

THE BADGER DIGGIN'S

The Badger Lapidary and Geological Society, Inc.

Monroe, Wisconsin

Devoted to the Earth Sciences

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President's Message

Hi Badger's,

The President's message this time around is kind of short and sweet. Just a quick run-down of some of the upcoming events that the club has planned and then I have to get back to work to prepare for these events!!

October 22 & 23 – Fluorite dig at Cave-In-Rock Illinois area. We will meet at some of the tailings piles on Saturday. Most people drive down the day before (about an 8 hour drive from Mazomanie). This site has produced some beautiful blue fluorite specimens in the past. We'll head to another site Saturday night to do a fluorescent mineral night hunt if you have a portable long-wave UV light and are interested in fluorescent minerals. Sunday will be a good day to either return to the tailings piles, visit the American Fluorite Museum in Rosiclare, IL (open Sunday 1-4 pm), head back early, or I plan to explore some new sites in the area. Give me a call or reply by email if you are interested in more details about this trip, addresses, camping & hotel options, etc..

November 12th – Badger Rock Club Meeting at 10:00 am on the 2nd floor meeting room of the Monroe Public Library. Kevin Ponzio will give a talk on and demonstration of flint knapping for our meeting activity. I'll have a box of safety glasses for people to use that want to sit up close and get a good view of how to work and get started practicing this ancient skill. We'll also have the "what's rockin" table set up for members and guests to display any rocks & minerals, fossils etc for show & tell.

November 19th – No Field trip due to the Thanksgiving Holiday

December 10th – Badger Rock Club Christmas Party in Monroe WI. – Dinner, elect officers for next year and will play "the Gold Brick Game".

December 24th – No Field Trip – **MERRY CHRISTMAS!!**

Have a great day,

Dan Trocke

The Rock Club gathered at the Trocke farm.
They found a rock pile out behind the barn.
They sifted and sorted and went through the pile,
Then went back into the barn single file.
They sawed and sanded and polished with pluck.
They went and devoured a delicious pot luck.

And then an added bonus as some sat around
and just watched the goose chasing the duck.

THANKS TROCKES FOR THE HOSPITALITY...

Wil



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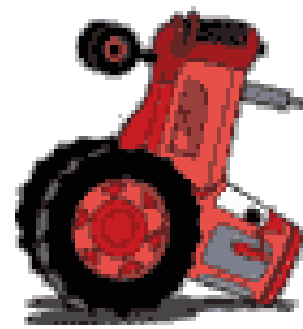
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Club Calander

- October 8th: Meeting – Lapidary Day, Trocke's
October 22nd: Field Trip – Cave in Rock, IL
Nov 12th: Meeting – Flint knapping, Kevin Ponzio
Nov 26th: No trip – Thanksgiving
Dec 10th: Annual Party
Dec 24th: No trip – Christmas



September Meeting Minutes

The September meeting was called to order at 12:30, after a wonderful Show & Tell. We started out with the first door prize. It was a beautiful Cactus Amethyst piece that was won by Donna Reese.

Donna then gave the Treasurer's Report; she said that the main expenses for the summer were the shelter & food for the picnic in June and the purchase of new wheels for the Genie.

Dan then moved on to new business. He sent around signup sheets for the Four Quarry trip that Teri was trying to arrange (this trip wound up being cancelled). He also sent around signup sheets for Lapidary Day at the Trocke's and reminded people to bring a dish to share and any club machines. He said that the club would also be renting a Genie from Bernie's so there should be plenty of opportunities to try out some of the different lapidary machines. The other signup sheet that he sent around was for the Cave-in-Rock field trip at the end of October for fluorite. More information for this trip will be included later in the newsletter.

The next topic was Old Business. Dan said that the club website, badgerrockclub.org, is up and running. Ken is working on updating the site, so if you have any pictures or links or anything you would like included, please let him know.

Erin Trocke won the second door prize. She won a very cool fossil fish.

