

# Nittany Mineralogical Society Bulletin

Nittany Mineralogical Society, Inc., meeting in State College, Pennsylvania  
Contact information on back page

December, 2020

Visit our web site: [www.nittanymineral.org](http://www.nittanymineral.org)

Editor (see back page):

David C. Glick

## December 16th ZOOM meeting ONLINE:

### Spherical Structures In Rhyolite

by Daniel Bontempo



While lapidaries have long sought highly silicified agates, jaspers and other hard materials like jade for their sureness to offer a durable glossy shine, many softer materials offering great pattern and/or color are also in the catalog of lapidary rock. Many rhyolites with orbicular patterns, often marketed as a "jasper" are perennial favorites. Many of these orbicular patterns are local crystallization events in the hot plastic rhyolitic flow. Some of these events commence the formation of an adjacent cavity in the semi-plastic cooling melt. Many of these cavities are subsequently filled with agate, jasper, opal, and/or quartz crystals in a transfer process not completely understood. (Much like the competing ideas about the formation of nodular agates and jaspers in amygdaloidal cavities and seams.) The most famous orb with a filled cavity is the thunderegg; mined (or weathered out) of older rhyolitic rock or welded tuffs. But there is a spectrum of less-altered solid and polishable rhyolites bearing many nascent t-eggs, as well as rhyolites showing orbicular crystallization patterns with no tiny t-eggs. Some obsidians, which form alongside these opaque rhyolites, also show orbicular crystallizations in the vitreous glass. While lower in silica content, these rhyolites offer patterns and colors that have attracted many lapidaries and collectors. I will offer an introduction to thundereggs and a survey of rhyolites with orbicular patterns popular in the lapidary world. For thunderegg formation I will draw heavily on ideas and images advanced by Robert Paul Colburn, a.k.a. Geode Kid, and Donald Kasper. While including some scientific ideas about rhyolitic lava flows, crystallization

events, and t-egg formation, this presentation is a largely anecdotal, largely visual, taxonomic discussion of orbicular rhyolitic lapidary materials.

See the illustrated article on pages 2-5.

**Please join us online for this presentation!** The Zoom link will be e-mailed to all paid members who receive our e-mails; others can receive it by e-mailing <xidg@verizon.net>. We'll plan to start at 7:30 p.m.; we can have informal discussions, then we can do any questions & answers and announcements, and plan to start the presentation at 8:00 p.m. We will have some information on the main page of the web site as well.

### While We Can't Travel: Virtual Geo-Resources

We continue to add to the interesting resources on the main page of our web site, [www.nittanymineral.org](http://www.nittanymineral.org). A video of last month's program, **Making the Case for Celestine as the Pennsylvania State Mineral** by Dr. Peter Heaney, can now be viewed via a link from the main page on our web site. Penn State's Earth and Mineral Sciences Museum has been adding many posts to their Facebook page. There are several new videos, including 'Celestine and the quest for a Pennsylvania state mineral' and 'Industry on Stamps,' on their YouTube channel. There's a link to the Facebook page on our web site. -Editor

## SOCIETY NEWS

Zero dues: Those who were paid members in the membership year just ended (11/2019-10/2020) will have their **membership extended for the coming year at no cost. No payment or form is needed**, but cash

DONATIONS ARE WELCOMED. The rates for new members joining from now until October 31, 2021, will be half of our normal rates. The dues form on the web site has been updated to reflect this, and PayPal arrangements will be updated soon.

### Seeking Flexible Sandstone

An acquaintance is seeking a few specimens of flexible sandstone (itacolumite) to purchase. If anyone knows of a current source, please notify the editor (see p. 8)



# Spherical Structures In Rhyolite

by Daniel Bontempo

While lapidaries have long sought highly silicified agates, jaspers and other hard materials like jade for their sureness to offer a durable glossy shine, many softer materials offering great pattern and/or color are also in the universe of lapidary rock. Many rhyolites with orbicular patterns, often marketed as a "jasper" are perennial favorites. I've come to understand these orbicular patterns are local crystallization events in the heated plastic rhyolitic flow. Some of these events commence the formation of an adjacent cavity in the semi-plastic cooling melt. Many of these cavities are subsequently filled with agate, jasper, opal, and/or quartz crystals in a process not completely understood. (Much like the competing ideas about the formation of nodular agate and jasper in amygdaloidal cavities and seams.)

