

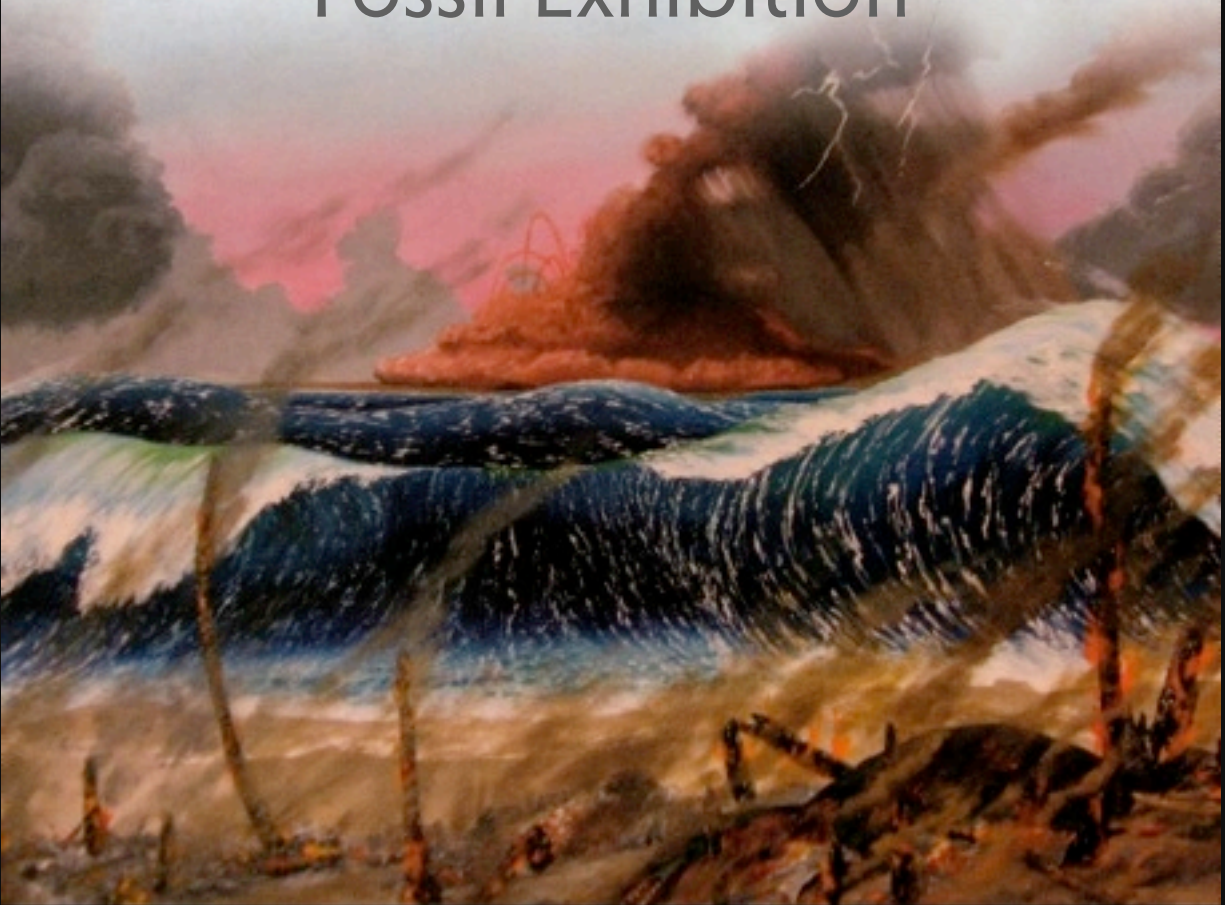
When Dinosaurs Roamed the Wetumpka Impact Crater

February 20, 2015 – April 18, 2015

KFMG

KELLY FITZPATRICK MEMORIAL GALLERY

Fossil Exhibition



408 SOUTH MAIN STREET | WETUMPKA, ALABAMA 36092 | KFMG-ONLINE.ORG

More than 85 million years ago, during the Cretaceous Period, a large meteor impacted the area now known as Wetumpka, Alabama. The impact resulted in a crater approximately five miles in diameter causing significant changes to both the landscape of the area and the inhabitants of both land and sea. At that time, the Wetumpka area was largely covered by an inland sea with barrier islands, and the climate was very different from today. This impact crater is regarded as one of the best preserved marine impact craters in the world.

