

# MINI MINERS MONTHLY

In this issue . . .



Georgius Agricola, the "Father of Mineralogy"  
(image Public Domain)

## History! This issue of Mini Miners Monthly is about historical events and people in the world of mineralogy and mineral collecting.

Those of us who are enjoying mineral collecting today are very lucky because we are the ones who receive the knowledge and experience of all the generations that came before us. It's hard to believe, but there was a time when people interested in minerals knew very, very little about them. They thought they knew a lot, but later generations proved that their ideas were wrong. Think about these things: there was a time when there wasn't a hardness test! There was a time when people didn't know about the elements that make up minerals. There was a time when people believed quartz was petrified ice!

We also have access to mineral shows and places where we can see and, in most cases, buy samples of the most recent discoveries in the mineral world. The number of mineral shows provided by clubs and societies, as well as the commercial shows, are much, much greater now than ever before. In the 1800's collectors either went into

the field and dug for specimens themselves, traded with other collectors, or purchased specimens from a pretty small number of mineral dealers. Get on the internet today and try to count how many mineral dealers are out there. Oh, yeah, the internet. Without ever leaving your house, you can buy minerals from all over the world, from dealers all over the world, and you can build a really nice collection (of course this assumes that you have the money to do it).

We also have a mystery for you to solve this month. For some reason, there have been quite a number of items for sale on ebay lately that were connected to the famous mineral dealer, A.E. Foote. The items are mostly documents that he has signed. Or has he???????? In this issue you will be presented with the evidence. You will learn facts about A.E. Foote and his son, Warren Matthews Foote. You will see three documents. You will see that the handwriting is different in these documents. And then you will be asked to be a detective and try to determine: which signature is authentic and which is not...and why!

Our Contributing Editor, Emma Fajcz has submitted another great article. This one is about a process for creating a logo for your mineral club or society. Maybe you will want to make a logo for your science class at school or for a science fair project. You will find Emma's article to be very helpful.



*P. Cleaveland*

Parker Cleaveland, the "Father of American Mineralogy"  
(image Public Domain)

Vol. 8 No. 10

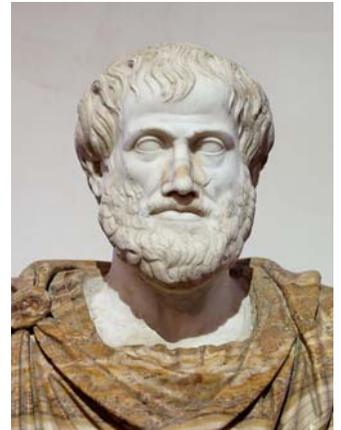
# The History of Mineralogy

On the following pages we have listed a whole bunch of special events in the history of mineral collecting and the science of mineralogy. We hope you learn some good information. If something really grabs your attention, then grab some good books or get on the internet and do some more research.

**300's BCE:** The first list of minerals in ancient China. It is found in a writing called the *Ji Ni Zi*. It lists 24 minerals.

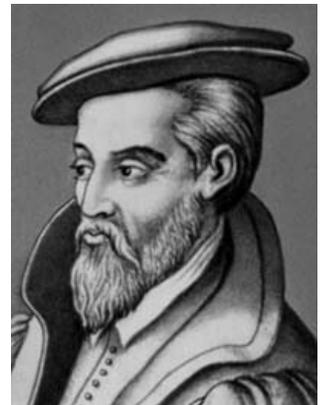
**early 200's BCE:** The Chinese use minerals as a way to heal illnesses. These early ideas (some of which are still popular in some places today) have been found as early as the Han Dynasty (202 BC–220 AD).

**384 - 322 BCE:** Aristotle (an ancient Greek philosopher and writer) wrote about minerals and their properties. His theory stated that metals were created by moist gases that came out of the earth. Minerals found in the soil were supposed to come from dry gases that came out of the earth.



**370 - 285 BCE:** Theophrastus was another Greek philosopher. In his writing *De Mineralibus*, he put minerals into two categories: minerals that divided minerals into two categories: those affected by heat and those affected by dampness.

Some consider Theophrastus “the first mineralogist.” (Left: Theophrastus. Public Domain.)



**1494 - 1555:** Georgius Agricola (Georg Bauer). He was a German scholar and scientist. He wrote two very important books. One was called *De Natura*

*Fossilium*, which was his version of the discovery and occurrence of minerals. It was published in 1548. The second is called *De Re Metallica* which was about mining and the removal of metals from ores. His name was Georg Power which, in modern German, is written as Georg Bauer. "Georgius Agricola" is his name in Latin. He is known as "The Father of Mineralogy." (Picture: Georgius Agricola, Public Domain)



1556: *De Re Metallica* by Georgius Agricola is published. His book taught about ores as they are found on and under the ground. It was an early book about geology. ("Fire-setting" by Georgius Agricola - *De re Metallica*. Public Domain).