The most famous orb with a filled cavity is the thunderegg; mined (or weathered out) of older rhyolitic rock or welded tuffs (photo of Lava Cap thunderegg, below). But I see a spectrum of less-altered solid and polishable rhyolites bearing many nascent t-eggs, as well as rhyolites showing orbicular crystallization patterns with no tiny t-eggs. Some obsidians, which form alongside these opaque rhyolites, also show orbicular crystallizations in the vitreous glass.



While lower in silica content, many rhyolites offer patterns and colors that have attracted lapidaries and collectors. I will offer an introduction to thundereggs and a survey of popular rhyolites with orbicular patterns sold as lapidary rock. For thunderegg formation I will draw heavily on ideas and images advanced by David Paul Colburn, a.k.a. Geode Kid, and Donald Kasper. While including some scientific ideas about rhyolitic lava flows, crystallization events, and t-egg formation, this presentation is a largely anecdotal, largely visual, taxonomic discussion of orbicular rhyolitic lapidary materials.

My journey began with Rainforest Jasper (photo below), a solid fine-grained greenish rhyolite with many small t-eggs (or t-nuts). The t-egg cavities are generally filled with opal or pale pastel chalcedony. I



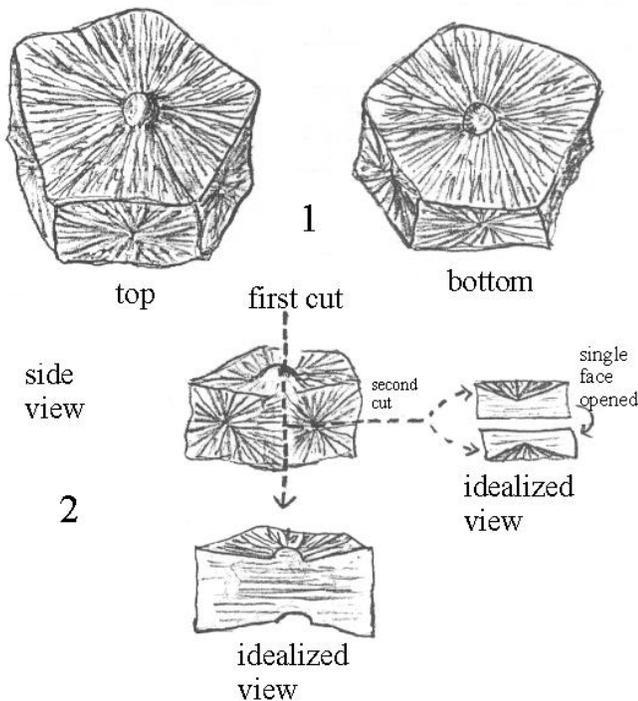
didn't like this rock at first. I was not a thunder egg collector, and I didn't immediately recognize the orbs as tiny t-eggs. That the orbs sometimes had empty cavities or chalky filling was enough for me to consider it a lower-quality lapidary rock. At some point I realized the orbs were t-eggs, but I assumed Rainforest Jasper was the only rock with embedded t-eggs. Over time I gained an appreciation for thundereggs as I learned about their formation, and as a result I grew fonder of Rainforest Jasper.

I was slow to warm to t-eggs because many from the northwest are older and more altered, and I thought the shell was ugly and the cores did not have enough "useable" agate/jasper. Collecting eggs never occurred to me. I had seen some drawings of t-egg cavities, mostly instructing how to align the egg to the saw blade for the best cross-section. I had some peripheral awareness of discussions of t-egg formation. Older

so many of the northwest t-eggs had cores that didn't resemble the drawings.