The exhibition includes large scale paintings, iron sculptures, exhibition models, fossils, plants and a series of oversized educational storyboards outlining much of the scientific research about the crater area. The exhibition also features the work of Karen Carr, Jerry Armstrong, Rick Spears, Jonathon Hughes, Wayne Atchison, Larry Percy and Asher Eilben. Additionally, the exhibition includes a juried exhibition of 65 kindergarten through grade twelve student work and a juried exhibition of 35 adult artists from throughout Alabama.

Major funding provided through a grant awarded to the KFMG by the Alabama State Council on the Arts, which is made possible through funding from an annual appropriation by the Alabama State Legislature and the National Endowment for the Arts. This public support enables the Kelly Fitzpatrick Memorial Gallery to reach new audiences, foster community development, provide high quality programming, and demonstrate the importance of the arts as a component for quality of life in Alabama. Additional support provided by the City of Wetumpka, the Wetumpka Impact Crater Commission, the Kelly Fitzpatrick Memorial Gallery and Wind Creek Casino.



Major Funding Provided by:

Alabama State Council on the Arts and National Endowment for the Arts

SCHEDULE OF EVENTS

Gallery Hours: Monday through Friday from 9am – 4pm, Saturday 10am - 3pm

Docent Guided Tours: Thursday and Saturday between the Hours of 10 am until 3pm.

Student Reception and Award Ceremony: Thursday, March 5, 2015 from 3:30 – 4:30

Adult Reception and Award Ceremony: 5:00 – 6:30 pm

Annual Crater Lecture: Thursday, March 5, 2015 @ 7pm

(Dr. David King@ the Wetumpka Civic Center)

Annual School Crater Tours: Friday, March 6, 2015

Annual Public Crater Tours: Saturday, March 7, 2015

“Choose to Know” Saturday Lectures that are associated with the exhibition “When Dinosaurs Roamed: The Wetumpka Impact Crater” at the Kelly Fitzpatrick Memorial Gallery. All Saturday lectures are free and open to the public and will be presented in the Kelly Fitzpatrick Memorial Galley. Saturday lectures begin at 11am.

- February 21, 2015 @ 11 am - "Alabama's Remarkable Biodiversity and Paleobiodiversity." June Ebersole of the McWayne Science Center, Birmingham Alabama
- February 28, 2015 @ 11 am - Meteorites and Art, Jerry Armstrong, Cosmic Artist, Atlanta Georgia
- March 5, 2015 @ 7pm – The Science of the Wetumpka Impact Crater, Dr. David King, Auburn University Professor of Geology at the Wetumpka Civic Center
- March 21, 2015 @11am - Artists Talk, Geologically Speaking: The Kerygma Series, Larry Percy, Associate Professor of Art of Troy University, Troy, Alabama
- March 28, 2015 @ 11 am - Dana Ehret of the Alabama Museum of Natural History, the University of Alabama, Tuscaloosa, Alabama, “New Fossil Finds for the Alabama Museum of Natural History”
- April 11, 2015 @ 11 am - Art and Science and Making It Up As I Go Along: How to Create Paleo Restoration Models. Rick Spears of the Fernbank Science Center, Atlanta, Georgia
- Friday, May 1, 2015 @ 11:30am - Artists Talk, Paleoart and the Work of Karen Carr, Karen Carr, International Paleoartist of New Mexico

Fossil Exhibition





Dana Ehret of the Natural History Museum, Tuscaloosa, Alabama presented "New Fossil Finds for 2014" on March 28, 2015





Above Left: Dr. Dana Ehret speaks with Wayne Atchison and Mary Belmont.

