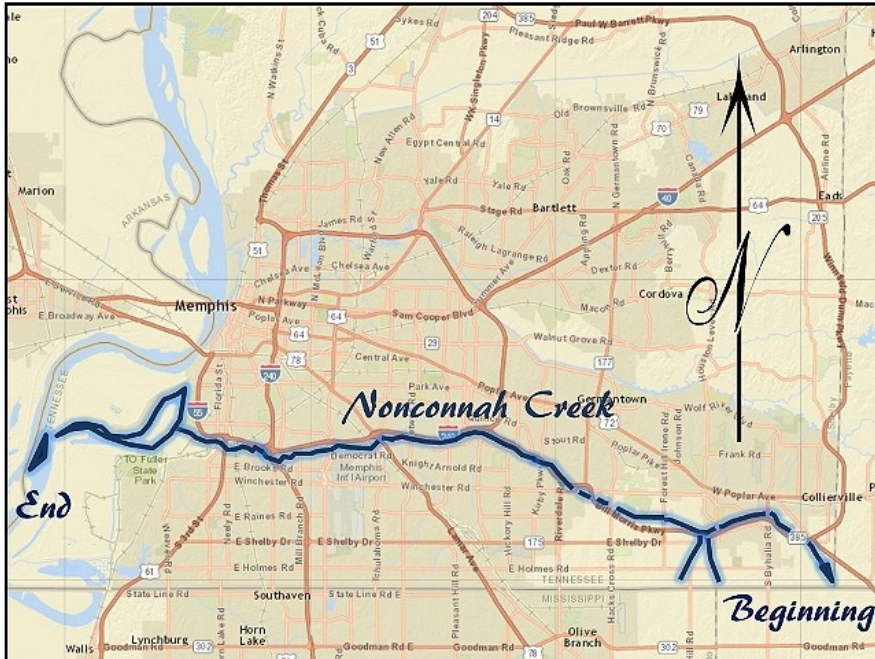




Volume 69 ♦ Number 04 ♦ April 2023 ♦ A monthly newsletter for and by the members of MAGS

# April Program

*Archaeological Treasures of Nonconnah Creek* Dr. Ryan Parish



The land around Nonconnah Creek and its tributaries contain a rich history of the people who inhabited the region from the last Ice Age until the present. The purpose of this brief article is to encourage you to look out for objects that are clues to the human

past. Your discoveries contribute to the story of the first peoples who enjoyed many of the natural resources of Nonconnah, as we do today.

First, let me summarize what little we know about the archaeological *Continued, P. 3*

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## FINDING FRIENDS AND TREASURE

Good things tend to happen when I show up in person to MAGS meetings. In December, I won a raffle prize of a petrified wood bowl, and at the March meeting, I learned of the Crow Creek field trip and signed up.

I felt nervous, though. We moved here at a pandemic peak point in July 2020 and I



hadn't yet gone on a MAGS field trip, along with so many other delayed, social things.

I got us a family membership because I imagined my wife Pat would accompany me on field trips, but she didn't want to join me this time. I called two of the female members who had also signed up, though I didn't recall meeting them at the meeting and left voicemail, asking *Continued, P. 5*

SARAH SIEGEL

# MEMPHIS ARCHAEOLOGICAL AND GEOLOGICAL SOCIETY

MAGS Rockhound News ◊ A monthly newsletter for and by the members of MAGS

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## MAGS AND FEDERATION NOTES

Memphis Archaeological and Geological Society,  
Memphis, Tennessee

The objectives of this society shall be as set out in the Charter of Incorporation issued by the State of Tennessee on September 29, 1958, as follows: for the purpose of promoting an active interest in the geological finds and data by scientific methods; to offer possible assistance to any archaeologist or geologist in the general area covered by the work and purposes of this society; to discourage commercialization of archaeology and work to its elimination and to assist in the younger members of the society; to publicize and create further public interest in the archaeological and geological field in the general area of the Mid-South and conduct means of displaying, publishing and conducting public forums for scientific and educational purposes.

MAGS Membership Meetings are at 7:00 P. M. on the second Friday of each month May-October, and 10:00 A.M. on Saturday after the second Friday November-April. The meetings are held in the Fellowship Hall of Shady Grove Presbyterian Church, 5530 Shady Grove Road, Memphis, Tennessee.

MAGS Website: [memphisgeology.org](http://memphisgeology.org)

MAGS Show Website: <https://earthwideopen.wixsite.com/rocks>



Please contribute articles or pictures on any subject of interest to rockhounds. The 20th of the month is the deadline for next month's issue. Send material to [lybanon@earthlink.net](mailto:lybanon@earthlink.net).