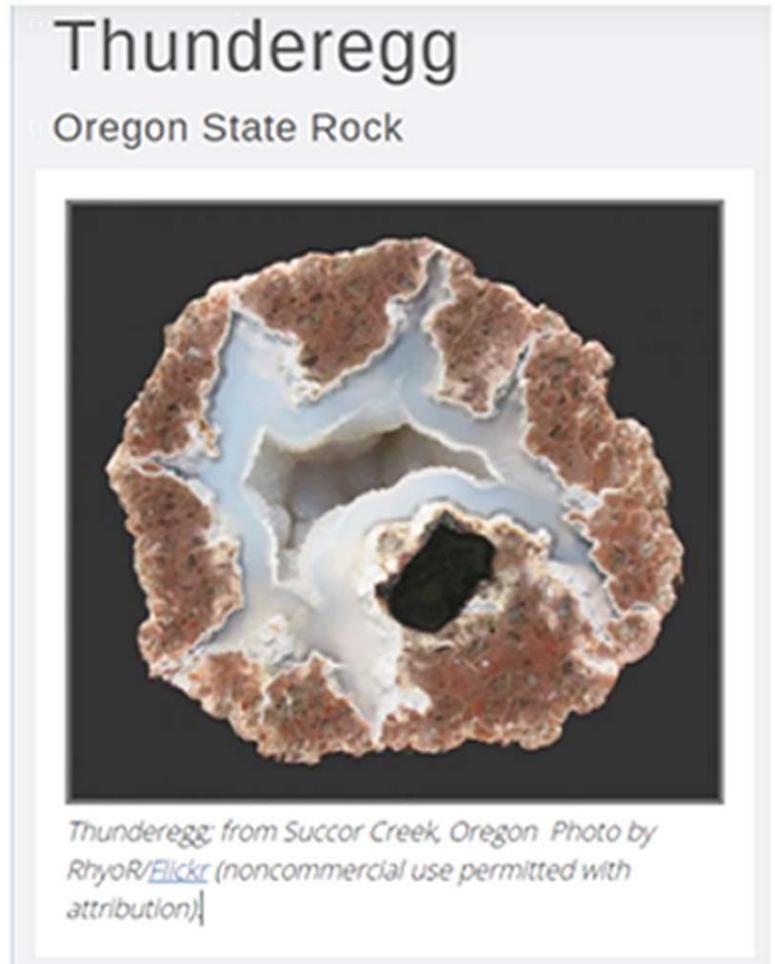
Perhaps the story does not really begin until I discovered Lava Cap Thundereggs, mined in New Mexico by Lori Lytle Coleman. The eggs are younger, and the hardened rhyolite shell is fine-grained and less altered. Most importantly, the cavities of most Lava Cap t-eggs are textbook examples of an expanding dome that grew and tore the semi-plastic rhyolite (forming the star pattern) just as Colburn described. I could see it! I went back for a careful read of Colburn's formation account; and I also discovered elaborated theories of formation by Donald Kasper (<http://donaldkasper.com>), who publishes Colburn's book as well as several of his own works on thunderegg formation. Kasper's ideas (while controversial) addressed how the cavity became filled with silica.

Soon I was focused on the cristobalite crystal (clearly visible in the Lava Cap eggs) that was said to



<http://www.zianet.com/geodekid/thndregg.htm>

accounts thought the ridges where the agate core protruded from the outer shell were pressure ridges, and the walls of the cavity had been sucked inwards as the agate crystallized from a gel. Newer accounts, illustrated on the web by Robert Paul Colburn, a.k.a. Geode Kid, held that the cavity expanded in the semi-cooled rhyolitic lava flow. This account also explained the dimple on top and bottom, but I did not pay a lot of attention. I didn't see a dimple most of the time, and





and early-on I had a conversation with her where I explained I loved the eggs because they clearly illustrated the formation process. Lori noted that I liked the eggs with “belly buttons” – she did not know anything about cristobalite or much about Colburn’s ideas. It looked like a belly button! Amusingly, given the purported role of the cristobalite crystal in precipitating the formation of the t-egg, belly button might be appropriate in an umbilical sense.

To move the story along, two things happened over the last few years. First, I became aware of a few other rocks with embedded t-eggs or large cristobalite nodules. One was marketed as Washington State Rainforest, and it’s hard not to see the t-eggs. Second, I started seeing that many orbicular structures in popular rhyolites were cristobalite nodules where no cavity formed. Birdseye Rhyolite, Leopard Skin Jasper, Lilypad Jasper, Peanut Obsidian – all cristobalite nodules or nascent t-eggs.

