TAR HEEL ROCKHOUND

MARCH 2025

Catawba Valley Gem & Mineral Club, Inc.

2024 Officers and Committees

President:	Tracie Jeffries 828-430-1341	Education:	George Max 828-328-9107
Vice President:	Joan Glover 828-446-7633	Show Chairman:	Dean Russell 828-303-1448
Treasurer:	Terry Russell 828-303-1563	Scholarship:	George Max 828-328-9107
Secretary:	Dean Russell 828-303-1448	Field Trip:	Tina Lakhotia 727-688-1068
Editor:	Tracie Jeffries 828-430-1341		

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

Editor: Tracie Jeffries,
3118 Barus Street, Valdese, NC
botanynerd89@gmail.com

INSIDE

PRESIDENT'S REPORT

Hello Fellow Members,

I would like to thank all the volunteers that came out Saturday, February 15th for the grab bag workday. We were worried about having enough material since our last show was just last October. But, thanks to our members and volunteers, we were able to make approximately 300 bags. Great job guys!!!! I know I can also count on everyone to help with the show March 28-30th. We will discuss final plans and ways you can help in the March 11th meeting.

"No one is more cherished in this world than someone who lightens the burden of another. Thank you." Joseph Addison, English political writer and poet

CVGMC MINUTES FOR FEBRUARY 11, 2025

The February 11, 2025 meeting of the CVGMC was called to order by President Tracie J. at 7:00 PM.
Visitors: None
Program: The program for February will be a presentation on sandstones by Tracie J.
Minutes: A motion was made by Harry P. and seconded by Shelda A. to accept the January 14, 2025 minutes after a correction to the bragging rights. Motion was passed by the Club.
Treasurer Report: Bank balance was reported.
Education Committee:
Show Committee:
1. The CVGMC Annual Show is March 28-30, 2025. We will be using both the Catawba Room and the Multipurpose Sports Venue for the Show and the AMFS and the EFMLS Conventions.
2. Please consider where you can volunteer to help with the show.
3. Grab bags will be fill on February 15, 2025 at St. Andrews
4. Theme of the Show is "All in the Family"
5. Contact Tracie J. about having a display case.
6. The Show is dedicated to Larry Huffman.
7. Yard signs will be available at March 11th meeting.
Field Trip Report: Graves Mountain open house in March. More information to come.

Old Business: None

New Business: Wayne B. discussed the possibility of starting to replace the Club's display cases.

Announcements:

1. CVGMC needs volunteers for a Scout Camporee event on Saturday, May 3, 2025.
2. Make sure you send in your membership forms and dues.
3. Betty H. discussed possibly providing Club members name, phone, and email address, with the Club members permission.

Closing of Business: The meeting was adjourned at 8:23 PM

Respectfully Submitted,
Dean Russell, Secretary

MARCH PROGRAM

There will be no formal program for the March 10th meeting. The club will use this time to discuss the March Gem and Mineral Show and finalize plans.

WE NEED YOUR HELP

Organizing and running our annual show is a huge undertaking. It is something our club has done for 54 years. It takes a lot of planning, work, and volunteers to make each show a success and the club cannot do it without the help of our members**.** What can you do to help?

1. **Please help the club advertise the show by putting the information below on your social media accounts, such as Facebook. This way your friends and family can see the information, and please encourage them to share it also. Thank-you!**

Catawba Valley Gem Mineral Club Show March 28-30, 2025
"All in the Family" (The Families of Minerals)

The Catawba Valley Gem and Mineral Club, Inc. will hold their 55th Annual Gem, Mineral, Fossil, and Jewelry show on March 28-30, 2025 at the Hickory Metro Convention Center in the Catawba and Sports Venue Rooms. The convention center is located at 1960 13th Ave Drive SE, in Hickory, NC. Hours are 10:00 a.m. till 6:00 p.m. on Friday, 10:00 a.m. till

6:00 p.m. on Saturday, and 10:00 a.m. till 5:00 p.m. on Sunday. 35+ vendors are scheduled to appear. Admission is $6.00, which is good for all three days. Children 12 and under are admitted free. Law enforcement officers, Fire Department and active or retired military with credentials, Scouts and Leaders in uniform will be admitted free anytime during this 3day event. There will be hourly prize drawings for adults and children. A Grand Door Prize given away at the end of the show. Also, grab bags, while they last, will be available for $1.00 each. In the exhibit area there will be display cases with minerals from around the world, the "Children's Mini Mine" and the "Hands-On Table". Other exhibits and activities are being planned.