Go to <https://www.southeastfed.org/sfms-field-trips/dmc-field-trip-program> for the DMC field trip schedule and other information.

### Links to Federation News

- ➔ AFMS: [www.amfed.org/afms\\_news.htm](http://www.amfed.org/afms_news.htm)
- ➔ SFMS: <https://www.southeastfed.org/>

*April Program* history of the  
*Continued from P. 1* land adjacent to  
Nonconnah  
Creek and then I'll discuss what  
can be done to add to this knowl-  
edge. Archaeological surveys con-  
ducted in the early 1950s (James  
Kee, Mack Prichard, Gilbert Lane)  
and others in the late 1960s identi-  
fied the location of 100 prehistoric  
and eight historic archaeological  
sites from McKellar Lake, east-  
ward to Collierville. The last ar-  
chaeological survey took place in  
1987 and was conducted for the  
Corps of Engineers who declared  
that all sites had been destroyed  
by the construction of 240 and  
385, landfills along the floodplain,  
channelization, and urban devel-  
opment.



**Figure 1: Artifacts found along Nonconnah Creek. Prehistoric pottery sherds (top) and flakes from stone tools (bottom).**

Probably the most famous site along Nonconnah Creek is Chucalissa, a large Mississippian Mound complex and village in addition to being a popular field trip for many of us in elementary school. However, there are also artifacts found along the creek that are evidence that people 12,000 years earlier visited Non-



**Figure 2: Broken Woodland and Mississippian period triangle points (true arrowheads).**

connah. These people are called Clovis or Paleoindian hunter-gatherers who traveled the land in small groups using deadly atlatl darts and other stone, bone, and wood tools to hunt large Ice Age mastodons in addition to a variety of terrestrial and aquatic food resources. They would have enjoyed a landscape with similar plants and tree species as we see today, including approximately the same river courses of the Mississippi, Wolf and Nonconnah. As the climate warmed and became drier 10,000 years ago people along the creek began making and using projectile points with notches, grinding stones, and adzes. We call these people Archaic who took advantage of the modern Holocene climate by exploiting the seasonal nut harvest and other native weeds in addition to hunting with their atlatl darts. It wasn't until 2,000 years ago that people of the area began making clay ceramic vessels and settling down in larger villages in addition to cultivating small garden plots with the native weeds. Many of the broken vessel sherds and true arrowheads of these Woodland peoples can be found along Nonconnah Creek and their ground stone axes show



**Figure 3: Luke Ward with a prehistoric knife dating to the last Ice Age found along Nonconnah Creek.**

us of their labor investment in the fertile land. The agricultural practices laid down during the Woodland Period led to the large fields of corn, beans, squash, and native weeds tended by Mississippian peoples 1,000 years ago. These Mississippian people lived in chiefdoms and built large earthen platform mounds that stood as foundations for their temples and other principal buildings. Once European settlers began documenting the various tribes inhabiting the Southeast, the Chickasaw were attributed as having Nonconnah Creek in their territory by the 1700's.

Full blown Anglo-American settlement proceeded rapidly after the Jackson Purchase of 1818 and the Poplar Avenue corridor between the Wolf River and Nonconnah Creek drainages was established in the 1840's along with Germantown and Collierville. The floodplain of Nonconnah Creek was quickly cultivated and the Make Works levee projects during the

*Continued, P. 4*

# MEMPHIS ARCHAEOLOGICAL AND GEOLOGICAL SOCIETY

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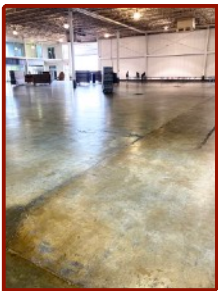
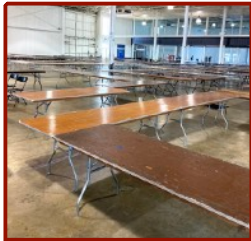

*April Program* Great Depression in the 1930's took the creek out of its natural floodplain through channelization. Draining the swamps, clean-filling, and dumping raised the floodplain by 10 to 40 feet above the creek bed and buried archaeological sites. Still, most of Nonconnah Creek remained rural land with farm fields until the 1950s. Then urban development began in earnest, covering up the lower two thirds by 1975.

Though most of the archaeological sites may in fact be destroyed, others are just buried. The constant erosion of the cutbanks may expose artifacts waiting to be found. These finds are out there and when they are documented, it adds to our knowledge of those who lived on the land before us. In the years to come, more archaeological treasures may be found by those who enjoy the creek, are aware of the resource, and recognize the significance of what these discoveries may tell us about where we live and who we are. Archaeology is anthropology, geology, science, exploration, and discovery, but archaeology is also service to the community through conservation and outreach.