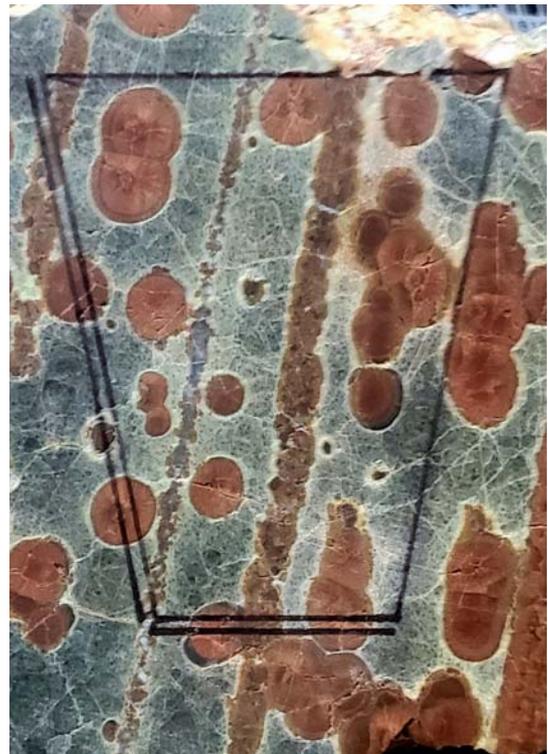
<https://www.facebook.com/SpanishStirrupRockShop/photos/pcb.1865079603553717/1865076186887392/>

precipitate the cavity expansion, and which explained the dimple. I had started buying eggs direct from Lori

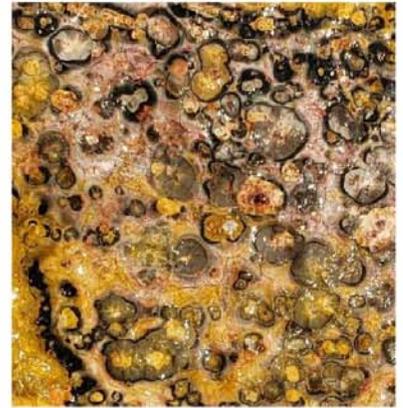
I’ve come to appreciate a spectrum of orbicular rhyolite and thunder eggs that begins with the crystallization of cristobalite in a cooling rhyolitic lava flow ... and I’m talking about it, even if there is plenty of the geology still to study.



<https://theagatetrader.smugmug.com/Lava-Cap/i-FHTjPc6/A>



Peanut obsidian marked for bolo tie



# TEN YEARS AGO IN NMS

## 2010 was a good year!

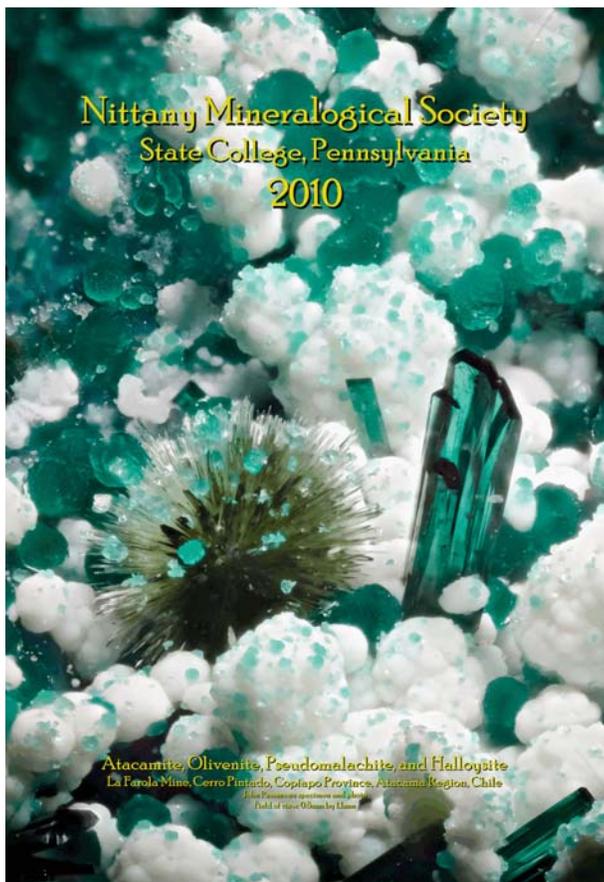
Just in the holiday season, we had a field trip tour and a bit of collecting at Scotia, and a collecting trip to Hanson Aggregates' Oak Hall Quarry. Dr. Andrew Sicree was holding JuniorRockhounds meetings. Tim Holtz did a presentation on Rock Collection for Cub Scouts in Bedford. We had a new web site and had started our Facebook page. John Passaneau was busy with digital focus-stacking mineral photography for NMS posters (below) and this Bulletin (right).