The Catawba Valley Gem and Mineral Club are also hosting, during the show, the annual conventions of the American Federation of Mineral Societies (AFMS) and the Eastern Federation of Mineral and Lapidary Societies (EFMLS). There will be a live auction at 2:00 PM on Saturday, March 29th to benefit the Scholarship Fund. The auction is open to the public and will be held in the Sports Venue Room.

This year's show is being dedicated to past member Larry Huffman, who passed away in the Spring of 2024. Larry was a very active member and held many officer positions within the Catawba Valley Gem and Mineral Club and the Eastern Federation of Mineral and Lapidary Societies.

2. **Please come to the March meeting and pick up yard signs to help advertise the show. You can place these in your yard and neighborhoods.**

3. **Volunteer some time to help sell tickets and grab bags. See the note from Terry below.**

The Gem and Mineral Show is just around the corner and one of the areas we DEFINITELY need volunteers is with ticket sales and grab bags. Terry Russell is soliciting volunteers to help sell tickets at the front tables. The ideal number of people per shift is three (2 for ticket sales and 1 for grab bags), however, if we have four per shift it gives us more flexibility. Each shift is 3 hours long. Terry would like to have the work schedule finalized shortly after the March meeting so she has time to communicate the process to everyone.

PLEASE CONSIDER VOLUNTEERING – we had several new volunteers at the October 2024 and it was a great way for new and returning members to get involved and get to know other club members. Terry will have a signup sheet at the March meeting.

We will need people to fill in time slots on:

- Friday March 28th from 10:00 am to 6:00 pm
- Saturday March 29th from 10:00 am to 6:00 pm
- Sunday March 30th from 10:00 am to 5:00 pm

Selling Grab Bags:

We also need people to sign up and sell grab-bags the same times and days as above. Terry R. will have a sign-up sheet at the March meeting.

4. **At the March meeting we will discuss other areas and times where we will need help. Even an hour here and there would be a great help!**

GEOLOGY MADE EASY: MYSTERY ROCK

By Tracie J.

I was recently handed an unknown rock sample and several people were trying to identify it. Various answers included, Sandstone, Limestone, and Chalk. I took the sample home and did some research. I eliminated several possibilities such as Sandstone, Talc, and massive Gypsum due to differences based on either harness, luster, texture, and/or several other traits. This narrowed it down to three possible rocks/minerals: Chalk, Diatomite, and Kaolinite. Let's take a closer look at these three rocks.

CHALK

Chalk is a variation of limestone and an excellent example of a biochemical sedimentary rock. Instead of being composed of clasts, like in sandstone or breccia, chalk is composed of fossilized microorganisms. These unicellular microscopic organisms floated on top of ancient oceans and seas as part of the plankton layer. When they died they fell to the ocean floor forming deep deposits of marine ooze mainly made of their calcium carbonate shells (also called tests). Over time, as additional layers formed, compaction and pressure helped to lithify the shells and other materials into chalk. The major plankton species that comprises chalk are marine Coccoliths and Foraminifera (See Images 1, 2). These species are still important in plankton today.