## President's Message

### 2023 ShowTime is YourTime

#### SHOWTIME

	<p><b>Thursday, April 20</b></p> <ul style="list-style-type: none"><li>• Thursday—move in tables, storage shed, packing grab bags</li><li>• Organizing Rockzone</li><li>• Bring snacks, water, and Coke products for the weekend to share</li></ul>
	<p><b>Friday, April 21</b></p> <ul style="list-style-type: none"><li>• Friday—move in for dealers, exhibitors</li><li>• Show continues to organize and prep for the big day</li><li>• Bring snacks, water, and Coke products for the weekend to share</li></ul>
	<p><b>Saturday, April 22 and Sunday, April 23</b></p> <ul style="list-style-type: none"><li>• Saturday—Show open to public 9 am-6 pm</li><li>• Sunday—Show open to public 10 am-5 pm</li><li>• Bring snacks, water, and Coke products for the weekend to share</li><li>• After 5:00 clean and help prep for Monday's move back to shed</li></ul>

#### YOURTIME

- Sign up to volunteer—we need lots of your help.
- Market the Show on social media sites
- Distribute postcards.

*Continued, P. 5*

*Finding Friends and Treasure  
Continued from P. 1*

if we could carpool.

I said something like, "I'm nervous because I've never been past West Memphis, Arkansas, and that was just on foot, walking over the bridge with my wife as an adventure during Covid, and because as a woman, I don't love the idea of walking alone to a place I don't know, with no street address and no buildings nearby."

The first person to call me back, Jane Coop, was kind. She said she understood and felt the same way herself at first, and that I could ride with her. We had such a fun time talking, we missed the

exit! When we got there, of course, it was a lovely group of encouraging people, just like the ones I had met at meetings and at last year's rock show, when I volunteered as a greeter.

And the discoveries: two-sided impression fossils of clam shells, red-mustard jasper, tan-gray agate, and more. Jane had a more discerning eye than I and gave me several gifts, including fossils and other cool specimens.

Guess where the Crow Creek haul looks best? In the petrified wood bowl!

For the next field trip, I offered to drive.



*President's Message  
Continued from P. 4*

- Pass out club Member Show Tickets.
- Bring packaged snacks and Coke products to Show and share with Members and all vendors.

W. C.



**Field Trips Past and Future**

*Jim Butchko*

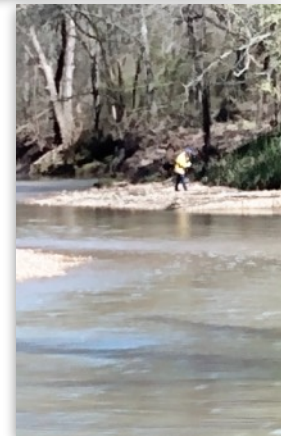


Spring is officially here! Nine MAGS Members joined the the MAGS field trip to Crow Creek, Arkansas, on Saturday, March 18,



and one of them took their shoes off and waded through raging waters to get an arrowhead. It was a bit chilly but very sunny. We all found good rocks and were happy to be outside.

Next, we will be going to Coon Creek Science Center near Adamsville, Tennessee. This is happening on the 29th of April, 2023, at 9:00 am CDT. The North Mississippi Club is going the same day at 1:00 pm. It will be an organized dig led by Dr Michael Gib-



son. There is a \$20 fee for each person, cash or check (no credit cards or other e-payments). Each person will be assigned a spot to dig and if certain bones are found, the University of Tennessee at Martin may keep them. Most participants will find fossils that can be taken home. More information can be found at the Coon Creek Science Center web site.

It is about a 2 hour drive from Memphis. Contact Jim Butchko to sign *Continued, P. 6*

Field Trips Past and Future up. The  
Continued from P. 5 trip is  
limited

to 25 people.

