

MAGS EXPLORER



Memphis Archaeological and Geological Society Youth Newsletter

March 14, 2003 • Volume 2, Number 3

Machu Picchu [mä'chOO pEk'chOO]

Join Roger Van Cleef tonight as he takes us on a journey into South America.

Machu Picchu, an Inca site in Peru, is about 50 miles (80 kilometers) northwest of Cuzco. It is perched high upon a rock in a narrow saddle between two sharp mountain peaks and overlooks the Urubamba River 2,000 feet (600 meters) below. Ignored and later forgotten by Spanish colonial authorities because of its abandoned condition, the site was rediscovered in 1911 by the American explorer named Hiram Bingham. This incredible city is one of the largest pre-Columbian sites found. It contains rare examples of religious monuments, including a carved stone (the Intiwatana), a small tower (the Torreón), and a cave with a masonry entrance (the Intimachay). These shrines, and others, were generally destroyed by the Spanish government. Possibly the most spectacular ruin in the Americas, Machu Picchu spreads over 5 square miles (13 square kilometers), with over 3,000 steps linking its many different levels. It shows great architectural design and

construction, including a terracing system built on extremely steep terrain. Archaeological and historical evidence shows that it was a mountain retreat of the Inca

leader Pachacuti Yupanqui, who ruled from

1438 until 1471. Archaeologists have

suggested that the site may have

been a religious sanctuary and that

the masonry windows at two of

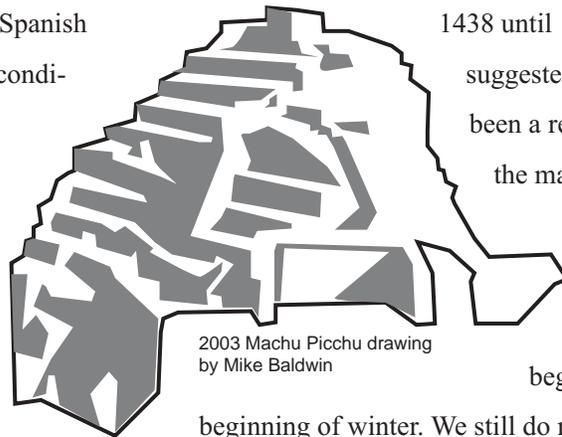
its monuments may have

been lined up in such a

way as to define the

beginning of summer and the

beginning of winter. We still do not know whether the great number of steep walls at Machu Picchu and surrounding Inca sites were built as military fortifications or simply to show the boundaries of these special places.



2003 Machu Picchu drawing by Mike Baldwin

Machu Picchu; Infoplease.com; <http://www.infoplease.com/ce6/sci/A0830941.html>; 01 March 2003. Reprinted for educational purposes under the "fair use" provision of the United States Copyright Act of 1976.

MAGS Explorer is published monthly by and for the youth members of the Memphis Archaeological and Geological Society. Please send your comments and articles to Editor Mike Baldwin, 367 N. Main St., Collierville, TN 38017 or rockclub@earthlink.net. Youth can give articles, artwork, poems, puzzles, experiments, or stories to co-editors Jennifer Baldwin, Emily Randolph, Kelly Baldwin, or Abbey Randolph.

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COLORING PAGE



ARCHAEOPTERYX [“ancient wing’] is the earliest fossil bird known, dating from the Jurassic period. Because it has many dinosaurian features, such as sharp teeth and a long bony tail, many experts believe it to be descended from the coelosaurs. Archaeopteryx had stumpy wings with feathers, and was probably capable of short bursts of flight. It was about the size of a modern crow.



This page is from *The Dinosaur Coloring Book*, Anthony Rao, Dover Publishing, New York, NY, 1980. Reprinted for educational purposes under the “fair use” provision of the U.S. Copyright Act.

EARTH SCIENCE EXPERIMENT

PRINTS

Purpose: To demonstrate how fossils were preserved.