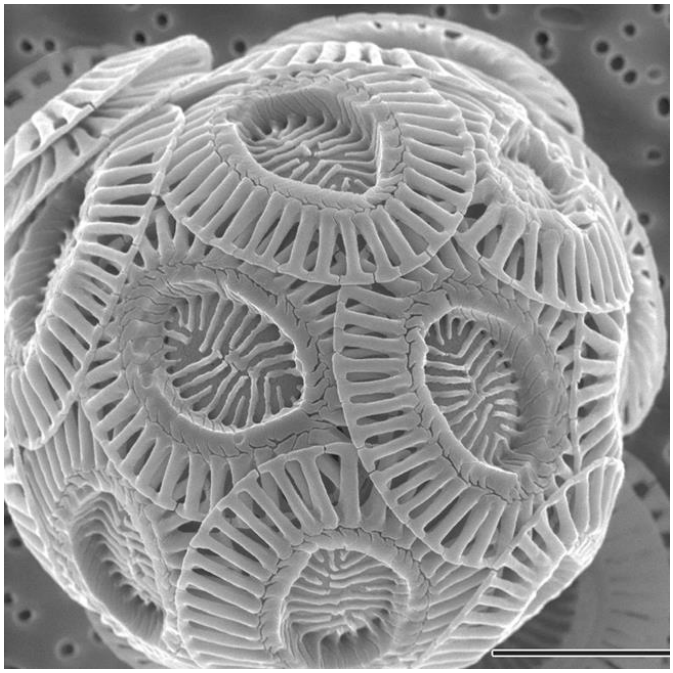

Image 1: A scanning electron image of a coccolith cell in its calcium carbonate based shell.

Alison R. Taylor (University of North Carolina Wilmington Microscopy Facility) - PLoS Biology, June 2011

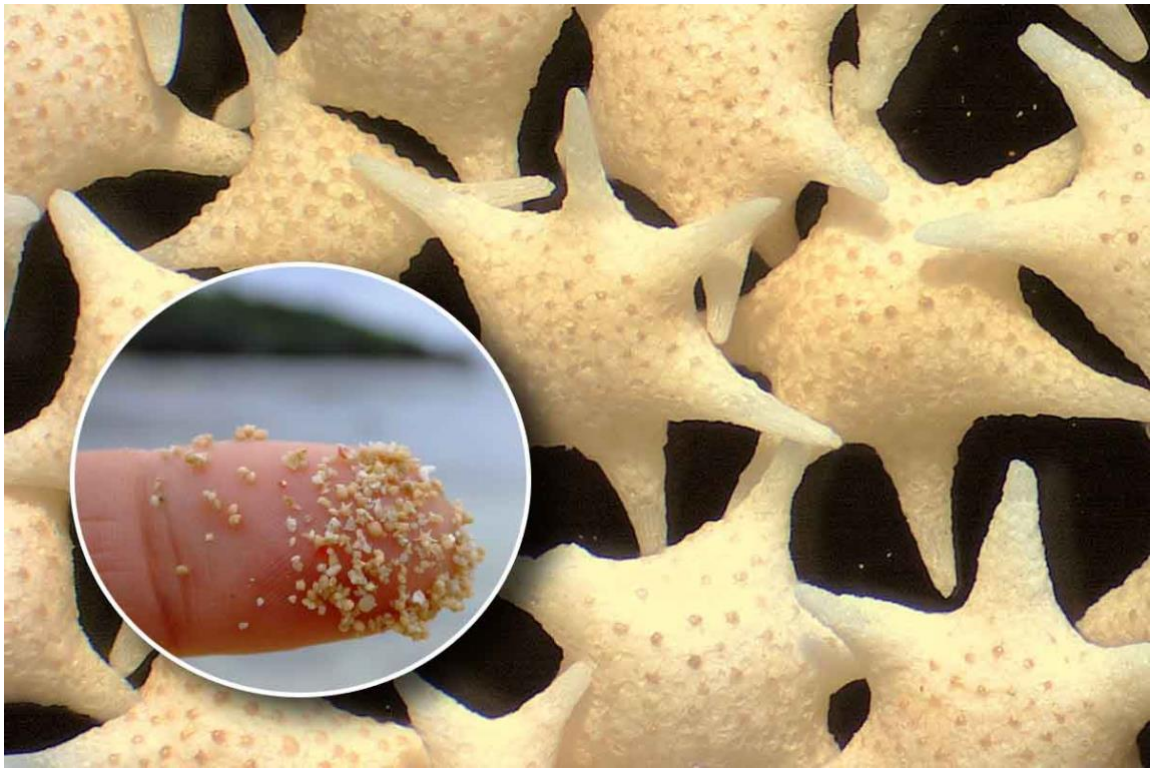

Image 2: The Ryukyu Islands of Japan have beaches with unique sand. The sand is covered with star-shaped calcium carbonate shells of one species of Foraminifera.

