Pleasant Oaks Gem & Mineral Club of Dallas, TX
Chips and Chatter

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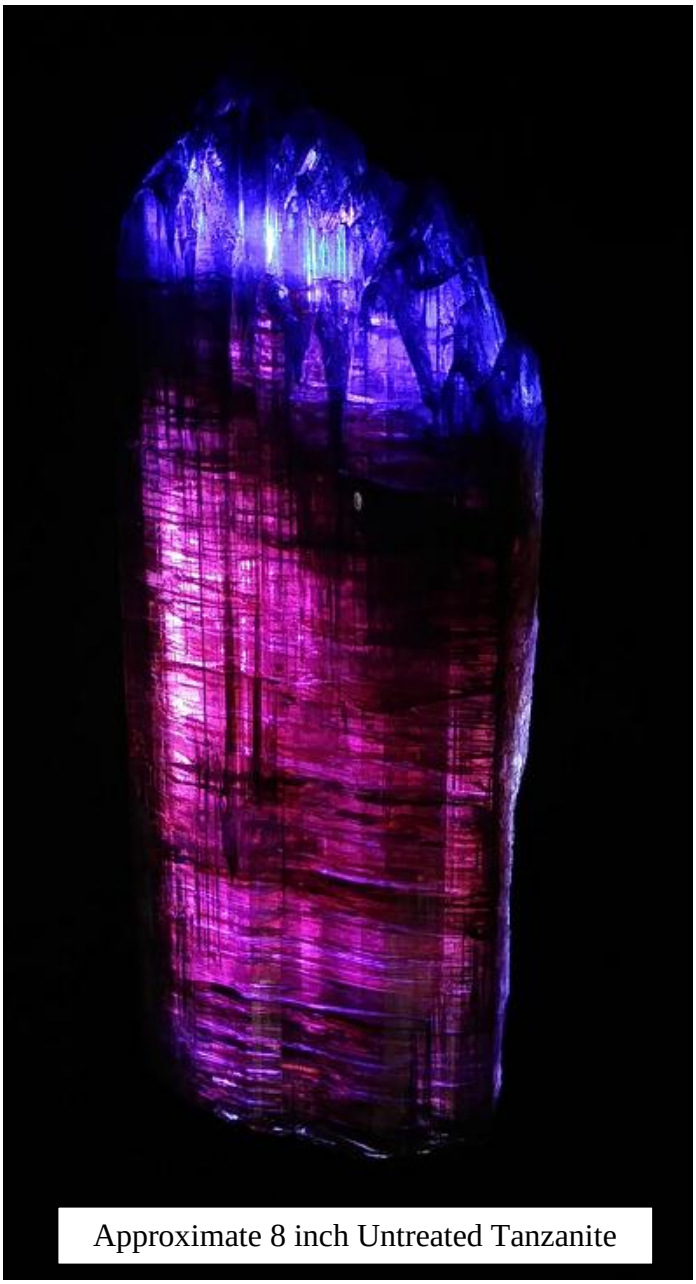
1st Place, 2017 AFMS Mini-Bulletin

Tanzanite

Don Shurtz, Pleasant Oaks Gem and Mineral Club of Dallas

Tanzanite is a colorful stone that was recognized as a December Birthstone in 2002. Originally called Blue Ziosite (a technically correct name), the name was changed to Tanzanite by Tiffany & Company as a marketing decision to honor the only country where the stones can be found. Tiffany's marketing campaign touted that Tanzanite could only be found in two places, "In Tanzania and at Tiffany's". Today it can only be mined in Tanzania, but about every jeweler in the world and a host of TV sales channels carry Tanzanite rings, earring, pendants, and other jewelry items.



Approximate 8 inch Untreated Tanzanite

Stories about the initial discovery of Tanzanite vary. One story is that Manuel de Souza, a tailor and part-time gold prospector from the state of Goa, India and living in Tanzania, found blue stone fragments while prospecting in 1967. He assumed they were a form of olivine. However, a chain of events found the fragments at the Gemological Institute of America that correctly identified the mineral as zoisite. Another story is that lightning ignited grass fire heated the brown zoisite crystals on or near the surface to turn blue. Maasai tribesmen found the transparent blue stones but thought them worthless. However, one of the tribesmen gave de Souza some of the stone fragments. Although these stories may define the discovery blue zoisite in Tanzania, the U.S. Geological Survey records show identification of blue zoisite crystals by Dr. William Pecora in 1959. My research does not indicate where Dr. Pecora obtained the blue zoisite. His primary areas of research were the Bear Paw Mountains in Montana and geological features in Oregon.