For new business, we did a brainstorming session on possible field trips and collecting opportunities for the club next year. We will continue to collect suggestions and I'll include the most popular ones in the next newsletter.

The last door prize was a beautiful blue Halite piece and was won by Neal Trickel.

Teri announced that the show dates have been selected. The annual show will be held at the Monroe high school on March 31st and April 1st. She is looking for show theme suggestions and was thinking that something with an April Fools link would be fun.

The meeting was adjourned at 1:30. Hope to see you at Lapidary Day!



What's Rockin'

There were a number of people who attended the first meeting of the season. Everyone brought wonderful specimens, as well as stories, to share at the Show & Tell!

Will Ward had not been able to get anywhere over the summer but he did get a pen from Bernie's Rock shop. He was given 2 pictures that 2 of his grandsons had drawn for him when they went to last year's rock show and they also gave Grandpa a geode with crystals in it and a piece of granite. Neil Trickel is opening a Jewelry & Mineral store on Main Street in Monticello. It is called the Purple Raven. He plans to demonstrate faceting and to sell self-made jewelry & minerals.

Marv Hanner bought some nice specimens over the internet. He brought a piece of Sphalerite from China, Petalite from Burma and an especially nice piece of Spinel also from Burma. Marv made his way to Alaska, WI for a geode with Calcite crystal coral, some quartz and a mystery rock that may be flowstone. He needs to test this one with acid.

Cindy Green took some cabochons she'd been making and a couple pieces of lead from the quarry south of Stockton.

Donna Reese's grandsons sawed several geodes that came from Jacobs and to Donna's surprise they were awesome. There were among others a grey Chalcedony with pyrite cubes, a Chalcedony similar to a coldwater agate with banding, one with blue barite blades, calcite and orange/rusty dolomite, and a larger geode that was full of clear quartz crystals. All were very nice. She also just bid her visiting family of good-bye. They were visiting during the summer from Saudi Arabia!

Dan Trocke along with Teri Marche' gets the prize for bringing quite a number of specimens. Dan's included the largest cephalopod I've ever seen that he found under a bridge in Dubuque IA along with a huge piece of petrified wood. He had been looking for a piece of petrified wood that really looks like a piece of wood but sounds like glass and he found one from Arizona. Dan also brought Titanotheres teeth, Gomphotheres teeth, sharks teeth, fluorite from Kentucky, a piece of copper with silver throughout it among other specimens too numerous to mention.

Teri Marche' was gone for about 3 weeks to Colorado and Utah. She brought some Topaz from Topaz Mountain that she dug herself, some were double terminated. There was green fluorite with amethyst also. From Grand Junction she brought several nice leaf fossils in shale. Her other findings were Galena and quartz, Bornite and sphalerite and galena, a very large garnet, and magnetite between 2 garnets. Teri bought some Amazonite that was a gorgeous blue color at Colorado Springs along with other specimens too numerous to mention.

Bob Gilbert brought a nice honeycomb coral and a piece of Fluorspar. He said that he thought the summer was too short!

Jayden Trocke's contribution was fossils, petrified wood, and a whole bunch of little Lake Superior Agates, including some eye agates from the playground at school.

A soapstone cat, bubble agate and a Tiger's Eye was what Erin Trocke bought at a rock show. She also had a Lake Superior and yellow agate that as she put it she "found somewhere."

Jordan Marche' brought a trilobite that he found at Camel Hill Quarry, west of Madison along with a mystery object that he says grows in sections. Clay Scholl was gone for 2 weeks out west and came back with some petrified wood, agates, clams, a big Ammonite and some clinker.

Last but not least was Conner Trocke, he had a piece of quartz that he said looks like an ear from the Gemboree in Bancroft, Ontario, a meteorite that he purchased at the Renaissance Faire for \$42 that he was told was worth \$300 to \$400. Conner also brought a Megalodon tooth from Agate Days in Minnesota, an agate that he got in a trade with his dad and a curved cephalopod from the neighbor's driveway.

Submitted by Cindy Green.



