TAR HEEL ROCKHOUND

OCTOBER 2025

Catawba Valley Gem & Mineral Club, Inc.

2025 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:	
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 am nearing the end of being the club President. I have appreciated your patience and help the past two years. These years as President have been both enjoyable and frustrating. Enjoyable, because the club is composed of wonderful, friendly, and generous people. I have enjoyed meeting, talking, and getting to know each of you. I am fascinated and awed at the knowledge, experiences, and skills members have. I have watched club members pull together and help with two successful gem and mineral shows, two conventions, two field trips to Kentucky, and other activities. I have also enjoyed and learned from the many presentations given at meetings. However, it has also been frustrating at times. Frustrating, because I see a club that could be so much more! But to do more, we need more members and more volunteers! An organization cannot exist long with just a few people doing the majority of the work. Those people get frustrated, stressed, and burned out.

So I ask you:

- What can we do?
- How do we make our club interesting and appealing to people?
- How do we attract and keep new members?
- How can we share our enthusiasm and knowledge of lapidary arts, fossils, and rock hounding with the general community?
- How do we advertise our club to the community?
- Should we invest in some technology and do zoom meetings to increase our general audience for meetings?

Think about these questions and if you have ideas and suggestions please pass those on to current board members or attend the board meeting on October 7th at 5:30, at the Golden Corral in Hickory. We will eat at 5:30 and the meeting should start around 6:30. All members are welcome to attend, make comments, and share ideas. However, only board members can vote on issues.

Sincerely,
Tracie J.

CVGMC MINUTES FOR SEPTEMBER 9th, 2025

The August 12, 2025 meeting of the CVGMC was called to order by Vice President Joan G. at 7:00 PM.

Visitors: Jeff & Amanda R., Jackson F.

Program: “Rock Bingo” by Rick G.

Minutes: A motion was made by Harry P. and seconded Rick G. by to accept the August 12, 2025 minutes. Motion was passed by the Club.

Treasurer Report: Bank balance was reported. $69,552.20

Education Committee: None

Show Committee:

1. The next CVGMC Annual Show will be March 6-8, 2026. We will return to the Hickory Room. (The room where the Oct 2024 show was.)

Field Trip Report: Check your emails for information on field trips.

Old Business:

1. The Club needs a Field Trip organizer.

2. CVGMC needs volunteers for the Board of Directors, and other positions.

3. The Club needs to do an inventory of the CVGMC stock in the trailer and in members houses.

New Business:

1. Oct. 14 CVGMC Annual Picnic information to be rescheduled to May 2026.

2. David I. showed t-shirt samples for a CVGMC t-shirt.

3. October 7th is the next Board of Directors meeting at Golden Corral at 5:30 PM. All CVGMC members are invited, but only board members can votes on issues.

4. Our member who was in the hospital is now in a rehab facility. Looking for visitors.

Announcements: Contact Richard B. if you are interested in touring his place.

Closing of Business: The meeting was adjourned at 8:06 PM

Respectfully Submitted,

Dean Russell, Secretary

IMPORTANT ANNOUNCEMENTS

Remember applications for the Wildacres scholarship are due by December 8th.

There will be no club picnic this month. The picnic has been postponed until next May.

November elections will be here soon. Please consider running/volunteering to be an officer or board member. We definitely will need a new President and Field Trip Organizer.

There will be a board meeting October the 7th at 5:30, at the Golden Corral in Hickory. We will eat at 5:30 and the meeting should start around 6:30. All members are welcome to attend, make comments, and share ideas. However, only board members can vote.

OCTOBER PROGRAM

The October program will be presented by member Rick G. He will talk about his recent visit to Morris Island, SC.

GEOLOGY MADE EASY:

Due to my extensive trip this past month I did not have time to research and write an article. The article this month is from the September issue of the Music City Rockette. This is the newsletter of the Middle Tennessee Rockhounds, our sister club in Tennessee. Member Heather K. gave me permission to use articles if the author is given proper recognition. So thank you to Tom Howald and his excellent article on ‘clay’.