[j.butchko@yahoo.com](mailto:j.butchko@yahoo.com)

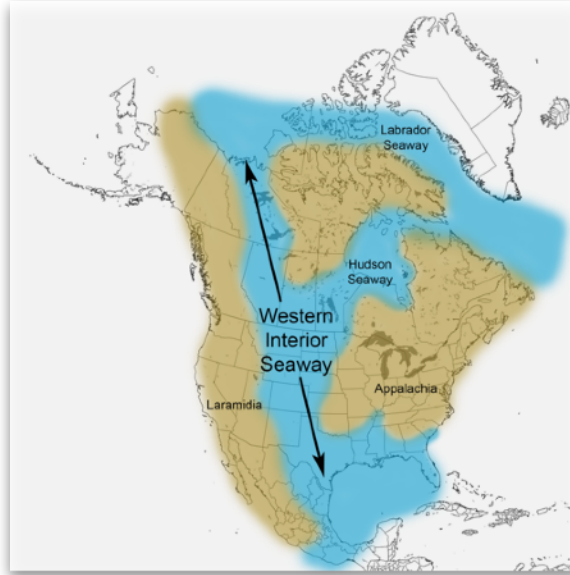
text or call (901) 921-3096

## 70 Million Years of Coon Creek History

Matthew Lybanon, Editor

The Cretaceous-aged rocks of the continental interior of the United States record a long geological history of this region being covered by a relatively shallow body of marine water called the Western Interior Seaway (WIS). The WIS divided North America in two during the end of the age of dinosaurs and connected the ancient Gulf of Mexico with the Arctic Ocean. Look closely at where the shoreline was in western Tennessee (map at right).

Now move on to the 19th century. The earliest record of fossils from what became the Coon Creek Formation was made by Tennessee's first State Geologist, Gerard Troost, on October 24, 1833. While traveling between sites during a 29-day trip to West Tennessee, Troost learned of a well being dug that had revealed numerous shells and decided to investigate the find. Troost mistakenly identified the fossils as very large individuals of the genus *Gryphaea* being collected out of a marl; however, the fossils Troost saw were more likely the large, coiled oyster *Exogyra*. The next day he was traveling in what was then Perry County and encountered more marl (Coon Creek Formation with *Exogyra* and an-



other oyster, *Ostrea*).

As the 1800s wore on, several other prominent Tennessee geologists added to the knowledge of this deposit. The “green sand marl” is listed as the basal Cretaceous strata by Nelson Saylor “An Outline Geological Map of Tennessee”, published in 1866, based upon the work of several geologists.

James Safford, Tennessee’s second State Geologist, described the “Green Sand or Shell Bed formation” from Hardin, McNairy, and Henderson counties in his “Geology of Tennessee” in 1869. Safford recognized the green coloring in the sand as coming from the abundant occurrence of glauconite (dioctahedral interlayer-deficient micas), also noting that the mineral provided an excellent fertilizer for the area. Safford published a page-long list of the taxa he collected from the “marl” exposed at several localities, but his collection didn’t come from the location that would become the future type-section. Safford accurately described the formation say-

ing, “it abounds in fossils” and that it “is pre-eminently the shell-bed of the Post-Paleozoic beds of West Tennessee.” The Cretaceous strata continued to be studied by stratigraphers seeking to trace these beds regionally for economic reasons. In 1899 State (and Vanderbilt) Geologist L.C. Glenn published an extensive study of the outcropping Cretaceous strata in West Tennessee in which he

summarized the distribution and quality of groundwater.

Early in the 20th century, Johns Hopkins University paleobotanist Edward W. Berry visited the region to study fossil plants from the Cretaceous and younger deposits and became acquainted with the exquisite shelly fossils. Berry published his palaeobotanical studies as a U.S. Geological Survey Professional Paper 136, *The Flora of the Ripley Formation*, in 1925. Berry contacted U.S.G.S. stratigrapher Lloyd W. Stephenson about the deposit and encouraged his study of Ripley in Tennessee. U.S.G.S. workers were unable to conduct their work in Tennessee directly due to some friction between the agencies. Berry suggested that Stephenson recruit a graduate student to take on the project of describing the extensive Cretaceous outcrop belt in West Tennessee and the abundant fauna of the Ripley Formation exposed at Coon Creek as a dissertation topic. That student was Trenton, Tennessee, native and Vanderbilt University graduate

Continued, P. 7

## MEMPHIS ARCHAEOLOGICAL AND GEOLOGICAL SOCIETY

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*70 Million Years ...* Bruce Wade, *Continued from P. 6* who began his studies in 1915 and published his iconic monograph, U.S.G.S. Professional Paper 137, *The Fauna of the Ripley Formation on Coon Creek, Tennessee*, in 1926.

The Coon Creek fossil deposit was on the property of West Tennessee farmer Dave Weeks. The Weeks family purchased the 176 acres of land that Coon Creek ran through in 1867. At that time the site was “virgin forest” with the then-unnamed Coon Creek being just a small drainage ditch with few fossils exposed. In 1888, Dave Weeks purchased the site from his mother along with an additional 75 acres. Within 20 years or so, erosion had deepened the drainage ditch and began exposing the fossils that had laid buried for over 70 million years. Weeks would grind the fossilized shells into a meal that he could feed to his chickens, providing calcium to strengthen their eggs.



