

TAR HEEL



ROCKHOUND

JANUARY 2025

Catawba Valley Gem & Mineral Club, Inc.

2024 Officers and Committees

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Club Address: PO Box 2521, Hickory NC 28603-2521
 Regular Meetings: Second Tuesday, 7:00 PM
 St. Aloysius Catholic Church, 921 2nd St. NE Hickory, NC
 Annual Dues: Family, \$25, Individual, \$18

The purpose of the Club is to increase the individual's knowledge of the earth sciences and to aid in the development of lapidary and related arts and skills; to promote fellowship and exchange of ideas; to hold exhibitions, contests, lectures and demonstrations for educational purposes; to help interest more people in the gem and mineral hobby; and to capture and preserve the beauty of nature, the arts, and the works of man.

**CATAWBA VALLEY GEM AND MINERAL CLUB,
 INC.**

Web Master: Mike Streeter

<http://www.cvgmc.com>

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PRESIDENT'S REPORT

Hello Fellow Members,

I hope everyone enjoyed the Holidays and is ready for another wonderful year of learning, collecting, and fellowship with fellow rockhounds and lapidarists! We already have a busy spring planned with our March show and our club hosting a double convention for the American and Eastern Federation of Mineralogical and Lapidary Societies.

The theme this year for the exhibits is "All in the Family". Since we will have convention visitors from other states who may want to participate, I wanted to keep the theme fairly broad. The idea is that each case will highlight a specific group of minerals. For example, cases will focus on and display the different types/varieties/groups of garnets, or tourmaline, quartz, calcite, feldspar, mica, beryl, hematite, etc.. I will put the request forms for cases in the February newsletter, so think about how many cases and what sizes you will need.



Here is a case from the 2023 Tucson Gem and Mineral Show. The theme was "SILICA: Agates and Opals and Quartz, Oh My!" You can see how someone took 'agates and jaspers' and showed the many variations. (<https://wildcat.arizona.edu/113021/arts/enthusiasm-and-larger-crowds-marked-the-2023-tucson-gem-mineral-show/>)

Also, start planning ahead and thinking about how you can help and volunteer with the show. We will need help with the over-all set up and take down, selling of tickets and grab

bags, running the Mini Mine, manning the Kids Table, demos of cabbings, wire wrapping, and faceting and someone at our 'Ask the Expert' table. If you can help with any of these activities please see Tracie and Terry. We will start signing up in February and finalize everything in March.

I know we just had a show in October and it may seem over whelming to have another show so quickly but remember, this show is special! This show will be dedicated in memory of Larry Huffman, a long time club member, former club president, and friend. So, we want to have a great show for our vendors, guests, and to honor Larry's memory.

Sincerely,
Tracie J.

CVGMC MINUTES FOR DECEMBER 12, 2024

There are no minutes for the December meeting.

JANUARY PROGRAM

The program for January will be our annual Bragging Rights Contest. Participants may enter 1 specimen in each category as follows:

1. Best Collected - Specimens you have found in 2024.
2. Best Purchased - Specimens you have purchased in 2024.
3. Best Crafted - Specimens you have crafted in 2024.

The Bragging Rights Contest is open to club members only. The prize for each category is bragging rights.

GRAB BAG WORKDAY

We will pack grab bags for the show on **Saturday, February the 15th** from **8:00 AM to 12:00 AM**. Meet at the **St. Andrew's Lutheran Church 629 Eighth Street NE**, on the Lenoir Rhyne Campus. We will work in Fellowship Hall on the bottom floor so park in the lot at the back. Please bring a variety of different rocks, minerals, and fossils which are clean and of appropriate size (no larger than a baseball.) Remember everything has to fit into a small paper bag. Grab bags are a very popular item at our rock shows especially with the children. I know

we did not have a lot of time to recollect since our last show, but we will make as many bags as we can. Even if you don't have material, you can still come to help and join the fun!

FOR YOUR INFORMATION

We are members of the Southeast Federation of Mineralogical Societies. This allows us to attend monthly trips and other club benefits. To stay in good standing, we must follow certain rules. Below are a few reminders from Lori Carter the DMC Coordinator.