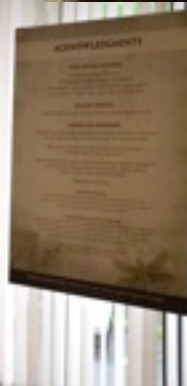


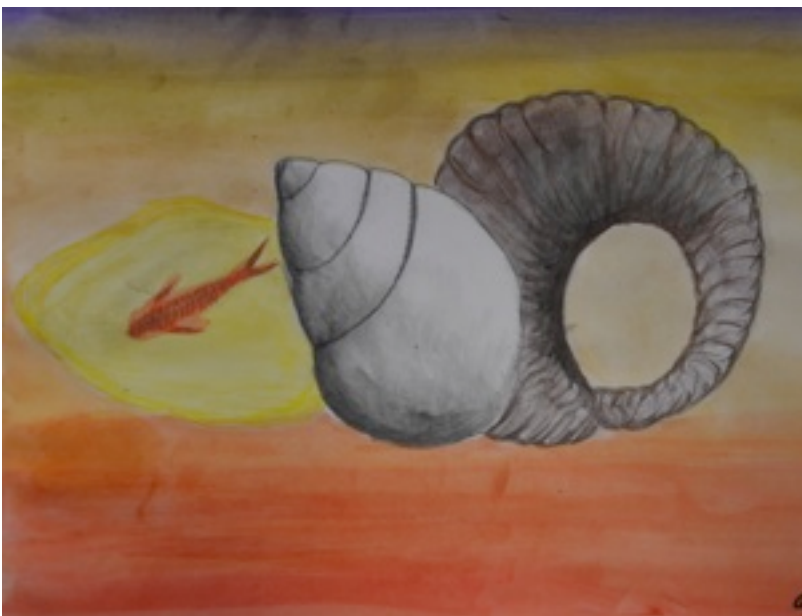
Below Left: Fossils and three-dimensionally printed replicas from the Natural History Museum, Tuscaloosa, Alabama.

Fossil Friday

High School Students participate in a fossil sketching field trip, April 10, 2015.

Participating Schools:
Wetumpka High School
and Elmore County High School







Above: Hope Brannon conducts a tour about the Wetumpka Impact Crater during Fossil Friday at the Kelly Fitzpatrick Memorial Gallery.

Below: Students from Elmore County High School drawing fossils.



Fern Fossil
Pennsylvanian Period: Coal Age

Fossil ferns are possibly the most abundant and recognizable of all fossil plants. Almost all of the so-called fossil ferns are actually seed ferns. Seed ferns are extinct plants (gymnosperms), which resembled true ferns, but reproduced by seeds rather than spores. During the Pennsylvanian Period, billions of fern plants covered the forest floor and outlying swampy regions. Now fossilized, these ferns formed dense, fossil-rich layers dozens of feet thick and miles long. It is thought that coal deposits are made up by millions and millions of fern plants buried in peat bogs and compressed into coal over many millennia. Plates of fossilized seed fern fronds are commonly displayed in major museums around the world.

Collection of Mr. and Mrs. Joe Champion



Fern Fossil



Collection of Mr. and Mrs. M.H. Young

Alabama Coal

Coal is a non-renewable energy source because it takes millions of years to form. That means what is in the ground now is all there is and we can't realistically make more.

The energy in coal comes from energy that was stored in giant plants that lived hundreds of millions of years ago in swamp forests, even before the dinosaurs! When these giant plants and ferns died, they formed layers at the bottom of the swamps.

Water and dirt began to pile up on top of the dead plant remains. Over thousands of years pressure and heat would build up on top of the plant remains, undergoing chemical and physical changes and pushing out the oxygen, turning these remains into what we call coal.

During the Pennsylvanian Period Alabama's coal-forming swamps contained a diverse assortment of primitive plants and a complex community of animal life. The vegetation ranged in size from huge; spore forming trees to tiny, rambling vines and ferns. Many of these plant types became extinct before the Age of Dinosaurs, but a few still have relatives living in special environments within the state today. These fossils provide a fascinating glimpse of an ancient ecosystem quite unlike any that exists on earth today. It is thought that Alabama's Coal Age rocks hold by far the most complete record of terrestrial life of any part of our states geologic past.

