



Judy Gordy. Editor
Official Newsletter of the
Western Dakota Gem & Mineral
Society PO Box 3620,
Rapid City, SD, 57709-3620

Affiliated with RMFMS & AFMSAFM

March 2017 Edition
Meeting: March 9, 2017. 7PM

It's agate hunting time again!

The purpose of our club is to promote interest and education in geology, mineralogy, paleontology, archeology and lapidary, to sponsor and promote means of coordination of the work efforts of groups and individual.



THE AMMONITE



Newsletter of the Western Dakota Gem & Mineral Society

March 2017

WESTERN DAKOTA GEM AND MINERAL SOCIETY 2016-17 OFFICERS AND CHAIRMEN

President: Truman Goddard -- 12009 Crook City Rd, Whitewood, SD 57793	605 269-2015
Vice President: John Dickinson -- PO Box 775, Lead, SD 57784	605-580-5579
Secretary: Judy Gordy -- 407 E Minnesota St Apt 209, Rapid City, SD 57701	402-208-6079
Treasurer: Leslie Lysenko -- 2710 Mystic Mountain Rd., Rapid City, SD 57702.....	605-786-8801
BHRMUC Rep: Ellen Tilley -- 21653 Piedmont Meadows Rd., Piedmont, SD 57769.....	605-787-4659
RMFS SD Dir.: Sony Hemsher -- PO Box 376, Piedmont, SD 57769	605-431-2755
RMFMS PLAC Rep: Brandon Nelson -- 1607 Sioux Ave, Rapid City, SD 57701.....	605-593-6610
ALAA SD Rep: Brandon Nelson -- 1607 Sioux Ave, Rapid City, SD 57701.....	605-593-6610
Field Trip Chairman: Ellen Tilley -- 21653 Piedmont Meadows Rd, Piedmont, SD 57769.....	605-787-4659
Board Member: Sony Hemsher --- P. O. Box 376, Piedmont, SD 57769.....	605-431-2755
Board Member:	
Board Member: Ellen Tilley -- 21653 Piedmont Meadows Rd., Piedmont, SD 57769.....	605-787-4659
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Calling Committee: Jan Goheen 605-341-6161 Letha Wynia 605-721-0550 Patricia Dickinson 605-580-5579	

Club Information: Western Dakota Gem and Mineral Society, PO Box 3620, Rapid City, SD 57709-3620

CLUB WEBSITE is: www.WDGMS.org **OTHER CLUB SITES:** Facebook -Western Dakota Gem and Mineral Society/groups.

Meetings: Second Thursday of each month (except August) at 7:00 PM

At: Minneluzahan Senior Center, 315 N 4th St., Rapid City, SD 57701

ANY SUBMISSIONS FOR THE NEWSLETTER SHOULD BE IN BY THE 25TH OF EACH MONTH

If you change your home address, or your email address, or [have a problem receiving a bulletin, please contact the editor at 402-208-6079 or by email at ammonitenewsletter@gmail.com](#) and it will get corrected.

CLUB DUES: \$15.00 per person - \$20.00 per family with children under 18 yrs – Includes 11 newsletters by E-mail.

If you chose to receive the newsletter by mail, there is an additional \$10.00 cost to cover the mailing.

Dues cover the RMFMS insurance and the newsletter.

Send dues to the Treasurer: Leslie Lysenko, PO Box 3620, Rapid City, SD 57709-3620

MEETING: Thursday,

PROGRAM: Frank Garcia, Paleontologist – speaking about his fossil discoveries in Florida

REFRESHMENTS: Rose West

DOOR PRIZES: Ellen Tilley

MESSAGE FROM THE PRESIDENT –TRUMAN GODDARD

Hi all.

There will be a board meeting at 6 PM prior to the regular meeting at 7 PM. I will want to hear about show progress. Sonny and I will be attending the show in Albuquerque NM. Have to get the paper work done for that.

We will be having a speaker from Pierre. He will be giving a talk on his fossil hunting. Should be interesting, maybe not as interesting as hunting Fairburns but then I am no doubt prejudice.

Lets have a good meeting and have fun.

See you
Truman

MINUTES FOR THE FEBRUARY 9, 2017 MEETING

President Truman Goddard called the meeting to order at 7:04 PM.

John Dickinson introduced our speakers for the evening: Danielle Serratia, Asst. Director of the Museum of Geology and Sally Sheldon, Collections Manager. They each introduced themselves and gave a little information about their education. Danielle studied vertebrate zoology with her Batchelors from Texas A&M University, Corpus Christi and her Master's from the University of Alaska, Fairbanks. Sally studied Triassic Vertebrate, which we have none in South Dakota, with her Batchelors from Texas A&M University, her Master's from Texas Tech University and a post graduate Diploma from the University of Cambridge (UK). With the museum, they teach two courses in operating the museum and one course in management. They both said they have wonderful students working in the museum. They are working on plans for a STEAM program for the summer, which is the normal STEM (Science, Technology, Engineering and Math) with the addition of Art. Danielle said one of the first things she had to do when she took over the museum in August was to redo the exhibits because they were not in chronological order. Now they need to flesh out the environments that the specimens lived in. They are also working on some fund raising events. One of the next events will be a dinner and silent auction. They also have a docent program. The museum hours are 9-4 Monday thru Friday and 10-4 on Saturday. During the summer the hours are 9-7 Monday thru Saturday. Danielle then threw it open to questions: one of the questions was how a Mosasaur related to an Ichthysaur? Danielle answered that the Mosasaur was a true reptile and the Ichthysaur was more of a cross between a tuna and a dolphin but not nearly as agile.

The meeting resumed at 7:24 PM

Guests: Lori Green introduced her friend Rich Griffith.

Ellen Tilley moved and Sony Hemsher seconded the motion to accept the minutes as printed in the Ammonite newsletter. The motion passed.

Truman Goddard mentioned that he had the forms for the showcases for anyone wanting to display things at the show. He also requested that we fill out the forms as soon as possible so he would know how many cases we were going to need since some of the cases are in need of repairs.

The Treasurer's report was read by Leslie Lysenko. We had \$8,577.93 in January, with an income of \$153.00 -- \$110.00 from dues and \$43.00 from door prizes. And we had \$742.05 in expenses. Lori Green moved and Kelli Wold seconded the motion to accept the Treasurer's report as read. The motion passed.

Ellen Tilley did not have a Multiple Use Coalition report since she was not able to attend the last meeting.

Brandon Nelson reported that the next meeting of the ALAA was on February 16th, so there was nothing to report at this meeting.

Sony Hemsher reported on the Rocky Mountain Federation. The convention is in Albuquerque, New Mexico in March. There will be a field trip on Monday following the show, where you will need a 4-wheel drive vehicle to get to the mine at the top of the of a mountain. You get to dig in the mine and in the tailings. Some of the other clubs heard rumors about our club having next year's convention and jumped in so the Colorado club volunteered to have 2018. There are still people who want to come to Rapid City so we should think about having a convention here soon.

It was also discussed that the Rocky Mountain Federation is having a push on their newsletter and that anybody who wants to receive the newsletter should go onto their website and sign up.

Leslie Lysenko brought up that Alvin Albrecht, one of the honorary members, newsletter had been returned and Judy Gordy has not been able to find a new address for him. So we need the correct address if anyone knows where he's living now. It was stated that he had moved to the Primrose Retirement Community on East Minnesota.