Tanzanite is a member of the Sorosilicate group that includes Hemimorphite, Vesuvianite, and the Epidote group. The Epidote group includes Epidote and Zoisite, and Tanzanite is a member of the Zoisite subgroup. Sorosilicates are characterized by isolated Pyrosilicate anion, $Si_2O_7^{6-}$, a double tetrahedral (remember the Quartz articles) with a shared oxygen atom. The chemical formula for Tanzanite is $Ca_2Al_3O(SiO_4)(Si_2O_7)(OH)$. It has a Mohs hardness of 6.5. From most mines, the crystals are brown or reddish-brown and are trichroic (shows three colors or brown, blue, and violet). When heat treated the brown and reddish brown colors disappear generally producing a dichroic (shows 2 colors) stone of blue and violet. Heat treated Tanzanite will sometimes turn to green and blue stone (green being stronger), but these seem to be on no interest to the commercial buyers. The heat treating of Tanzanite may be natural due to geological metamorphic processes, natural due to grass fires, or by treating in a furnace to 700 – 730 degrees Fahrenheit for 60 minutes. The stones from the original mining area (called Block D) are naturally heated stones likely due to a grass fires. It is almost impossible to find a non-heat treated Tanzanite specimen; in 2003, the Tanzanian government passed legislation prohibiting export of rough stones weighing more than one carat, but the legislation was not well enforced. It was estimated than only 40% of the mined Tanzanite was complying with the one carat legislation. In 2016, the Tanzanian government completed a 15 mile long wall around the Tanzanite mining area. The government reported production of Tanzanite jumped from 0.7 million carat in 1917 to about 3.9 million carat in 2018 – over a 550% increase!

Approximate 2 inch Treated Tanzanite

How long will Tanzanite be available from the mines? Tanzanite is only found in an area of about 1.25 miles by 2.5 miles (just over 3 square miles of surface area). Many experts feel that it is extremely unlikely that additional Tanzanite mining locations will be found. Individuals using hand tools perform most of the mining. Only one mine benefits from modern mining techniques and equipment, TanzaniteOne's Block C mine. In 2013, the mine was operating to a depth of 800 meters, but core samples indicate Tanzanite layers down to 2,000 meters. The estimated life of the mine is projected to be 30 years. Perhaps before the end of the 30 years some of the remaining artisanal mines will find better mining techniques extending the life of the mining field.

Some interesting facts about Tanzanite:

- The largest Tanzanite crystal was 16,839 carat (about 7.5 lbs) mined in 2005.
- Tanzanite, based on its rarity, the foreseeable end to mining, and popularity is considered the most undervalued gemstone.
- Of the major minerals produced in Tanzania, Tanzanite comes in third (based on production value in U.S. dollars. Gold mining (producing gold, silver, and copper) was first, diamond mining was second, Tanzanite coming in third.

References:

- Export.gov, Tanzania Commercial Guide, https://www.export.gov/
- The Tanzanite Experience, News and Articles, https://www.tanzaniteexperience.com/
- Tanzanite Jewelry designs, Tanzanite History, https://www.tanzanitejewelrydesigns.com/pages/tanzanite-history-html
- Tanzanite Mining, TanzaniteOne, https://www.tanzaniteone.com/tanzanite-mining
- Tanzanite and related articles, Wikipedia, https://en.wikipedia.org/wiki/

Pictures: Tanzanite specimens on display at Perot Museum of Nature and Science, photographs by Don Shurtz

Shows and Activities – Upcoming Show and Activity Dates

- Dec 14-15, Leeville, LA, DeRidder G&MS, West LA Forestry Fairgrounds, https://www.rockngemswla.com/
- Dec 19-21, Murphy, TX, David Dobson Amethyst Rock Fossil sale, 1409 Oak Hill Ln, RockTrading@aol.com
- Jan 18-19, Fredericksburg, TX, Fredericksburg Rockhounds, Lady Bird Johnson Park**, hcgms20@gmail.com**
- Jan 24-26, Tyler, TX, East Texas G&MS, Tyler Rose Garden Center, mlkilanski@yahoo.com