Southern Illinois Fluorite Mining History and Geology:

Fluorite or "Fluorospar" as the miners called this mineral was mined in Hardin and Pope counties since 1842 and is the state mineral of Illinois.

Over 200 million years ago, a mass of molten magma pushed up from the earth's interior and bulged most of the area of Hardin County, Illinois, into a huge dome. During the ages that followed, huge dikes of black igneous rock from the abysses below split the region in many places from southeast to northwest. When the period of volcanic activity ceased, the molten magma began to cool and contract and the many mineral components of the mass began to separate out. As the mass shrank and subsided, the region collapsed into a series of long, narrow fault blocks... through these fault fractures...gasses heavy with fluorine, lead, zinc, barium, and with small amounts of cadmium, germanium and silver [rose]. During a period of certain temperature and pressure conditions, a chemical reaction took place between

the gases and the limestone rock walls of the fissures. Fluorspar (Fluorite) formed from these super-saturated minerals at great temperatures and pressures deep in the earth. When driven through faults, the rising mineral rich fluids congealed into the thick, layered vein deposits of fluorspar as replacements of limestone beds. Thus were formed the ore bodies of fluorospar or fluorite (CaF_2), sphalerite (ZnS), galena (PbS), barite (BaSO_4), and calcite (CaCO_3). At the close of the Pennsylvanian geologic period, 200 million years ago, the area stood high out of the sea and was subjected to erosion. The long years of weathering removed some 3,500 feet of the domed area, leaving the relatively low and scenic hills of today, and exposing for discovery veins and bedded deposits of fluorospar."

The Badger Lapidary & Geological Society October 22-23 Cave In Rock Fluorite Dig will visit mine sites & dumps located on the Commodore fault system and date back to 1901. Mine shafts on the properties have produced fluorite, smithsonite and sphalerite. Other minerals that have been found in the mine dumps include: cerussite, galena, hemimorphite, hydrozincite, quartz, & pyromorphite. Calcite is by far the most common mineral found, and all other minerals require some digging in the dump to locate.

The most common fluorescent mineral in the area is calcite, which glows a soft to bright pearly white. There are colors other than white, but they are fewer in number. Of particular note are specimens of sandstone, which glow a coral pink to a bright red in either short wave or broad-spectrum ultraviolet light. There are also specimens of fluorite that glow various shades of pale yellow due to petroleum inclusions and bright blue from Europium impurities in the fluorite.

Dan

Upcoming Mineral Related Events

October 21-23 – Indianapolis, IN: The 10th Annual Indiana State Museum Fossil, Gem and Mineral Show. Friday and Saturday 9 - 5, and Sunday 11 - 4. Retail show will include dealers, regional clubs, and adult and kid's activities in a beautiful museum building! Contact Peggy Fisherkeller, 650 West Washington Street, Indianapolis, IN 46204; pfisherkeller@dnr.in.gov; Website: www.indianamuseum.org GeoFest is included with museum admission: \$7.00 for adults, \$6.50 for seniors, and \$4.00 for children. Group rates are available.

October 26-27 – Fort Dodge, IA: River Valley Rockhounds Gem Mineral and Fossil Show, Saturday 9 a.m. to 5 p.m., Sunday 11 a.m. to 4 p.m., Webster County Fairgrounds 22772 Old Highway 169, Fort Dodge, Iowa, \$1 admission, children under 12 free, President Robert Wolf 515-955-2818, midnightwriter@frontiernet.net; Show Chairman Jim Baumer 515-955-6783, jbaum@frontiernet.net

