

HUI PŌHAKU 'Ō HAWAI'I

Rock & Mineral Society of Hawai'i, Inc.



Meeting Times

MEETING

Wednesday
August 28, 2019

6:15-8:00 pm

Makiki District Park
Admin Building

Next Months Topic
Corundum / Opal

LAPIDARY

Every Thursday

6:00-8:00pm

Cleanup @ 7:45pm
Makiki District Park
2nd floor Arts and
Crafts Bldg

MEMBERSHIP

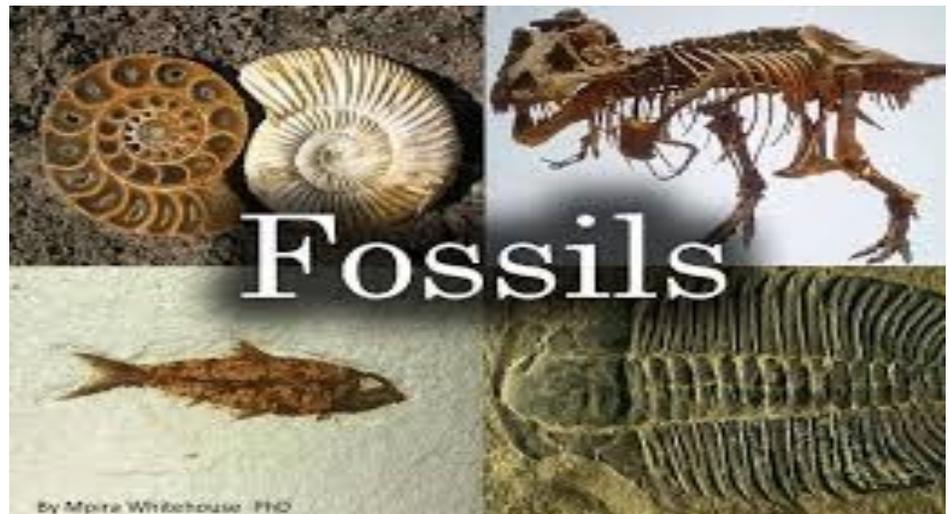
DUE COSTS 2019

Single: \$10.00

Family: \$15.00

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Hawai'i, Inc.
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FOSSILS



Fossils are precious gifts from the geologic past revealing signs of an ancient life that is preserved within the Earth's crust. The word fossil has a Latin origin from the word fossilis meaning "dug up". Fossils provide us evidence upon the history about life on Earth revealing past climates and environments billions of years ago.

There are two main types of fossils which are called body and trace. Body fossils include the remains of organisms that were once living such as bones, shells, eggs, teeth, etc. Trace fossils are signs of past organisms that were once present by revealing footprints, tracks, burrow and coprolites (dung). Most importantly these fossils give us patterns of behavior and habitat.

Fossilization of any organism requires a unique set of circumstances so that it won't just decay without a trace. These conditions include.....

1. Rapid and permanent burial / entombment
2. Lack of oxygen that limits decay and scavenging
3. Continued sediment accumulation
4. Absence of heat or compression which might destroy the fossil.

One of the most fascinating patterns revealed by fossils record a number of mass extinctions. Although the extinction of dinosaurs is most famous, the largest mass extinction in Earth's history occurred at the end of the Permian period about 250 million years ago.

In this catastrophic event, it was estimated that over 95% of all the species on Earth went extinct!. The cause of this mass extinction is not definitely known but most scientists believe that collisions with comets and asteroids were the cause of these disasters.

FOSSILS



PERMINERALIZATION OR PERTIFICATION

After an organism is buried, materials such as silica, calcite or pyrite replaces the organic mineral in the fossil.

Some common examples are dinosaur bones, petrified wood and many trilobite fossils.

Permineralization will preserve most small details including cell structure.



MOLDS AND CASTS

A mold is when the organism decays leaving an impression in the rock.

A cast is when that mold has been filled with rock and minerals.



CARBONIZATION

Carbonization is a process in which more volatile substances of the organism is removed (hydrogen, oxygen, nitrogen), leaving behind only carbon.

These fossils appear as a dark, thin film on a rock. This type of preservation is common among plant fossils.



UNALTERED PRESERVATION

The original material of the organism has not been changed to another substance. Some examples include freezing, mummification, and fossilization in Amber.



REPLACEMENT and RECRYSTALLIZATION

Replacement occurs when the shell, bone or other tissue is replaced by another mineral.

A shell is said to be recrystallized when the original skeletal compounds are still present but in a different form such as a fossilized clam shell.