Materials: paper plate • paper cup • modeling clay • seashell • petroleum jelly • plaster of Paris • plastic spoon

Procedure:

- [1] Place a piece of clay about the size of a lemon on the paper plate.
- [2] Rub the outside of the seashell with petroleum jelly.
- [3] Press the seashell into the clay.
- [4] Carefully remove the seashell so that a clear imprint of the shell remains in the clay.
- [5] Mix four spoons of plaster of Paris with 2 spoons of water in a paper cup.
- [6] Pour the plaster mixture into the imprint in the clay. Throw the paper cup and plastic spoon away.
- [7] Allow the plaster to harden for 15-20 minutes.
- [8] Separate the clay from the plaster mold.

Results: The clay has an imprint of the outside of the seashell and the plaster looks like the outside of the shell.

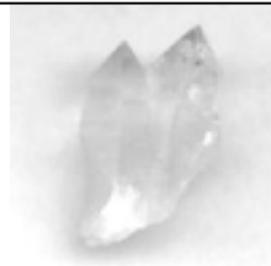
Why? The layer of clay and the plaster are both examples of fossils. The clay represents the soft mud of ancient times. Organisms made imprints in the mud. If nothing collected in the prints, the mud dried, forming what is now called a cast fossil. When sediments filled the imprint, a sedimentary rock formed with the print of the organism on the outside. This type of fossil is called a mold fossil.



QUARTZ

Rock quartz is clear.

Turn the page and cut out the Quartz Specimen Card for your collection.



Janice VanCleave, *Earth Science For Every Kid: 101 Easy Experiments That Really Work*; John Wiley and Sons, Inc.; New York New York; 1991. Reprinted for educational purposes under the "fair use" provision of the United States Copyright Act of 1976.

WHAT'S THE MEANING OF THIS?

Archaeology [archeology] is the science that deals with past human life and culture as shown by fossil relics or by the monuments and artifacts left by ancient peoples. An *artifact* is a man-made object taken as a whole. A *fossil* is the remains (or an impression) of a plant or animal that existed in a past geological age and that has been excavated from the soil.

Culture refers to a particular society at a particular time and place, such as the Incan culture at Machu Picchu.



GEOLOGY CHALLENGE

“The Age of Dinosaurs”

The Mesozoic era is most familiar as the “Age of Dinosaurs.” These magnificent creatures appeared, reigned for 100 million years, and then disappeared. The dinosaurs were a very diverse group that inhabited land, sea, and air. Some dinosaurs were warm-blooded, formed social groups, and protected their young. Some dinosaurs, such as *Ultrasaurus*, which may have weighed up to 100 tons, were the largest animals that have ever walked the earth, while other dinosaur species, such as *Compsognathus*, were as small as chickens. *Compsognathus* was about 20 centimeters tall and weighed only about 2 kilograms. Paleontologists group dinosaurs into two groups based on their pelvic bone structure.

The Mesozoic is also the time when mammals appeared. Mammals did not diversity and expand very much until the dinosaurs were extinct. The Mesozoic was also an important time for plants. Paleobiologists call this the era the “Age of Cycads.” Cycads are non-flowering seed plants.

CHECK IT OUT

The “Age of Dinosaurs” belongs to which span of geologic time?

- [a] Paleozoic era [c] Mesozoic era
 [b] Cenozoic era [d] Archaeozoic era

Michael Bentley, *High School Review: Earth Science: Princeton Review Publishing, L.L.C.; New York New York; 1998; pg. 265.*
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March Field Trip Gray Farm, Alabama

March 22, 2003 is the date for MAGS’ Field Trip to the Gray Farm, near Tuscumbia in Colbert County, Alabama. We will be collecting carboniferous (Mississippian) period fossils, such as blastoids, archimedes, brachiopods, sponges and trilobites. Don’t miss this one kids. We always find some neat stuff there!

NOTES FROM THE MEETING

Name: Quartz SiO₂
 Hardness: 7
 Streak: white
 Crystals: Trigonal-Trapezohedral
 Color: brown, colorless, violet, gray, yellow
 location: North Little Rock, AR

1. What is the name of the March Specimen-of-the-Month?

2. Cut out the specimen card and put it with your mineral specimen.
3. Write down a few interesting things about South America.

This is your newsletter. Put your name on it, and take it home with you.

Your Name _____