Dave Weeks Collecting Fossil Seashells (from the collections of the Tennessee Division of Geology )

In 1915, Bruce Wade began his studies of the site, during which time the fossiliferous nature of the site became internationally recognized and its published location was “The Dave Weeks Place Coon Creek, Enville, TN”. Dave Weeks died in 1941. The Weeks family continued to live on the property until 1953 when they sold it to the A.Z. Smith family as a retirement property. The Smiths built the current house on the property in 1975.

With the scientific importance of the Coon Creek Formation and the type locality well established by the 1960s, researchers visited the Coon Creek Fossil Beds at the “Old Dave Weeks Place” regularly. The Smiths knew the importance of the site and kept it open to visitors, even putting “The Fossil Farm” on their mailbox. As early as 1921, staff from the Pink Palace Museum in Memphis would visit the site to collect fossils for the museum. By the early 1980s, the Smiths were ready to move and needed to find a way to preserve the property, so they approached numerous state agencies, including the University of Tennessee at Martin, to purchase the property and protect it. Unfortunately, these state agencies could not purchase the property, primarily because an actual monetary value of the fossils and the deposit could not be determined. The Pink Palace Museum’s private support group, Memphis Museums, Inc., was able to raise money to purchase the site in 1988. The Museum didn’t have a research program of its own for the site but reached out to surrounding universities for assistance.

In the early 1990s, the Museum began a long-term association with the Geology program at UT Martin to help with on-going research at the site, visiting university classes, and professional development for educators. In 2002, UT Martin chaired a special session of invited scientific papers presented at the Southeastern Section of the Geological Society of America annual meeting held in Memphis. At this time, the site was recognized as a “lagerstätte deposit” (“motherlode deposit”), generally considered the highest level of classification for fossil deposits, due to its abundance of pristinely preserved fossils and faithful recording of paleo-ecological conditions. UT Martin continued to oversee research projects on the site, with the Museum being the official repository for scientifically significant finds, until 2019 when the Museum turned over all facilities and operations at the site to UT Martin as part of a 40-year lease agreement. The fossil site re-opened to the public in 2021, after the Covid-19 pandemic shutdown, with new programming by UT Martin staff and interns, and a permanent on-site caretaker was hired.

### New Book in the Library

*Nannett McDougal-Dykes*

*The Visual Dictionary of the Universe*  
by Eyewitness Visual Dictionaries

Come and explore the universe from the inside out. This Visual Dictionary looks at the inner workings of the universe, including black holes, galaxies, quasars, rocks, minerals, and much *Continued, P. 9*

## Fabulous Tennessee Fossils

Dr. Michael A. Gibson,  
University of Tennessee at Martin

### FTF 98

Leonard Alberstadt—Vanderbilt Paleontologist



In this essay I would like to introduce you to Tennessee paleontologist Professor Emeritus Leonard P. Alberstadt from Vanderbilt University. If you passed him on the street in Nashville, you would say he fit right-in with the country music scene with his boots and cowboy hat, but have a brief conversation with him and you would swear he has a clear Texas accent. However, Len was born in 1938 in New Orleans, Louisiana. Len conveyed to me that his interest in paleontology began as a freshman in a biology class at Tulane University in New Orleans as the result of writing a paper about dinosaurs. Shortly thereafter, in his sophomore year, he went on a field trip to Texas with his Tulane professor Hurbert Skinner to study fossils and was smitten by the paleontology career bug. He finished his B.S. at Tulane in 1959 and immediately began working toward his M.S. at Tulane under Dr. Skinner, but with assistance of Harold Vokes the famous mollusk paleontologist at Tulane. For his thesis, Alberstadt worked on the fossils in the Pennsylvanian-age Deese Formation, which occurs in the Arbuckle Mountains of Oklahoma, which he finished in 1962.

His work with the Arbuckle fossils led to a pre-doctoral fellowship at the Smithsonian Institution in the Museum of Natural History for 1966-67, where his in-

terest in brachiopods was “set in stone”. This material became the focus of his doctoral dissertation through the University of Oklahoma where he completed his dissertation in 1967, where he was under the mentorship of Patrick K. Sutherland (1925-2000) and with guidance from G. Arthur Cooper (1902-2000; a legend in brachiopod paleontology at the Smithsonian). His dissertation was later published as “Articulate Brachiopods of the Viola Formation (Ordovician) in the Arbuckle Mountains, Oklahoma”, Oklahoma Geological Survey Bulletin 117, in 1973. As a sidenote, Alberstadt’s dissertation also included studying the Fernvale Formation, a stratigraphic unit overlying the Viola, and led to him interacting with U.T. Martin paleontologist Ken Bordeau (FTF 92) about conodonts from the Fernvale Formation which is exposed in Middle Tennessee. Alberstadt described 37 species of brachiopods from the Viola including nine new species: *Hesperothis rowlandi*, *Glyptorthis glaseri*, *Austinella multicostrata*, *Delerooides vesus*, *Platystrophia sutherlandi*, *P. uncinata*, *P. prima*, *Paucicrura oklabomensis*, and *Megamyonina mankini*.