Upcoming Local Events for October

- **1 - 31 Wisconsin Dells - Ghost Out-Post Haunted House.** Downtown Wisconsin Dells. For more information call (608) 254-2127.
 - **7 - 16 Reedsburg - 16th Fermentation Fest.** Ten days of brines, brews, curds, whey, preserves, pickles and churns. This live culture convergence features the Farm Art Tour, a 50-mile loop through the countryside with field installations by visionary artists who explore the timeless connections between land and people. Reedsburg and surrounding communities.. For more information call (800) 844-3507.
 - **14 - 16 Spring Green - 16th Fall Art Tour.** Sixty-five fine artists and fine craftsmen - painters, sculptors, potters, weavers, jewelers, goldsmiths, glass artists, woodworkers, quilters and mixed-media artists - welcome you into their personal workplaces, tucked among the dramatically scenic hills, valleys and quiet small-town streets of Wisconsin's Driftless Area. Baraboo, Spring Green, Dodgeville and Mineral Point.. Event starts at 10:00AM and ends at 6:00PM. For more information call (608) 356-9048.
 - **14 - 29 Wisconsin Dells - Scary Nights At The Theme Park.** Returning for another spooktacular season, weekends in October. All ages are invited to join in the creepy fun at night where Mt. Olympus Water & Theme Park is transformed into a nightmarish scare zone. Event starts at 5:00PM and ends at 10:00PM.
- For **21 - 22 Chilton - Halloween Candlelight Cave Tour.** Tour a cave by candlelight! Family-oriented event (kids 5+) with the focus on education, not fright. Costumed guides. Ledge View Nature Center, W2348 Short Road. Event starts at 6:00PM and ends at 8:30PM. For more information call (920) 849-7094.
- **22 Baraboo - Halloween Mystery Candlelight Hike.** Come and join the Friends of Mirror Lake and the State Park Staff for a fun filled evening. We will have an easy 1-mile torchlit Mystery hike for kids of all ages to enjoy. Follow the clues and help the Rangers discover our Mystery Guest! Event starts at 6:00PM and ends at 8:30PM. For more information call (608) 254-2333.
 - **27 Kenosha - Kenosha Public Museum BooFest.** Highlights include trick or treating at the Kenosha Public Museum, the Civil War Museum next door, and the Dinosaur Discovery Museum (costumes are optional). Also enjoy crafts and a dinosaur scavenger hunt. Event starts at 1:00PM and ends at 4:00PM. For more information call (262) 653-4140
 - **28 Madison - Downtown Madison Family Halloween.** Afternoon activities for families and kids 12 and under include Halloween magic shows, hayrides around the Capitol Square, ghostly songs and stories, festive Halloween family portraits, trick or treating at participating businesses, and more. Stay into the evening for "Beakers and Broomsticks" at the Madison Children's Museum. State Street and Capital Square.. Event starts at 10:00AM and ends at 8:00PM. For more information call (608) 512-1342.
 - **29 Baraboo - Devil's Lake Halloween Candlelight Hike.** Walk a 1.5 mile candlelit trail. Bonfire follows with refreshments available for purchase. For more information call (608) 356-8301
 - **29 Belleville - UFO Day.** Come out for a fun-packed day that has something for everyone! Craft Fair, Fun Run, parade, beer tent, Pet Costume Contest, Forbidden Forest Haunted Trail, and kids games. Library Park. For more information call (608) 424-6009.
 - **29 Dodgeville - Lands' End Halloween Street Party.** Fun games, food, entertainment and more followed by a Costume Parade. Downtown.. For more information call (608) 935-9200
 - **30 Madison - Halloween at the Zoo.** Halloween at the Zoo is a celebration for the entire community that includes free Trick-or-Treating, a Fun House, and music. Henry Vilas Zoo, 702 S Randall Ave. Event starts at 10:00AM and ends at 4:00PM. For more information call (608) 266-4732

'Flat' Cephalopods: Unusual Denizens of the Ordovician Sea

by Jordan D. Marché II

On the day following Lapidary Day, Dan Trocke and his family made a brief collecting stop at the Mellum Quarry near Dodgeville, which BLGS club members had previously visited in order to collect cephalopods (among other fossils). And this time, Dan came away with a specimen that is sometimes referred to as a 'flat' cephalopod, an unusual and very uncommon find. [Fig. 1. *Gonioceras* from Mellum



Quarry.] Because I had previously found a similar specimen, almost by accident, in the Rufer Quarry near Monroe several years ago [Fig. 2. *Gonioceras* from Rufer Quarry.], he asked if I could help him find some more



information about them and possibly prepare an article with photos for the newsletter. This is the result.

