediate composition in the manganese-iron tungstate series,  $(\text{Mn}, \text{Fe})\text{WO}_4$  [for a recent overview of the wolframite series, see: King, R. J. *Geology Today* 2005, 21 (1), 33-37]. The first samples of wolframites to be identified as such came from Bohemia (in the Saxony region in Germany) and Cornwall (in the Southwestern tip of the United Kingdom). The wolframites are the most important mineral ores of tungsten and the People’s Republic of China has reportedly the world’s largest supply (50-60%). Other producers include Portugal, Russia, Australia, Thailand, Korea, Bolivia and the United States. Tungsten is a hard and dense metal with many interesting applications, ranging from the preparation of the corresponding carbides for milling and cutting equipment to light bulb filaments. Interestingly, it was also used as tank armor and in other military applications before it was replaced by depleted uranium.

I am aware of at least three different countries that have issued stamps showing samples of wolframite, namely Portugal in 1971 (Scott #1106 - center), the People’s Republic of China in 1982 (Scott #1802 - left), and the Republic of Guinea (Scott #1499c - right):



The mineral ferberite ( $\text{FeWO}_4$ ), which is at the iron end of the wolframite series and contains at least an 80% of  $\text{Fe}^{2+}$  cations, was discovered in 1863 in the Sierra Almagrera in Spain and was named after Moritz Rudolph Ferber (1805-1875), an amateur mineralogist from Gera, Germany. It is usually a black and opaque mineral, weakly magnetic, with common sources found in the Nanling range in China, South Dakota and Colorado in the United States, Russia, Korea, England and Bolivia.

A sample of ferberite is shown in a stamp of “dubious” postal use issued by Uganda in 1988 (Scott #603- left); Another well-designed Peruvian stamp issued in 1999 (Scott #1231 - center) shows a sample of scheelite, a calcium tungstate ( $\text{CaWO}_4$ ) that is also an important mineral ore of tungsten;



Officially recognized in 1821, scheelite was named after the famous Swedish chemist Carl Wilhelm Scheele (1742-1786), the co-discoverer of tungsten (independently from the d'Elhuyar brothers in Spain) and many other elements, including oxygen and chlorine (which he did before Joseph Priestley and Humphry Davy, respectively, but published after . . .). Notable sources of scheelite are located in Brazil, Australia, Austria, Bolivia, Burma, China (especially in the Sichuan province), England, Finland, France, Italy, Japan, Sri Lanka, Sweden, Switzerland and the United States.

As shown in the Peruvian stamp above, scheelite is usually found as golden yellow or orange minerals that crystallize in the tetragonal system. This crystal lattice can be regarded as an elongated cube, i.e., a rectangular prism with a square base (thus,  $a = b \neq c$ ) and right angles between the three axes ( $\alpha = \beta = \gamma = 90^\circ$ ).

#### Acknowledgment

I sincerely thank Ms. Mariu Cerpa (Lima, Peru) who provided the hübnerite stamp and First Day Cover that inspired my writing of this article.

Source: *Philatelia Chimica et Physica*, Vol. 29, No. 1 — Winter 2007

### Curiosity Finds a Melted Space Metal Meteorite on the Surface of Mars

By Matt Williams



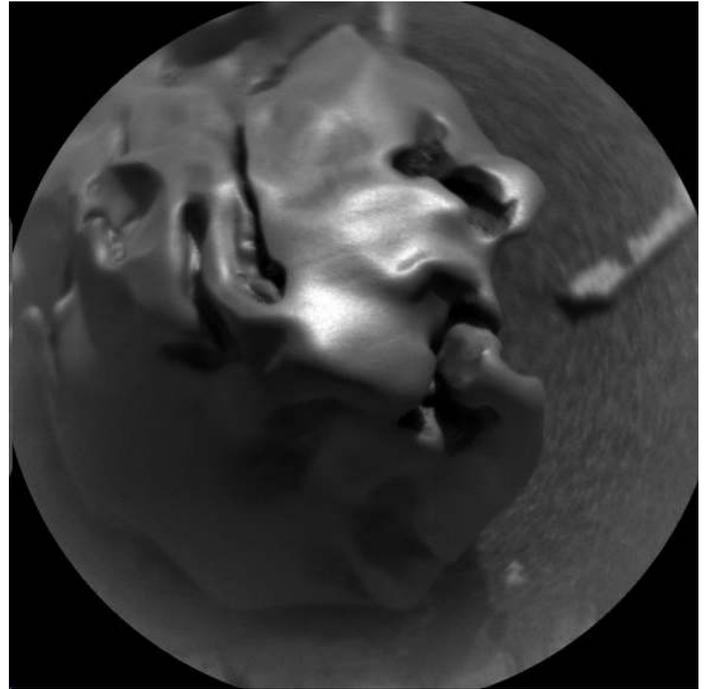
Image from Curiosity's Mast Camera (Mastcam), which captured a small rock believed to be a meteorite on Sol 153. Credit: NASA/JPL-Caltech/LANL/ASU

Since it landed on the surface of the Red Planet in 2012, the Curiosity rover has made some rather surprising finds. In the past, this has included evidence that liquid water once filled the Gale Crater, the presence of methane and organic molecules today, curious sedimentary formations, and even a strange ball-shaped rock.

And most recently, Curiosity's Mast Camera (Mastcam) captured images of what appeared to be a ball of melted metal. Known as "Egg Rock" (due to its odd, ovoid appearance) this

object has been identified as a small meteorite, most likely composed of nickel and iron.