Alberstadt arrived at Vanderbilt University in 1967 to begin his academic career, where he would remain for 36 years until his retirement in 2003. For 15 of those years, Alberstadt was the chair of

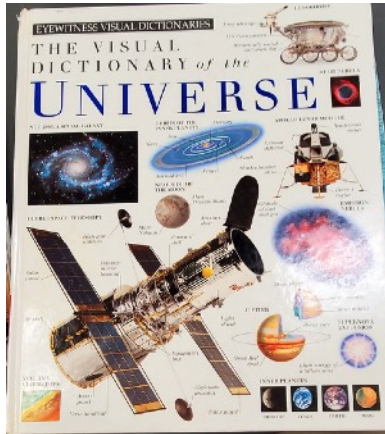
the geology department at Vanderbilt. Upon arriving in Tennessee, he instantly felt at home among the vast exposures of abundantly fossiliferous Ordovician rock formations of the Central Basin and Nashville area. The Carters Formation caught his interest soon after arrival. He focused early research on the Elk River fossil reef. Two things happened at this point. First, as the fossils in this area are preserved in an almost bewildering variety of carbonates (limestone), Alberstadt realized that he had to understand those enclosing carbonates as well as the fossils they contained. This began a new phase in his research career as a “carbonate sedimentologist”. Second, he began collaborating with other paleontologists in the state with similar interests, especially Kenneth R. Walker who was a relatively new faculty member at The University of Tennessee, Knoxville focusing on the Ordovician of the Valley and Ridge Province of East Tennessee. I will highlight Ken Walker in a later essay; however, suffice it to say, that these two Tennessee paleontologists will together produce some of the most influential works nationally in the 1970s in both paleoecology and carbonates. Another earlier collaborator on the Elk River reef study was Ronald P. Zurewski, then a graduate student at Vanderbilt, but who is today the State Geologist of Tennessee. Alber- *Continued, P. 10*



# MEMPHIS ARCHAEOLOGICAL AND GEOLOGICAL SOCIETY

MAGS Rockhound News ◊ A monthly newsletter for and by the members of MAGS

*New Book in the Library* more.  
*Continued from P. 7* Come and  
 open the  
 pages and find amazing graphics  
 and photos.



## Adult Programs

The April meeting will be on Saturday morning. In May we return to Friday night meetings.

*April 15:* Dr. Ryan Parish, "Archaeological Treasures of Nonconnah Creek."

*May 12:* Carol & Matthew Lybanon, "Shark Teeth & Other Fossil Hunting in Florida."

*June 9:* Jeremy Veldman, "Solar Eclipses."

## Junior Programs

*April & May:* With adults.

*June:* TBD.



**MAGS Members,**

**There are only three weeks until our Show. Our club needs your help. Please go to SignUpGenius and volunteer.**

**You'll have fun and help make the Show a success.**



## Field Trips

*April 29:* Coon Creek, Adamsville, TN

*May & June:* TBD

## Birthdays

Last month some March birthdays were inadvertently left out. The March birthdays listed below are those.

### March Birthdays

- 3 Debi Stanford
- 11 Nancy Folden
- 14 Danny Baker
- 15 Kay MacLaughlin
- 17 Bob Cooper
- 18 Laura Brem
- 25 Carole Martin
- 30 Jim Collins
- Hisami McNeil

### April Birthdays

- 3 Donna Neal
- 11 Pam Papich
- 15 Renee Lefler

- 21 Ian Ashurst
- 24 Erin Dempsey
- 27 Kathy Bullard
- 30 David Waddell

## New Members

Sharon & C. Wayne Fewell  
 Ryan Pudwell

## Out Of This World Opals

*Matthew Lybanon, Editor*

An ancient, dried-up lake bed on Mars may be teeming with opals, new data from NASA's Mars Curiosity rover suggests. A study published recently in the *Journal of Geophysical Research: Planets* concludes that light-toned opaline silica features found throughout rocks along Curiosity rover's traverse are the exposed roots of a vast fluid event in recent Martian geologic history. Using data collected from several instruments on Curiosity rover, the

*Continued, P. 11*

*Fabulous Tennessee Fossils* stad's col-  
*Continued from P. 8* labora-  
 tions and  
 research over the years led to sev-  
 eral influential papers on reef suc-  
 cession in the Ordovician of Ten-  
 nessee and many realizations  
 about the "rules of assembly" for  
 paleoecological reconstructions.

