Dino Dung

Dung. Waste. Poop. It all means the same thing. When an animal eats, its body harvests nutrients from food. These nutrients include vitamins, proteins, and fats. However, a body might not require everything contained in the food. Sometimes the body is unable to digest certain materials and has to get rid of these leftovers. The result is dung.

Living bodies may have no use for dung, but dung can be remarkably hardy. In fact, dung from creatures that lived millions of years ago still exists today. Over time, the dung hardened and was preserved as a fossil. The scientific term for fossilized animal dung is "coprolite." Like all fossils, coprolite can provide vast amounts of information about the past. Knowledge about the past provides scientists with insight into the present and helps them make predictions about the future.

The people who study fossils are called paleontologists. Paleontology is a field of science that focuses on discovering information about ancient Earth through fossils. A fossil alone provides some information about ancient creatures. However, when they are analyzed using the proper knowledge and tools, fossils can reveal how entire species lived and died in the past.

A paleontologist uses a hammer and a chisel to unearth a fossil from the surrounding rock.

Paleontologists contribute to many different scientific fields. To study animals from the past, they must understand biology. To know how to dig fossils up from the ground, they must understand geology. Other fields that are related to paleontology include ecology, archaeology, botany, and anthropology. Paleontologists must also know computer science to use the modern tools that help them locate and study fossils.

Unlike many scientists who work in labs, paleontologists usually work in the field. Fossils are often found buried between layers of earth. In order to study these fossils, paleontologists must dig them up. Paleontologists study all kinds of fossils, even microscopic ones and footprints. They even study dung. A

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paleontologist might be thrilled to find a pile of old dung. He or she could tell a great many things about the ancient animal just from its leftover waste.

This fossilized dung may hold answers about ancient diets. It may also reveal information about the past climate and landscape of the area.

First, a paleontologist must determine what type of animal the fossil dung came from. Next, the paleontologist can begin to collect data about that animal. Remember that dung is leftover waste from food. By analyzing fossil dung, a paleontologist can determine what type of food the ancient animal ate. On a recent dig in India, paleontologists discovered some fossilized dung. When they collected samples of the dung and looked at the samples under microscopes, they saw certain structures that are found only in plant cells. Animals are unable to digest these structures, so they always come out in dung. From this evidence, the paleontologists determined that certain large dinosaurs ate at least five different types of grasses. This was shocking because scientists didn't think that dinosaurs ate grass. The dung gave us new insight into dinosaur diets. Experts were even able to determine that the grasses grew in ancient forests and were several meters tall.

Fossilized dung can also provide clues about the history of an area's landscape and climate. For many years, scientists thought that grasses did not exist on Earth until after the dinosaurs became extinct. The fossilized dung found in India proved this hypothesis wrong.

Another recent discovery took place in the southwestern United States. Paleontologists found a huge deposit of fossilized dung in a cave in Utah. The dung covered over 300 square meters and was over 40 centimeters thick. The scientists were able to determine that the dung came from mammoths, extinct ancestors of modern elephants. This dung indicated to paleontologists that mammoths once roamed this part of the world. From this knowledge, the paleontologists formed

hypotheses about past climates in this part of the United States. In general, mammoths lived where temperatures were extremely cold. Therefore, when mammoths lived in southern Utah, the region, which today is very hot and dry, must have been much colder. Most likely, it was experiencing an Ice Age.

What else did the dung reveal about the past? Paleontologists again took samples of the fossilized dung for analysis. They discovered that 95% of the dung was composed of grasses. They also found evidence of saltbush, sagebrush, birch, spruce, and other woody plants. This proves that these types of plants existed in this area of the world. It also proves that mammoths, much like present-day elephants, ate large amounts of grass. Fossilized dung provides information about possible ancestral ties and the path of evolution.

This statue shows what mammoths might have looked like when they roamed the southwestern United States tens of thousands of years ago.

Paleontology is an exciting field of study because new discoveries are always being unearthed. Paleontologists perform science in the field, studying organisms that lived and died millions of years ago. Although humans weren't yet around to record history, records of the past still exist. They are found in the bones, footprints, and dung of ancient animals. Paleontologists can communicate this history to the rest of us. They just have to be prepared to get their hands a little dirty.