Egg Rock was first noticed in an image that was snapped by Curiosity on Oct. 28th, 2016, (or Sol 153, the 153rd day of Curiosity's mission). The rover then snapped a two-frame portrait of the meteorite (seen below) two days later (on Sol 155) and studied it using its ChemCam's Remote Micro-Imager (RMI). This provided not only a close-up of the strange object, but also a chance for chemical analysis.



Close up of "Egg Rock". Credit: NASA/JPL-Caltech/LANL/ASU

The chemical analysis revealed that the rock was composed of metal, which explained its melted appearance. In essence, it is likely the rock became molten as it entered Mars' atmosphere, leading to the metal softening and flowing. Once it reached the surface, it cooled to the point that this appearance became frozen on its face.

Such a find is quite exciting, if not entirely unexpected. In the past, Curiosity and other rovers has spotted the remains of other metallic meteorites. For instance, back in 2005, the Opportunity rover spotted a pitted, basketball-sized iron meteorite that was named "Heat Shield Rock".

This was followed in 2009 by the discovery of "Block Island", a large dark rock that measured 0.6 meters (2 feet) across and contained large traces of iron. And in 2014, Curiosity spotted the mostly-iron meteorite that came to be known as "Lebanon" which measured 2 meters (6.5 feet) wide – making it the largest meteorite to ever be found on Mars.

However, "Egg Rock" is somewhat unique, in that its appearance seems more "melted" than meteorites spotted in the past. And as George Dvorsky of Gizmodo indicated, other aspects of its appearance (such as the long hollows) could mean that it lost material, perhaps when it still molten (i.e. shortly after it reached the surface).

And such finds are always interesting because they provide us with the opportunity to study chunks of the Solar System that might not survive the trip to Earth. Given its greater proximity to the Asteroid Belt, Mars is better situated to be periodically

struck by objects that get kicked out of it by Jupiter's gravity. In fact, it is theorized that this is how Mars got its moons, Phobos and Deimos.



Image of the iron meteorite found on Mars by the Opportunity rover on the Sol 339 (Jan. 6th, 2005). Credit: NASA/JPL/Cornell

In addition, meteorites are more likely to survive passing through Mars' atmosphere, since it is only about 1% as dense as Earth's. Last, but certainly not least, meteorites have been striking Earth and Mars for eons. But since Mars has had a dry, desiccated atmosphere for all of that time, meteorites that land on its surface are subject to less wind and water erosion.

As such, Martian meteorites are more likely to be intact and better preserved over the long haul. And studying them will give planetary scientists opportunities they may not enjoy here on Earth. Now if we could just transport some of these space rocks home for a more detailed analysis, we'd be in business! Perhaps that should be something for future missions to consider.

Source: [Universtoday.com](http://Universtoday.com) from November 1, 2016

### ***From the Oy Vey Department:*** **Man Who Fell into Yellowstone Hot Spring Completely Dissolved Within a Day**

By Robin Andrews

Beneath Yellowstone National Park resides one of the largest magma chambers in the world. Thanks to this unfathomably hot fuel source, the water systems around the park can often be incredibly hot and stupendously acidic.

You should not take a dip in them. They will kill you, and science has confirmed that death is really quite bad for your health.

Back in June, a 23-year-old man fell into one, and he died fairly quickly. Now, thanks to a Freedom of Information Act request by a local TV network, more grisly details of the cause and the aftermath have come to light.

Apparently, he was looking for a place to "hot pot," which describes the act of getting slightly singed in natural hot springs for no logical reason whatsoever. He leaned over to dip his forefinger in, in order to test the temperature of the waters, when he slipped in, and descended beneath the surface.

The victim was found dead and drifting around the pool later that day, but officials could not quite reach him to drag him out. A thunderstorm promptly arrived and forced them to retreat for the night. Returning the next day, they found that nothing of the man remained – not even his flip flops.

In his incident report, Deputy Chief Ranger Lorant Veress pointed out that the waters were particularly hot and acidic that day. "In a very short order, there was a significant amount of dissolving," he noted, as reported by Time.



Keep the hell out!

Although incidents like this are clearly quite tragic, they're also a testament to the incredibly daft lengths people go to show off to someone, be "brave", or – in this case – have a very unique bath.

Yellowstone's geothermal ponds, pools, and geysers average around 93°C (199°F) at the surface, and they are far hotter just a few meters down. They are fenced off and surrounded by a bunch of quite prominent warning signs for a really, really good reason.

These watery doom portals are actually only inhabitable to a specialized bunch of organisms known as archaea. Are you a microscopic, extremophilic lifeform? No, we didn't think so. So stay the hell back, and don't try any of this "hot potting" nonsense unless you want to dissolve like a sugar cube in coffee.

### **Scientists Create Diamond Battery Fueled By Nuclear Waste**

By Stephen Luntz

A diamond that turns radioactivity into electricity could operate as an energy source in circumstances where small amounts of power are needed for very long periods of time. The product could also prove a useful way to dispose of stocks of nuclear waste.



Nuclear power stations produce a lot of radioactive waste, and long-term storage of this product has proven more difficult than anticipated. One of the major forms of waste is carbon-14, a radioactive isotope of carbon that has a half life of more than 5,000 years. This carbon-14 needs to be kept isolated from the environment for many half-lives, far longer than any civilization on Earth has survived.

To that extent, University of Bristol scientists experimented with heating the graphite rods that contain this carbon-14, releasing most of it as a gas, which would then be turned into artificial diamonds. The legendary toughness of diamonds keeps the waste contained, but more importantly, the diamonds can be connected to circuits and serve as a source of electricity.