Alberstadt recounts many in-  
 teresting anecdotes of doing field  
 work in Tennessee over his long  
 career. One of his most memo-  
 rable and humorous experiences  
 occurred while studying the rocks  
 and fossils in a field setting oc-  
 curred when "an old man in a pickup  
 came over and asked what I was doing.  
 I told him I was looking at the fossils.  
 He asked if I meant those 'funny look-  
 ing things in the rocks.' When I told  
 him yes, he told me that years earlier  
 another guy was doing what I was and  
 told him that all of this land was once  
 under water. I told him that's right. He  
 looked at me with a curious expression  
 and spit out a long string of tobacco  
 juice and said 'you're crazier than all  
 get out. I been here thirty years and  
 that creek ain't never been no higher  
 than it is right now.' He then sped off. I  
 can only imagine the stories he told his  
 buddies about the crazy guy who was  
 on his land the other day". I am sure  
 we can all relate.

One of my personal favorite  
 publications by Len Alberstadt is a  
 history of the geology program at  
 Vanderbilt entitled "From top to  
 Bottom: A Small Department's 120-  
 Year Struggle to Develop and Survive  
 at Vanderbilt University (1875-1995)",  
 published in 1995, and which I had  
 the pleasure to review for Earth  
 Sciences History in 2000. I rec-  
 ommend this book to MAGS  
 readers as it does two things. First,

it is an excellent history up to 1995  
 of the geology program at Vander-  
 bilt that includes such Tennessee  
 luminaries as Bruce Wade of Coon  
 Creek fame, Gerard Troost, L.C.  
 Glenn, Willard Jewell, E.R. Pohl,  
 James Safford, and Alexander  
 Winchell. Secondly, and this is the  
 part of his book that is considered  
 a bit controversial by some, he  
 offers valuable insight into the po-  
 litical workings of a university by  
 documenting that department's  
 historical struggle to grow, expand,  
 and survive as a research and acad-  
 emic entity, often at odds with the  
 desires of Vanderbilt's administra-  
 tion and advisory boards that  
 seemed focused on Vanderbilt be-  
 coming a medical powerhouse.  
 One reason that the University of  
 Tennessee at Martin now houses  
 the "Vanderbilt Fossil Collection"  
 is the result of this very same  
 struggle. Len confided to me that  
 he sees as one of his greatest ac-  
 complishments in his career with  
 Vanderbilt has been the "caring for  
 and 'saving' (of) the fossil (and possibly  
 the mineral collections) from being dis-  
 carded by University administration.  
 It took up valuable space and geology  
 had 'moved on' from such things, was  
 the word of the day." UTM was in-  
 strumental in preserving the vast  
 fossil collection that Vanderbilt  
 had amassed by the 1990s when  
 the medical program expanded  
 and took over the fossil storage  
 space at Vanderbilt. Len Alber-  
 stadt and Vanderbilt emerita sed-  
 imentologist Molly Miller were  
 instrumental in helping UTM ac-  
 quire the collection, along with  
 Ron Brister at the Pink Palace  
 Museum.

Len Alberstadt retired from  
 Vanderbilt in 2003.. He was a well-

liked teacher at Vanderbilt. He  
 continued to publish in the field of  
 geology, especially on geology's  
 philosophy and its historical sci-  
 ence nature. In 2009 he published  
 "How the Rocks Began to Speak",  
 which is a layman's history of the  
 basic tenets of historical geology  
 and why it is important for people  
 to get an education in geology. He  
 also lamented on the lack of geol-  
 ogy education in American  
 schools. Taking his experience  
 with the Vanderbilt geology pro-  
 gram's struggle to become a na-  
 tionally leading geology depart-  
 ment, Alberstadt shows us another  
 side to his creativity that most are  
 not aware of with his first fictional  
 novel entitled "Dragons of St.  
 George". The novel is a fictional  
 work about the "dragons" that  
 plague a small university campus  
 with international political im-  
 pacts in the modern world. In  
 2008 he penned "Poncomma", an-  
 other fictional novel that also  
 draws upon Alberstadt's history  
 with the political decisions at  
 Vanderbilt. It is the story of a high  
 school recruit who attends Van-  
 derbilt as a football star, but his  
 sometimes antagonistic experi-  
 ences at home and at Vanderbilt  
 define his relationships with oth-  
 ers and with the school itself.  
 More recently in 2013, Alberstadt  
 moved fully into the realm of his-  
 torical fiction, with "The Gregory's  
 Gabriella", which is a story that  
 begins in 1929 and follows the  
 tribulations of three university  
 students in the setting of World  
 War II Germany with the rise of  
 Adolf Hitler and his persecution  
 of Jews. Once again, his experi-  
 ences at Vanderbilt helped him to  
 pen a novel that

