# Arkansas Rockhound News


**Official Newsletter of the**
**Central Arkansas Gem, Mineral and Geology Society**

**December 2009**

**Next Meeting: January 26, 2010, 6:30 PM - Terry Library**

**Call James or Dave to find out about the field trip plans.**

## CAGMAGS

The Arkansas Rockhound News is Published monthly by the **Central Arkansas Gem, Mineral, and Geology Society**
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**Member of:** American Federation of Mineralogical Societies
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**Time and Location of Meetings:**
4th Tuesday of the month (January-November) 6:30 PM Terry Library, 2015 Napa Valley Drive, Little Rock, AR 72212, (Non-smoking) **Visitors are always Welcome** **Membership** Dues $15 Individual $25 Family (Yearly)

**Mission Statement:**
The Central Arkansas Gem, Mineral and Geology Society is dedicated to promoting interest in mineralogy and the related sciences, interest in lapidary and the related arts; to encourage field trips and the enjoyment of collecting and preserving minerals as they occur in nature, and the study of geological formations, especially those of our Natural State of Arkansas. We are a small group of people that enjoy getting together to share our common interests.

**2009 Officers:**

**President: Jim Schenebeck 501-223-3668 jsjimstone@yahoo.com**
**Vice President: Mike Austen** steelpony@aol.com
**Past President: David Murray 870-255-3679** davidmur99@hotmail.com
**Secretary/Treasurer: Pat Kissire, 4900 Sparks Rd., Little Rock, AR 72210, 501-821-2346, pkissire@sbcglobal.net**
**Committees / Chairs Programs: TBA Library: Ann Austen Membership: TBA**
**Field Trips: James Burns 501-568-0315 Show Chair: TBA**
**Editor/Webmaster: Barbara & Phillip Nierstheimer** phillspa@hotmail.com

## 2010 Meeting Schedule

| | | |
|---|---|---|
| **January 26** | **February 23** | **March 23** |
| **April 27** | **May 25** | **June 22** |
| **July 27** | **August 24** | **September 28** |
| **October 26** | **November 23** | |

December Birthstone: Lapis lazuli

**Lapis lazuli** (pronounced /ˈlæpɪs ˈlæz(j)ʊlaɪ/ or /ˈlæzjʊli/ *LAP-iss LAZ-yu-lye/lee*[1]) (sometimes abbreviated to **lapis**) is a relatively rare, semi-precious stone that has been prized since antiquity for its intense blue color.

Lapis lazuli has been mined in the Badakhshan province of Afghanistan for over 6,000 years, and trade in the stone is ancient enough for lapis jewelry to have been found at Predynastic Egyptian sites (as archeologists have frequently stated, but lapis could also be found in, e.g. the Siwa Oasis in the Western Libyan desert), and lapis beads at neolithic burials in Mehrgarh, the Caucasus, and even as far from Afghanistan as Mauritania.[2]

Lapis lazuli is a rock, not a mineral: whereas a mineral has only one constituent, lapis lazuli is formed from more than one mineral.[3]

The main component of lapis lazuli was lazurite (25% to 40%), a feldspathoid silicate mineral composed of sodium, aluminum, silicon, oxygen, sulfur, and chloride. Its formula is $(Na,Ca)_8(AlSiO_4)_6(S,SO_4,Cl)_{1-2}$.[4] Most lapis lazuli also contains calcite (white), sodalite (blue), and pyrite (metallic yellow). Other possible constituents are augite, diopside, enstatite, mica, hauynite, hornblende, and nosean. Some contain trace amounts of the sulfur rich lollingite variety *geyerite*.

Lapis lazuli usually occurs in crystalline marble as a result of contact metamorphism.

The finest color is intense blue, lightly dusted with small flecks of golden pyrite. Stones with no white calcite veins and only small pyrite inclusions are more prized. Patches of pyrite are an important help in identifying the stone as genuine and do not detract from its value. Often, inferior lapis is dyed to improve its color, producing a very dark blue with a noticeable grey cast which may also appear as a milky shade.