As the carbon-14 atoms in the diamond decay to stable nitrogen-14 they release electrons (beta radiation) and this generates a current. Most diamonds are insulators, but with suitable doping they can have the free electrons that allow them to conduct electricity.

“There are no moving parts involved, no emissions generated and no maintenance required, just direct electricity generation. By encapsulating radioactive material inside diamonds, we turn a long-term problem of nuclear waste into a nuclear-powered battery and a long-term supply of clean energy,” said Professor Tom Scott in a statement issued to accompany the announcement of a successful prototype and the university’s annual Ideas to Change the World lecture.

The carbon-14 diamonds are too radioactive to be safely used anywhere near living things unshielded, so the Bristol team enveloped them in a larger diamond of stable carbon-12. The use of a diamond outer layer, while more expensive than other potential shielding devices, maximizes the capture of radioactivity, generating far more electricity than the carbon-14 diamond would do alone.

The electricity is released very, very slowly, so even with large quantities of such diamonds connected in parallel, the power available would be far too small for most purposes. On the other hand, it would barely diminish for centuries, making this a very useful source of energy where refueling is difficult. Spacecraft traveling to the outer Solar System, where solar panels are of little use, look like an obvious application, along with vessels exploring the deep ocean.

Those aren’t likely to produce sufficient demand to dispose of the world’s vast stocks of carbon-14 on their own, so the Bristol team is seeking public suggestions for other potential uses.

Sadly, despite the Bond film’s propaganda, diamonds are not always forever. A sharp shock will shatter them, so protection in some circumstances would be required. Nevertheless, Scott and colleagues think they are a step closer to the world envisaged in Neal Stephenson’s influential science fiction novel, *The Diamond Age*.

Source: IFLScience.com from November 28, 2016

## Geologists Find Largest Exposed Fault on Earth

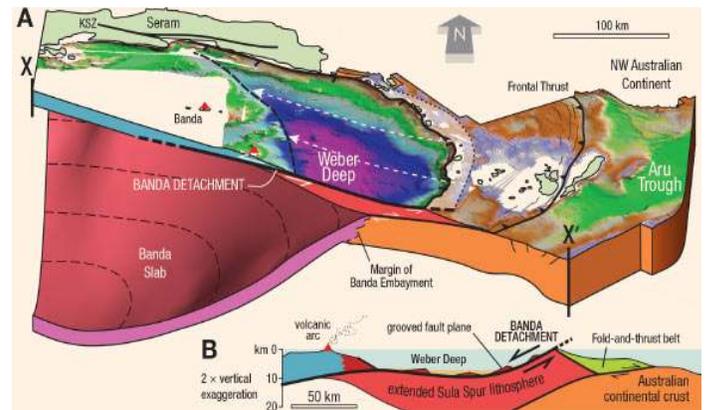
By Staff News

An international team of geologists from the Australian National University and Royal Holloway University of London has for the first time documented the Banda Detachment fault in eastern Indonesia and worked out how it formed. The research is published in the journal *Geology*.

“The find will help researchers assess dangers of future tsunamis in the area, which is part of the Ring of Fire – an area around the Pacific Ocean basin known for earthquakes and volcanic eruptions,” said lead author Dr. Jonathan Pownall, from the Australian National University.

“The abyss has been known for 90 years but until now no one has been able to explain how it got so deep.”

“Our research found that a 4.3-mile (7 km) deep abyss beneath the Banda Sea off eastern Indonesia was formed by extension along what might be Earth’s largest-identified exposed fault plane.”



The Banda Detachment fault beneath the Weber Deep basin. A – cross section through eastern Banda arc, cut parallel to grooves on fault surfaces and proposed direction of rollback; geometry of proto-Banda Sea slab is inferred from earthquake hypocenter locations catalogued by International Seismological Centre Online Bulletin; KSZ – Kawa shear zone. B – enlargement of Banda detachment showing schematically the configuration of over-riding continental allochthons (dark red); red triangles represent volcanoes. Image credit: Jonathan M. Pownall et al, doi: 10.1130/G38051.1.

By analyzing high-resolution maps of the Banda Sea floor, Dr. Pownall and co-authors found the rocks flooring the seas are cut by hundreds of straight parallel scars.

These wounds show that a piece of crust bigger than Belgium or Tasmania must have been ripped apart by 74.5 miles (120 km) of extension along a low-angle crack, or detachment fault, to form the present-day ocean-floor depression.

“This fault, the Banda Detachment, represents a rip in the ocean floor exposed over 14.8 million acres (60,000 sq. km),” Dr. Pownall said.

“The discovery will help explain how one of the Earth’s deepest sea areas became so deep.”

“This was the first time the fault has been seen and documented by researchers,” said co-author Prof. Gordon Lister, also from the Australian National University.

“We had made a good argument for the existence of this fault we named the Banda Detachment based on the bathymetry data and on knowledge of the regional geology.”

“I was stunned to see the hypothesized fault plane, this time not on a computer screen, but poking above the waves,” Dr. Pownall said.

“Rocks immediately below the fault include those brought up from the mantle. This demonstrates the extreme amount of extension that must have taken place as the oceanic crust was thinned, in some places to zero.”

According to the team, the discovery of the Banda Detachment fault would help assess dangers of future tsunamis and earthquakes.