https://schmidtocean.org/cruise-log-post/waterword-of-the-day-foraminifera/

Most major chalk deposits formed during the Cretaceous period. Chalk deposits can be found world-wide but the best known are the White Cliffs of Dover England (See Image 3). The cliffs also contain other fossils (See Image 4) and deposits of flint (See Image 5). Flint is a silicate mineral. It formed from the silica based spicules of ancient sponges and shells from radiolarians and other silica based plankton (See Image 6). The silica dissolved and precipitated into cavities left in the chalk from decaying organisms.

In the US chalk deposits can be found mostly in the Niobrara Formation**,** stretching from North Dakota down towards Texas (See Image 7). These deposits were formed during the late Cretaceous in what was once an ancient sea.

Image 3: White Cliffs of Dover England

Image 4: An Ophiuroid **(**Brittle Star) fossil found in a chalk deposit near Folkstone, SE England. http://www.chalk.discoveringfossils.co.uk/British%20Chalk%20Ophiuroids%20(Brittle%20Stars).htm

Image 5: A child looking for fossils. Note the dark flint/chert nodules embedded in the chalk. The beach he is standing on is mostly resistant flint pebbles that have eroded out of the softer chalk over time.

https://www.reddit.com/r/geology/comments/mfop0f/why_black_stones_are_straigh_at_seven_sisters_we/

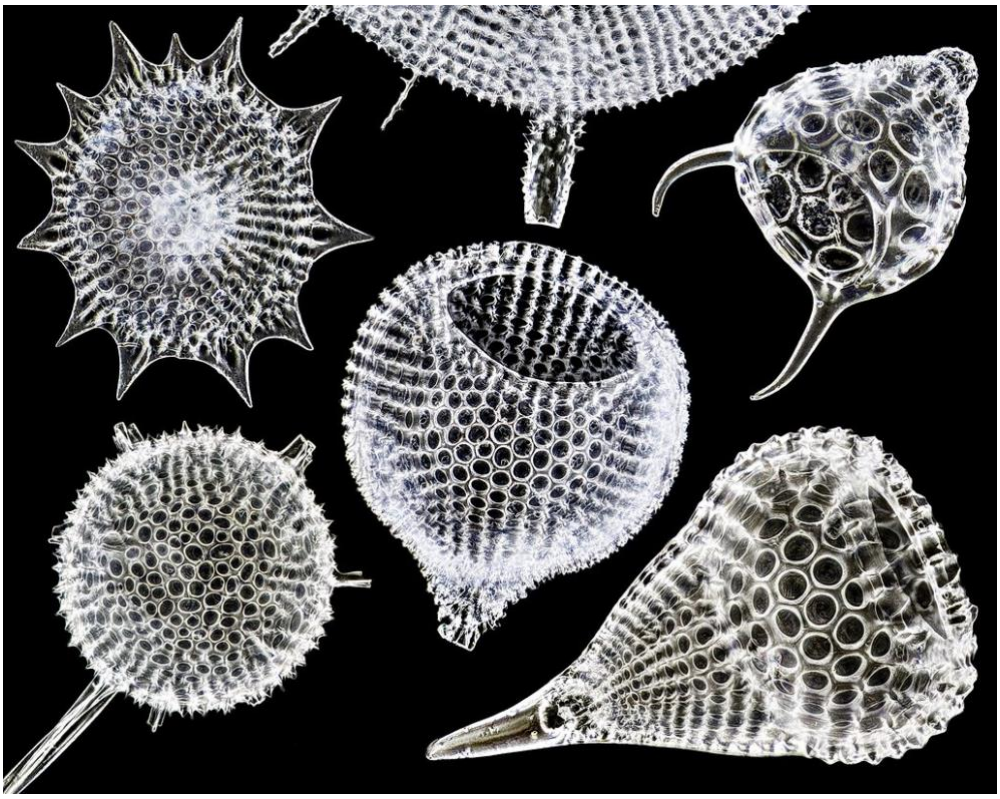

Image 6: Examples of shells from radiolarians. Notice that these microscopic shells look like glass. This is because they are made of silica.