Robert Hamm gave money to Kelli Wold for his newsletter to be mailed to him. He is one of our honorary members, should he be having to pay for the newsletter. Honorary members don't pay dues but since there is an additional charge for the newsletter to be mailed, it was decided that we should keep the money.

Show committees – there was some miss understandings about the vendor contracts. Contracts have been emailed to all vendors that were on the list that Tabitha Wood received. She has been contacted by some in return. One vendor evidently contacted Annette Rathert because she said all she ever got was music when she called Tabitha's number. Tabitha's phone does play music instead of a ringtone until answered or the answering machine picks up, but the vendor evidently never waited long enough for that to happen. Tabitha will try to contact the vendor. She has heard from a couple of vendors that were not at last year's show, so they are on a waiting list until she hears from last year's vendors. She will start calling any vendors she has not heard from.

Judy Gordy brought up a suggestion that since we have unfortunately had the need for sympathy cards lately and suggested that the club might be interested in purchasing a supply of cards for future use. She showed a catalog where we could purchase 20 cards for \$16.95 instead of the \$3 to \$5 that cards are at the store. The decision on that idea was postponed until the next board meeting.

Tabitha Wood brought up that it had been posted on Facebook about the group from Fairburn possibly moving to Rapid City or possibly having to discontinue their meet. There was some discussion about the past history of the group and it was decided that we would have to keep an eye on the situation.

Rebecca Wood brought up the issue of business cards. We had some printed last year. We don't know what happened to them after the show or if there were any left. And do we want to order more. Leslie Lysenko said she had some. John Dickinson said he needed some so that he had something to give to people, especially when he talking to them about speaking at the meeting or the show. Leslie gave John what she had with her and said she would bring more to the next meeting.

Rebecca Wood moved and Sony Hemsher seconded the motion that the meeting should be adjourned. The motion passed.

The meeting was adjourned at 7:45 PM.

Judy Gordy Secretary

24 Members. 4 Guests

ANNOUNCEMENTS

REMEMBER THE ROCK SHOW IS JULY 22nd & 23rd. NEED LOTS OF VOLUNTEERS. IF YOU WANT TO HELP WITH THE SILENT AUCTION, CONTACT TABITHA WOOD 402-706-0168 OR nestormdancer2003@hotmail.com. IF YOU WANT TO HELP AT THE INFORMATION TABLE OR ADMISSION TABLE, CONTACT JUDY GORDY 402-208-6079 OR ammoniteneewsletter@gmail.com. ANY OTHER JOBS, TALK TO BRANDON NELSON 605-593-6610 or a.nelson917@gmail.com OR TRUMAN GODDARD 605-298-2015 OR trumangoddard@gmail.com.

REMEMBER TO SAVE DOZEN SIZE EGG CARTONS FOR ELLEN TILLEY FOR THE KIDS CORNER AT THE ROCK SHOW

ANY SUGGESTIONS FOR PROGRAMS FOR OUR MEETINGS? PLEASE TALK TO JOHN DICKINSON. NEED PROGRAMS FOR JULY AND ALL LATER MONTHS.

REMEMBER THE SIGN UP SHEET FOR DOOR PRIZES AND REFRESHMENTS.
WE NEED DOOR PRIZES FOR APRIL AND JUNE, THEN BOTH FOR JULY AND LATER

NEW ADDRESS FOR "BLOG FOR LAPIDARY LOVERS" LapidaryWhisperer.com BY DONNA ALBRECHT

FUTURE SHOWS

March 3-5, 2017 – Del Mar, California --- Wholesale and Retail Show – by Gem Faire Inc --- Del Mar Fairgrounds, 2260 Jimmy Durante Blvd, Del Mar, Ca. – Fri. 12-6, Sat. 10-6, Sun. 10-5 – Admission \$7 Weekend Pass, Children free (0-11)

March 3-5, 2017 -- Newark, California -- 69th Annual Show & Sale – by Mineral & Gem Society of Castro Valley --- Newark Pavilion, 6430 Thornton Ave, Newark, Ca. – Fri. 10-6, Sat. 10-6, Sun. 10-5--niAdults \$10 Children free with adult

March 3-5, 2017 – Richmond, Indiana – Annual Show – by Eastern Indiana Gem & Geological Society – Wayne Co. Fairgrounds, 861 N Salisbury Rd, Richmond, In. – Fri. 10-6. Sat. 10-6, Sun. 11-4 – Adults \$5. Seniors \$3. Students ages 7-18 \$1. Children under 7 Free

March 3-5, 2017 – St. Petersburg, Florida -- 47th Annual Gem, Mineral, and Jewelry Show and Sale --- by Suncoast Gem and Mineral Society – Minnreg Hall, 6340 126th Ave N, St Petersburg, Fl. – Fri. 10-6, Sat. 10-6, Sun. 10-5 --- Adults/Seniors \$5, Students \$4, Free Admission for Children

March 4-5, 2017 -- Appleton, Wisconsin – Annual Show – by Weis Earth Science Museum --- The Grand Meridian, 2621 N Oneida St, Appleton, Wi. – Sat. 10-5, Sun. 10-4 – Admission \$2. Children 12 and under free

March 4-5, 2017 -- Arcadia, California -- Annual Show -- by Monrovia Rockhounds -- LA County Arboretum & Botanic Gardens, 301 North Baldwin Ave., Arcadia, Ca. -- Sat. 9-4:30. Sun. 9-4:30 -- Adults \$9, Seniors/Students \$6, Children \$4

Match 4-5, 2017 -- Big Springs, Texas -- Show and sale --by Big Springs Prospecting Club -- Howard County Fair Barn, Rodeo Grounds, Big Springs, Tx. -- Sat 9-5 -- Free admission

March 4-5, 2017 -- Caldwell, Idaho -- Annual show -- by Owhyee Gem & Mineral Society -- O'Conner Field House, 2200 Blaine, Caldwell, Id. -- Sat 10-6, Sun 10-5 -- Adults \$4, Children 11 and under free

March 4-5, 2017 -- Lemoore, California --- Annual Show -- by Lemoore Gem and Mineral Club -- Lemoore Trinity Hall, 470 Champion St., Lemoore, Ca. -- Sat. 10-5. Sun. 10-4 -- Free Admission

March 4-5, 2017 -- Meriden, Connecticut -- Annual show -- by Lapidary & Mineral Society of Central Connecticut -- Maloney High School, 121 Gravel Street, Meriden, Ct. -- Sat 9:30-5, Sun 10-4 -- Admission Adults \$5 Children under 12 free

March 4-5, 2017 -- Robstown, Texas -- Annual Show -- by Gulf Coast Gem & Mineral Society -- Richard M Borchard Regional Fairgrounds, 1213 Terry Shamsie Blvd, Exhibit Hall A, Robstown, Tx. -- Sat. 10-6. Sun. 10-5 -- Admission \$5 good both days Children free 12 and under

March 4-5, 2017 -- Ventura, California -- Annual Show -- by Ventura Gem & Mineral Society -- Ventura County Fairgrounds, 10 W. Harbor Blvd, Ventura, Ca. -- Sat. 10-5, Sun. 10-4 -- Free Admission

March 4-5, 2017 -- Wilmington, Delaware -- 54th Annual Gem, Mineral & Fossil Show -- Theme: QUARTZ, OF COURSE! -- by Delaware Mineralogical Society -- Arshat Hall, University of Delaware, 2700 Pennsylvania Ave, Wilmington, De.