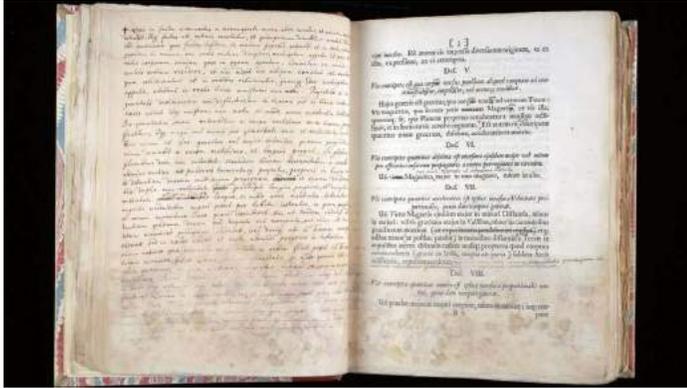
“In a region of extreme tsunami risk, knowledge of major faults such as the Banda Detachment, which could make big earthquakes when they slip, is fundamental to being able to properly assess tectonic hazards,” Dr. Pownall said.

Source: Sci-news.com from November 29, 2016

## Newton's *Principia Mathematica* Becomes World's Most Expensive Science Book

By Tom Hale

A first edition of one of science's most important works, *Principia Mathematica* by Isaac Newton, has sold for a whopping \$3.7 million.

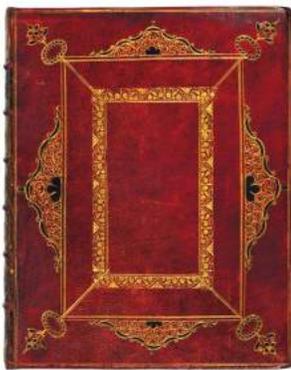


The book went under the hammer on December 14 at Christie's auction house in New York for more than triple its original valuation of \$1 million, meaning it's now the most expensive scientific book ever sold. It's thought there were only around 80 continental editions ever published in 1687, as opposed to the British version of which there are a few hundred. Newton published two further editions in 1713 and 1726.

Originally written in Latin, the seminal book laid out Newton's laws of motion, the foundation of classical mechanics, Newton's law of universal gravitation, and expanded on Kepler's laws of planetary motion. In 1747, French physicist Alexis Clairaut said the book "marked the epoch of a great revolution in physics." Some of the claims in the *Principia Mathematica* have since been questioned, deconstructed, and developed. Nevertheless, it would be fair to say this is one of the most important books ever produced.

But who would buy such a thing? Or, more to the point, who has the money buy it?

Christie's didn't announce who its new owner is, although it's believed to be a private buyer. However, if there's someone with a lot of money paired with a strong admiration for science, it's a techy nerd.



"People who have big books these days maybe are the kinds of people who have made their money on the internet or the web ... If you have a few million quid to spend, why wouldn't you buy a copy of *Principia Mathematica*?" Keith Moore, head of the Royal Society library, told *The Guardian*.

"It's not just the history and development of science; it's one of the greatest books ever published. It was hugely influential in terms of applying mathematics to basic physical problems," he added.

Source: IFLScience.com from December 16, 2016

## What Is This Mysterious Oval Structure In Antarctica?

By Alfredo Carpineti

New year, new claims of ancient civilizations having developed complex cities at the South Pole. Last month, we covered the pyramids of Antarctica, but January 2017 is all about the dome.



Website Ancient Code has posted about an oval-shaped structure and they put forward the idea that the formation could be man-made and possibly even evidence of an ancient civilization in Antarctica.

The structure in question is 120 meters (400 feet) across and it is located in Eastern Antarctica. The website states that the structure "resembles something that may easily have been designed by someone".

"What if, in the distant past, when Earth – and Antarctica – was much different then today, an ancient civilization developed there, creating fascinating structures, monuments and temples there? Would we find evidence of their existence today?" asks Ancient Code in their post.

The issue with this is that there have never been favorable conditions for humans to live in Antarctica. It was covered in ice long before *Homo sapiens* evolved. The frozen continent is inhospitable for us and we have to use the best of our technology for scientists (and the occasional tourist) to stay safe there.

"Antarctica has been completely covered in ice for 15 million years, although it has been very icy for about 23 million years," IFLScience resident geologist Dr Robin Andrews confirmed.

There's plenty that we don't know about our past, and humans have always been ingenious in finding solutions, so archeology is a marvelous and often surprising science. But extraordinary claims demand extraordinary evidence.

Yes, you can look at a satellite picture and believe all sort of things, but there are questions that need to be addressed. If it was made by an ancient civilization, how did they build it? Mining in a frozen desert is neither easy nor glamorous. How did they keep the place warm? There are no trees to burn and I don't think a bonfire of penguins is very efficient. And most importantly, why did they build it there, away from natural resources, in the most extreme environment on Earth?

If a person can find reasonable answers to those questions, then a case can be built. Until then, we should assume that weird geological formations are just weird geological formations.

Source: IFLScience.com from January 9, 2017

## Topics in Gemology

*Topics in Gemology* is a monthly column written by Diana Jarrett, GG, RMV, based on gemological questions posed to her over the years by beginners and experts alike. Contact her at [diana@dianajarrett.com](mailto:diana@dianajarrett.com).



### Dig This!

Energetic and exploratory by nature, Chelsea Thompson, owner of Schurz, Nevada-based RockChuck, and fellow prospector John Keady have been digging around the western United States for several years. Prospector, mine owner, and jewelry maker, she does it all from the ground up. You can't argue that prospecting is glamorous but it does score high in the thrill-of-discovery department. "We have been so amazed at the size of crystals we've been pulling out of the earth. They are incredible," Thompson reports.