https://www.microbehunter.com/microscopy-forum/viewtopic.php?t=18410

Chalk is an opaque rock, usually white or light grey in color. It is very soft, porous, has an earthy/dull luster, and is very fine grained (no individual grains or crystals visible) (See Image 8). One major distinguishing factor that will set chalk apart from Kaolinite and Diatomite is its reaction to HCL (hydrochloric acid). Because chalk is a carbonate rock ($CaCO_3$) it will effervesce or bubble when a drop of acid is placed on a sample. The physical characteristics of chalk are summarized in Table 1.

Chalk has many uses in industry and is used to make many products. You can find crushed chalk in colored chalk and pastels used in art, abrasives in cleaners and polishers, cosmetics, toothpaste, window putty/glazing, pharmaceuticals such as antacids, paint, ceramics, and many more products.

IMAGE 7: This is Castle Rock, part of a Cretaceous chalk deposit found in western Kansas. These chalk formations are just south of Quinter, Kansas.
This image was originally posted to **Flickr** by James St. John
at https://flickr.com/photos/47445767@N05/39144256162

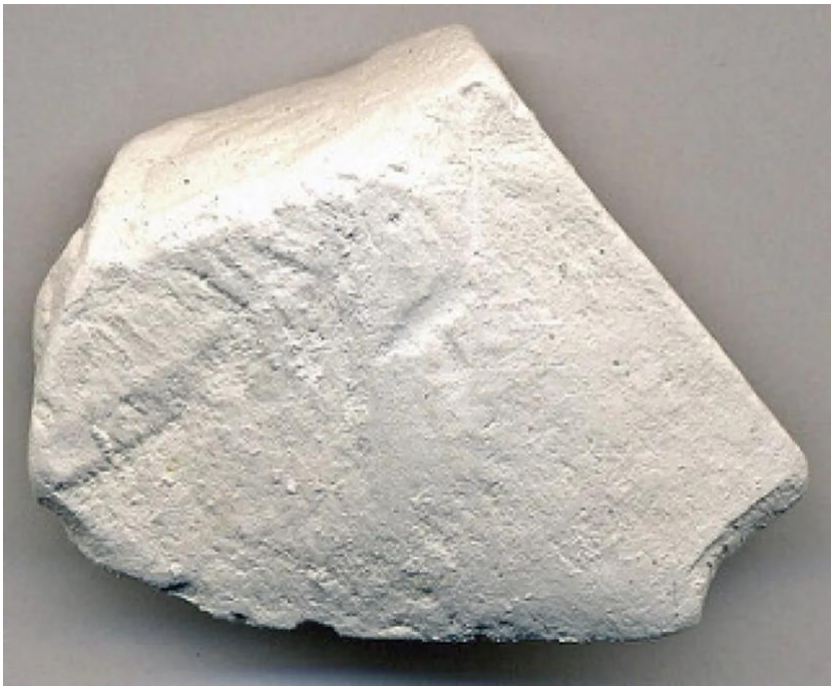

Image 8: A typical piece of chalk, note the white color and very fine texture.
https://geologyscience.com/rocks/sedimentary-rocks/chalk/

TRAIT	KAOLINITE (massive)	DIATOMITE	LIMESTONE var. CHALK
COLOR	Mostly white, but can be cream, pale yellow, light tans and browns, and rarely blue to blue-grey	White, light grey	White, light grey, sometimes buff
MOH'S	1.5 – 2	1	1
STREAK	White	White	White
FRACTURE	Irregular/uneven, conchoidal to subconchoidal	N/A	N/A
CLEAVAGE	Perfect at the microscopic level, not noticeable with naked eye	None	None
LUSTER	Dull/earthy	Dull/earthy	Dull/earthy
SPECIFIC GRAVITY	2.68	2.3 – 2.4	2.3 – 2.4
DIAPHANEITY	Opaque	Opaque	Opaque
OTHER	Does not react to HCL	Does not react to HCL	Reacts to HCL

Table 1: Summary and comparison of Kaolinite, Diatomite, and Chalk.