“Do not post DMC field trip information where the general public can access it. This includes posting newsletters that contain DMC field trip information and sending DMC trip information to clubs that are not members of the DMC (please note that even if an SFMS club is covered under liability insurance, if they receive DMC trip information without having to host a trip, they are not contributing to the program, which is not fair to the clubs that do host). If information about a location is available to the general public, it could jeopardize the location, and we all know how difficult it is to find and keep sites. More worrisome is that it can affect field trip liability insurance, whether through the SFMS or private insurance, and we can be dropped by our insurance carrier or face higher premiums!”

This is why I send the trip information to club members as a separate e-mail. We cannot include this information in our newsletter because the newsletter is posted to the internet where the general public can access it. Also, be careful about sharing information on your social media.

There is no DMC field trip scheduled for January 2025.

GEOLOGY MADE EASY: TOURMALINE

By Tracie J.

I used to think that tourmaline was one species of mineral and that the different colors were due to various impurities. To some extent this is true but, 'tourmaline' is a generic term for a complex group of related minerals that vary greatly in their chemical composition. They are all boron aluminum silicates but, after that they differ greatly with respect to other element components (see Table 1). There are 41 different species of tourmaline recognized by the

International Mineralogical Association (IMA). Some are very common such as Schorl or black tourmaline which makes up 95 percent of all tourmaline found in the world, while others are very rare. When researching and reading about tourmaline the terminology and information can be a bit confusing until you realize that the group is mainly classified or named according to two parameters. Scientifically, tourmalines are classified based on their chemical composition resulting in 41 tourmaline species. But, there are other names, or trade names of tourmaline used by collectors and gemologists mainly based on color (see Table 2). This is because you cannot look at a stone in nature and know it's chemical composition but color is easily observable. So many collectors are more familiar with the trade names such as 'Watermelon', Indicolite, or Rubellite tourmaline. However, even color is a poor characteristic to identify the various tourmalines due to the immense variation of color even within a species of tourmaline!

SPECIES	(X)	(Y₃)	(Z₆)	T₆O₁₈	(BO₃)₃	V₃	W
Elbaite	Na	Li _{1.5} Al _{1.5}	Al ₆	Si ₆ O ₁₈	(BO ₃) ₃	(OH) ₃	(OH)
Dravite	Na	Mg ₃	Al ₆	Si ₆ O ₁₈	(BO ₃) ₃	(OH) ₃	(OH)
Schorl	Na	Fe ⁺² ₃	Al ₆	Si ₆ O ₁₈	(BO ₃) ₃	(OH) ₃	(OH)
Olenite	Na	Al ₃	Al ₆	Si ₆ O ₁₈	(BO ₃) ₃	O ₃	(OH)
Buergerite (Fluor- buergerite)	Na	Fe ⁺³ ₃	Al ₆	Si ₆ O ₁₈	(BO ₃) ₃	O ₃	F
Povondraite	Na	Fe ⁺³ ₃	Fe ⁺³ ₄ Mg ₂	Si ₆ O ₁₈	(BO ₃) ₃	(OH) ₃	O
Uvite	Ca	Mg ₃	Al ₅ Mg	Si ₆ O ₁₈	(BO ₃) ₃	(OH) ₃	F
Hydroxy- feruvite	Ca	Fe ⁺² ₃	Al ₅ Mg	Si ₆ O ₁₈	(BO ₃) ₃	(OH) ₃	(OH)
Liddicoatite (Fluor- liddicoatite)	Ca	Li ₂ Al	Al ₆	Si ₆ O ₁₈	(BO ₃) ₃	(OH) ₃	F
Rossmanite		Li Al ₂	Al ₆	Si ₆ O ₁₈	(BO ₃) ₃	(OH) ₃	(OH)
Foitite		Fe ⁺² ₂ Al	Al ₆	Si ₆ O ₁₈	(BO ₃) ₃	(OH) ₃	(OH)