I FOUGHT THE CLAY

By Tom Howald

And the clay won (apologies to Johnny Cash). Mid 1990's: a colleague and I were supervising about a dozen-and-a-half students in their final mapping project, for a course called "Field Geology in the Rocky Mountains," taught in southwest Montana by Indiana University, at their Field Station. We were at a site called London Hills. The procedure was that the students were to be dropped off at the beginning of a specified traverse; they were to map, on both topo maps and aerial photographs, the rock formations and structures along the traverse; and they were to rendezvous at day's end at a site about a mile from the initial point. We (faculty) would work alongside them, for occasional questions, but mostly for safety reasons. We used two vehicles, carryall vans, for transport, and the other faculty member and I were to, at different times, leave the students in order to move the vehicles to the end-of-day rendezvous site, so that the students would not have to hike back to the starting point.

So, first thing in the morning I decided to move a vehicle. The terrain was rocky, but not difficult for driving. The ground was hard, dry--Montana is semi- arid-to-arid. There was no road, so I set off across country. Standard procedure. No problem. Except—I drove a couple hundred yards across the open terrain, slowly so as to protect the tires, and abruptly the vehicle sank up to its axles in the "hard, dry" ground. I hiked to the other faculty member, told him what had happened, took the other vehicle back to the Field Station a few miles away, got the station manager and his "Scout," which had a winch. We drove back to the stuck vehicle, and we (mostly he) pulled it out. He returned to the Field Station, I completed the vehicle move, and the rest of the day went as planned. What had actually happened here?

The vehicle I had gotten stuck was the victim of a buried clay, not visible at the surface. The clay was "thixotropic," i.e., was a kind of clay whose properties change when it is impacted or shocked by an applied force. The pressure of the vehicle above the clay was sufficient to, in essence, liquify it. And so, the vehicle sank. Many clays shrink and swell when dried or wetted, and the more common ones (bentonite, montmorillonite, kaolinite) have high capacity for shrinking and swelling. This contributes to their thixotropy. Situations in which what seems a very small earthquake or other minor disruption causes a major mudslide are ones in which thixotropic clays might be suspected.

Clay has lots of interesting properties, and Tennessee has lots of interesting clays. First of all, what exactly is clay? That is one of those "depends- on-who-you-ask" questions.

To a soil scientist ("pedologist"), clay is a component of soil which provides cohesion. One field test for clay is to squeeze a moistened soil sample between thumb and forefinger to see whether it makes a ribbon, i.e., coheres. Small amounts of clay make soil more cohesive and improve fertility. Large amounts of clay clog the root surfaces of plants and make the soil less fertile.

To a minerologist, clay is a family of minerals which have a layered atomic structure, layers of silicon- oxygen tetrahedra alternating with layers of aluminum-oxygen octahedra, with attached water molecules or OH complexes.

To a petrologist or sedimentologist, clay is a particle size—particles less than four thousandths of a millimeter—regardless of mineral content. And it is the chief component of shale. It is the weathering product of several rock types, chiefly feldspars. And when buried at sufficient depth, pressure, and temperature, it can be converted back to those minerals.

For economic geology, clay is the source of “ceramics” which have great value. A ceramic is formed when clay (or other non-metallic material) is hardened by heat. The definition entails that the material remain hardened when cooled, and once hardened, it cannot be returned to its original state.

Let’s elaborate these alternatives, beginning with the viewpoint of the mineralogist. This will involve the chemical definitions--but note that there is variability in all of the chemical formulas.

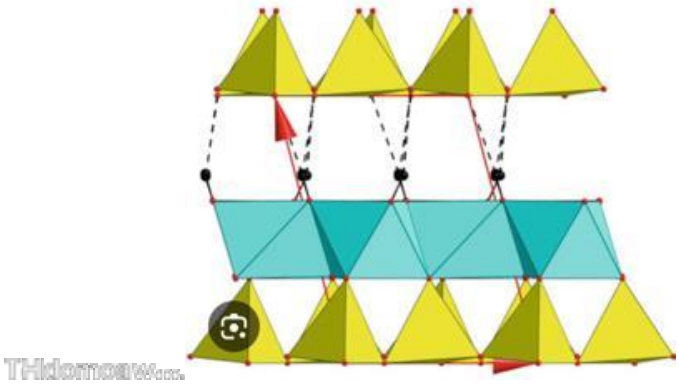

FIGURE 1

Structurally the simplest is kaolinite— $Al_2Si_2O_5(OH)_4$—shown In Figure 1**.** Note that the structure is essentially a pair of sheets. The lower one, yellow, comprises silicon-oxygen tetrahedra. The upper one, blue, comprises aluminum-oxygen octahedra. Above the blue layer are miscellaneous atoms attaching the couplet to the next one above it. This structure is called T-O for tetrahedron and octahedron.