'Flat' cephalopods were first recognized in this country and named in 1847 by James Hall (1811-1898), paleontologist of the first New York State Geological Survey. His specimens were uncovered from the Black River Limestone near Watertown, Jefferson County, New York. Hall noted that the cephalopod fossils found in that unit were "all peculiar to the rock, none of them having been found in the higher [Trenton] limestone" (Hall 1847, p. 52). While he was initially inclined to believe that the unusual shape of the fossils was the result of subsequent compression of the rock, his examination of several specimens all displaying the same appearance finally convinced him that the form

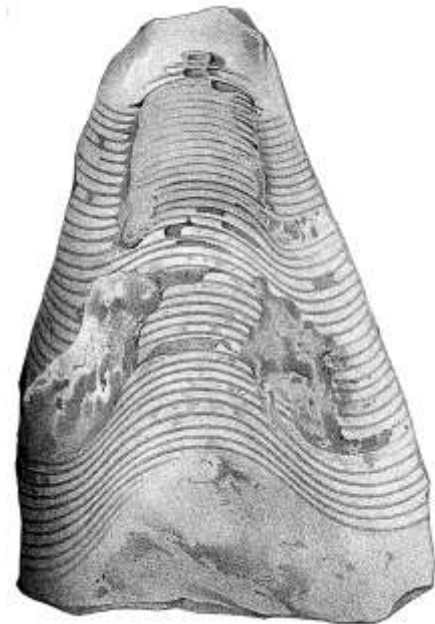
itself was natural. Hall coined the name, *Gonioceras*, from Greek roots meaning 'angled horn', to describe the new fossil genus. Thus, the first 'flat' cephalopod was christened

Gonioceras anceps.

[Fig. 3. *Gonioceras anceps* Hall 1847 from New York.]

Besides being strongly flattened from top to bottom, the distinguishing characteristic of this fossil is the unusual shape of its shell and

the various septa (or thin walls) that separated its internal chambers. Hall noted that "the septa bend rapidly forward from the siphuncle, till a little more than half way to the external shell, where they make a gentle curve more directly towards the exterior, and, before reaching it, curve a little backwards" (Hall 1847, p. 54). This appearance he likened to a 'petrified fish's backbones' which was certainly apt. Hall's figures of the fossil (Plate 14, Figs. 1 and 1a) clearly show the backwards curvature of the septa as they approach the outside of the shell, and have made subsequent recognition of this fossil genus a very straightforward process.

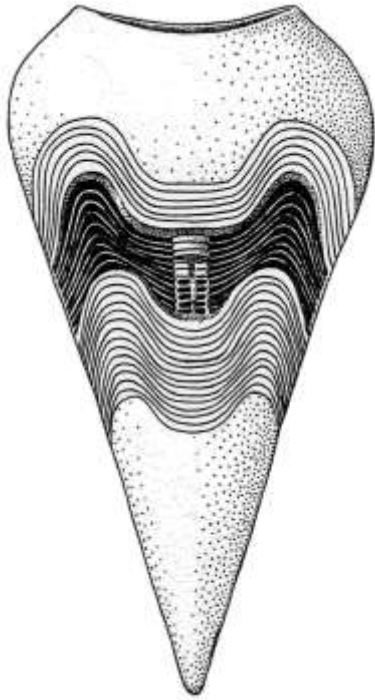


Over the years, additional specimens of *Gonioceras* were found in rocks of similar age in North America (but always confined to the Middle Ordovician). By the 1940s, specimens had been collected from Kentucky, Tennessee, Minnesota, and Wisconsin, as well as from Ontario and northern

Greenland (Shimer and Shrock 1944, pp. 553-554; Plate 227, Fig. 15). In turn, a closely-related genus of flattened cephalopods, *Lambeoceras*, had been collected from the Upper Ordovician of Minnesota.