1500s: It can be said that the hobby of mineral collecting (and even the science of mineralogy) began in the 1500s. Rudolph II, Holy Roman Emperor, King of Bohemia, and King of Hungary and Croatia built an enormous collection of items from nature. His collection included 37 cabinets of minerals and gems.

1663: The earliest record of the use of a blowpipe to analyze the composition of minerals is recorded by Robert Hooke. (Right: Robert Hooke, Public Domain.)



1669: In 1669, Niels Stensen determined that the interplanar angles of quartz crystals are constant for all quartz crystals, of any size, from any locality. Eventually this was shown to be true for crystals of all mineral species. In the mid- 1700's, Jean Baptist Louis de Rome de l'Isle took Stensen's idea and titled it "Steno's Law."

1733: Anton Swab first uses the blowpipe to analyze the chemical composition of minerals.

late 1700's: Jean Baptiste Louis Rome de l'Isle and Rene Just Hauy were



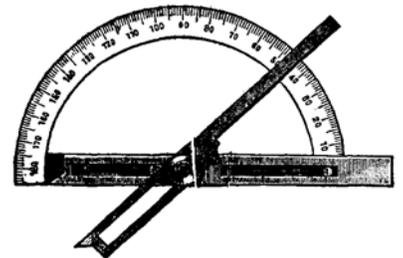
both scientists in France. They each added much to the knowledge of crystallography, although they never worked together. They are considered the founders of modern crystallography.

(Left: Jean Baptiste Louis Rome de l'Isle.  
Right: Rene Just Haüy)



**1773:** Abraham Gottlob Werner (1749-1817) publishes his first book on mineralogy. He collected minerals all of his life, lectured on minerals and crystallography and was the curator of the mineral collection of a mining academy for most of his adult life. He created a classification system for minerals. Werner is known as “The Father of Modern Mineralogy.”

**1783:** Arnould Carangeot creates the earliest contact goniometer for measuring the interfacial angles of crystals.



**1783:** Rome de l'Isle presents the first collections of crystal models. They were made out of “terra cotta” and were connected to the sales of his 4 volume book set, “Cristallographie.” These crystal models were about 3 centimeters in size.



**1784:** Professor Benjamin Waterhouse uses a collection of minerals for teaching purposes at Harvard University. This collection is the beginning of the mineral collection at Harvard which continues to this very day. The mineral collection at Harvard is the oldest ongoing mineral collection in the United States. (Left: Benjamin Waterhouse by Gilbert Stuart.)

**1786:** Charles Willson Peale (1741-1827) announces plans for a museum of natural history, including a large collection of minerals. By 1787 CW



Peale had opened his museum of natural curiosities. This was the first public museum which included a display of mineral specimens. (Left: Charles Willson Peale at his museum on a US postage stamp.)

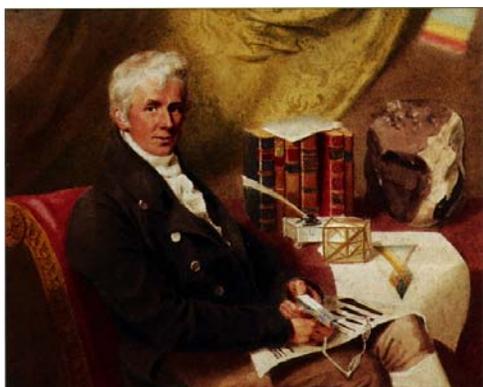
1797: The first scientific society dedicated to the study of minerals and mineralogy was started in Jena, Germany by Johann Georg Lenz.

1798: Lady Henrietta Clive traveled to India with her husband where she discovered minerals and started the first mineral collection by a wealthy noble-woman. It can be said that Lady Clive was the first female mineral hobbyist.



1799: "The American Mineralogical Society" was formed in New York. It did not last very long.

1801: René Just Haüy introduced the first wooden crystal models. He used them to illustrate the crystal drawings in his book, "Traité de Minéralogie." They were made out of pear wood.



early 1800's: James Sowerby publishes his famous works, *British Mineralogy* (1804-1817) and *Exotic Mineralogy* (1811-1817). Each was published one chapter or section at a time over many years. His books included hand-colored pictures of over 1,500 minerals, most of which were from England. (Left: James Sowerby, Public Domain, United States.)

1810: Archibald Bruce publishes the first issue of his periodical, *The American Mineralogical Journal*. This was the first scientific journal published in the



©2014 Diamond Dan Publications. All pictures and articles in this newsletter are property of Diamond Dan Publications and cannot be copied or reused in any format (printed or electronic) without written permission of Diamond Dan Publications, 278 Howland Avenue, Rochester, New York 14620 or [diamonddan@rochester.rr.com](mailto:diamonddan@rochester.rr.com). Electronic subscription (PDF) \$9.95 for 12 issues. Make checks payable to Diamond Dan Publications or pay by PayPal using the email address [diamonddan@rochester.rr.com](mailto:diamonddan@rochester.rr.com).