March 9-12, 2017 -- Deming, New Mexico -- 52nd Annual Rockhound Roundup Gem & Mineral Show and Sale -- by Deming Gem & Mineral Society, Inc -- SW New Mexico State Fairgrounds, Deming, 4100 Raymond Reed Blvd, Deming, NM -- Thu. 9-5, Fri. 9-5, Sat. 9-5, Sun. 9-5 -- Free Admission

March 10-12, 2017 -- Augusta, Georgia -- 29th Annual Aiken-Augusta Gem, Mineral & Fossil Show -- by Aiken Gem, Mineral & Fossil Society and Augusta Gem & Mineral Society -- Julian Smith Casino, 2200 Broad Street, Augusta, Ga.

March 10-12, 2017 -- Hillsboro, Oregon -- 59th Annual Rock & Mineral Show -- by Tualatin Valley Gem Club -- Washington County Fairplex, On Cornell Road Across from Hillsboro Airport, Hillsboro, Oregon -- Fri. 9-5, Sat. 9-5, Sun. 10-5 -- \$1 Admission, Children 12 and under free

March 10-12, 2017 -- Kansas City, Missouri -- 56th Annual Gem & Mineral Show -- by Association of Earth Science Clubs of Greater Kansas City -- KCI Expo Center, 11730 NW Ambassador Drive, Kansas City, Mo.

March 10-12, 2017 -- Pleasanton, California -- Wholesale and retail sale -- by Gem Faire Inc. -- Alameda County Fairgrounds, 4501 Pleasanton Ave, Pleasanton, Ca. -- Fri. 12-6, Sat. 10-6, Sun. 10-5 -- Admission \$7 weekend pass, Children free (0-11)

March 10-12, 2017 -- Victorville, California -- Annual Show -- by Victor Valley Gem and Mineral Club -- Stoddard Wells Road, Victorville, Ca. -- Fri. 9-5, Sat. 9-5, Sun. 9-4 -- Free Admission -- Event is an outdoor/drycamping venue in Mojave desert beneath the Verde Antique Marble Quarry atop Stoddard Mtns

March 11, 2017 -- Skokie, Illinois (Chicago area) -- 68th Annual Silent Auction of Rocks, Minerals, Fossils and Lapidary Treasures -- by Chicago Rocks & Minerals Society -- St. Peter's United Church of Christ, Gymnasium 8013 Laramie Avenue, across street from the public library on Oakton

March 11-12, 2017 -- Filer, Idaho -- Annual Show -- by Magic Valley Gem Club -- Twin Falls County Fairgrounds, 215 Fair Avenue, East of Filer, Id. On Highway 30 -- Sat. 10-5, Sun. 10-4 -- \$2, under 12 free if accompanied by adult

March 11-12, 2017 -- Kalispell, Montana – Annual Show – by NW Montana Rock Chucks --- Northwest Montana Fairgrounds, 265 North Meridian Road, Kalispell, Mt – Sat. 9-6, Sun. 9-5 --- Admission \$1

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March 11-12, 2017 – Klamath Falls, Oregon – Annual Show – by Rock and Arrowhead Club – Klamath County Fairgrounds, 3531 South 6th Street, Klamath Falls, Or – Sat. 9-5, Sun. 9:30-4 -- \$2 Donation

March 11-12, 2017 -- Macomb, Illinois – Annual Show – by Geode Land Earth Science Clubs, Inc. – WIU Student Union Ballroom, Murray Street, Macomb, Il. – Sat. 10-6, Sun. 10-5

March 11-12, 2017 – San Antonio, Texas -- 56th Annual Show – by Southwest Gem and Mineral Society – San Antonio Event Center, 8111 Meadow Leaf Dr., San Antonio, Tx. – Sat. 10-6, Sun. 10-4 --- Adults \$5, Seniors \$3, Students \$2, Children \$1

March 11-12, 2017 – San Marino, California -- PLS' 59th Annual Tournament of GEMS --- by Pasadena Lapidary Society -- San Marino Masonic Center, 3130 Huntington Drive, San Marino, Ca. --- Sat. 10-6, Sun. 10-5 --- Free Admission

March 11-12, 2017 -- Spreckels, California --- Annual Show – by Salinas Valley Rock and Gem --- Spreckels Vets Hall, 5th and Llamo Streets, Spreckels, Ca. – Sat. 10-5, Sun. 10-5 – Admission \$2, Children free

March 11-12, 2017 -- Turlock, California -- 51st Annual Rock, Mineral & Jewelry Show – by Mother Lode Mineral Society – Stanislaus Fairgrounds, 900 North Broadway, Turlock, Ca. --- Sat. 10-5, Sun. 10-5 -- Admission \$6, Children under 12 free with paid adult

March 11-12, 2017 – West Bend, Wisconsin – Annual Show – by Kettle Moraine Geological Society – Washington County Fair Park & Convention Center, 3000 Hwy. PV, West Bend, Wi. – Sat. 10-5, Sun. 10-4 --- Admission \$3, Children under 12 Free

March 17-18, 2017 -- Colville, Washington – Annual Show – by Panorama Gem and Mineral Club, Colville Ag and Trade Center, Colville Fair Grounds, 317 West Astor, Colville, Wa. --- Fri. 8:30-6, Sat. 9-5 – Free Admission

March 17-19, 2017 – Albuquerque, New Mexico – 2017 RMFMS Convention -- 48th Treasure of the Earth Gem, Jewelry, and Mineral Expo -- by the Albuquerque Gem & Mineral Club – Expo NM State Fairgrounds, 310 San Pedro NE, Enter Gate 3, Albuquerque, NM – Fri 10-6, Sat 10-6, Sun 10-6 – Admission Adults \$3, Children free under 13

March 17-19, 2017 -- Arden, North Carolina – 6th Bi-Annual Mountain Area Gem and Mineral Association Gem, Mineral and Fossil Show! – by M.A.G.M.A. – Camp Stevens, 263 Clayton Rd, Arden, NC – Fri. 9-5, Sat. 9-5, Sun. 10-4 – Free Admission

March 17-19, 2017 – Jackson Michigan --- 55th Annual Show – by Michigan Gem & Mineral Society – Theme: WE WILL ROCK YOU – Jackson County Fairgrounds, American One Event Center, 200 W Ganson , Jackson, Mi. – Fri. 10-7, Sat. 10-6, Sun. 11-5 – Adults \$4, Seniors \$2, Students \$1, Children \$1

March 17-19, 2017 – Reno, Nevada -- Wholesale and retail sale – by Gem Faire Inc – Reno Livestock Events Center, 1350 N Wells Ave, Reno, Nv. – Fri. 12-6, Sat. 10-6, Sun. 10-5 – Admission \$7 weekend pass, Children free (ages 0-11)

March 17-19, 2017 -- Richmond, Virginia – Annual Show – by Treasurer's of the Earth, Inc – Richmond Raceway Complex, 600 N Laburnum Ave, Richmond, Va. – Fri. 12-6, Sat. 10-5, Sun. 10-5 – Admission \$6, Students 16 and under free