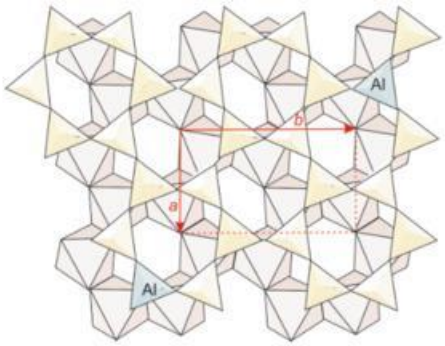

FIGURE 2

Next is glauconite, Figure 2, whose origin is often connected with organic detritus, so that it is sometimes considered fossilized micro-feces— colorful, if not completely accurate. Its structure consists of layers of octahedral sheets. Its formula is $(K,Na)(Fe^{3+},Al,Mg)_2(Si,Al)_4O_{10}(OH)_2$— somewhat intimidating! It indicates that potassium and sodium, K and Na, may exist in any simple proportion; that the +3 form of iron, aluminum, and magnesium may exist in any simple proportion; and that silicon and aluminum may do so also.

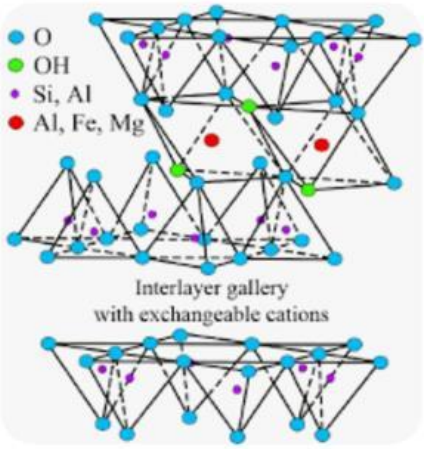

FIGURE 3

Montmorillonite— $(Na,Ca)_{0.3}(Al,Mg)_2Si4O_{10}(OH)_2nH_2O$—has a truly odd formula. I know of no other chemical formula which has 0.3 (or any other non-integer) as a subscript. The “n” indicates an indefinite number of water molecules. Its structure, Figure 3**,** comprises a tetrahedral layer, blue, with tops of the pyramids pointing up; an octahedral layer, green; and another tetrahedral layer, with “tops” of the pyramids pointing downward. As with kaolinite, the basic structure is attached to another similar structure with miscellaneous shared atoms. This structure is called T-O-T, for tetrahedron- octahedron-tetrahedron.

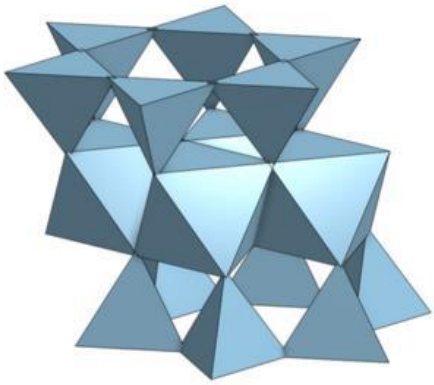

FIGURE 4

Bentonite, also T-O-T, is chemically simpler: $Al_2O_3(SiO_2)\ H_2O$. Figure 4, bentonite is typically the result of weathering of volcanic ash. The capacity of clays to swell and shrink, previously mentioned, is particularly pronounced in bentonite. It can swell by 18% when wet. If one is stuck in the mud and one's wheels can get no traction, bentonite may be the cause.

Of these four, montmorillonite may be the most important in Tennessee, for its role in "ball clay," to which we shall return shortly.

Next, let's consider the petrologist's viewpoint, for which the origin of clays as solid rock and their return to solid rock is important. The parent materials of clays can be diverse, but a couple of generalizations are possible. First clays, as minerals, result from the hydrolysis—chemical breakdown of minerals by reaction with water—and, as they all require aluminum, they require a source for the aluminum. Orthoclase feldspar, indeed any feldspar, will do nicely. But for the petrologist, clay is a grain size, anything less than 4 thousandths of a millimeter. What do both of these definitions have in common? Why should they be treated together? The answer has to do with how they behave in nature. Both types of particles have a lot of unsatisfied surface charges, which attract other materials. So, in river systems for example, both definitions of clay, clay as a mineral and clay as a grain size, attract lots of other small particles and so help transport them to the sea, where they contribute to shale formation.