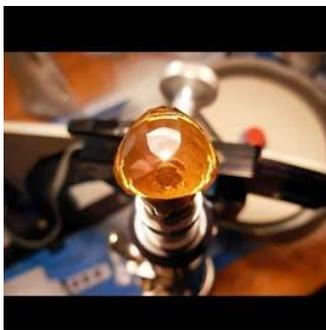
Prospector Chelsea Thompson shows off one of her quartz finds.



Fellow prospector John Keady recovers a specimen at the pegmatite.

Knowing where you dig also means you have an idea of what to expect. But Thompson still gets a rush from catching that first glimpse of uncovering a crystal. "Our mine is a pegmatite and we have mostly been digging out beautiful smoky quartz crystals, mica and microcline feldspar specimens. But since it is a pegmatite, the sky's the limit. The deeper we go, the more we are going to discover," she claims. Thompson delights in the unknown aspect of mining. "We've been so amazed at the size of crystals we've been pulling out of the earth," she confesses. "They are incredible and one could never imagine the joy of extracting one of these gems." While many of the gems extracted by Thompson are well known to jewelry fans, the more exotic specimens make for intriguing jewelry items. "We have found topaz, tourmaline, amethyst, citrine, vesuvianite, amazonite and garnet. Every time we go out prospecting is an adventure. We never know what we will find. When we find the crystals, it makes it that much more exciting."

Recovering the rough crystals from their digs isn't the end of the story for Thompson. "Once we get home from prospecting, we are so ready to clean off our finds to see what we have collected during the day," she tells us. Crystals can be deceiving in the field, she points out. Sometimes, she says, rough can look better or worse at the site. It's only after cleaning and polishing in the lapidary room that the stone's merit emerges.



A stone from Chelsea's digs gets a new shape on the cutting wheel.



RockChuck offers beautiful stones set in sterling silver.

A gem lover like Thompson is eager to share the thrill of each individual stones' story. "We love seeing what customers do with our crystals and gems. Some people facet the crystals, while others make mosaics. It's fascinating for us to unearth them and then see them transformed into one-of-a-kind pieces of art."

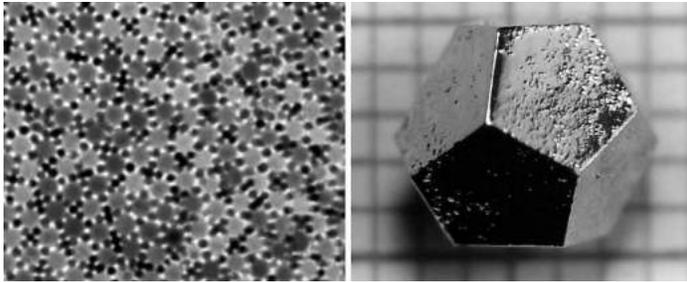
So are there any remaining goals to attain for this start-to-finish jeweler? Thompson still dreams of mines yet to be conquered. "We would love to dig all over the world and to be able to collect a stone from every state also." She just wants to be able to continue doing what's she's doing, just on an ever larger scale over time. "Finding a stone and pulling it out of the ground is an amazing indescribable feeling. Some time, I'm really hoping to hit a big pocket of aqua, topaz and tourmaline." With that kind of dedicated focus and enthusiasm, that scenario seems quite certain to come about.

## One of the Rarest Crystals on Earth Has Been Found in a Russian Meteorite

By ScienceAlert Staff

Physicists have uncovered an ultra-rare quasicrystal in a piece of Russian meteorite, and it's only the third time ever that we've seen one of these strange materials in nature.

Originating in outer space, these crystals aren't just incredible because of how rare they are – their atomic structure is so peculiar, for decades their existence was dismissed as “impossible”, and they cost the scientist who first discovered them his job.



Quasicrystal atomic structure (L): Talapin et al; Synthetic quasicrystal (R): US Department of Energy

This new quasicrystal specimen was found by a team led by geologist Luca Bindi from the University of Florence in Italy.

They'd been examining a tiny grain of meteorite that landed in the Khatyrka region of the Russian far east five years ago, and identified piece of quasicrystal inside, just a few micrometers wide.

This is the third quasicrystal found in grains of this particular meteorite so far, which suggests that there might be more out there, and with even stranger structures.

“What is encouraging is that we have already found three different types of quasicrystals in the same meteorite, and this new one has a chemical composition that has never been seen for a quasicrystal,” one of the team, **Paul Steinhardt from Princeton University**, told Becky Ferreira at Motherboard.

“That suggests there is more to be found, perhaps more quasicrystals that we did not know were possible before.”

If you're wondering what the hell a quasicrystal is, they consist of an entirely unique atomic structure that basically combines the symmetrical properties of a crystal and the chaos of an amorphous solid.

Regular crystals, such as snowflakes, diamonds, and table salt, are made up of atoms that are arranged in near-perfect symmetry.

Polycrystals, including most metals, rocks, and ice, have more randomized and disordered structures, just like amorphous solids, such as glass, wax, and many plastics.

Back in 1982, Israeli chemist Daniel Shechtman proposed that another type of atomic structure could exist in nature - a strange, semi-ordered form of matter, with an atomic structure that displays no repeating patterns anywhere you look.

When he found some in a sample of synthetic material he created in the lab, he reportedly told himself, “*Eyn chaya kao*,” which translates to “There can be no such creature,” in Hebrew.

Shechtman was awarded the 2011 Nobel Prize in Chemistry for his discovery, but not before being literally laughed out of his lab and ridiculed by his peers for decades for daring to suggest something so preposterous as a semi-ordered structure.