March 17-19, 2017 -- Sarasota, Florida – Show and Sale – by Frank Cox Productions – Sarasota Municipal Auditorium, 801 N Tamiami Trail, Sarasota, Fl. – Daily 10-5 – Admission \$5, Under 16 free

March 17-19, 2017 – Spanish Fork, Utah – Annual Show – by Timpanogos Gem and Mineral Society – Spanish Fork Fairgrounds, 475 South Main Street, Spanish Fork, Ut. – Fri. 10-7, Sat. 10-7, Sun. 10-5 – Free Admission

March 18-19, 2017 -- Cottonwood, Arizona --- Annual Show – by CKM Productions, LLC – Mingus High School, 1801 East Fir Street, Cottonwood, As. – Sat. 10-5, Sun. 10-4 – Admission \$3, Children under 12 free

March 18-19, 2017 --- Dothan, Alabama – Annual Show – by Dothan Gem and Mineral Club – Houston County Farm Center, 1701 East Cottonwood Road, Dothan, Al. – Sat. 9-5, Sun. 10-4 – Free Admission

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March 18-19, 2017 -- Gaithersburg, Maryland -- 53rd Annual Gem, Mineral and Fossil Show --- by Gem, Lapidary and Mineral Society of Montgomery County, Maryland – Montgomery County Fairgrounds, 16 Chestnut Street, Gaithersburg, Md. --- Sat. 10-6, Sun. 11-5 --- Adults \$6, Children 11 and under free

March 18-19, 2017 -- Missoula, Montana – Annual Show – by Hellgate Mineral Society – Hilton Garden Inn, 3720 North Reserve St., Missoula, Mt, -- Sat. 9-6, Sun. 10-5 – Adults \$2, Children under 14 Free with adult

March 24-25, 2017 -- Ada, Oklahoma – Annual Show – by Ada Gem, Mineral, and Fossil Club – Fairplex, 1710 North Broadway, Ada, Ok. – Fri. 8-6, Sat. 9-5 – Free Admission

March 24-26, 2017 -- Hampton, Virginia – Retail show --- by Treasures of the Earth, Inc. – Hampton Roads Convention Center, 1610 Coliseum Dr, Hampton, Va. – Fri. 12-6, Sat. 10-5, Sun. 10-5 --- Admission \$5, Students 16 and under free

March 24-26, 2017 -- Hickory, North Carolina – Annual Show – by Catawba Valley Gem and Mineral Club – Hickory Metro Convention Center, 1960 13th Ave Dr SE, Hickory, NC – Fri. 9-6, Sat. 9-6, Sun. 10-5 – Adults \$5, Children free

March 24-26, 2017 – Sandy, Utah -- Wholesale and retail show --- by Gem Faire Inc – South Towne Expo Center, 9575 S State St, Sandy, Ut. – Fri. 10-6, Sat. 10-6, Sun. 1-5 – Admission \$7 weekend pass, Children free (ages 0-11)

March 24-26, 2017 -- Spokane, Washington -- 58th Annual Gem, Jewelry and Mineral Show --- by Rock Rollers of Spokane Wa. --- Spokane County Fair and Expo Center, N 604 Havana, Spokane, Wa. ...– Fri. 10-6, Sat. 10-6, Sun. 10-4 – Adults \$6, Seniors \$5, Children 12 and under free

March 25-26, 2017 – Angels Camp, California – Annual Show – by Calabasas Gem and Mineral Society – Calabasas County Fairgrounds, 101 Frogtown Rd, Angels Camp, Ca. – Sat. 10-5, Sun. 10-4 --- Admission \$5, Children 12 and under free

March 25-26, 2017 -- Anthem, Arizona (Phoenix area) -- 4th Annual Gem & Mineral Show – by Daisy Mountain Rock & Mineral Club – Boulder Creek High School, 40404 N. Gavilan Peak Parkway, Anthem, Az.

March 25-26, 2017 -- Bellingham, Washington -- 55th Annual Rock and Gem Show – by Mt. Baker Rock and Gem Club – Bloedel Donovan Community Center, 2214 Electric Avenue, Bellingham, Wa. – Sat. 10-6, Sun. 10-5 – Free Admission

March 25-26, 2017 – Cedar Rapids, Iowa – Annual Show – by Cedar Valley Rocks & Mineral Society – Hawkeye Downs, 4400 6th St SW, Cedar Rapids, Ia. – Sat. 8:30-6 – Adults \$3, Students \$1 (12-18), Children free

March 25-26, 2017 -- Chambersburg, Pennsylvania -- 39th Annual Gem, Mineral & Jewelry Show – by Franklin County Rock & Mineral Club – Hamilton Heights Elementary School, 1589 Johnson Road, Chambersburg, Pa.

March 25-26, 2017 -- Hadley, Massachusetts – Western Mass. Mineral, Jewelry & Fossil Show – by Connecticut Valley Mineral Club – Hadley Farms Meeting House, 41 Russel St. (Rt 9), Off of I-91 North, Exit 19-South, Exit 20 – Sat. 9:30-5, Sun. 10-4 -- Admission \$5, Children 12 and under free with paid adult

March 25-26, 2017 -- Janesville, Wisconsin -- 27th Annual Rock, Gem, Mineral & Fossil Show – by Badger Lapidary & Geological Society – Rock County Fairgrounds, Craig Center Building, 1301 Craig Avenue, Janesville, Wi.

March 25-26, 2017 -- Lexington, Kentucky – Lexington Rock Gem and Jewelry Show – by Blue Grass Gem & Mineral Club – Clarion Hotel, 1950 Newton Pike, Lexington, Ky. – Sat. 9-6, Sun. 11-5 – Admission \$2, Children \$1

March 25-26, 2017 – Plymouth Meeting, Pennsylvania – Show and Sale --- by Philadelphia Mineralogical Society & Delaware Valley Paleontological Society – Lu Lu Temple, 5140 Butler Pike, Plymouth Meeting, Pa.--- Sat. 10-5, Sun. 10-4 – Adults \$5
Children \$1 under 12

March 25-26, 2017 -- Roseville, California --- 55th Annual Show – by Roseville Rock Rollers Gem and Mineral Society – Placer County Fairgrounds in Roseville, 800 All American City Blvd, Roseville, Ca. – Sat. 10-5, Sun 10-4 – Adults \$6, Seniors \$5, Children 12 and under free

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March 25-26, 2017 -- Wheaton, Illinois – 2017 ESCONI Gem, Mineral & Fossil Show – by Earth Science Club of Northern Illinois --- DuPage County Fairgrounds, 2015 Manchester Road, Wheaton, Il.

March 25-26, 2017 -- Wysox, Pennsylvania -- 48th Annual Gem & Mineral Show – by Che-Hanna Rock and Mineral Club – Wysox Fire Hall, 111 Lake Road, Wysox, Pa.