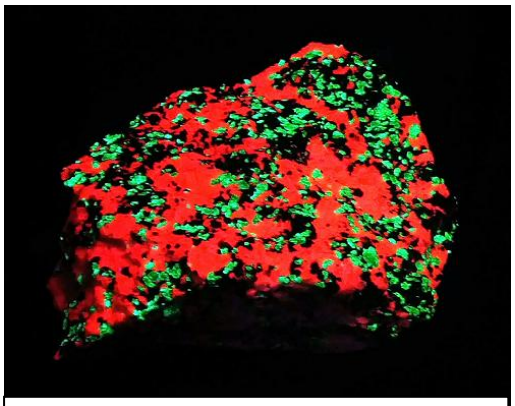
Ref:

- September - October SCFMS News
- SCFMS Local Shows, www.scfms.net
- Rock & Gem Show Dates, https://www.rockngem.com/ShowDatesFiles/ShowDatesDisplayAll.php?ShowState=ALL

Another Christmas Rock/Mineral?

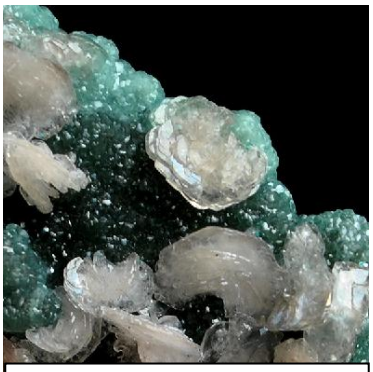
Don Shurtz, Pleasant Oaks Gem and Mineral Club of Dallas

In the December 2018 Chips and Chatter, I nominated Watermelon Tourmaline as the Christmas Mineral. The Watermelon Tourmaline is green and red and often is found on a white Albite background. I nominated it because the green reminded me of a Christmas Tree, the red reminded me of Santa's suit, and the white reminded me of snow. I also suggested that if you wanted a Christmas rock, pick a Bloodstone, a green agate with red hematite inclusions.



Fluorescing Calcite and Willemite specimen from Franklin, New Jersey

This year I want to nominate a fluorescent rock; a rock composed of the minerals Calcite and Willemite as a Christmas Rock. The rock forms in a variety of locations including New Jersey, Australia, and Namibia. The mines near Franklin, New Jersey are known for the fluorescent minerals found there. Over the last seven years, there have been a number of fluorescent mineral/rock specimens from New Jersey displayed at the Perot Museum of Nature and Science. The Calcite and Willemite rocks have always been popular.



Calcite and Willemite specimen from Namibia viewed with normal light

The Calcite is white when viewed in natural or incandescent lighting, but orange to red to pink under an ultraviolet light. The Willemite appears brown to pink and sometimes green under natural lights, but green under a short-wave ultraviolet light.

Calcite is Calcium Carbonate, $CaCO_3$, and has a Mohs hardness of 3 (it is the defining mineral for the hardness of 3). Calcite forms in a variety of crystalline shapes and in massive form. Willemite is Zinc Silicate, Zn_2SiO_4 with a Mohs hardness of 5.5. Willemite can be used as an ore for the mineral Zinc.

Reference: Willemite and Calcite articles, Wikipedia, https://en.wikipedia.org/wiki/

Pictures

- Fluorescing Calcite and Willemite photograph by Don Shurtz of specimen on display at Perot Museum of Nature and Science
- Calcite and Willemite under natural light photograph by Rob Lavinsky, iRocks.com – CC-BY-SA-3.0