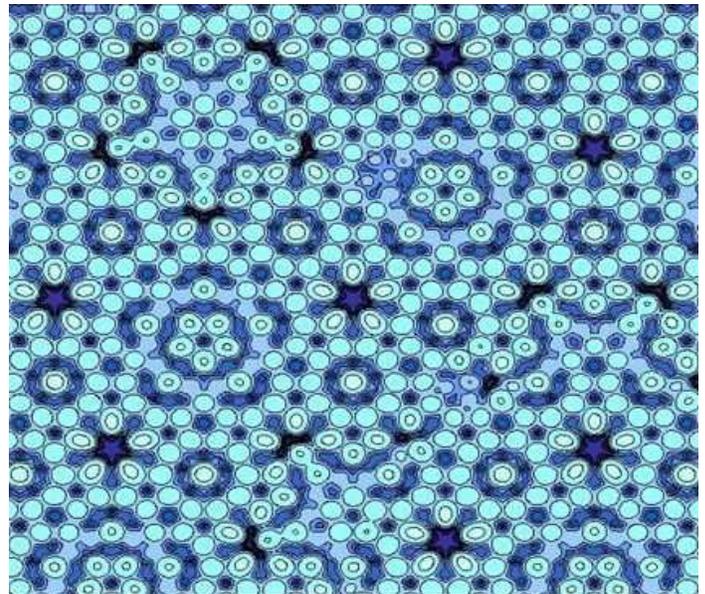
The reason quasicrystals are so unlikely is because for almost two centuries, perfect symmetry in atomic structures was believed to follow a very strict set of rules.

Before the existence of quasicrystals was confirmed, scientists assumed that for a structure to grow with a repeating, symmetrical structure, it could exhibit one of four types of rotational symmetry: two-fold, three-fold, four-fold, or six-fold.

Quasicrystals broke this rule, because they have crystal-like structure with a five-fold rotational symmetry.

As Pat Theil, a senior scientist at the US Department of Energy's Ames Laboratory, explained to PBS, if you want to cover your bathroom floor in perfectly tessellating tiles, they can only be rectangles, triangles, squares or hexagons. Any other simple shape won't work, because it will leave a gap.

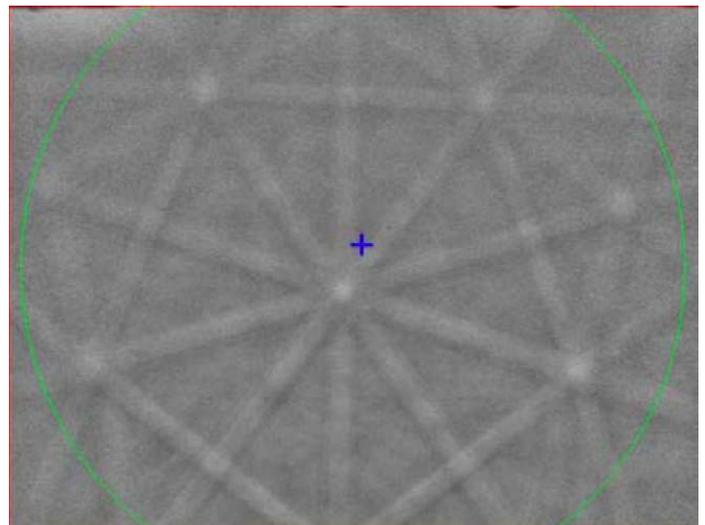
Quasicrystals are like pentagonal tiles – they can't tessellate like squares or triangles can, but other atomic shapes move in to fill in the gaps, like so:



Quasi-structure J.W. Evans, Ames Laboratory, US Department of Energy

You can also see an example of this in the image at the top of the page.

And here's an actual image of the newly discovered quasicrystal with five-fold symmetry:



Source: Paul Steinhardt

While quasicrystals appear to be incredibly rare in nature – or on Earth, at least – they’re actually really simple to make in the lab, and synthetic quasicrystals are now being built into everything from frying pans to LED lights.

When the researchers examined the composition of the new quasicrystal, they confirmed that it was made from a combination of aluminum, copper, and iron atoms, all arranged like the pentagon-based pattern on a soccer ball.

This is the first time this particular composition has ever been found in nature, suggesting that we’re still only on the very cusp of understanding this bizarre form of matter.

The research has been described in *Scientific Reports*.

*Dr. Paul Steinhardt gave us a lecture on this topic at the January 2014 meeting of the New York Mineralogical Club. 2014 was named the International Year of Crystallography by the United Nations. – Editor*

Source: ScienceAlert.com from December 10, 2016

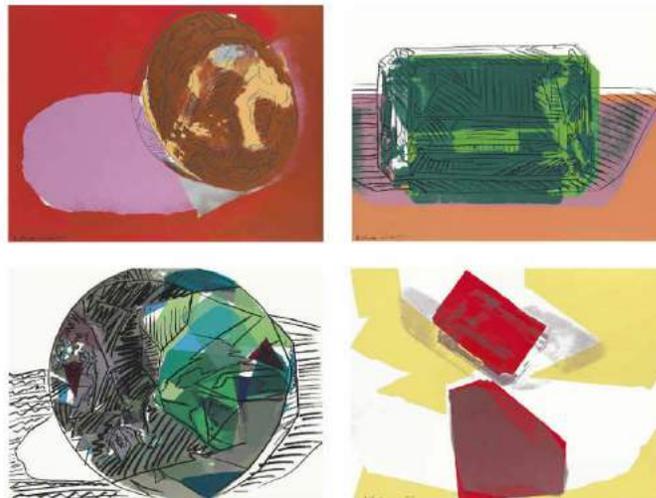


### Lecture: Mitch Portnoy: “Minerals, Gems, Geology & Jewelry in Popular Culture”

(Continued from page 2)

In fine art, Leonardo da Vinci painted the geologically-accurate “Virgin of the Rocks”. Jewelry formed a prominent part of Jan Vermeer’s “Girl with a Pearl Earring” and Jacob Jordaen’s gem-bedecked “Cleopatra’s Feast”, in which she casually drops a precious pearl into a glass of wine to win a bet with Mark Anthony. In American art, who cannot fail to be awed by the magnificent landscape of the “Rocky Mountains” by Albert Bierstadt? The famous nature photographer Ansel Adams photographed “Yosemite” and other now-classic scenes of the American West.