## Mineral Portraits by John Passaneau

from the December 2010 NMS Bulletin

Fluorite and Calcite from Yizhango Co., Chenzhou Pref., Hunan Prov. China

This is a 3x6.35x5.5cm specimen with purple fluorite cubes and two generations of calcite crystals. I picked this up at the Franklin N.J. show this April as I thought it quite photogenic, and better yet, cheap. It's not often that a specimen has two sides that are photogenic, which made it fun to shoot. This was done with the digital photo stacking technique for increasing the depth of field, requiring 14 images to get the results I wanted.



Front



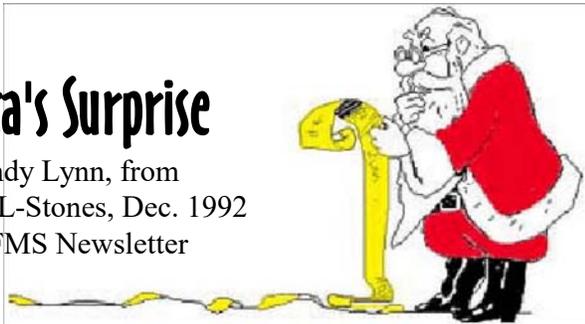
Side

"The club's poster for 2010 is a micro-mount of atacamite, olivenite, pseudomalachite and halloysite, from Mina La Farola, Cerro Pintado, Atacama District, Chile. The field of view is 0.8mm by 1.1mm.

I obtained this specimen along from others from a man from Chile who showed up at the Detroit show back in the mid 70s with a suitcase full of this stuff and asked the dealer I was working with if he could put some of it out on a corner of the booth to sell... The photo was also taken with the focus stacking technique requiring 27 images to cover the depth of field. The lens used was a 35mm bellows mount macro lens made just for this kind of photography."

# Santa's Surprise

by Sandy Lynn, from  
Cobb-L-Stones, Dec. 1992  
via AFMS Newsletter



'Twas a cold Christmas Eve and Santa came calling -  
The stars were all twinkling, the snow had stopped falling.  
Next house on his list didn't run normally -  
Rockhounds lived here, (they lived quite informally).

First thing he did as he came in the den,  
was trip over a tumbler - he took quite a spin.  
On to the kitchen for cake and a coke -  
What he saw in the window almost made him choke.

Lining the window sills - strange little rocks -  
He let out an "OUCH" (he had one in his socks).  
Went to the living room - sat in a chair -  
But he was up like a bullet - more rocks down there.

Cars in the driveway, covered with snow.  
The garage? Full of rocks (wouldn't you know).  
Mom and Pop's room was the strangest by far...  
Big rocks, little rocks, rocks in a jar!

The rocks on the dresser someone had marked "Super" -  
Santa stared for awhile, then left in a stupor.  
He went to the john and turned rather pale -  
No one would believe this incredible tale!

He looked around warily, scratched his white beard -  
No doubt about it, these people were weird.  
Rocks in the sink, rocks on the floor -  
But in the bathtub, THE BATHTUB?, he couldn't  
stand more.

He looked rather shaken, he stopped by the tree -  
A doll for sweet Susie, a guitar for Lee.  
For Mom and for Pop he just left a short note -  
Put it under a rock - this he hurriedly wrote:

"I'm sure you're not bad folks, just hopeless", it said,  
"I honestly think, you've got rocks in your head!"