*Continued, P. 11*

*Fabulous Tennessee Fossils* offers the reader great insights into the working of a university and how universities are not just the “ivory towers” and bastions of objective analytical decision-making that most people think they are. All of his books are currently in print and available from Amazon.

In 2017, the Alberstadt-Reesman-Stearns Faculty Research Fund, honoring three Vanderbilt luminaries of the 1950s-1980s, was established at Vanderbilt University to help fund Vanderbilt student research. Len Alberstadt has left an indelible imprint on the paleontology of Tennessee and the history of the Vanderbilt geology program. Len is happily retired and lives in Kingston Springs, Tennessee, among the Ordovician fossils that have been his link to the deep geologic past for all of these years.



Figure 1. Leonard P. Alberstadt (publicity still photograph from his publisher Westview's website: <http://www.publishedbywestview.com/alberstadt.html>)

*Out Of This World Opals* authors found evidence that the event was short lived and was followed by consistently cold and dry Mars climate conditions. This water-rich subsurface network was shielded from modern harsh surface conditions, allowing for a potentially habitable environment on Mars in a more recent era.

Beyond giving the cracked surface of Mars' Gale Crater a semi-precious glint, these opals could be evidence that water and rock have been interacting beneath the Martian surface much more recently than was previously thought, improving the prospects that microbial life once lived there.

Scientists often focus on water when searching for signs of extraterrestrial life because it's critical for life as we know it. But because water no longer flows on Mars, scientists must hunt for geological signs of the water that once existed there. Researchers spotted one such sign in the past few years around fractures in the Martian surface. Surrounding some of these fractures are "halos" of lighter-colored rock, which researchers found are likely rich in opal. For opal to form, silica-rich rocks must interact with water.

Now, researchers have dug into the Curiosity rover's vast archive of images and found that these opal-rich halos aren't isolated. Rather, they appear to exist all over Gale Crater, a 154 kilometers wide ancient lake bed that Curiosity has explored since its mission began in 2012.

Lead study author Travis

Gabriel, a research physicist at the U.S. Geological Survey, and his colleagues were studying old images from Curiosity's traverse around Gale Crater and noticed, in an image taken much earlier in the mission, a light halo of rock surrounding a fracture. That halo looked almost exactly like halos found more recently. Data from Curiosity's ChemCam instrument, which analyzes rocks using images and spectrometry, showed that those recently studied light rocks likely contained silica-rich opals.

To confirm the chemistry of those rocks, Gabriel's team ran an additional analysis on another set of fracture halos in a different location within the crater called the Lubango drill site. Here, the team used Curiosity's Dynamic Albedo of Neutrons (DAN) instrument, which measures neutrons that are knocked off the Martian surface by cosmic rays that constantly bombard Mars. These bouncing neutrons slow down in the presence of hydrogen, one of the components of water. When DAN detects a higher proportion of slow-moving neutrons, that means there's more water-bearing rocks (like opal) in a given area.

At the Lubango site, the DAN results confirmed that the lighter-colored halos on the ground do indeed contain opal, just like other sites around Gale Crater. This data, along with the pictures of fracture halos from much earlier in the mission, tell researchers that water must have existed all over Gale Crater in more recent history. These results add to a mountain of evidence that water was once widespread on Mars.

**MEMPHIS ARCHAEOLOGICAL AND GEOLOGICAL SOCIETY**

MAGS Rockhound News ◊ A monthly newsletter for and by the members of MAGS

**MAGS At A Glance**  
**April 2023**

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY		
26	27	28	29	30	31	1		
2	3	4	Happy Passover	Zoom Board Meeting, 6:30 pm	6	7	8	Shed workday for Show
9	10	11	12	13	14	15	Membership Meeting, 10:00 am, "Nonconnah Creek"/ DMC Field Trip	
Happy Easter!	16	17	18	19	20	21	22	MAGS Show 9:00 am-6:00 pm/Earth Day
MAGS Show 10:00 am-5:00 pm	23	24	25	26	27	28	29	MAGS Field Trip, Coon Creek, 9:00 am
30	1	2	3	4	5	6		

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