TABLE 1: There are 41 officially recognized species of tourmaline based on their chemical composition. The table above highlights some of the more common well known species. Modified from research by Hawthorne, Frank & Henry, Darrell (1999). See Resources

GEMSTONE VARIETY	COLOR
ACHROITE	Colorless Usually, a colorless variety of Elbaite
DRAVITE	Yellowish brown - dark brown; iron and magnesium rich
INDICOLITE	Light – dark blues; iron rich Usually, a color variety of Elbaite or Fluor-elbaite
PARAIBA	Emerald green, sky blue, neon blue, indigo, purple, turquoise; copper and manganese rich A copper bearing variety of Elbaite or Liddicoatite
RUBELLITE	Light pink-dark reds; manganese, iron, and lithium rich A color variety of Elbaite
SCHORL	Black; iron and magnesium rich
SIBERITE	Lilac-violet – purple; A variety of Rubellite from Siberia
VERDELITE	Greens; iron, and titanium rich (note this form is not colored by chromium and vanadium like other green tourmalines) A color variety of Elbaite or Fluor-elbaite
WATERMELON	Bicolored - Red and Green May be a variety of Elbaite, Fluor-elbaite, or Liddicoatite

TABLE 2: Gemstone varieties of tourmaline based on color.

Even though the different tourmaline specimens vary in chemical composition they do share many physical traits (see Table 3). Schorl, or black tourmaline is well known among rock and mineral collectors of all levels. The classic identification traits are its black color, opaqueness, vitreous luster, a hardness that allows it to scratch glass, and its elongated crystals with a rounded triangular cross-section (see Image 1). Almost all tourmaline species share these basic traits with some slight variations and one of the most notable differences is the huge variation in color between and even within species (see Table 2 and Images 2 -10). It is not unusual for crystals to change color along their length (see Images 4, and 8) or cross-section (see Images 5 and 6).

Tourmalines are found mainly in granitic pegmatites, especially where there was hydrothermal activity. Schorl is common in western North Carolina where granite pegmatites are prevalent. Tourmaline also occurs in areas of metamorphic contact and can be found in various metamorphic rocks such as shists and marbles. In the US the best quality tourmaline comes from California and Maine. Other infamous areas for mining gem quality tourmalines are Brazil, Mozambique, Afghanistan, and Nigeria.

TOURMALINE GROUP	TRAITS
Color	Wide variety of colors, clear, pinks, reds, blues, greens, violets, yellow, orange, brown, black
Moh's	7 – 7.5
Streak	White
Cleavage	None, poor, indistinct
Fracture	Uneven, subconchoidal, conchoidal
Luster	Vitreous to resinous
Specific Gravity	Depends on variety, ranges from 3.03 – 3.40
Crystal System	Trigonal
Diaphaneity	Opaque to translucent

TABLE 3: General traits of the tourmaline group.



IMAGE 1: Pictured above is a Schorl or black tourmaline crystal on granitic pegmatite.

<https://synergygrp.ae/?s=39326711>



IMAGE 2: A beautiful display of cut tourmaline stones showing the wide range of colors.

<https://cfbrandtjewelers.com/10-cool-facts-octobers-birthstone-tourmaline/>



IMAGE 3: Paraiba tourmalines are especially known for their bright electric blue and green colors. The two faceted stones above are from a private collection.

Zbyněk Buřival photo /<https://mineralexpert.org/article/tourmaline-group-minerals>



IMAGE 4: An amazing multicolored Tourmaline on Feldspar and Smoky Quartz.
From the Paprok, Nuristan Province, Afghanistan, Size: 10.5 x 6.8 x 6 cm
<https://saphiraminerals.blob.core.windows.net/images/minerals/KL537-a.jpg>