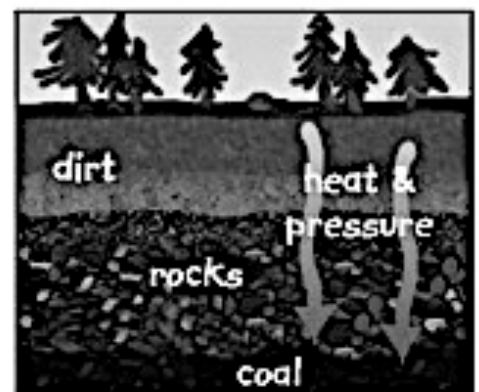
Collection of Mr. and Mrs. Joe Champion



Swamps and giant plants hundreds of millions of years ago covered the earth.



Water and dirt covered the plant remains 100 million years ago.



Rocks, dirt and sediment created pressure and heat to form coal deep in the ground.



Ammonites

Extinct group of marine invertebrate animals in the subclass Ammonoidea of the class Cephalopoda.

Ammonites were large coiled cephalopods that were common during the Cretaceous period. Their fossils range from faint impressions in chalk to well preserved shells. They were also alive during the Mississippian Period

Collection of Ms. Jennifer Grant
Collected Morocco



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Collected Catoma Creek, Montgomery County, Alabama
Collector: Alicen Grant and Forrest McConnell



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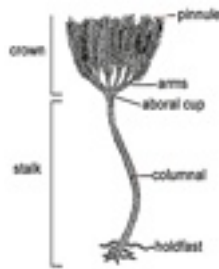
Collection of Mr. and Mrs. M.H. Young

Echinoderm

Crinoid Stem Fossils

These relatives of the modern starfish and sea urchins are among the most common and widely distributed Mississippian period fossils. Crinoids are found in the limestones of the Tennessee Valley region, but complete specimens are extremely rare.

Crinoids, also known as sea lilies or feather stars can still be found in the oceans today, however were much more abundant in the geological past. When alive crinoids are essentially characterized by having a mouth at the top of a long stem, which is surround by five feeding arms. Once the crinoids dies the delicate feeding arms usually get destroyed and the stem, which is made up of a series of hard, calcareous "polo" shaped disc, disarticulate (i.e. break apart) and are deposited in the sediment. These are called crinoids ossicles.



Collection of Mr. and Mrs. Joe Champion





Corals

Brain Coral, Two Pound

Cyathophyllum is a colonial coral found occasionally in the Bangor Limestone.

Lithostrotion is a common colonial coral found in the Tuscaloosa Limestone.

Corals are very strange marine animals. Most of the Corals alive today have survived since the Cambrian or even the Pre-Cambrian. Corals take very different shapes and colors. Corals are not vegetarian; if another Coral invades or grows big enough to touch the other, they will try to eat each other.

Collection of Mr. and Mrs. Joe Champion



Amber Polished and Unpolished

Amber is fossilized tree resin (not sap), which has been appreciated for its color and natural beauty since Neolithic times. Much valued from antiquity to the present as a gemstone, amber is made into a variety of decorative objects. Amber is used as an ingredient in perfumes, as a healing agent in folk medicine, and as jewelry.

There are five classes of amber, defined on the basis of their chemical constituents. Because it originates as a soft, sticky tree resin, amber sometimes contains animal and plant material as inclusions.



Collection of Mr. and Mrs. Joe Champion



Phareodus
Fossil Lake's Green River Formation, Wyoming

Phareodus encaustus is readily distinguished by its long pectoral fin and large pointed teeth. The teeth testify to the fish's likely carnivorous behavior, and so too the scales often found preserved in the stomach. In fact, the name means "to have tooth". A member of family Osteoglossidae, it has extant cousins found in Central-South America and Southeast Asia.

Collection of Mr. Jimmy Brannon



Clupeiforme: Herring Fossil

Green River Formation, Wyoming

Clupeiformes is the order of ray-finned fish that includes the herring family, Clupeidae, and the anchovy family, Engraulidae. The group includes many of the most important forage and food fish.

Clupeiformes are physostomes, which means that the gas bladder has a pneumatic duct connecting it to the gut. They typically lack a lateral line, but still have the eyes, fins and scales that are common to most fish, though not all fish have these attributes. They are generally silvery fish with streamlined, spindle-shaped, bodies, and they often school. Most species eat plankton, which they filter from the water with their gill rakers.