March 30 -- April 2, 2017 – Joshua Tree, California --- Annual Show – by JT Sportsmans Club – Sportsmans Club, 6225 Sunburst Ave, Joshua Tree, Ca. – Daily 8-6 – Free Admission

March 31 – April 2, 2017 – Green River, Utah – Annual Show -- Epicenter, John Wesley Powell River History Museum, 1765 Main St, Green River, Ut. – Fri. 6-9, Sat. 10-4, Sun. 10-4 – Free Admission

March 31 – April 2, 2017 -- Indianapolis, Indiana – Annual Show – by Treasures Of The Earth Gem & Jewelry Shows – Indiana State Fairgrounds, Agriculture/Horticulture Building, 1202 East 38th Street, Indianapolis, In. – Fri. 10-6, Sat. 10-6, Sun. 11-5 – Adults \$5 (Good all 3 days), Children Free under 16

March 31 --- April 2, 2017 -- Loveland, Colorado – Annual Show – by Fort Collins Rockhounds – The Ranch , Larimer County Fairgrounds, 5280 Arena Circle, Thomas M. McKee Building, Loveland, Co. – Fri. 4-8, Sat. 9-6, Sun. 10-5 – Adults \$4/day, \$7/3 day, Seniors \$4/day, \$7/3 day, Students 12-18 LP/Id \$1, Children 12 free with adult

March 31 – April 2, 2017 -- Puyallup, Washington – Wholesale and retail show -- by Gem Faire Inc – Washigton State Fair Events Center, 110 9th Ave SW, Puyallup, Wa. – Fri. 12-6, Sat. 10-6, Sun 10-5 – Admission \$7 weekend pass, Children see (ages 0-11)

March 31 – April 2, 2017 -- Raleigh, North Carolina – Annual Show – by Tar Heel Gem & Mineral Club – Kerr Scott Bldg, NC State Fairgrounds, Raleigh, N.C. – Fri. 3-8, Sat. 10-6, Sun. 10-5 – Free Admission

April 1-2, 2017 – Midland Park, New Jersey -- 28th Annual North Jersey Gem, Mineral, & Fossil Show – by North Jersey Mineralogical Society – Midland Park High School, 250 Prospect Street, Midland Park, NJ

April 1-2, 2017 -- Orange, Connecticut -- 44th Annual Mineral, Gem, Jewelry & Fossil Show – by The New Haven Mineral Club – Amity Regional Middle School, 100 Ohman Avenue, Orange, Ct.

April 1-2, 2017 -- Standish, Maine -- 34th Annual Gem, Mineral & Jewelry Show – by Maine Mineralogical Geological Society - -- Alford Center at Saint Joseph College, 278 Whites Bridge Road, Standish, Me.

April 8-9, 2017 -- Abilene, Texas -- Gem, Mineral & Jewelry Show – by Central Texas Gem & Mineral Society, Abilene Civic Center, 1100 North 6th Street, Abilene, Rd.

April 22-23, 2017 – West Mifflin, Pnnsylvania (Pittsburgh area) -- Gem, Mineral & Fossil Show --- by The Monongahela Rockhounds – Skyview Hall, West Mifflin Volunteer Fire Company #4, 660 Noble Drive, West Mifflin, Pa.

April 28-30, 2017 -- Orlando, Florida -- Rock, Mineral, Gem, Jewelry & Fossil Show – by Central Florida Mineral and Gem Society – Florida National Guard Armory, 2809 South Fern Creek Avenue, Orlando, Fl,

April 28-30, 2017 -- Portland, Oregon -- 60th Annual Rock & Gem Show – by My Hood Rock Club – W. D. Jackson Armory, 6255 NE Cornfoot Road, Portland, Or.

April 29-30, 2017 -- Franklin, New Jersey --- 45th Annual New Jersey Earth Science Association Gem & Mineral Show – by New Jersey Earth Science Association, Franklin Borough School, 50 Washington Avenue, Franklin, NJ

June 2-4, 2017 – Wauseon, Ohio – Jewelry, Rock and Mineral Show – by State Line Gem & Mineral Society – Fri. 12-7, Sat. 10-7, Sun. 11-4 – Fulton County Fairgrounds, 8591 State Route 108.

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June 9-11, 2017 – Ventura, California – Ventura Rocks the Nation – CFMS – AFMS Show – by Ventura Gem & Mineral Society – member of the California Federation of Mineral Societies – Fri. – SAT. 10 am – 5 pm, Sun. 10 am – 4 pm – Ventura County Fairgrounds, 10 Harbor Blvd, Ventura, Ca.

JULY 22-23, 2017 --- Rapid City, SD -- 37th Annual Gem & Mineral Show – by Western Dakota Gem & Mineral Society – Rapid City Civic Center – Saturday 9am-6pm – Sunday 10am-4pm – Set up day is Friday 8am to 6pm with a pot luck dinner at 6 pm for members and vendors.

NEWLY DISCOVERED 400-MILLION-YEAR-OLD GIANT WORM HAD KILLER JAWS

The Verge. February 24, 2017. 6:39 pm

A new species of extinct marine worm with snapping jaws and an estimated length of three feet has been identified. The species *Websteroprian Armstrongi* lived some 400 million years ago. It is believed to be the oldest “Bobbit Worm”. The species is described in a study published in the *Journal Scientific Reports* this week.

Bobbit worm’s are giant marine worm’s that dwell on the ocean floor and hunt by hiding under the sand and shooting out to attack fish and octopi. Apparently their name comes from Lorena Bobbit, a US woman who cut off her husband’s penis with a knife in 1993. The nickname was chosen because the jaws resemble scissors and the exposed portion of the worm’s body resembles an erect penis.

The new species was identified from several ancient jaw fossils stored at the Royal Ontario Museum in Toronto. The fossilized jaws are about 0.4 inches in length – the largest jaws recorded in ancient marine worms. From the jaw size, the researchers estimated the body length at over three feet.

“Gigantism in animals is an alluring and ecologically important trait, usually associated with advantages and competitive dominance” per lead author Mats Eriksson of Lund University. “It is, however, a poorly understood phenomenon among marine worm’s and has never before been demonstrated in a fossil species.”

The jaw fossils were excavated near Moonosee, Canada in 1994 by the Ontario Geological Survey researcher Derek Armstrong. The species was named after him as well as Alex Webster, a bassist in the death-metal band Cannibal Corpse, whom the authors all liked.

OMG MEASUREMENTS OF GREENLAND GIVE US A GLIMPSE OF FUTURE SEA RISE

The Guardian February 24, 2017. 11:03 am.

The Oceans Melting Greenland Project is taking important measurements to determine how fast sea levels will rise.

John Abraham

If you ask a group of climate scientists, how much sea levels will rise by say 2100, you will get a wide variety of answers. The ones with the most expertise in sea level rise, will tell you about a meter, give or take a little. They know the sea level will rise, but there are a lot of variables in determining how much. If the two large ice sheets sitting atop Greenland and Antarctica

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melt, it could be several hundred feet. Parts of those ice sheets are melting, but how much and how fast are some of the variables. This is not only interesting scientifically but has a huge impact on coastal planning.

One of the other variables is where the melting is occurring. The ice sheets melt from the top because of warm air and sunlight, but they also melt from below because of warm ocean water. And it is much harder to see how much ice melt is occurring from below.

They are hoping to get a clearer picture of the rate of ice melt and rate of sea rise by a new study – OMG – Oceans Melting Greenland. This is part of a NASA Project. They have brought together some of the best oceanographers and ice experts in the world. The results are promising and are discussed in two recent publications.