United States. It focused on the mineralogy and geology of the United States. Only four issues were published, from 1810 to 1814. Archibald Bruce died in 1818 at the age of 41. (Left: Archibald Bruce, Public Domain, United States.)

1812: Friederich Mohs creates "The Hardness Scale" of minerals (now commonly known as "Mohs' Hardness Scale.") (Right: Friederich

Mohs, Public Domain, United States.)



1816: The first mineralogy book printed on American soil, *An Elementary Treatise on Mineralogy and Geology* (Boston) was published by Parker Cleaveland. This book was very important at the time and helped make him one of the most important mineralogists of his day. He is known as "The Father of American Mineralogy." (Left: Parker Cleaveland, Public Domain, United States.)

1828: Gold is discovered in Dahlonega, Georgia. This is the first gold discovery (and gold rush) in the United States of America.



1829: James Smithson dies. James Smithson was a British mineral collector and scientist. He is most famous for giving his belongings and money to the United States of America so that it could start an institution of learning. The Smithsonian Institution, in Washington, D.C. is named in honor of James Smithson for his very generous gift to the people of the United States. The Smithsonian (as most people know it) has many different collections, including one of the best mineral and gem collections in the world.

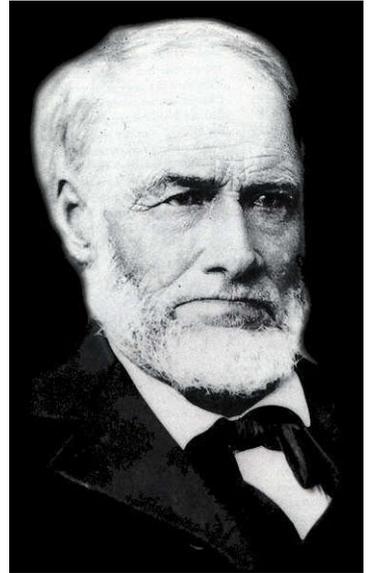


1837: James Dwight Dana publishes his book *System of Mineralogy*.

1848: J.D. Dana publishes his book *Manual of Mineralogy*. These two books are considered two of the most influential books in the field of mineralogy. Dana's *Manual of Mineralogy* is in its 23rd edition and is still used by college students today.

1848: James W. Marshall discovers gold on the South Fork of the American River. He was building a saw mill for himself and John Sutter. Once word got out, the California Gold Rush began.

(Right: A picture purportedly of James W. Marshall, Public Domain. Below Left: John Sutter, Public Domain.)



1864: German physicist Philipp von Jolly creates the "Jolly Balance" for determining the specific gravity of minerals.

1877: An army scout discovers copper mineralization in the area of Arizona which is now known as Bisbee. The copper minerals of the Bisbee area are world famous and are found in nearly all of the important mineral collections in the world.

October, 1882: The Philadelphia Mineralogical Society is formed. This mineral society continues today and is one of the most important mineral societies formed in America. It was originally called "The Student's Mineralogical Club of Philadelphia."



September 21st, 1886: The New York Mineralogical Club is formed. The name officially began at the sixth meeting of the club in March of 1887. It is the second oldest mineral club in the United States.

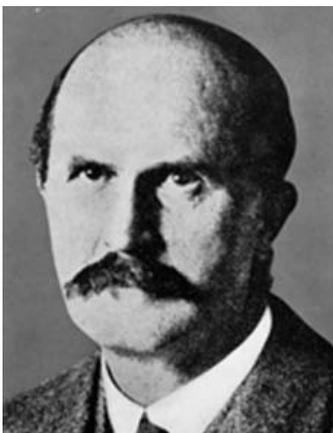
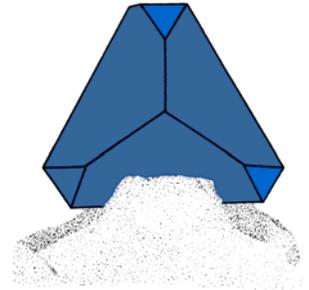


*M. Curie*

**1903: Marie Curie wins the Nobel Prize for Physics for her studies of radiation. She studied the radiation emitted by the mineral uranium. She discovered that pitchblende is *more* radioactive than uranium by itself. This led her to conclude that the pitchblende sample she had must have contained *another* radioactive element in addition to the uranium to cause the higher radioactivity.**

**1906: Benitoite is discovered by J.M. Couch in San Benito County, California. Benitoite is the first mineral**

**discovered that forms in the Ditrigonal-Dipyramidal class of the Hexagonal crystal system.**



**1913: William Henry Bragg and his son, William Lawrence Bragg publish their work on the use of x-rays to determine the crystal form of minerals. Their work was the basis for the field of X-ray Crystallography. If you think you're smart enough, you can download a an online copy of the Bragg's 1915 textbook 'X-rays and Crystal Structures'. (Left: William Henry Bragg, Public Domain.)**