## Geo-Sudoku

by David Glick

This puzzle contains the letters EHILORSTY; one row or column describes the rocks enclosing spherical structures. As usual, if you've read this issue, you've seen it or a version of it. Each block of 9 squares, each row, and each column must contain each of the nine letters exactly once. The solution is on page 8.

E		R	S	I				
H	O		T				S	L
L		S			E	I		
		H				R	L	
	S	L		E		H		
I			L		O			
			R			Y		I
					T		H	R
							E	S

## FEDERATION NEWS

Nittany Mineralogical Society, Inc., is a member of EFMLS, the Eastern Federation of Mineralogical and Lapidary Societies, and therefore an affiliate of AFMS, the American Federation of Mineralogical Societies. **The Federation leaders and our Society strongly encourage all members to read the monthly Federation Newsletters, available on their web sites, which are linked from our web site, [www.nittanymineral.org](http://www.nittanymineral.org).** We present brief summaries here in order to encourage readers to see the entire newsletters. There's a lot there!

The December issue of the EFMLS News notes that the 2021 Annual meeting is scheduled for July 9-11 in Syracuse, NY; of course, details remain to be decided. An article on "Rock Clubs - My Favorite Things" reminds us of all the work needed behind the scenes to make club meetings, programs, newsletters, shows, field trips, etc., happen successfully. Club Rockhounds of the Year are honored and nominees for that program are invited. The safety article discusses files and records, and advantages of spreading safety responsibilities over several members of a committee.

*Continued on page 8*

In the **AFMS Newsletter** December issue, new president Judy Beck introduces herself. The listing of 2020 Bulletin Editors' Contest results is completed with the Original Adult Article winners (articles from 2019). 2020 Website Contest winners are also presented. The safety article discusses 'leading by example' in safety practices. Club and individual awards are presented, and Mary Boesdorfer introduces herself as the new All American Club Award Chair. The Juniors Activities article discusses possible activities while pandemic restrictions continue. The AFMS Endowment fund prize drawing has been postponed until 2021. Minutes of the Board meeting are presented. *-Editor*

## Some Upcoming Shows and Meetings

Our web site <http://www.nittanymineral.org> has links to more complete lists and details on mineral shows and meetings around the country. See [www.mineralevents.com](http://www.mineralevents.com) for more.

Most upcoming events have been canceled.  
**Verify show schedule before traveling!**

## Geo-Sudoku Solution

E	Y	R	S	I	L	O	T	H
H	O	I	T	R	Y	E	S	L
L	T	S	H	O	E	I	R	Y
Y	E	H	I	T	S	R	L	O
O	S	L	Y	E	R	H	I	T
I	R	T	L	H	O	S	Y	E
T	L	E	R	S	H	Y	O	I
S	I	O	E	Y	T	L	H	R
R	H	Y	O	L	I	T	E	S

### INVITE A FRIEND TO JOIN THE SOCIETY

The Nittany Mineralogical Society prides itself on having the finest line-up of speakers of any earth sciences club in the nation. Everyone is welcome at our meetings. If you'd like to be part of our Society, dues are reduced for this year only (see the web site). Your dues are used for programs and speakers, refreshments, educational activities, Bulletins, and mailing expenses. Please fill out a membership form (available at [www.nittanymineral.org](http://www.nittanymineral.org)), make checks payable to "Nittany Mineralogical Society, Inc." and send them in as directed, or bring your dues to the next meeting.

**We want to welcome you!**

### CONTACT INFORMATION

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The **Bulletin Editor** will welcome your submissions of articles, photos, drawings, cartoons, etc., on minerals, fossils, collecting, lapidary, and club activity topics of interest to the members. Please contact:

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State College, PA 16801-7226

Newsletter submissions are appreciated by the first Wednesday of the month. Photographs or graphics are encouraged, but please do not embed them in word processor files; send them as separate graphics files (TIF, or good to highest quality JPEG files, about 1050 pixels wide, are preferred). Please provide captions and name of photographer or artist.

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