Lapis takes an excellent polish and can be made into jewelry, carvings, boxes, mosaics, ornaments, and vases. In architecture it has been used for cladding the walls and columns of palaces and churches.

(December Birthstone: Lapis lazuli continued)

It was also ground and processed to make the pigment ultramarine for tempera paint and, more rarely, oil paint. Its usage as a pigment in oil paint ended in the early 19th century as a chemically identical synthetic variety, often called French Ultramarine, became available.

*Lapis* was the Latin for 'stone' and *lazuli* the genitive form of the Medieval Latin *lazulum*, which is from the Arabic *lāzaward*, which is ultimately from the Persian لاژورد *lāzhward*, the name of a place where lapis lazuli was mined.[5][6] The name of the place came to be associated with the stone mined there and, eventually, with its color. The English word *azure*, the French *azur*, the Spanish and Portuguese *azul*, and the Italian *azzurro* are cognates. Taken as a whole, *lapis lazuli* means 'stone of Lāzhward'.

The best lapis lazuli is found in limestone in the Kokcha River valley of Badakhshan province in northeastern Afghanistan, and these deposits in the mines of Sar-e-Sang have been worked for more than 6,000 years.[7] Afghanistan was the source of lapis for the ancient Egyptian and Mesopotamian civilizations, as well as the later Greek and Roman; during the height of the Indus valley civilization about 2000 B.C., the Harappan colony now known as Shortugai was established near the lapis mines.[2]

In addition to the Afghan deposits, lapis has been extracted for many years in the Andes near Ovalle, Chile, where the deep blue stones compete in quality with those from Afghanistan.[8] Other less important sources include the Lake Baikal region of Russia, Siberia, Angola, Burma, Pakistan, USA (California and Colorado), Canada, and India.

In ancient Egypt lapis lazuli was a favorite stone for amulets and ornaments such as scarabs; it was also used by the Assyrians and Babylonians for seals. Lapis jewelry has been found at excavations of the Predynastic Egyptian site Naqada (3300–3100 BC), and powdered lapis was used as eyeshadow by Cleopatra.[2]

In ancient times, lapis lazuli was known as sapphire,[9] which is the name that is used today for the blue corundum variety sapphire.

December's birthstones are turquoise, lapis lazuli, zircon, topaz (blue), or tanzanite.

(Birthstone and fossil facts courtesy of www.wikipedia.com.)

## President's Message

Dear Rock Club Members.

We are quickly coming to the end of 2009 and I just wanted to wish everyone a Very Merry Christmas and a Happy New Year.
The club has had a very succesful year with some important and succesful events and many new members joining us during the year.
As I step down as your president I just want to thank you, the membership, for allowing me to work as your president and I wish to thank all of the hard working volunteers for making my job so much easier. I believe this group has a great future and we all can enjoy the fellowship and meetings that are planned for this next year.

Since no meeting is planned for December I look forward to seeing everyone in January and I encourage everyone to become involved with the new president and his ideas for the club moving forward. Be safe and stay healthy in 2010.

Again, Thanks for your support.

**Jim Schenebeck, President.**

## Central Arkansas Gem, Mineral and Geology Society

## Minutes for November 23, 2009

President Jim Schenebeck called the meeting to order. There were 13 members and one visitor (Beezy Bentzen from Berlin, Mass.) present.

The Minutes and Treasury's report were approved as posted.

Mike Austen reported he and Ann had picked out several junior books for the library for less than $50. Approval was given for their purchase.

The November field trip was to Fiddler's Ridge on Bear Mountain. Lenora reported nine club members and 19 from the Memphis club attended. There was no reduced price for the large number. There will be no December field trip.

Weldon announced that October Show plans were underway and everything ok.