They noted that Greenland's ice loss has increased substantially in recent years. It now contributes approximately 1/3 to the sea level rise. But they need to know if this will change over time and that the underwater process is the most important to study specifically. They need to know how the water flow around Greenland affects the ice melt.

They are measuring a number of key attributes. First – yearly changes in ocean water temperatures around Greenland. Second – yearly changes to Greenland's glaciers that extend into the ocean. Third – they are studying marine topography (the shape of the land underneath the ocean).

The sea floor is complicated. Past glaciers have carved deep troughs in some areas allowing warm salty water to reach huge glaciers. Lead OMG investigator Josh Willis said “what’s interesting about the waters around Greenland is that they are upside down. Warm, salty water, which is heavy, sits below a layer of cold, fresh water from the Arctic Ocean. That means the warm water is deep down, and glaciers sitting in deep water could be in trouble.”

The scientists are using airborne expendable bathythermographs to make measurements. They drop hundreds of these probes from airplanes. As they fly over the area, they then record data as they fall through the ocean waters until they hit the ocean floor. They also make more traditional ship-based observations.

What have they accomplished? They have a year and half of information. They have proved they are capable of making the required observations. They have cataloged how the water temperatures change around the Greenland coast. They have discovered that the large glaciers along the northwest and southeast coastline sit in deep water, where they interact with the ocean. They are getting their first look at how the glaciers and oceans change from one year to the next.

For the next four years, they will be able to see whether ice loss trends are good or bad. Projects like this will supply answers to important climate questions.

HOW TITANOBOA, THE 40-FOOT-LONG SNAKE WAS FOUND

Smithsonian Magazine by Guy Gugliotta. April 2012

In Columbia, South America, the fossil of a gigantic snake has stunned scientists into rethinking prehistoric life. The titanoboa ruled the swampy South American tropics 58 million years ago.

In the lowland tropics of northern Columbia, some 60 miles from the Caribbean coast, is one of the world's largest coal mining operations, covering an area larger than Washington, DC and employing some 10,000 employees. Carbone's Del Cerrejon Limited, the multinational corporation, that runs the mine, extracted 315 million tons of coal in 2011 alone. This area is called Cerrejon, is an empty, forbidding, seemingly endless horizon of dusty outback stripped of vegetation and crisscrossed with dirt roads that lead to enormous pits 15 miles in circumference.

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Cerrejon is also one of the world's richest, most important fossil deposits of the geological moment when dinosaurs had just disappeared and a new environment was emerging. "Cerrejon is the best, and probably the only window on a complete ancient tropical ecosystem anywhere in the world" per Carlos Jaramillo, a paleontologist with the Smithsonian Tropical Research Institute. "The plants, the animals, everything. We have it all, and you can't find it anywhere else in the tropics."

58 million years ago, a few million years after the extinction of the dinosaurs, Cerrejon was an immense swampy jungle. Everything was hotter, wetter, and bigger than today. Trees had wider leaves, since there was greater precipitation, more than 150 inches of rain compared to 80 inches a year for the Amazon now. Mean temperature was mid-to-high 80 degrees Fahrenheit or higher. Deep water swirled around stands of palm trees, hardwoods, occasional hummocks of earth and decaying vegetation. Mud from the flood plain periodically covered everything, compressed dead leaves, branches and animal carcasses into steaming layers of decomposing muck dozens of feet thick.

The river basin held turtles, with shells twice the size of manhole covers and at least three species of crocodile kin more than 12 feet long, and seven-foot-long lung fish, two to three times the size of their modern Amazon cousins.

The Lord of this jungle was a snake, more than 40 feet long and weighing more than a ton. It resembled a modern-day boa constrictor, but behaved more like an anaconda. It was a creature of the swamp and a fearsome predator able to eat anything it saw. The thickest part of its body was nearly as high as a man's waist. Scientists name it Titanoboa cerrejonensis.

It was the largest snake ever and beside its astonishing size, its existence has implications for understanding the history of life and possibly for anticipating the future.

The author spent time with the team studying the titanoboa during their 2011 field season. Jonathan Bibloch, University of Florida paleontologist, Jason Head, University of Nebraska paleontologist and Jorge Moreno-Bernal, Smithsonian Institute intern made up the team.

They were examining a fossil that Moreno-Bernal had found a few weeks earlier. Its probably about 30 to 35 feet long, but the important thing is that they had a skull. Snake skulls contain several delicate bones that are not very well fused together, and when the snake dies, they normally fall apart and the bones are lost. The skull was something the team had been hoping to find for years. Finding the skull offers a whole new set of characteristics and allows researchers to compare titanoboa to other snakes and place it on the evolutionary tree. It will also provide information about its size and what it ate.

The skull was in the same layer about five feet away from the skeleton. Head pointed out that their hypothesis is that the skull matches the skeleton making this find one whole animal.

Each time a layer of coal is trucked away, the scientists are left with an underlayer of mudstone rich in fossils of exotic leaves and plants and the bones of fabulous creatures.

The search for river monsters of the Paleocene Epoch began when a Columbian geologist, Henry Garcia, found an unfamiliar fossil in about 1993. It was put in the coal company's display case marked petrified branch and forgotten.

In about 2002, Fabiany Herrera, an undergraduate geology student at Columbia's Industrial University of Santander, in Bucaramanga, was on a field trip to the Cerrejon. Tramping around the mining complex, he looked at some pieces of sandstone and found impressions of fossil leaves. Herrera showed them to Jaramillo, who was working for the state oil company at the time. And thought the Cerrejon might have more to offer than just rocks and coal formations. They organized a full scale expedition in 2003 and invited paleobiologist Scott Wing, Curator of Fossil Plants at Smithsonian's National

Most fossils, plant or animal, are found either in temperate climates or isolated niches in the tropics, such as deserts or high altitudes where the winds blow away sand and stone to expose the fossils. Fossils near the equator are generally buried beneath tons of dirt and vegetation. At Cerrejon, the coal mining has stripped away the shroud.

Herrera and colleagues spent four months at Cerrejon, collecting more than 2,000 plant specimens from several different pit mines. They didn't know what to expect because no one had explored a site of this age or location. Instead of an ancient forest, they found plants that were relatives of today's plants -- chocolate, coconuts, bananas, and legumes.

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When Wing arrived, he looked at the "petrified branch" in the coal company's display case. He decided it wasn't a plant. They couldn't find the key to open the case so he took photos thru the glass. Upon return to the United States, Wing emailed the photos to Bloch at the University of Florida Gainesville, who was a collaborator on an unrelated project..

Bloch said he flipped out, he was looking at the jawbone of a Dyrosaur, an extinct very large crocodile-like creature. Terrestrial vertebrates of that age had never been seen in the tropical latitudes of South America. The fossil indicated that there were probably other vertebrates to be found.

Bloch and Wing immediately made plans for another trip and met Herrera and Jaramillo in Cerrejon. Their first stop was the display case. When they picked up the jawbone they found another bone hiding behind it, a piece of pelvis.

Garcia explained that the fossil was from a mine known as Expanded West Pit. He took them there. A layer of coal had been removed leaving an expanse of mudstone covered in turtle shells. The team collected fossils and returned to Gainesville. Over the next few months, US and Columbian students explored more sites and emailed photos to Bloch. The La Puente Cut, a 6,000 acre open pit in the north zone seemed the most promising.