From left to right: FIGURE 5, 6, and 7

And next, the economic geologist's viewpoint. Of all known ceramic materials, clay has the longest history. Clay pots have been documented in America to 2500 BCE, in Stallings, Georgia; in Mesopotamia to 3500 BCE, Figure 5; in Egypt, Figure 6, to 4000BCE; and in China, Figure 7, to 18,000 BCE.

And it is very important to Tennessee's economy. The state leads the nation in the production of "ball clay," used for pottery, dinnerware, tiles, sinks, tub, toilets, etc. And, by the way, kitty litter. Ball clay is found in few locations in the world and is particularly valuable. According to the website, The Tennessee Encyclopedia, more than a hundred million clay products are exported from Tennessee!

Ball clay is a variable mixture of materials. It is 20- 80% kaolinite, 10-25% mica, and 6-65% quartz. As well, trace organics, mica, pyrite, and siderite impart strength. Weakley County's deposits are the largest known in the country. That area, the far northwestern corner of the state, has soils rich in clays, deposited by the marine conditions of the Mississippian Embayment. Also mined in that area is kaolinite, whose pure chemistry and white color makes it valuable for fine porcelain. Ball clay gets its name from early production methods. It was recovered by shovels which carved out cubes of the clay. Transporting of the cubes jostled them into rough spheres. Hence ball clay.

Although not all varieties of clay are economically interesting, clay is found throughout the stratigraphy of the state. It is found along rivers and streams and in foothill accumulations in the Quaternary, statewide; in the Cretaceous Eutaw Formation; in Pleistocene deposits related to wind-blown glacial silts; in the Oligocene Jackson Formation, in nine Cenozoic formations; and in seven formations of the Cretaceous.

As well, glauconite contributes its green color to the Maury Formation, the Murray shale, the Ordovician Sequatchie, and the Cretaceous Coon Creek.

Clay is modest. It is not showy. It brings no astronomical prices. It can be found very widely, but always in unpresuming locales, hanging out with a low crowd. Yet it is useful beyond description. The Japanese aesthetic principle "kintsugi" centers on the imperfect and the impermanent, and its most common example is a broken clay pot, which has been mended with a kind of gold-infused glue, so that in its repair it is all the more remarkable. Such an item can clearly take center stage, even apparently by accident. Such can be seen in Wallace Stevens' "Anecdote of the Jar."

I placed a jar in Tennessee,

And round it was, upon a hill.
It made the slovenly wilderness
Surround that hill.

The wilderness rose up to it,
And sprawled around, no longer wild.
The jar was round upon the ground
And tall and of a port in air.

It took dominion everywhere.
The jar was gray and bare.
It did not give of bird or bush,
*Like nothing else in Tennessee**

A note of gratitude *to Ron Clendening of the Tennessee Division of Geology and to the Leadership of the Mid Tennessee Rockhounds for providing access to maps, pamphlets, and books which made this article possible. * See Bibliography*

Figures

1. Internet, SpringerLink

3. Internet, ResearchGate

5. Internet, Wikipedia

7. Internet, Google

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WHAT'S HAPPENING IN OUR AREA

WHAT	WHEN	WHERE
GTS Gift and Jewelry Show	Oct. 3 - 5	Greensboro Coliseum Complex, 1921 W Gate City Blvd, Greensboro, NC
Leaf Lookers Gemboree	Oct. 17 – 19 Hours: Fri/Sat 10am - 6pm Sun 10am - 4pm	Macon County Community Building Address: 1288 Georgia Rd Macon County Community Building Franklin, NC
G&LW Gem Show	Oct 28 -29	WNC Agricultural Center, 765 Boylston Highway, Asheville, NC
Treasures of the Earth	Nov 14 – 16 Friday 12 – 6 PM Sat/Sun 10 - 5	North Carolina State Fairgrounds 4285 Trinity Rd Raleigh, NC 27607

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Official Publication of

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Volume 55 Number 10

Club Meetings

2nd Tuesday of Month, 7:00PM

St Aloysius Catholic Church

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Organized 1969