The Annual audit was discussed and approval was given for the bank signature card to remove Dave Murray and add Mike Austen (in-coming President) to the official signatures on the accounts as well as to have the Accounts listed under Pat Kissire as account holder.

The 2nd Annual Burn's Park Club Swap will be on April 17, 2010. A larger pavilion located on the North side of I-40 has been reserved. Cost will be the same ($75).

Elections were held and the slate presented by the nominating Committee was elected by acclimation. 2010 officers are: President – Mike Austen; Vice President – Tom Sharp; Sec/Tres – Pat Kissire. Jim Schenebeck is Past President. Appointed committee chairmen are: October Show – Weldon Kissire; Show Concessions – Jim Schenebeck; Kid's Dig – Doug Stone; April Swap -Angelee, Peeler, Ann Austen, Phillip Nierstheimer; Programs - Pearl Roth; Field Trips – James Burns and Dave Murray; Librarian – Ann Austen; Information – Lenora Murray; Mineralogist – Tom Sharp; Raffle – Weldon Kissire; and Raffle Committee- Mike Austen, James Burns, Carl Hill. There are still openings for Membership, Junior Programs, Sunshine and Club Auctions. Contact Mike Austen if you would like to help.

Mike Austen and Carl Hill had items for Show and Tell. Mike had geodes from a Memphis club field trip to Cookeville, TN and Carl had crystals from Miller Mountain.

Best of raffle winners were Lenora Murray – geode box and John Peeler – Stilibite.

Meeting was adjourned

Respectfully submitted,

Pat Kissire, Sec/Tres


Fossil Facts: **Brachiopods**

**Brachiopods** (from Latin *brachium*, arm + New Latin *-poda*, foot) are a small phylum of benthic invertebrates. Also known as **lamp shells** (or **lampshells**), "**brachs**" or **Brachiopoda**, they are sessile, two-valved, marine animals with an external morphology superficially resembling bivalves to which they are not closely related. Approximately 99 percent of all brachiopod species are documented solely from the fossil record.[1]

Modern brachiopods range from 1 to 100 millimetres (0.039 to 3.9 in) long, and most species are about 10 to 30 millimetres (0.39 to 1.2 in).[3] Each has two valves (shell sections) which are biomineralized. The brachial valve bears on its inner surface the brachia ("arms") from which the phylum gets its name, and which supports the lophophore, used for filtering and respiration. The other is known as the pedicle valve, as its inner surface bears the stalk-like pedicle by which most brachiopods attach themselves to surface.[4] The brachial and pedicle valves are often call the dorsal ("upper") and ventral ("lower"),[4] but some paleontologists regard "dorsal" and "ventral" as incorrect terms, since they believe that the "ventral" valve was formed by folding of the upper surface under the body.[3] Irrespective of this debate, the valves of brachiopods are differently arranged of those of bivalve molluscs, which lie on the left and right sides of the body. In most brachiopod species both valves are convex, the surfaces often bear growth lines or other ornaments, and the pedicle valve is larger than the brachial. However, the linguids, which burrow into the seabed, have valves that are smoother, flatter and of similar size and shape.[4]

Over 12,000 fossil species are recognized,[6] grouped into over 5,000 genera. While the largest modern brachiopods are 100 millimetres (3.9 in) long,[3] a few fossils measure up to 385 millimetres (15.2 in) wide.[*citation needed*] The earliest confirmed brachiopods have been found the early Cambrian, with the hingeless, inarticulate forms appearing first, followed soon after by the hinged, articulate forms.[28] Three unmineralized species have also been found in the Cambrian, and apparently represent two distinct groups that evolved from mineralized ancestors.[29] The inarticulate *Lingula* is often called a "living fossil", as very similar genera have been all the way back to the Ordovician. On the other hand, articulate brachiopods have produced major diversifications, and severe mass extinctions[30] – but the articulate Rhynchonellida and Terebratulida, the most diverse present-day groups, appeared at the start of the Ordovician and Carboniferous respectively.[27]