La Puente is forbidding, soft mudstone cut by gullies leading down slope to a lake filled with runoff and ground water. The temperature is above 90 degrees Fahrenheit has a constant wind with 25 mph gusts. Methane fires belch periodically from the cliff face across the lake. And huge trucks rumble in the distance, hauling loads of coal scooped up after blasting.

The mudstone was paleontological paydirt. Where ever they walked, they found bones. During the expedition in 2004, they grabbed everything they saw, and everything was big. They found Dyrosaur and turtles and other animals. The small stuff, they put in plastic bags, the big pieces were cast in plaster of Paris. Bloch said it was like prospecting, you walk along with brush and tweezers and eyes focused on the ground until you see something you want. The big stuff, you mark with GPS and come back the next day with tarp and plaster. But don't wait to long, because the rain will wash everything down slope and then its gone forever. But the blessing is you have a whole new fossil bed waiting.

For the next five years, Bloch and Jaramillo lead trips to the Cerrejon, sending back a steady stream of vertebrate fossils. Many of the remains looked like present day animals only bigger. One species of turtle was 5-1/2 feet long, 67% larger than the largest Amazon turtle today.

Even though the Dyrsoaurs has no modern comparison, University of Florida graduate student Alex Hastings identified three new species, one between 15 and 22 feet long. Another beast was a "dietary generalist" per Hastings, with its large jaws and death bite it could penetrate the shell 1.5 feet from the edge.

In 2007, Hastings was inspecting a shipment of fossils labeled "crocodile" and noted a strange very large vertebrae. With his training, he knew it wasn't a crocodile. Showing it to a fellow graduate student, Jason Bourque, a fossil conservationist and reptile specialist, declared it a snake. He went into the University's reptile collection and came back with an anaconda vertebrae. It was smaller but really similar in shape to the fossil. The team started searching the specimens for more snake parts and fresh expeditions looked for snake fossils. The team eventually collected 100 snake vertebrae from 28 different animals. Some of them they had had for years without realizing they were snake vertebrae, because of the size. Bloch said it's like being handed a mouse skull the size of a rhinoceros and being told it's a mouse. It's unbelievable.

Bloch needed to know how big this snake was, so he called in Jason Head of the University of Toronto. They had met in the early 1990's at the University of Michigan. Bloch took a bunch of vertebrae into his office and had a video chat with Head, asking if it was a snake. Head told him he was buying his ticket tonight.

Head worked with the team for several days. They focused on vertebrae from two different fossil snakes. Head noticed that the creatures had t-shaped spines and a number of other characteristics unique to “boid” snakes – the lineage of boas and anacondas.

Both species are common in South America today. Boas are up to 14 ft long and 100 lbs and anacondas often exceed 20 ft and weigh more than 500 lbs. The Cerrejon snake more resembled the boa but the habitat was that of an anaconda. But much bigger.

How big? The problem with sizing a snake is that you never find all the bones of a fossil. And unless you can place the vertebrae in the proper place along the spine, you cannot know the length.

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Head and Indiana University paleontologist P. David Polly had been working on a mathematical model of a snake spinal column for two years. They had based it off living snakes per Polly. The nice thing about snakes is that there are characteristics similar in all snakes.

By studying all the little bumps, ridges, knobs and joints on each vertebrae, they had come up with a template for all snakes. During evolution snakes got bigger by adding vertebrae up to a point then the vertebrae just got bigger.

After applying their template to the titanoboa and placing the known vertebrae in the correct locations. The team published their results in Nature in early 2009 saying the titanoboa was 42 ft to 49 ft long and weighed about 2,500 pounds.

The Cerrejon vertebrae were all similar in size even though they were from different animals – meaning enormous was the rule not the exception. They had found an authentic primal monster as long as a school bus and weighing as much as a small rhino. But they didn’t know much else about it other than it was a boid-style snake.

The discovery of the skull finally allowed the research to advance . Now they were comparing individual skull bones from the titanoboa with modern boa, anaconda and python skulls from the University’s collection. Their first observation was that the titanoboa was more boa than anaconda. By holding up the fragments of the jawbone suggested that the titanoboa’s skull was over two feet long. A quadrate – a hinge bone connecting the lower jaw to the skull allowing the lower jaw to extend behind the brain meaning titanoboa could open its mouth big and wide.

One inconsistency they found was that titanoboa had more holes in the jawbone fragment – meaning more closely packed teeth than the modern boas. It’s a fish ester said Head. Lots more teeth makes it easier to catch fish.

Titanoboa the top of the food chain – it could eat fish or it could eat the crocs and turtles that ate the fish. Eventually they agreed that titanoboa was different than other boas but they couldn’t determine which one it was more closely related to.

But the size raised another question – how it got so big and what it needed to survive. In 2009, they concluded that it had lived in a climate with a mean temperature of 86 to 93 degrees Fahrenheit, substantially hotter than today’s 82 degrees. That assertion is highly controversial. There are lots of questions about how do you determine the temperature 58 million years ago, but titanoboa was cold-blooded and dependant on its environment for the energy to maintain its metabolic rate and the higher temperature would also support why the turtles and lung fish of the Cerrejon were so much bigger than their modern relatives.

TITANOBOA: MONSTER SNAKE

This exhibit was organized by the Smithsonian Institute Traveling Exhibit Service in collaboration with the Smithsonian Tropical Research Institute, the Smithsonian Channel and the Florida Museum of Natural History. Titanoboa: Monster Snake is an amazing look at a lost world and the incredible creatures that inhabited it.

This exhibit costs \$18,000 per 12 week booking plus \$6,208 shipping. It needs approximately 2,000 square feet of display area and weighs 6,870 lbs.

It is currently showing at the Mississippi Museum of Natural History in Jackson, Mississippi from 1-28-17 thru 4-23-17. Then it moves to the Dinosaur Journey Museum of Western 6 in Fruits, Colorado from 5-13-17 thru 8-6-17. The period from 8-26-17 thru 11-26-17 has not been booked yet. It then moves to the Monte L. Bean Life Sciences Museum at Brigham Young University in Provo, Utah from 12-16-17 thru 3-18-18.

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MOST TERRIFYING EXTINCT CREATURES

Youtube and Wikipedia

#10. TITANOBOA – A forty ft. extinct snake genus that lived 60-58 million years ago during the Paleocene Epoch, a 10-million-year period immediately following the Cretaceous-Paleocene extinction event. The only known species is the *Titanoboa cerrejonensis*. The largest snake ever found. 42 ft long weighing about 2,500 lbs.

#9. CAMEROCERAS – Meaning chambered horn – is a genus of extinct orthodontic cephalopod that lived mainly during the Ordovician Period. It is a cephalopod, a taxon of molluscs that includes octopi, squids and cuttlefish. The head of the animal would have been soft muscular tissue situated at the opening of the hard cone shaped shell with the mantle or main body lying within the shell for protection. Tentacles would have grown from the base of the head and been used to seize and maneuver prey. At the base of these tentacles, within the buccal mass (mouth) is a hard keratinous beak that would have bitten into the prey. They are thought to be about 30 feet long.

#8. KAPROSUCHUS – Boar Crocodile – Extinct genus of Mahajangasuchid crocodyliform. It is known from a single nearly complete skull from Niger. The name means boar crocodile in reference to its unusually large caniniform teeth which resemble those of a boar. The complete skull is 507 mm in length with a lower jaw being 603 mm. The estimated length of the animal is 19.7 feet.