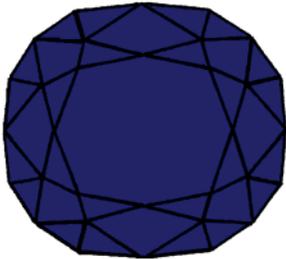
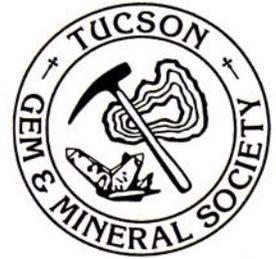
**1926: "Rocks & Minerals" magazine is founded by Peter Zodac. The Rocks & Minerals website (<http://www.heldref.org/browse-by-topic/science.html>) says, "[Rocks & Minerals] has published feature articles on mineralogy, geology, and paleontology since 1926. Regular departments explore such topics as minerals for the collector; microminerals; recent books, videos, and DVDs; coming events; museum news; and personalities in the field. Detailed lists of collecting opportunities in specific localities are published periodically, as are special theme issues. Spectacular color photographs appear throughout each issue. (Right: Peter Zodac; from [www.minrec.org](http://www.minrec.org); Public Domain.)**





**1947:** The American Federation of Mineralogical Societies (AFMS) is formed.

**1954:** The first Tucson Gem & Mineral Show in Tucson, Arizona, sponsored by the Tucson Gem & Mineral Society. It is the most important mineral show in the world each year (it always takes place on the second Thursday through Sunday of February).



**November 10, 1958:** The Hope Diamond (a very famous, large, blue diamond with a very long and interesting history) is given to the Smithsonian Institution by Harry Winston. It was mailed to the Smithsonian in a box wrapped with brown paper! Today it is estimated to be worth \$200 to \$250 million dollars!

**1967:** Cavansite is discovered in Malheur County, Oregon. It is named after its chemical composition of calcium, vanadium and silicate.

**1970:** The "Mineralogical Record" magazine is founded by John White who was the curator of the Mineral Sciences Department of the Smithsonian Institution. The Mineralogical Record website ([minrec.org](http://minrec.org)) says, "issued six times a year. This is the most authoritative and widely respected mineral collector's journal in the world; no serious advanced collector would be without it. Over the years many newcomers to the field have learned from it the extensive information they need to go from novice to expert—and to have fun in the process. Readers learn about important mineral localities old and new, about the fascinating history of mining and mineralogy, and about new mineral species being described. They see reviews of public and private collections, market reports from contemporary mineral shows, columns on special topics, and oversized special issues devoted to entire min-



eral-rich states and countries. And all of these articles and features are illustrated by abundant top-quality color photography of fine mineral specimens.” (Previous Page, Lower Right: Official Logo of the Mineralogical Record magazine.)



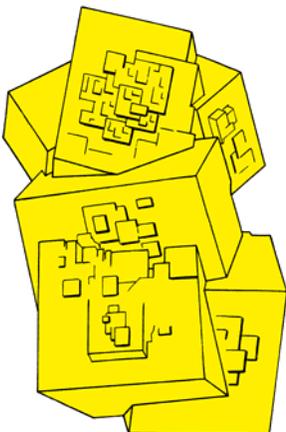
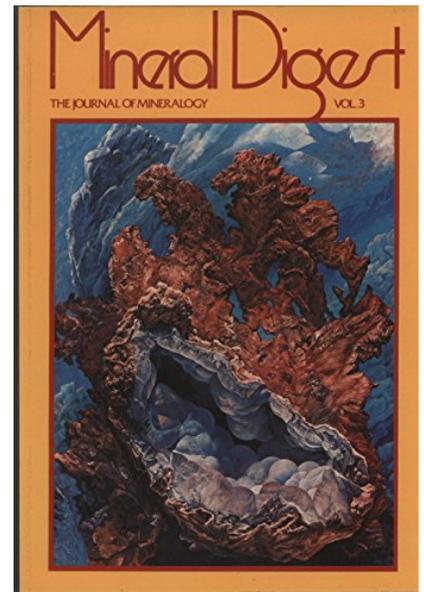
February 13, 1970: “Friends of Mineralogy” (FM) is formed at Tucson, Arizona. Their website (<http://www.friendsofmineralogy.org/index.html>)

says, “FM’s objectives are to promote, support, protect and expand the collection of mineral specimens and to further the recognition of the scientific, economic and aesthetic value of minerals and collecting mineral specimens.” Yes, Mini Miners, you can join Friends of Mineralogy.