One of the fullest treatments of these unusual animals is contained in the *Treatise on Invertebrate Paleontology*, Part K, which likewise offered a proposed reconstruction of its shell morphology. [Fig. 4.

Reconstruction of *Gonioceras*.] Classified in the family Gonioceratidae, these organisms possessed "large, straight shells, strongly depressed in cross section, with flat ventral and dorsal sides and angular flanks; sutures sinuous. Siphuncles comparatively small, subventral to subcentral" (Teichert 1964, p. K208). Gonioceratidae consisted only of the two genera, *Gonioceras* and *Lambeoceras*, the former confined to the upper part of the Middle Ordovician,



while the latter extended into the Upper Ordovician (see Fig. 137, pp. K200-K201, on this small family's chronologic range). Besides Hall's original *G. anceps*, three other species, all described from northern Greenland, are listed: *G. holtedahli*, *G. groenlandicum*, and *G. wulffi*. Subsequently, specimens of *Gonioceras* have also been collected from Virginia (Boardman, Cheetham, and Rowell, 1987, p. 342).

In his own research on the Internet, Dan Trocke has uncovered a valuable link to several other Wisconsin specimens of *Gonioceras*, and which reports upon another **species** besides that of *anceps*. The Milwaukee Public Museum houses a specimen of *G. kayi* that was collected at an unspecified date from the Platteville Formation in Grant County, Wisconsin. This website (below) also reproduces a published illustration from 1958 in which it was speculated that *Gonioceras* was a bottom-dwelling cephalopod. Its flattened shape might have enabled it to remain camouflaged upon the seafloor (and perhaps even buried underneath sand and silt) where it could lie in wait as an ambush predator. This lifestyle might have offered *Gonioceras* significantly less competition than if it had dwelled in the water

column among many other (and larger) predatory cephalopods and arthropods.

Without a more thorough analysis of their particular features, the specimens of *Gonioceras* that Dan collected, and that I and Teri have found (at the Rufer Quarry in Monroe and still earlier at the Newark Lime Service Quarry in Beloit) [Fig. 5. *Gonioceras* from



Newark Quarry.] should probably be referred to as *Gonioceras* sp. (cf. *anceps* or *kayi*). Perhaps it is time for a graduate student in paleontology to undertake a master's thesis on the *Gonioceras* of Wisconsin. Such a research project could add significantly to our knowledge of these still somewhat mysterious animals and their ecological role(s) in the Ordovician sea that formerly covered portions of our State.

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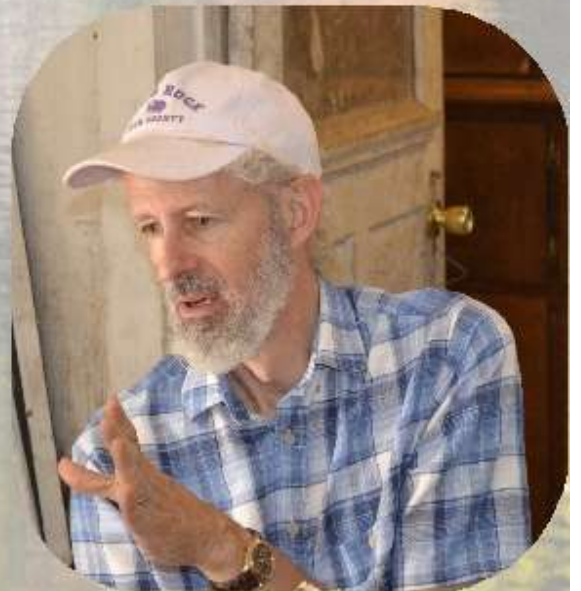
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The Geological Society of America and The University of Kansas Press. *Gonioceras* is described on pp. K208-K209 and illustrated in Fig. 148 (1a – 1d).





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