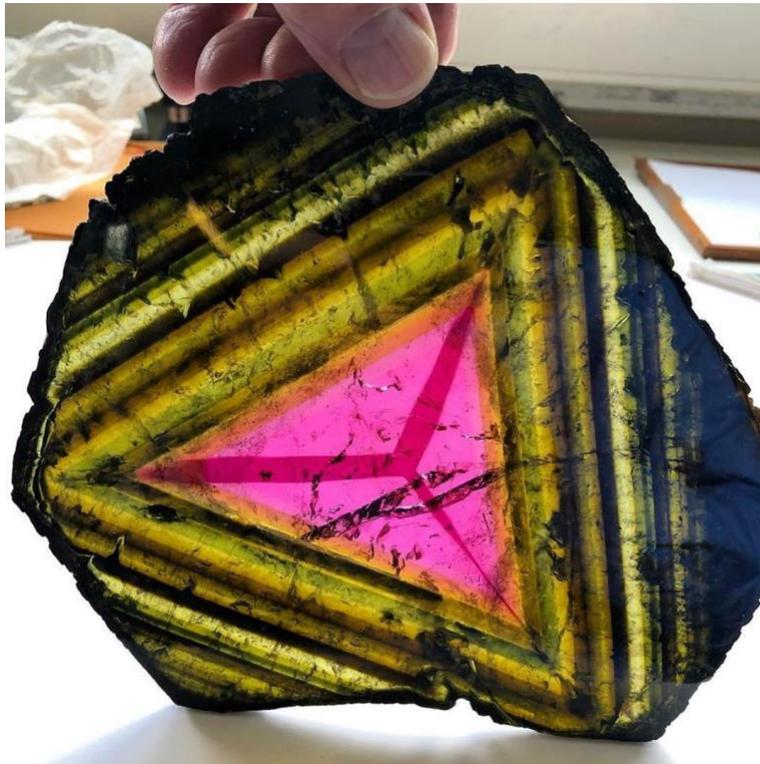


IMAGE 5 : A thin cross section through a sample of Liddicoatite tourmaline from Madagascar.
Note the incredible color zonation from the center outwards!

<https://www.facebook.com/geologypage/posts/tourmaline-var-liddicoatite-cross-sectionslice-geology-geologypage-mineralsgeolo/983586477132911/>



IMAGE 6: In this thin cross sectional slice of a tourmaline note the red interior and thin green outer 'rind', hence the name 'Watermelon' tourmaline. <https://www.geologyin.com/2021/07/watermelon-tourmaline-what-is.html>

Tourmalines belong to the trigonal crystal system. Typical crystals are long, slender, have a rounded triangular or pseudo-hexagonal shape in cross section, with heavy vertical striations on the crystal faces (see Images 1, 4, and 6). They can also be short, stubby, prismatic crystals (see Image 9), or rarely tabular crystals. Crystals may single, clustered in compact masses, arranged in radiating fans and other habits (see Images 1, 4, and 7-10).



IMAGE 7: Very typical tourmaline crystals - long and slender with a rounded triangular cross-sections and vertical striations. Rubellite tourmalines from Jonas Mine, Conselheiro Pena, Minas Gerais, Brazil. <https://mineralexpert.org/article/tourmaline-group-minerals>



IMAGE 8: A nice radiating cluster of acicular tourmaline crystals. This color combination is often referred to as “Cotton Candy”. This specimen is from Afghanistan.
<https://mineralsparadise.com/products/cotton-candy-tourmaline-bunch-from-afghanistan-259-gram>



IMAGE 9: Not all tourmaline crystals are elongated. The image on the left shows three Dravite ('Brown') tourmaline crystals. Note the short stubby prismatic shape and lack of striations. Also note that they appear black and opaque but when backlit you can see the beautiful golden brown hues.



IMAGE 10 : The tourmaline above is blue Indicolite tourmaline on white Cleavelandite and Quartz. Note the triangular crystal with rounded edges and the vertical striations on the crystal faces. This specimen is from Nuristan, Afghanistan.