1971: “Rock and Gem” magazine is founded. Their website ([www.rockngem.com](http://www.rockngem.com)) says, “has been the leading magazine for the lapidary and mineral hobbyist. Not a trade journal and not a scientific dissertation, it speaks to the average rockhound, providing just the right blend of entertainment and satisfying information. Arm-chair hobbyists and diehard diggers alike will find something to enjoy in each issue.”

1971: “Mineral Digest” magazine is founded. It would last until 1976 and only 8 issues were published. Copies are still eagerly sought by serious mineral collectors.



December 1995: The last fluorite mine in Illinois closed. This marked the end of what was a steady flow of thousands upon thousands of wonderful, high-quality fluorite specimens of a rainbow of different colors.

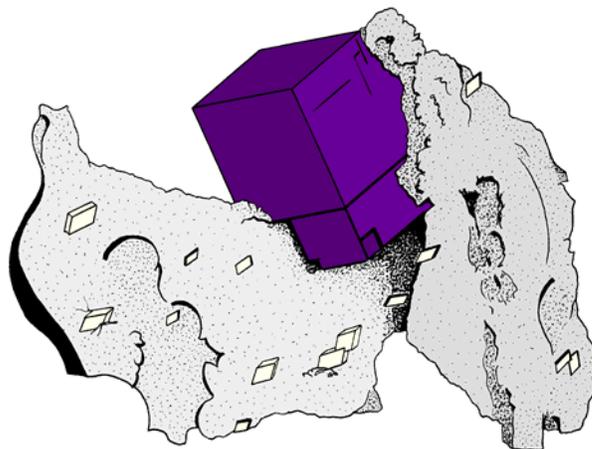


**1995:** “Bob’s Rock Shop” ([www.rockhounds.com](http://www.rockhounds.com)) begins. It is the first “Zine for Rockhounds...” on the internet. This means that it is the first internet “magazine” that offers articles, ads, and a variety of information for the mineral collector. (Above: Banner of the website of Bob’s Rock Shop.)



**March 2007:** The first issue of *Mini Miners Monthly* is published. Now in its 8th year, this is still the only monthly publication written for young mineral collectors.

*This is only a partial listing of some of the interesting milestones in the history of mineral collecting and mineralogy. Perhaps in coming issues we will expand on the list and add more. If you find some mineral collecting milestones that should be added to the list, email them to us and we'll include them in future issues of Mini Miners Monthly.*



# Who Are They?

Without looking back, can you identify the pictures below. Draw a line from the picture to the correct name. THEN...you can go back and check to see if you are right!



Abraham Gottlob Werner

Charles Willson Peale

Aristotle

James Sowerby

James Smithson

James Dwight Dana

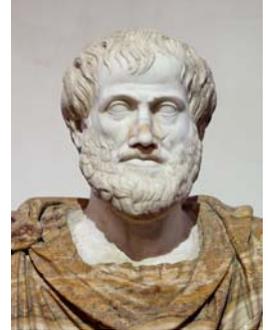
Friederich Mohs

Parker Cleaveland

Robert Hooke

Marie Curie

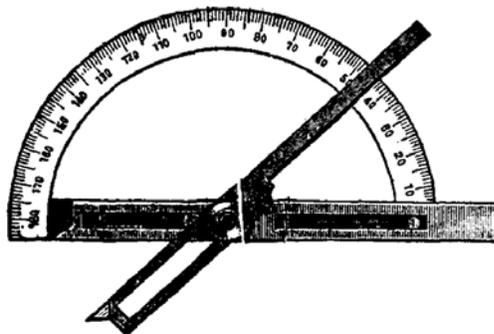
Lady Henrietta Clive



## Put These Events in the Right Order

Here is a list of events in the history of mineral collecting. Your challenge is to put them in order from the earliest to the most recent. Put a 1 next to the earliest and a 15 next to the most recent. If you feel super smart, put the date on the line after the event. Good luck!

- \_\_\_ Steno's Law (\_\_\_\_\_)
- \_\_\_ Rock & Gem Magazine is founded (\_\_\_\_\_)
- \_\_\_ Arnould Carangeot creates the contact goniometer (\_\_\_\_\_)
- \_\_\_ James Smithson dies (\_\_\_\_\_)
- \_\_\_ James Dwight Dana publishes *System of Mineralogy* (\_\_\_\_\_)
- \_\_\_ Theophrastus writes *De Mineralibus* (\_\_\_\_\_)
- \_\_\_ James Marshall discovers gold at Sutter's Mill (\_\_\_\_\_)
- \_\_\_ Marie Curie wins the Nobel Prize for Physics (\_\_\_\_\_)
- \_\_\_ Bob's Rock Shop begins (\_\_\_\_\_)
- \_\_\_ Charles Willson Peale announces his museum of natural history (\_\_\_\_\_)
- \_\_\_ The American Federation of Mineralogical Societies is formed (\_\_\_\_\_)
- \_\_\_ The Hope Diamond is given to the Smithsonian Institution (\_\_\_\_\_)
- \_\_\_ The first list of minerals is created in ancient China (\_\_\_\_\_)
- \_\_\_ The last fluorite mine in Illinois is closed (\_\_\_\_\_)
- \_\_\_ The Mineralogical Record magazine is founded (\_\_\_\_\_)



# Fix the Mistakes

You may want to look back to help you with this challenge. This is a tougher one. In each of the following sentences, there is a mistake. First, find the mistake. Then, cross it out and make the correction!