Collection of Mr. and Mrs. Joe Champion



Herring Fossil

Green River Formation

Collection of Mr. and Mrs. M.H. Young

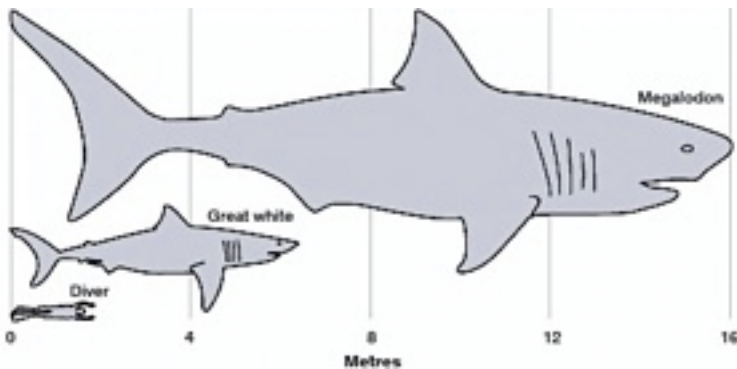


Fish Fossil

Collection of Mr. and Mrs. M.H. Young

Shark Teeth (small)

Not only was Megalodon the biggest prehistoric shark that ever lived; it was the largest predatory marine creature in the history of the planet, vastly outweighing both the modern Great White Shark and ancient reptiles like Liopleurodon and Kronosaurus. Technically, Megalodon is known as *Carcharodon megalodon*--meaning it's a species (Megalodon) of a larger shark genus (*Carcharodon*). Also technically, the modern Great White Shark is known as *Carcharodon carcharias*, meaning it belongs to the same genus as Megalodon. However, not all paleontologists agree with this classification, claiming that Megalodon and the Great White arrived at their striking similarities via the process of convergent evolution.

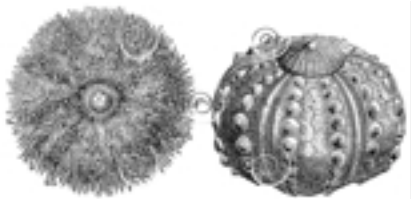


Collection of Mr. and Mrs. Joe Champion



Clypeaster Echinoderm

Clypeaster, common name "cake urchins" or "sea biscuits", is a genus of echinoderms belonging to the family Clypeasteridae. The genus name Clypeaster is derived from the Latin "clypeus" (meaning round shield) and "aster" (meaning star), with reference to the shape of these organisms. Clypeasters have a worldwide distribution. Fossils can be found from late Eocene (33.9–37.2 mya) to Recent age.



Collection of Mr. and Mrs. Joe Champion





Sand Dollar Echinoderm

The term sand dollar (or sea cookie or snapper biscuit in New Zealand, or pansy shell in South Africa) refers to species of extremely flattened, burrowing sea urchins belonging to the order Clypeasteroida. Some species within the order, not quite as flat, are known as sea biscuits. Related animals include the sea urchins, sea cucumbers and starfish. The ancestors of sand dollars diverged from the other irregular echinoids, namely the cassiduloids, during the early Jurassic, with the first true sand dollar genus, *Togocyamus*, arising during the Paleocene. Soon after *Togocyamus*, more modern-looking groups emerged during the Eocene.



Collection of Mr. and Mrs. Joe Champion



Echinoid

Echinoids are one of the more diverse and successful echinoderm groups today, including familiar echinoderms such as the sea urchins and sand dollars.

Collected Catoma Creek, Montgomery County
Collector: Jennifer Grant



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Collection of Mr. and Mrs. M.H. Young



Petrified Wood

Petrified Wood is a very well known fossil plant. Under certain conditions, entire trees, even entire forests, can become fossilized. In the petrification process, the solid trunk of a tree is replaced cell by cell by a mineral, usually silica. The cellular structure of the tree is then an exact replica of the original tree, only it is now solid rock. The beautiful colors associated with petrified wood come from the trace elements associated with the mineral that replaced it. Red, yellow, orange, and green are examples of the vibrant colors that can be found in petrified wood. Colorful pieces of petrified wood are probably the most displayed type of fossil plant available.