DIATOMITE

Diatomite is another example of a biochemical sedimentary rock. It is mostly made up of the fossilized remains of microscopic diatoms (See Image 9). Diatoms are unicellular organisms with silica based shells that form plankton in both fresh and marine waters. Diatomite formed in a similar manner as chalk. The dead diatoms formed thick deposits on ocean floors and bottoms of large lakes that eventually lithified and formed Diatomite. Most people have never heard of Diatomite but they are familiar with the crushed form called 'diatomaceous earth'!

The United States is the world's leading producer of diatomaceous earth. It has a wide variety of uses in industry. You can find diatomaceous earth in pesticides, toothpaste, abrasives, cat litter, paint, cement mixtures, pool filters, and countless other products (See Image 10).

Diatomite has traits very similar to Chalk (See Table 1). Diatomite is an opaque rock, usually white or light grey in color, very soft, porous, has an earthy/dull luster, and is very fine grained (See Image 11). One major way to distinguish between Diatomite and Chalk would be an acid test. Diatomite is a silicate and is mostly silica oxide, SiO_2. Therefore, it would not react to HCL and effervesce like Chalk.

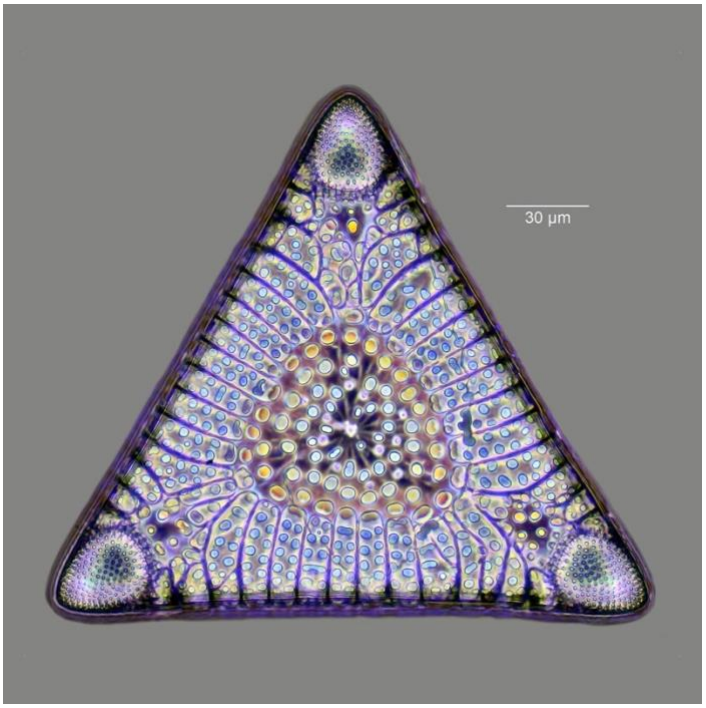

Image 9: An extraordinary microscopic image a 32-40 million year old glass (silica) shell of a diatom microfossil.

https://commons.wikimedia.org/w/index.php?title=User:Anatoly_Mikhaltsov&action=edit&redlink=1

Image 10: An example of one of the many uses of diatomaceous earth.

https://www.gardensafe.com/products/insecticide/brand-diatomaceous-earth-crawling-insect-killer-4-lb.aspx