Pop artists also like jewelry: Roy Lichtenstein’s “The Engagement Ring” (1962) recently sold for \$41 million! Andy Warhol (see image below) did a series of prints on gemstones in 1978, reproductions of which were offered to several lucky Club members as raffle or contest prizes. For outdoors viewing, Jeff Koons created large multi-colored diamond rings as public sculptures.



Movies form a category unto itself. Geology-related themes show up in all kinds of disaster movies—take your pick—volcanoes, earthquakes, climate, tsunamis, meteor impacts, etc. A prominent rock formation (actually an extinct volcanic neck)—Devil’s Butte, Wyoming, is featured in “Close Encounters of the Third Kind.” “The Heart of the Ocean” blue diamond/sapphire (?) plays a prominent part of the film “The Titanic.” Who can forget Marilyn Monroe singing “Diamonds are a Girl’s Best Friend” in “How to Marry a Millionaire.”

Turning to science fiction, Superman has to worry about kryptonite, his one vulnerability, while the series Star Trek contains enough references to minerals to merit serious papers on the subject.

Gems and minerals do not escape attention from merchandisers. There’s the famous “Pet Rock” from the 1970s. Its current incarnation is an ordinary “Leather-Wrapped Stone” for \$85, sold by Nordstrom’s. Also the “White Diamond” fragrance by Elizabeth Taylor, pulverized tourmaline and other gemstones in some high-end cosmetics, and Bombay Blue Sapphire Gin in small blue bottles, samples of which were distributed to lucky special raffle winners. (By the way, the bottle is blue, not the gin).

Thanks to Mitch for a most-entertaining evening!



# Please Send in Your 2017 NYMC Membership Dues!

## Forget

Forget the hasty, unkind word;  
Forget the slander you have heard;  
Forget the quarrel and the cause;  
Forget the whole affair, because,  
Forgetting is the only way.  
Forget the storm of yesterday;  
Forget the knocker, and the squeak;  
Forget the bad day of the week.  
Forget you're not a millionaire;  
Forget the gray streaks in your hair;  
Forget to even get the blues -

**But don't forget**

**To Pay Your Dues!**



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if you have not already done so.  
And get yourself a set or two of note cards —  
they make great gifts!**

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City		State	Zip
Home Phone	Work Phone	E-mail PLEASE! G <b>Send me my monthly Bulletin via e-mail.</b>	
G Individual Membership (\$25.00)		G Family Membership (\$35) for:	
Please send me a set of the following boxed <b>Note Card Sets</b> (Each set for \$6.00 including envelopes): G Thin Sections   G Mineral & Gem Bookplates   G Jade   G Native Elements   G Crystallography   G Ruby G Famous Diamonds   G Birthday Mineral Cards   G Malachite   G Agate   G Quartz   G Lapis G Amethyst   G Fluorite   G Garnet   G Amber   G Sapphire   G Pyrite   G <b>Geodes (New!)</b> G Pseudomorphs G The NYMC   G Opal   G <b>Beryls (New!)</b> G Tourmaline   G Emerald   G Turquoise   G Gold			
G I'd like to get one of garnet-red drawstring backpacks which features the Club. (Each backpack for \$5.00)			
Mail this form (or copy) with your check to:		Membership Coordinator, New York Mineralogical Club, Inc. PO Box 77, Planetarium Station, NYC, NY, 10024-0077	

## 2017 Club Calendar

Date	Event	Location	Remarks & Information
<i>In February of 2017 the Holiday Inn Midtown Manhattan will be renamed the Watson Hotel!</i>			
February 8	Meeting at 6:30	Watson Hotel, Manhattan	Annual Members' Show & Tell
<b>NEW! Sunday</b> February 12	Special Club Benefit Sale (20+ flats and more!)	46 W83 <sup>rd</sup> Street #2E, Manhattan (Mitch's Apartment)	<b>MEMBERS (and their guests) ONLY!</b> 8:00 AM to 3:00 PM
March 8	Meeting at 6:30	Watson Hotel, Manhattan	Special Lecture: Steve Okulewicz – “Meteorites: Our True Extraterrestrial Visitors”
<b>Third Wednesday!</b> April 19	Meeting at 6:30	Watson Hotel, Manhattan	Special Lecture: Charles Snider (1 <sup>st</sup> Timer!) – “The American Geode Story”
May 10	Meeting at 6:30	Watson Hotel, Manhattan	TBD
June 14	Annual Benefit Auction	Watson Hotel, Manhattan	Details to follow; Online catalog available!
July 12	Meeting at 6:30	Watson Hotel, Manhattan	Special Lecture: Anna Schumate & Naomi Sarna – “Phenomenal Gemstones”
July ??	Officer's Planning Meeting	Upper West Side, NYC	2017 Banquet; Club 2018 Calendar; Theme: Leveling Up!
August ??	Open House (Party!!)	Long Island, NY - C. Neary Home	Details to Follow
September 13	Meeting at 6:30	Watson Hotel, Manhattan	Special Lecture: John Sanfaçon– “Russian Mineralogy”