VISIT AN AREA CLUB

Arlington Gem & Mineral Club, meets the 1st Tuesday of each month at 7:30 pm, 1408 Gibbins, Arlington, TX
Cowtown Gem, Mineral, & Glass Club, meets the 2nd Tuesday at 7:00 pm, CERA 3300 Bryant Irvin Rd. Fort Worth
Dallas Bead Society, meets 1st Saturday of each month at 10:00 am at The Point at CC Young, 4847 W. Lawther Dr., Dallas, TX
Dallas Gem & Mineral Society meets the 3rd Tuesday of each month at 7 pm, American Legion, 10205 Plano Rd, Dallas (next to their shop)
Dallas Paleontological Society, meets 2nd Wed. of each month at 7:00 pm, Brookhaven College, Building H, 3939 Valley View Lane, 75244
Fort Worth Gem & Mineral Club, meets 4th Tuesday of each month at 7:30 pm, 3545 Bryan Avenue, Ft. Worth
Oak Cliff Gem & Min Soc., meets the 4th Tuesday of each month at 7:30 pm, Unitarian Universalist Church, 3839 W. Keist Blvd, Dallas,
Pleasant Oaks Gem & Mineral Club, meets the 1st Thur. of each month at 7:30 pm, Garland Women's Activities Bldg., 713 Austin, Garland
Wild West Bead Society, meets 3rd Tuesday of each month at 6:30, Wild Beads, 2833 Galleria Dr., Arlington, TX

Bench Tips from Brad Smith

Reprinted by permission of the author, Brad Smith. Received as an email from Brad Smith

Dividers

A set of dividers is a tool I find very useful in laying out the geometry of a piece I'm making. It has two needle-like tips with an adjustment to set the spacing between them.

They can be used to transfer a measurement. Let's say you need a 7mm wide strip of sheet metal. Set the spacing between the divider tips to 7 mm on the ruler. Then lay the sheet on the bench, put one tip against the edge, and run the dividers down the edge scribing a line parallel to the edge.

Dividers can be used to mark equal segments of a line or arc. For instance, assume a line between A and B that might be straight or curved, and you want to divide it into 5 equal lengths. Set the dividers to an estimate of the distance. Starting at Point A, use the dividers to mark off five lengths along the line. If you end up short of Point B, lengthen the distance on the dividers. If you end up overshooting Point B, shorten the length of your dividers. After a few tries, the length on the dividers will be the exact distance you need to mark the 5 segments.

Dividers can let you quickly find the center of a circular disk. With one tip of the dividers at the edge of the disk, set the other tip to an estimate of where the center might be. Fix one tip of the dividers at the 3 o'clock position and scribe an arc with the other tip near the center. Do this again from the 6 o'clock, 9 o'clock, and 12 o'clock positions. The arcs at the center will form a small four-sided box, and the center of the box is at the center of the disk.

Work Smarter & Be More Productive With Brad's "How To" Jewelry Books

Amazon.com/author/bradfordsmith

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Editor's Corner, December Club Meeting

Don Shurtz, Editor

We normally do something special for our December Meeting, and this year will not be different. It will be PARTY TIME! Holding to our club traditions, our December Meeting will be a Potluck Dinner (the club will provide the meat dishes – BBQ Brisket and Honey Ham) and Christmas Party with a Gift Exchange. The meeting/party will be at our normal location – the Garland Activities Building, 713 Austin Street in downtown Garland. Everyone should bring a dish to share (appetizer, side dish, salad, or dessert) and a wrapped gift valued at $15 or less. Gifts should be hobby related – rocks, slabs, finished jewelry, books, etc. We will START EARLY – we will convene at 7:00 PM for talk and set up, and start dinner at about 7:30. For the gift exchange, don't expect to go home with the gift you first pick; gift stealing will be allowed. One a gift has changed hands for the third time times it will be frozen – i.e., it cannot be stolen again! Plan to arrive at 7:00 so that we can get the festivities started on-time. See you there.

PRESIDENT'S MESSAGE

Ling Shurtz, POGMC President

Our December will be our annual Pot Luck Dinner (the club will provide BBQ and Honey Ham) and Christmas Party. We will convene at 7:00 and sit down for dinner at 7:30. Please be there on time. Note that there will not be a Chips and Chatter published in January. However, a meeting notification will be sent out by mail or email (depending on how you receive your Chips and Chatter) about 1 week prior to the meeting.

CLUB OFFICERS FOR 2019

President:	Ling Shurtz
1st VP, Programs:	Carolyn Grady
2nd VP, Field Trips:	Open
Secretary:	Lee Elms
Treasurer	Del Grady
Editor:	Don Shurtz
E-mail:	don.shurtz@gmail.com, L.SHURTZ@gmail.com

MEETING MINTUES

November 7, 2019

POGMC President Ling Shurtz called the November 7, 2019 club meeting to order at 7:40pm.