In 1829, James Sowerby died and gave his money and belongings to the United States to establish an institute of scientific learning.

In 1556, James Dwight Dana wrote *De Re Metallica*.

The first Tucson Gem & Mineral Show was held in 1965.

In 1947, the American Federation of Geological Societies was formed.

"Bob's Rock Shop" was the first printed magazine about minerals.

The oldest on-going mineral collection in the United States is at Yale University.

Madam Marie Curie was the first female mineral hobbyist.

*The American Mineralogical Journal* was the very first mineral journal in the United States. It was published by Peter Zodac.

The French mineralogist, Philipp von Jolly, created the "Jolly Balance."

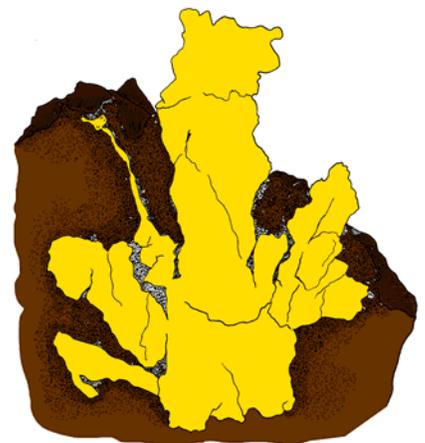
The ancient Roman philosopher, Aristotle, wrote about minerals and their properties.

Georg Bauer wrote about mining and the removal of metals from ores. His Latinized name is Georgius Porgius.

It is claimed that the hobby of mineral collecting began in the 1800's.

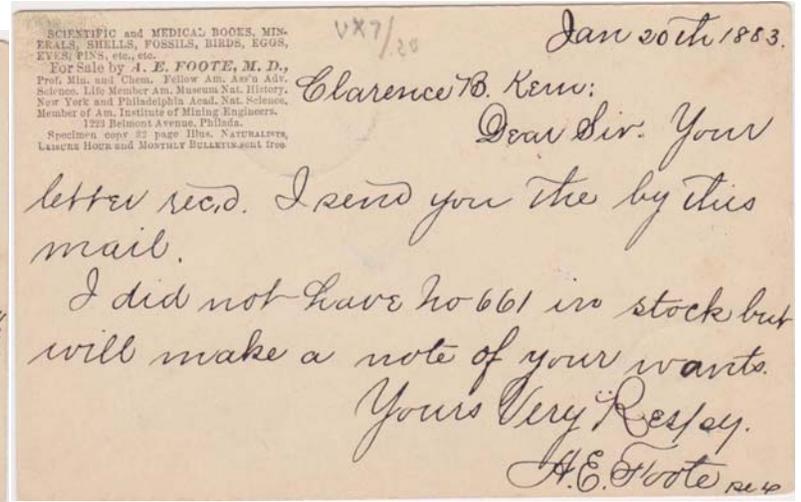
Gold was first discovered in the United States in California.

Robert Cooke was the first to write about using a blowpipe to analyze the composition of minerals.

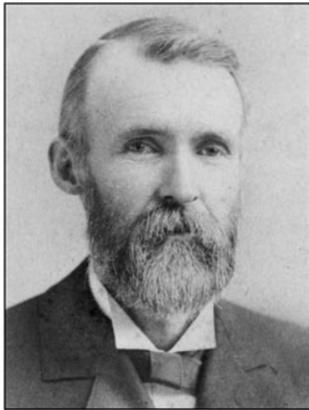


# The Great Mineral Mystery

Albert E. Foote was a mineral dealer in the late 1800's. Recently, the Postal Card pictured below was offered for sale on ebay. It is supposedly signed by A.E. Foote. But is it?



You are now a mineral detective. You have to use the clues to determine who really wrote the card that is pictured above. Below you will find all the clues you need.