#7. ARTHROPLEURA – 7 ft Millipede – is the genus of an extinct millipede Arthropods that lived in the northeastern United States and Europe around 315 to 295 million years ago. It is the largest species of the genus and the largest known land invertebrate of all time and would have had few if any predators. They range in size from .98 to 7.55 ft long and up to 2.6 ft wide. They were able to grow larger than modern arthropods because of the greater partial pressure of oxygen in the Earth's atmosphere at the time and because of a lack of terrestrial vertebrate predators. The flattened body of *Arthropleura* is composed of approximately 30 jointed segments, with each covered by two side plates and one center plate. The ratio of pairs of legs to body segments was approximately 8:6, similar to present day millipedes.

#6. PULMONOSCORPIUS – Breathing Scorpion – It is a giant species of extinct scorpion that lived during the Visean Epoch of the Carboniferous Period. Its fossils were found in Scotland. This species grew to 28 inches long. Its diet is not known directly but smaller arthropods may have been part of it and its sting may have been able to fell small tetrapods.

#5. ARGENTAVIS magnificent – Magnificent Argentine bird or more literally magnificent silver bird was among the largest flying birds ever to exist. Quite possibly only surpassed by the recently discovered *Pelagornis Sanderson*. It is sometimes called the giant teratogen. An extinct species known from three sites in central and northwestern Argentina dating to the late Miocene where a good sample of fossils have been found. The only humerus bone (upper arm) found is damaged but allows for a good estimate of wingspan. The bone is only slightly shorter than an entire human arm. The species apparently had stout legs and big feet allowing it to easily walk around. The bill was large, rather slender, and had a hooked tip with a wide

gap. The estimated wing span of 16.7 – 19.9 ft and a height of 4.9 – 6.6 ft and a mass of 154 – 159 lbs. It's diet was carrion and other small animals.

#4. DEINOSUCHUS – Terrible crocodile – is an extinct genus related to the alligator that lived 82 to 73 million years ago during the late Cretaceous Period. First discovered in North Carolina in the 1850's, the genus was named and described in 1909. More fossils were found in the 1940's and were later incorporated into an influential although inaccurate skull reconstruction that was at the American Museum of Natural History. Deinosuchus adults are estimated at 35 ft with an overall appearance very similar to modern crocodiles and alligators. They had robust teeth built for crushing and their back was covered with hemispherical osteoderms. The osteoderms were attachment points for connective tissue and would have served as load-bearing reinforcement allowing it to move about on land. It is thought that Deinosuchus had a bite force of 4,000 to 22,000 lbs, even stronger than T rex. It was capable of killing and eating large dinosaurs as well as sea turtle, fish and other aquatic and terrestrial prey. Fossils have been found in 10 US states and Mexico. It lived on both sides of the Western interior seaway. It reached its largest size in its Western habitat but was more abundant in its eastern habitat.

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#3. MEGALANIA PRISCI ---Is an extinct giant goanna or monitor lizard. They were part of the megafauna that inhabited southern Australia during the Pleistocene. The youngest fossil remains date to around 50,000 years ago. The first Aboriginal settlers may have encountered them. Length and weight are still in dispute but probably were 18 to 26 feet in length and probably weighed 710 to 4280 lbs.

#2. ENTELODON – Meaning complete teeth – is an extinct genus of Entelodont artiodactyl endemic to Eurasia. Fossils of the species are found in paleogene strata ranging in age from the Houldjiniian (37.2-33.9 mya) to the Rupelian Epoch of the early Oligocene (33.9-28.4 mya). Entelodon was a fairly typical Entelodont with a large bulky body, slender legs, and a long snout. It had only two toes on each foot and it's legs were built for fast running. It's long wide head was supported by a robust short neck and it's cheekbones were greatly enlarged and protruded noticeably. Though it was more closely related to hippos and whales, it looked more like a pig. It is presumed to be an omnivore. They were about 4.4 ft tall at the shoulders with a 2 ft 2 inch skull.

#1. MEGALODON – Meaning big tooth – Is an extinct species of shark that lived approximately 23 to 2.6 million years ago during the Cenozoic Era (early Miocene to the end of the Pliocene). There is a large debate about what species the magalodon is – Carcharodon under family Lamnidae or Carcharocles under family Otodontidae. So it is normally described as C. megalodon. Regardless, it is one of the largest and most powerful predators in vertebrate history. Fossils suggest it was 59 ft long and had a very wide distribution. Scientists suggest it looked like a stockier version of a great white shark. According to Renaissance accounts, the triangular teeth were found embedded in rocky formations and were once believed to be the petrified tongues of dragons or snakes. That interpretation was dispelled in 1664 when Danish naturalist Nicolai's Steno recognized them as sharks teeth.

What is Halite?

By Kendra Ruppert. Using ROCKS AND MINERALS. A DK Pocket Genius – Facts At Your Fingertips.

Halite is one of the vital minerals we need to stay alive. It is common edible salt or sodium chloride. It's luster is glassy and can be colorless to white. The world's largest salt flat, Salas de Uyuni contains around 10 billion tons of salt or halite. They are in a group called halides. They are soft minerals and have a low specific gravity. These minerals form when metals combine with one of the common halogen elements, which include fluorine, chlorine, bromine and iodine. That's where we get our salt.

**SCIENTISTS UNCOVER HUGE 1.8 MILLION SQUARE KILOMETER RESERVOIR OF MELTING
CARBON UNDER THE WESTERN UNITED STATES**

Science Daily. February 13, 2017. Source: University of Royal Holloway, London

Using the world's largest array of seismic sensors, scientists have mapped a portion of Earth's upper mantle that contains 1.8 million square kilometers of melting carbon. This area is situated under the Western United States and is 350 km under the Earth's surface. This discovery challenges the accepted understanding of how much carbon the Earth contains – much more than previously understood.

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New research published in *Earth And Planetary Science Letters* explains how geologists at Royal Holloway, University of London's Department of Earth Sciences used a network of 583 seismic sensors that measure the Earth's vibration, to create a picture of the area's deep sub surface. This area of the Earth's interior is recognized by its high temperatures where solid carbonates melt.

It's impossible to drill far enough to reach this area so they used the seismic vibrations to paint the picture by using mathematical equations to interpret the variations. This reservoir of partially-molten liquid carbonate is a result of the tectonic plate under the Pacific Ocean being forced under the continental plate. The partial melting is caused by gasses like 2CO_2 and H_2O that is contained in the minerals dissolved in it.

Because of this study, scientists now understand that the amount of CO_2 in the Earth's upper mantle may be up to a trillion metric tons as compared to the EPA's estimates of global carbon emissions for 2011 of 10 billion metric tons. This deep reservoir, discovered by Dr. Heir-Majumder, will eventually reach the surface through volcanic eruptions and contribute to climate change although very slowly.

We might not think that deep Earth structures could affect climate change but this discovery has implications not only for subterranean mapping but also the future of our atmosphere. Per Dr. Heir-Majumber, releasing just 1% of this CO_2 into the atmosphere would be equivalent to burning 2.3 trillion barrels of oil. The existence of such deep reservoir show how important deep Earth is in the global carbon cycle.