FOSSILS

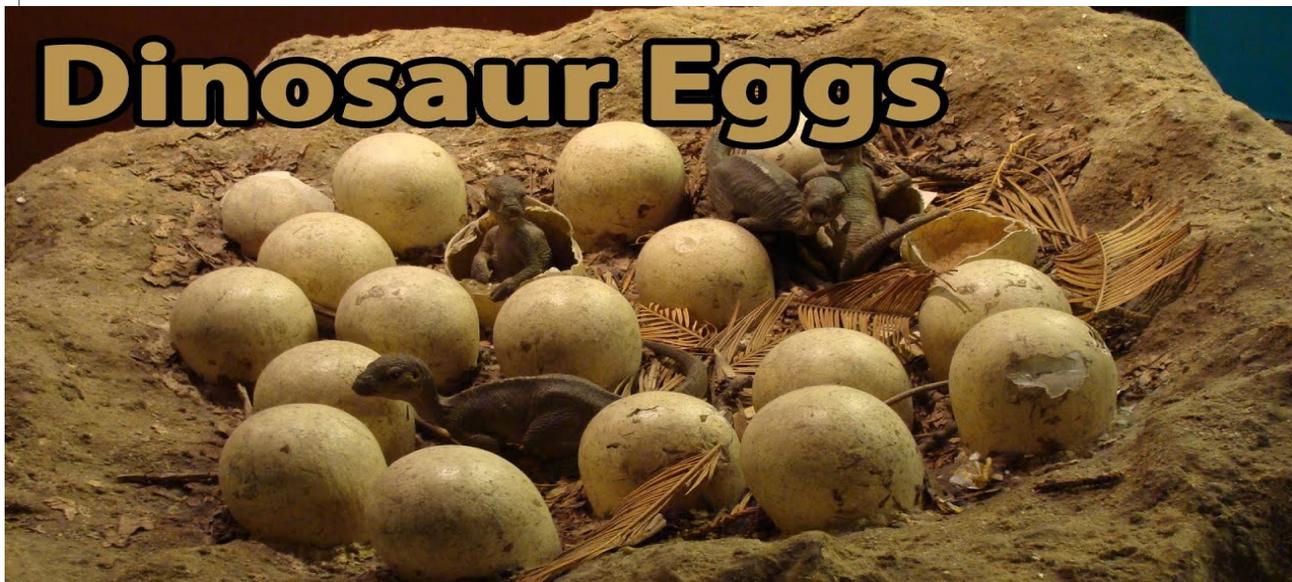


PALEONTOLOGY

Paleontology is the study of fossils to determine an organisms evolution and environment.

Paleontology lies on the border between biology and geology but it excludes the study of humans.

The study of paleontology includes biochemistry, mathematics, and engineering to discover much of the evolutionary history of life.



Dinosaur Eggs



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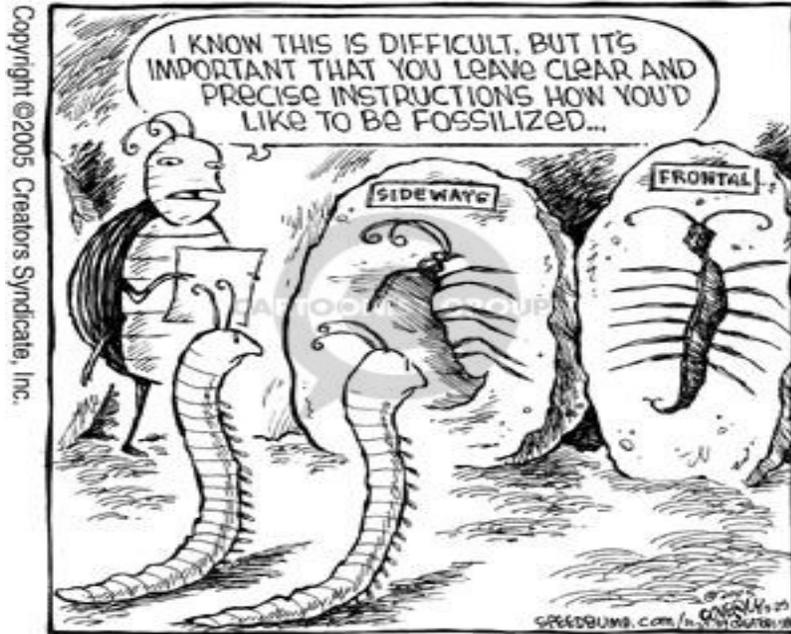
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DOOR PRIZES

Please note that we have instituted door prize drawings at our monthly meetings. Because of Hawaii's gambling laws, these drawings cannot be conducted in the common "raffle" format where tickets are sold. Rather, each *paid* member attending the meeting will receive a drawing ticket upon request. A voluntary donation of \$1.00 is requested and encouraged. Drawings will be conducted at the end of the meeting with available prizes awarded in random order. You must be present to win. Please remember: if you win a prize, please bring one to the next meeting. This helps to keep our drawings going. Thank you.



The Rock & Mineral Society meets on the 4th Wednesday of each month (except for adjusted dates in November and December) at the Makiki District Park, 6:15-8 pm. Enter from Keeaumoku Street. Parking is free but limited.

The Newsletter is published monthly, some days prior to the meetings and is distributed in electronic format by email (Adobe Acrobat PDF file attachment). Printed copies are "snail" mailed to those who do not have email. The electronic format usually contains full-color images; the print version may be limited to B&W due to reproduction costs.

But most of this is made possible by burning fossil fuels such as oil, coal and gas. These literally come from fossils, dead animals and plants squashed in the ground for hundreds of millions of years

When burnt, fossil fuels produce greenhouse gases such as carbon dioxide*

Another greenhouse gas is methane* from large farms with lots of animals, especially cows, farting and belching

*carbon dioxide CO₂
*methane CH₄