Collection of Mr. and Mrs. Joe Champion

Small Whale Vertebrae

Did whales exist during the dinosaur era? The simple answer is: no. Whales are mammals that evolved in the Cenozoic era. Dinosaurs predate whale evolution, and existed in the Mesozoic era.

To give an idea: the last dinosaurs died out 65 million years ago. This is the end of the Mesozoic era. It's typically referred to as the K-T boundary, and the cataclysmic event that caused this extinction is usually called the K-T event: K for Cretaceous, T for Tertiary. That doesn't make much sense until you realize that; C is for Cambrian, and the K was chosen by German scientists.

Whales are thought to have evolved from an ancestor similar to modern day hippos (this means both whales and hippos can be traced back to a common ancestor) about 54 million years ago. That's at least 11 million years after dinosaurs died out.

What can happen in millions of years? A lot...

The ambulocetus ("walking whale") formed about 50 million years ago.

The protocetus ("early whale") appears around 45 million years ago.

The basilosaurus ("king lizard") rather unfortunately named, lived between 40-34 million years ago.

You can find many more forms, and as we get to 15 million years ago, you find creatures that look very similar to our toothed whales (dolphins, orca, etc.) and you find creatures that look very similar to our baleen whales (humpbacks, blue whales, etc.) by this point, all traces (aside from some vestigial bones) of legs are gone. Hands look like flippers and the "melon organ" for echolocation is present.

Collection of Mr. and Mrs. Joe Champion





Orthoceras: Squid Fossil Formation
Cephalopod
Green River Formation, Wyoming

Orthoceratoids are common fossils from the Paleozoic age. Part of the cephalopod group that today has squid and nautilus in it, the orthoceratoid is really just a straightened or uncoiled ammonite shape, sharing the same chamber design used for ballast, with a through-hole (siphuncle) that allowed the animal to trim its depth by adding or removing fluid. Sometimes called 'pagoda stones' because they resemble Chinese temples, many orthoceratoids are found in extensive fossil beds in Morocco, North Africa.

Orthoceratoids are common fossils from the Paleozoic age. They have a straightened or uncoiled ammonite shape. The Orthoceratoidea are a class of cephalopod. Still living cephalopods include octopuses, squid, and cuttlefish - as well as the nautilus. In the past, cephalopods were far more abundant than they are today and there were far more varieties of them. Also in the past, some cephalopods grew to incredible sizes - some having shells more than six feet across. Here is an image of what an Orthoceratoidea looked like when it was alive.





Mercenaria campechiensis
Bivalve

"Southern" species of hard clam, *Mercenaria campechiensis*, a.k.a. the southern quahog, that is found in the south Atlantic and the Gulf of Mexico. The thickness of the shell is determined by the climate of the time the shell was grown, but more specifically due to water temperature and salinity. The higher the water temp and salinity, the more favorable the conditions are for calcification and shell growth. Carbon dating tests are needed to determine how old the clam is, but based on the growth rings, whenever it was alive, it lived a very long life!

Collection of Mr. and Mrs. Joe Champion



Exogyra

An ancient oyster.

Collected South Dallas County
Collector: Alicen Grant



Exogyra

An ancient oyster.

Collected South Dallas County
Collector: Alicen Grant



Exogyra

An ancient oyster.

Collected South Dallas County
Collector: Alicen Grant



Exogyra

An ancient oyster.

Collected South Dallas County
Collector: Alicen Grant



Dinosaur Bone

Collected Como Bluff, Wyoming
Collector: Jennifer Grant



Belemnites

Marine cephalopod, very similar in many ways to the modern squid and closely related to the modern cuttlefish.

Collected Grey Bull, Wyoming
Collector: Jennifer Grant



Trilobite

Collection of Mr. and Mrs. M.H. Young



Collection of Mr. and Mrs. M.H. Young

Collected Volga River Area, North Caucasus, Russia



Collection of Mr. and Mrs. M.H. Young



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Collection of Mr. and Mrs. M.H. Young



Ohio River

Collection of Ms. K. Ellis



Ohio River

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