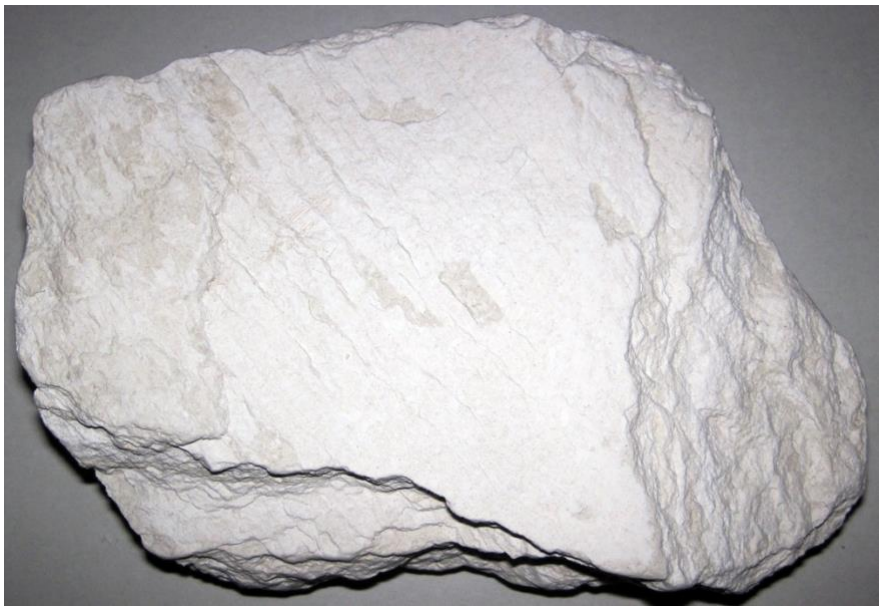

Image 11: A sample of Diatomite. Note the white color and very fine texture. If placed beside a sample of Chalk you would not be able to tell the difference based on visual features.

https://en.wikipedia.org/wiki/Diatomaceous_earth

KAOLINITE

Kaolinite (also called kaolin) is a phyllosilicate clay mineral. It's chemical composition is $Al_2Si_2O_5(OH)_4$. It is produced by the weathering or hydrothermal alteration of various aluminum silicate minerals such as feldspar (See Images 12, 13). It is related to other clay minerals such as talc, vermiculite, and pyrophyllite.

It typically is an opaque rock, usually white in color, very soft, has an earthy/dull luster (can also be waxy or pearly), and is very fine grained (See Image 14 and Table 1). However, unlike Chalk and Diatomite, Kaolinite can be other colors depending on impurities, how it was formed, and the type of aluminum silicate it was formed from (See Images 15, 16).

Kaolinite is an unusual mineral because its crystals are microscopic. Rarely are they large enough to be seen with the naked eye and even then they are less than 1.5 mm in length. The crystals exhibit cleavage and may be translucent. However, because the crystals are so small when we see kaolinite in nature it looks massive, opaque, and has no visible cleavage. This makes it look very similar to Chalk and Diatomite. Sometimes people will refer to Kaolinite as 'chalk' which is misleading. So, how can you distinguish Kaolinite from Chalk and Diatomite. A simple acid test will quickly distinguish it from Chalk. Being a silicate based mineral Kaolinite will not react to acid as Chalk does. Differentiating it from Diatomite may be a little more difficult. Several clues can be used. If the sample is any other color than white or

grey, has distinctive conchoidal fracture, has a waxy or pearly luster, is sticky when wet, and or has a distinctive ‘muddy’ odor, then it would be Kaolinite (See Image 17).

Kaolinite is found world-wide. In the US there is a large belt of Kaolinite deposits south of Georgia’s’ fall line between Augusta and Columbus, Georgia. In the center of this belt is the town of Sandersville known as the "Kaolin Capital of the World"! Kaolinite also has many industrial uses and is used in the manufacture of multiple products. Examples include, kaolin clay used in ceramics, porcelain, and fine china, cosmetics, paint, toothpaste, adhesives, paper production, cat litter, and pharmaceuticals such as Kaopectate. You can also find fossils in Kaolinite deposits.