## The Clues:

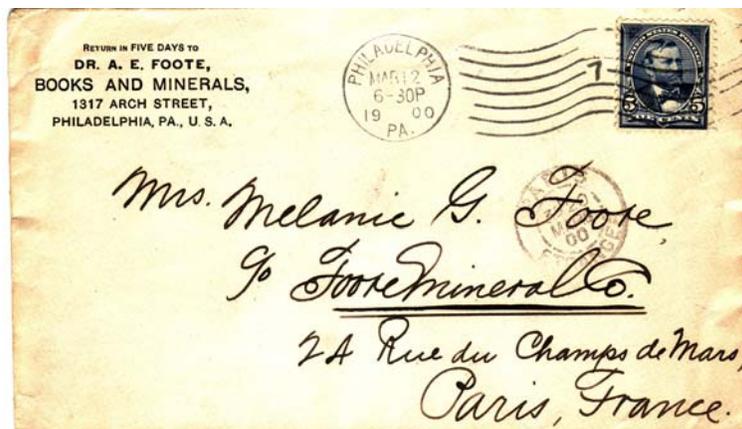
The above Postal Card was supposedly signed by A.E. Foote on "Jan 20th 1883" (see the image on the right).

Albert E. Foote was born in 1846 and died in 1895.

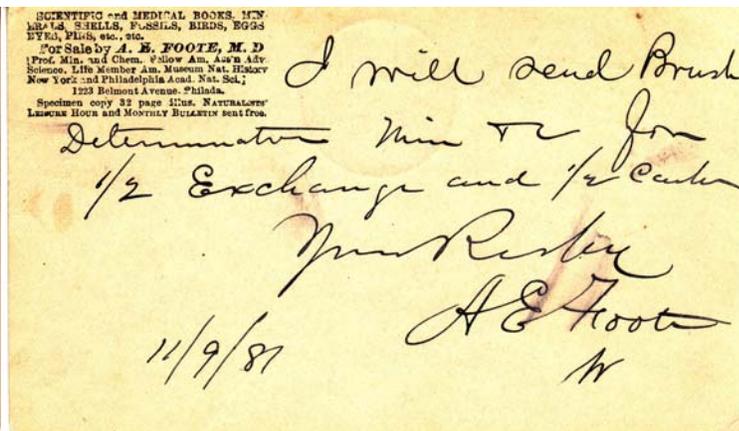
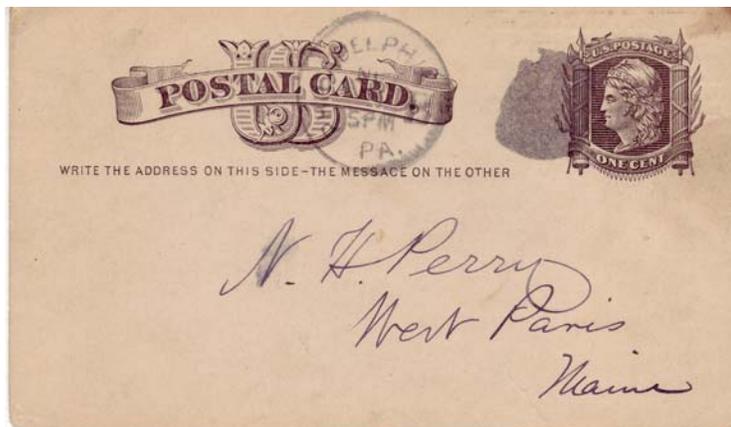
Albert E. Foote had a son, Warren Matthews Foote, who was born in 1872. He died in 1934.

Warren Foote married Melan e Grugan in 1896.

The envelope shown below was addressed to Melan e Foote. Notice the date that the stamp was cancelled.



The postal card pictured below was also signed (supposedly) by A.E. Foote. Notice the date on the right image.



Study the dates. Study the handwriting. Study the facts.

Who signed the postal card at the top of the previous page?

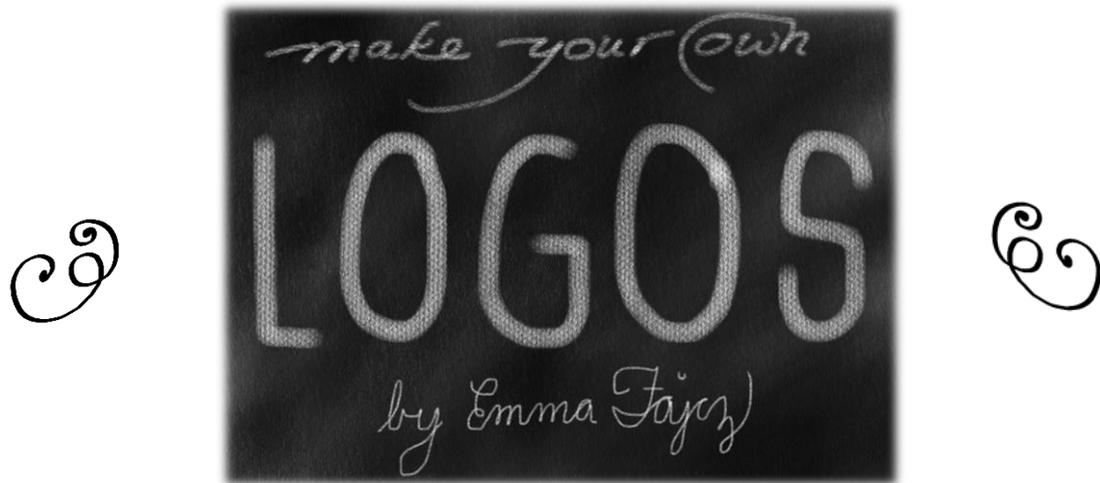
Why do you come to your conclusion?