At their peak in the Paleozoic the brachiopods were among the most abundant filter-feeders and reef-builders,[31] and occupied other ecological niches, including swimming in the jet-propulsion style of scallops.[3] However, after the Permian–Triassic extinction event, informally known as the "Great Dying",[31] brachiopods recovered only a third of their former diversity.[31] They were still quite diverse and adundant in the Jurassic and Cretaceous, but have slowly declined.[30]

(Brachiopods continued)

Scientists have found that brachiopod fossils have been useful indicators of climate changes during the Paleozoic era. When global temperatures were low, as in much of the Ordovician, the large range of temperatures between equator and the polar created different collections of fossils at different latitudes. On the other hand, warmer periods, such much of the Silurian, created smaller ranges of temperatures, and the low to midde latitudes had only a few brachiopod species that lived in all the warmer seas.[32]

Brachiopods are extremely common fossils throughout the Paleozoic. The major shift came with the Permian extinction. Before this extinction event, brachiopods were more numerous and diverse than bivalve mollusks. Afterwards, in the Mesozoic, their diversity and numbers were drastically reduced and they were largely replaced by bivalve mollusks. Mollusks continue to dominate today, and the remaining orders of brachiopods survive largely in fringe environments.

The origin of the brachiopods is unclear; two hypotheses suggest how a bivalved lifestyle could have emerged.

The most abundant modern brachiopods are the Class Terebratulida. The perceived resemblance of terebratulid shells to ancient oil lamps gave the brachiopods their common name "lamp shell". The phylum most closely related to Brachiopoda is probably the small phylum Phoronida (known as "horseshoe worms"). Along with the Bryozoa and possibly the Entoprocta, these phyla constitute the informal superphylum Lophophorata.

The brachiopods evolved in the lower Cambrian, and became particularly numerous in shallow water habitats during the Ordovician & Silurian, in some cases forming whole banks in much the same way as bivalves (such as mussels) do today. In some places, large sections of limestone strata and reef deposits are composed largely of their shells.

Throughout their long geological history, the brachiopods have gone through several major proliferations and diversifications, and have also suffered from major extinctions.

It has been suggested that the slow decline of the brachiopods over the last 100 million years or so is a direct result of (1) the rise in diversity of filter feeding bivalves, which have ousted the brachiopods from their former habitats; (2) the increasing disturbance of sediments by roving deposit feeders (including many burrowing bivalves); and/or (3) the increased intensity and variety of shell-crushing predation. However, a famous paper by Stephen Jay Gould suggested that the rise in bivalves which accompanied the downfall of the brachiopods was nothing more than coincidence - the two lineages were like "ships that pass in the night".[33] The greatest successes for the bivalves have been in habitats that have never been adopted by the brachiopods, such as burrowing.

The abundance, diversity, and rapid evolution of brachiopods during the Paleozoic make them useful as index fossils when correlating strata across large areas. (Much more at wikipedia.org).

## CALENDER OF AREA ROCK SHOWS AND SWAPS

| | | |
|---|---|---|
| JAN 2010 | 1 | Globe, Az |
| | 1.10 | Quartzsite, Az |
| | 16.17 | Fredericksburg, Tx |
| | 22.24 | Tyler, Tx |
| | 31 | Lincoln, Ne |
| FEB 2010 | 9 | Lincoln, Ne |
| | 12 | Park Forest, Il |
| | 20.21 | Plainview, Tx |
| MAR 2010 | 5-7 | Richmond, In |
| | 6.7 | Big Springs, Tx |
| | 12 | Houston, Tx |
| | 13 | Baton Rouge, La |
| | 13.14 | Macomb, Il |
| | 20.21 | Cedar Rapids, Ia |
| | 26.28 | Ada, Ok |
| | 26.28 | Bridgeton, Mo |
| | 26.29 | Indianapolis, In |
| | 27-28 | Lincoln, Ne |

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