<https://mineralexpert.org/article/tourmaline-group-minerals>

Tourmaline has some unique properties such as being weakly magnetic. Tourmaline species with iron and/or magnesium such as Schorl and Tsilaisite are magnetic (also called paramagnetic). If you take a very strong magnet, such as a neodymium magnet, and slowly pass it over the mineral, you will see an attraction/response to the magnet. Non-magnetic tourmalines are referred to as being diamagnetic. This unusual trait can be used to help identify some tourmaline species and distinguish it from some other minerals. For example, blue Indicolite tourmaline is colored by iron and is magnetic. But, the blue Paraiba tourmaline is colored by copper and is therefore non-magnetic. This is an important distinction because Paraiba tourmalines are much rarer and more expensive than Indicolite tourmalines. A cool fact is that other iron/magnesium containing minerals such as some garnets can also be magnetic (paramagnetic).

Tourmaline can also become electrically charged by two methods. It can become electrically charged when pressure is applied, this is known as a Piezoelectric effect. Tourmaline can also become electrically charged when heated, this phenomenon is known as the Pyroelectric effect. These unique traits allow tourmaline to be used in various industrial applications and equipment such as pressure-sensitive gauges and sensors.

However, the most common use of tourmaline is as a gemstone for jewelry. Tourmaline is a favorite of lapidarists. Almost all gem quality tourmalines are color variations of Elbaite or Dravite tourmaline. Many of the names such as ‘Watermelon’, ‘Cotton Candy’, Indicolite, Paraiba, and Siberite are trade names given to various tourmalines based on their colors and/or color patterns (see Table 2). As a gemstone it has great hardness (7-7.5), mostly good clarity, and an incredible range of colors (see Tables 2 and 3). It is often faceted into various cuts for jewelry (see Images 2, 3, 11, and 12). Even the black opaque Schorl tourmaline was once popular during the Victorian era as funeral jewelry. But, there are other traits that make it fun, interesting, and challenging for lapidarists. Tourmalines exhibit dichroism. In simple terms this means that when viewed from different angles (i.e. along different axes) the color changes (see Image 11). Many tourmaline stones are also chatoyant and when cut properly, display a “cat-eye” effect (see Image 12).

When buying tourmaline be aware that some tourmalines are treated. They may be heat treated or irradiated to enhance color. Depending on the stone, the treatment may either lighten, darken, or change the color. For example, very dark reds are often heated to lighten the color and make them more desirable. Some specimens may also be oiled to hide fractures and inclusions. The buyer should additionally beware of fake imitations. Tourmaline cannot be synthesized in a lab but there are imitations made of glass or other minerals such as Apatite and Topaz.

Tourmalines are beautiful and fascinating group of minerals for both collectors and lapidarists. When you take a closer look at this complex group of minerals the more fascinating they become!



IMAGE 11 : This tourmaline has been cut to showcase its unique dichroism. Depending on the angle the light hits this tourmaline, the viewer will see either blue or green.

<https://www.theraregemstonecompany.com/gemology-articles/tourmaline-buying-guide>



IMAGE 12 : This is a beautiful golden Dravite Tourmaline cut into a cabochon to feature it's chatoyant/cat-eye effect.

<https://www.burtonsgemsandopals.com/products/43-45ct-cats-eye-dravite-tourmaine-oval-cabochon>

RESOURCES:

- <https://mineralexpert.org/article/tourmaline-group-minerals>
- https://www.gemstonemagnetism.com/tourmalines_pg_2
- Hawthorne, Frank & Henry, Darrell. (1999). Classification of the minerals of the tourmaline group. *European Journal of Mineralogy*. 11. 201-215. 10.1127/ejm/11/2/0201.
- Video on Tourmaline magnetism and piezoelectric effect. <https://www.facebook.com/watch/?v=308607957465733>

WHAT'S HAPPENING IN OUR AREA

MUSEUMS: North Carolina Museum of Natural Sciences

If you are in the Raleigh area this is a great place to visit. The museum focuses on the natural history of North Carolina but also contains specimens from around the world. Major collections include mammals, mollusks, birds, reptiles and amphibians, fish, and invertebrates.

Of special interest to club members are the collections of NC gems and minerals, meteorites, paleobotany, and vertebrates paleontology.