My Observations: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

My Conclusion: \_\_\_\_\_  
wrote the card on the previous page. This is my conclusion because  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

*(Use extra paper if you run out of space here.)*

Complete your observations and conclusion and mail or email it to Diamond Dan Publications, 278 Howland Avenue, Rochester, NY 14620. From all the entries received, one will be drawn from a hat to receive "The Best Bathroom Book for Mineral Collectors Ever Written" (volumes 1 and 2) and "Diamond Dan's Mineralogical Dictionary." All entries must be post-marked by November 12, 2014 to be eligible to win.

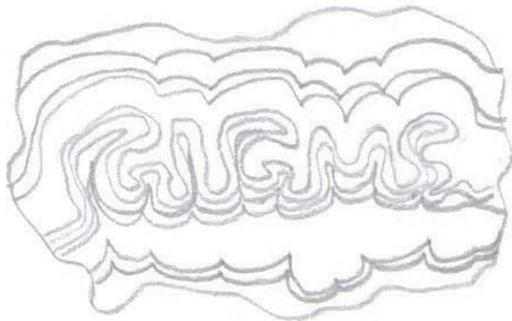


Have you ever wanted to design a logo for your local gem and mineral club? Here's some ideas and tips to get you started!

First, sketch out some ideas for a logo using a pencil, eraser, and a clean sheet of paper. Especially if you want to digitalize your logo later, it's important to use paper without any rips, markings, or other defects. Keep in mind your club's main focus (see page 2). Is it rockhounding, lapidary arts/jewelry making, research, or something else? Try to incorporate this into your logo. Don't get frustrated if you don't like any of your ideas at first; keep trying. Sometimes, combining ideas can create a unique logo.

If you aren't planning on embellishing your sketch or sketches on a computer or tablet, then feel free to color in your logo or add any other special effects, like glitter, to your design. However, if you are

planning on digitalizing your logo, you'll need to do some other steps.



*A good scan of your initial sketch is important.*

First, scan in your sketch, making sure that your paper and scanning surface are clean and that your drawing is lying face down on the scanning surface. Don't touch the glass, called the platen, on the scanner with your fingers or with anything that will harm it! Be sure to get an adult's help if you haven't used a scanner before.

Next, save your scan and import it into the computer program or app you'll be using to digitalize it. I used an iPad app called Procreate for all three of the logos in this article. You can draw, color, trace, and add special effects using different programs and techniques. If you're using a tablet, a stylus is a useful tool to have; it's more comfortable and exact than just using your finger. Once the art part of your logo is done, you can use a program like Microsoft Publisher to add text and shapes. If you get stuck while using Publisher or another program, there are numerous tutorials online that an adult can help you find.

Recently, I've made three sample logos for my local gem and mineral club, the Golden Isles Gem and Mineral Society. I hope these logos give you some ideas on how to make a logo for your gem and mineral club!



**Club Focus: Mineral Collecting**

*This slab of "picture jasper" forms the club's initials: GIGMS. Picture jasper is a favorite of at least one GIGMS member!*



**Club Focus: Jewelry Making/Lapidary Arts**

*To design this logo, I used three pictures from online: one for the the left side of the clasp, one for the pendant, and another for the chain to help me get the right shapes and colors. Using layers in my digital artwork, I applied the colors I wanted and smudged them if necessary. For the chain, however, I simply kept a similar shape, but changed the color and style of the chain from the photo.*



**Club Focus: Rockhounding/Mining**

*This logo is supposed to resemble chiseled stone with quartz crystals.*

# The Best Bathroom Book for Mineral Collectors Ever Written

## No. 1 AND No. 2!

Now you can have 200 pages of mineralogical fun! Crossword puzzles, word searches, mineral drawings to color, fun articles, mineral cartoons and jokes, interesting and odd facts, mineral brain challenges and more!

For **only \$14.95** (postage paid!) you will receive

--an autographed copy of each book  
--a "Mineral Collection" Pencil that

contains colorful, polished mineral chips.  
--a squeezably soft, 2-ply, super-absorbent book mark for each book.

Visit our website at  
[www.diamonddanpublications.net](http://www.diamonddanpublications.net)  
or email us at  
[diamonddan@rochester.rr.com](mailto:diamonddan@rochester.rr.com)  
to place your order today!

(Either copy available alone at \$11.95/copy, ppd)

*Wholesale pricing available.*