Image 12: Agate altering to Kaolinite. Specimen from
Salto do Jacui, Rio Grande do Sul, Brazil.
https://www.mineralauctions.com/items/agate-altering-to-kaolinite-rare-old-find-78419

Image 13: A “Pig Egg” , Orthoclase converting to Kaolinite (Pseudomorph Kaolinite after Orthoclase). Specimen is from Goonbarrow China Clay Pit, Cornwall, England, UK.

https://www.mindat.org/loc-1189.html

Image 14: A typical sample of Kaolinite. Note it’s similar appearance to Chalk and Diatomite, white and fine grained!
https://geologicalspecimensupply.com/products/copy-of-kaolinite-soft-kaolin-teaching-hand-display-specimen-of-the-primary-constituent-of-kaolin-clay

Image 15: Pink Kaolinite, part of the geology collection at Brigham Young University, Utah.
Courtesy of the U.S. Geological Survey Denver Library Photographic Collection". Photo by Andrew Silver.

Image 16: Kaolinite with Azurite, possibly from Australia.

https://commons.wikimedia.org/wiki/File:Azurite-kaolinite_1_%2832878789928%29.jpg

Image 17: An example of Kaolinite with orangish coloring, waxy texture, and subconchoidal fracture. When wet this sample was very sticky and had a distinctive ‘muddy’ odor.

Photo by T. Jeffries

Below is our mystery sample (See Image 18). This sample was collected from near the Beulah Reservoir in Oregon. As you can see it is an opaque rock, white, very soft, has an earthy/dull luster, and is very fine grained. I have summarized the traits and test results in Table 2. So, what is your conclusion? The answer will be revealed at the next meeting!

Image 18: This is our unknown mystery rock. Photo by T Jeffries

TRAIT	UNKNOWN SAMPLE
COLOR	White
MOH'S	Less than 2 (can scratch with a fingernail)
STREAK	White
FRACTURE	Subconchoidal
CLEAVAGE	None observed
LUSTER	Dull/earthy
SPECIFIC GRAVITY	Did not Test
DIAPHANEITY	Opaque
OTHER TESTS	Does not react to HCL When wet , not sticky but it is tacky to the touch and has a definite earthy/muddy odor Microscopic analysis of a crushed sample at 400x showed no shell fragments from microorganisms, either silica or calcium based

Table 2: Summary of traits and tests associated with the mystery rock.

WHAT'S HAPPENING IN OUR AREA

WHAT	WHEN	WHERE
GTS Gift and Jewelry Show	March 14 – 16th	Greensboro Coliseum Complex, 1921 W Gate City Blvd, Greensboro
Gastonia Gem and Mineral Club's 46th Annual Gem, Mineral, and Jewelry Show	March 15 – 16th 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

This is a reminder that the membership dues are now being collected. If we do not receive your membership dues and form by the March meeting your name will be removed from the roster and the email distribution!! Please remember that membership dues will not be collected at the March Gem Show!!

Included in this month's bulletin is a blank 2025 Membership form. Terry will also bring some blank 2025 Membership forms to the March meeting. This membership form must accompany your dues 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 to keep the club records up to date and to maintain their 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 _____

FREE PASSES FOR CLUB MEMBERS

Each current CVGMC Member has six *Club Member Show Passes* available to them to give out to family or friends for free admission into the CVGMC 55th Annual Show, **March 28-30, 2025**. Each *Club Member Show Pass* **must** be signed by the Club Member to be valid. If the pass is not signed by a Club Member, the free admission will not be allowed. Each *Club Member Show Pass* is good for one adult admission and can only be used once for the show. If CVGMC receives more than six signed passes from a Club Member, the member will be charged $6.00 for each additional pass.

Catawba Valley Gem & Mineral Club, Inc.

Club Member Show Pass

55th Annual

Gem, Mineral, Fossil & Jewelry Show March 28-30, 2025 (Pass valid one day only)

Hickory Metro Convention Center

As a guest of:

Club Member please sign your name

Pass not valid without Club Member signature

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Official Publication of

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Volume 55 Number 3

Club Meetings

2nd Tuesday of Month, 7:00PM

St Aloysius Catholic Church

921 2nd Street NE Hickory, NC

Tar Heel Rockhound
Tracie Jeffries Editor
PO BOX 2521
Hickory NC 28603-2521
http://www.cvgmc.com/

Organized 1969