There are actually two locations for the museum. The first is the ‘Nature Exploration Center’ located at 11 West Jones Street, downtown Raleigh. This building has a more traditional museum experience with exhibits emphasizing North Carolina’s natural history and wonders. The second building, the ‘Nature Research Center’ is located at 121 West Jones Street, downtown Raleigh. The displays here focus on the science, technology, and tools that scientists use to study the natural world around them. The admission at both facilities is free.

Hours are Tuesday–Sunday, 10am–5pm. It is closed for certain holidays so always check the website (<https://naturalsciences.org/visit/hours-admission>) before visiting.

WHAT	WHEN	WHERE
Intergalactic Bead Show	February, 2025 TBA	Durham, NC Durham Convention Center, 301 W. Morgan Street,
Intergalactic Bead Show	February, 2025 TBA	Charlotte, NC The Oasis Shriner's, 604 Doug Mayes Place
Gastonia Gem and Mineral Club's 46 th Annual Gem, Mineral, and Jewelry Show	March 15 – 16 th Sat 10:00-6:00 Sun 10:00-4:00	Gastonia, NC Gastonia Farmers Market 410 E Long Ave., Gastonia
Catawba Valley Gem, Mineral, Fossil and Jewelry Show	March 28-30 Fri. 10:00 – 6:00 Sat. 10:00 – 6:00 Sun. 10:00 – 5:00	Hickory, NC Hickory Metro Convention Center 1960 13th Ave Drive SE
Annual Show; Tar Heel Gem & Mineral Club	March 28-30 Fri. 3:00 – 7:00 Sat. 10:00 – 6:00 Sun. 10:00 – 5:00	Raleigh, NC Kerr Scott Building, NC Fairgrounds, 4285 Trinity Rd, Gate 9

2025 MEMBERSHIP DUES

Included in this month's bulletin is a blank 2025 Membership form. Terry will also bring some blank 2025 Membership forms to the January meeting.

This membership form must accompany your dues in order for your name to be included on the 2025 club roster.

Family membership is \$25

Single membership is \$18

Please print **clearly and legibly** on the form so that your information can be updated accurately.

Honorary members must also fill out the form each year in order to keep the club records up to date and to maintain your honorary membership status.

You can send your payment and form to the Club PO Box (address on the membership form) or directly to Terry Russell at the following address:

5254 Olde School Drive

Hickory, NC 28602



2025 MEMBERSHIP INFORMATION FORM

Date: _____

Please Check all the Appropriate Boxes

New Member Renewal

(New members must attend TWO meetings and may apply for membership at the second meeting)

Single \$18/yr Family \$25/yr Honorary \$0/yr
** Onetime fee for name badge \$10/person Quantity

** Spelling on badges ONLY IF PURCHASING any:

PLEASE PRINT CLEARLY & FILL IN ALL INFORMATION

NAME: _____

SPOUSE'S NAME (family membership): _____

ADDRESS (Street): _____

ADDRESS (City, State, and Zip Code): _____

MINOR CHILD (family membership): _____ Age _____

MINOR CHILD (family membership): _____ Age _____

HOME PHONE: _____ CELL PHONE: _____

E-MAIL ADDRESS: _____

*** Bulletins will be distributed by E-MAIL only ***

MAKE CHECKS PAYABLE TO: CATAWBA VALLEY GEM & MINERAL CLUB, INC.
MAIL TO: Catawba Valley Gem & Mineral Club, Inc
c/o Terry Russell
PO Box 2521
Hickory, NC 28603-2521

DUES (NEW MEMBERS ONLY) SHALL BE PRORATED AS FOLLOWS:

January 1 – June 30: full amount of annual dues

July 1 – September 30: 50% of annual dues

October 1 – December 31: full amount of annual dues shall apply as payment for the following year

FOR USE BY TREASURER ONLY: Amt Rec'd _____ Check # _____ Date _____

**Tar Heel Rockhound
Official Publication of
Catawba Valley Gem and
Mineral Club, Inc.
Volume 55 Number 1**

**Club Meetings
2nd Tuesday of Month, 7:00PM
St Aloysius Catholic Church
921 2nd Street NE Hickory, NC**

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