## 2017 Show or Event Calendar

Date	Event	Location	Remarks & Information
January 28	Rutgers Geology Museum Open House	Scott Hall, Geology Department, Rutgers, New Brunswick, NJ	Free! Presentations, Mineral Sale, Mineral ID; Easy train access
Early February 2017	Tucson Mineral Shows	Tucson, Arizona	Multi-week event, scores of locations!
February 18-19	Annual Mineral Show	New York State Museum, Albany, New York	For info: michael.hawkins@nysed.gov; Website: <a href="http://www.nysm.nysed.gov/">http://www.nysm.nysed.gov/</a>
<b>March 4-5</b>	<b>Spring NYC Gem, Mineral &amp; Fossil Show</b>	<b>Grand Ballroom, Watson Hotel (Holiday Inn), New York City</b>	<b>25+ diverse dealers; lectures; wholesale section (with credentials); NYMC Booth</b>
April 1-2	North Jersey Gem, Mineral & Fossil Show	Midland Park High School, Midland Park, New Jersey	Host: North Jersey Mineralogical Society; Website for Info: <a href="http://nojms.webs.com">nojms.webs.com</a>
April 29-30	NJESA Show & Swap	Franklin School, Franklin, NJ	Info: <a href="mailto:RNB515@aol.com">RNB515@aol.com</a>
June 9-11, 2017	AFMS Convention/Show	Ventura, California	Article Contest Results; Details to Follow
October 20-22, 2017	EFMLS Convention/Show	Bristol, Connecticut	Article Contest Results; Details to Follow
<b>November 11-12</b>	<b>Fall NYC Gem, Mineral &amp; Fossil Show</b>	<b>Grand Ballroom, Watson Hotel (Holiday Inn), New York City</b>	<b>25+ diverse dealers; lectures; wholesale section (with credentials); NYMC Booth</b>

*For more extensive national and regional show information check online:*

*AFMS Website: <http://www.amfed.org> and/or the EFMLS Website: <http://www.amfed.org/efmls>*

# SHOW & TELL

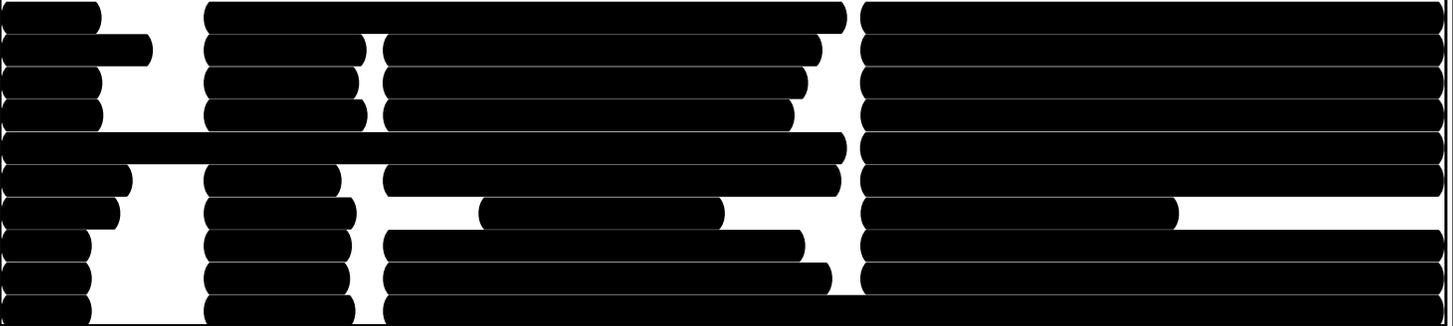
# The New York Mineralogical Club, Inc.

*Founded in 1886 for the purpose of increasing interest in the science of mineralogy through the collecting, describing and displaying of minerals and associated gemstones.*

**Website: [www.newyorkmineralogicalclub.org](http://www.newyorkmineralogicalclub.org)**

**P.O. Box 77, Planetarium Station, New York City, New York, 10024-0077**

**2017 Executive Committee**



**Dues:** \$25 Individual, \$35 Family per calendar year. **Meetings:** 2nd Wednesday of every month (except August) at the Watson Hotel (formerly Holiday Inn Midtown Manhattan), 57<sup>th</sup> Street between Ninth and Tenth Avenues, New York City, New York. Meetings will generally be held in one of the conference rooms on the Mezzanine Level. The doors open at 5:30 P.M. and the meeting starts at 6:45 P.M. (**Please watch for any announced time / date changes.**) This bulletin is published monthly by the New York Mineralogical Club, Inc. The submission deadline for each month's bulletin is the 20th of the preceding month. You may reprint articles or quote from this bulletin for **non-profit usage only** provided credit is given to the New York Mineralogical Club **and permission** is obtained from the author and/or Editor. The Editor and the New York Mineralogical Club are not responsible for the accuracy or authenticity of information or information in articles accepted for publication, nor are the expressed opinions necessarily those of the officers of the New York Mineralogical Club, Inc.

**Next Meeting: Wednesday Evening, February 8, 2017 from 6:00 pm to 9:00 pm**

**Mezzanine, Watson Hotel (formerly Holiday Inn), 57<sup>th</sup> St. & Tenth Avenue, New York City**

**Special Meeting Activity: Annual Show & Tell – “Members’ Showcase”**

New York Mineralogical Club, Inc.  
Mitchell Portnoy, Bulletin Editor  
P.O. Box 77, Planetarium Station  
New York City, New York 10024-0077

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