We had the Pledge of Allegiance to the Flag .

Quorum: We have a quorum in attendance.

Sunshine Report: Pat Ross, a former club member, passed.

Visitors: No visitors

Minutes: We discussed the minutes of the October 2019 meetings as printed in the November 2019 Chips and Chatter. Carolyn made a motion to accept the minutes. Cheryl seconded the motion. The motion passed.

Treasurer's Report: Del Grady gave the Treasurer's Reports for October. Carolyn made a motion to accept the Treasurer's Reports. Cheryl seconded the motion. The motion passed.

Old Business: There was no old business

New Business:

- **Installation of Officers:** President – Ling Shurtz; 1st Vice President: Carolyn Grady; 2nd Vice President: no name presented; Secretary: Lee Elms; Treasurer: Del Grady; Editor: Don Shurtz
- **December Meeting:** After reviewing the meeting options, it was decided to have a Potluck Dinner and Party with gift exchange at the Garland Activities Center. Don made the motion and Carolyn seconded the motion. The motion passed.
- **Area shows**:
  - Nov 8-10, Humble, TX, Houston G&MS, Humble Civic Center, Nov 23-24, Mesquite, TX, Dallas G&MS, Mesquite Rodeo Center Exhibition Hall,
  - Dec 14-15, Leeville, LA, DeRidder G&MS .
  - Jan 18-19, Fredericksburg, TX, Fredericksburg Rockhounds, Lady Bird Johnson Park.
  - Jan 24-26, Tyler, TX, East Texas G&MS, Tyler Rose Garden Center.

Note: Contact information in Chips and Chatter

Break

Presentation: We viewed two segments from the Metal Smithing video. The first segment talked about tool for marking metals – particularly the use of dividers to scribe arcs, find the center of circles and other shapes, and marking parallel lines. Also addressed were rulers, templates and calipers. The second segment was about sawing sheet metal. Examples of several sawing techniques were shown.

Ling adjourned the meeting at 9:00 pm.

MEETING

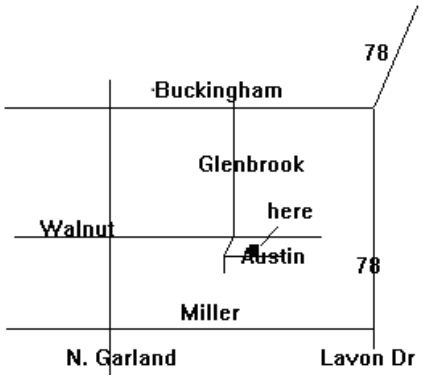
The next meeting will be December 5, our annual Potluck dinner and Christmas Party with gift exchange. The club will provide the meat dishes – bring a dish (appetizer, salad, side dish, or dessert) to share. Also, bring a wrapped, hobby related gift valued at $15.00 or less. Party starts at 7:00 with dinner starting at 7:30 PM. Don't be late!

VISITORS ARE ALWAYS WELCOME

Notice: Remember there will not be a January Chips and Chatter. However, a meeting reminder notice will be sent out by email or USPS mail.

Meetings
First Thursday of each month, 7:30 PM
Garland Women's Activities Building
713 Austin St., Garland, TX
(Northeast corner of Austin & Glenbrook)

Membership
Single Adult: $16.50,
Junior: $5.00, Family: $27.50
(Plus badge fee for new members)



PURPOSE

The Pleasant Oaks Gem and Mineral Club of Dallas is organized for charitable and educational purposes to promote interest in the various earth sciences, particularly those hobbies dealing with the art of cutting and polishing gemstones, the science of gems, minerals and metal crafts, as well as their related fields. Pleasant Oaks Gem and Mineral Club of Dallas is a Section 501(c)(3) not-for-profit organization

CHIPS AND CHATTER
Pleasant Oaks Gem & Mineral Club
PO Box 831934
Richardson, TX 75083-1934

To:

VISITORS ARE ALWAYS WELCOME

Meetings: First Thursday of each month, usually at 7:30 PM, Garland Activities Building, Garland TX
Next Meeting: **December 5, 2019 starting at 7:00 PM – Potluck Dinner and Christmas Party**

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