

Divers uncover mysteries of earliest inhabitants of Americas deep inside Yucatan caves

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A diver from Centro Investigador del Sistema Acuifero de Q Roo (CINDAQ A.C.) collects charcoal samples in the oldest ochre mine ever found in the Americas, used 10,000-12,000 years ago by the earliest inhabitants of the Western hemisphere to procure the ancient commodity. The charcoal is thought to come from wood burned to light the cave for the ancient miners. The mine holds some the best-preserved evidence of the earliest inhabitants of the hemisphere and was found in a cave that is now underwater in Mexico's Yucatan Peninsula. Credit: © CINDAQ.ORG

It was all about the ochre.

Thousands of years ago, the first inhabitants of the Americas journeyed deep into caves in present-day Mexico to mine [red ochre](#), a highly valued, natural clay earth pigment used as paint.

Now, according to a new study, scientists and divers have discovered the first evidence of this mining operation deep within underwater caves in Mexico's Yucatan Peninsula.

"What is remarkable is not only the preservation of the mining activity, but also the age and duration of it," said study lead author Brandi MacDonald of the University of Missouri. "We rarely, if ever, get to observe such clear evidence of ochre pigment mining of Paleoindian age in North America, so to get to explore and interpret this is an incredible opportunity for us.

"Our study reinforces the notion that ochre has long been an important material throughout [human history](#)."

While MacDonald and her colleagues are uncertain exactly how this ochre was used, evidence from other parts of North America suggest it may have been used as an antiseptic, sunscreen or vermin repellent or for ritual and symbolic purposes such as funerals or art decoration.



from a piece of speleothem and used 10,000-12,000 years ago by the earliest inhabitants of the Western hemisphere to mine for ochre in the oldest such site ever found in the Americas. The mine holds some the best-preserved evidence of the earliest inhabitants of the hemisphere and was found in a cave that is now underwater in Mexico's Yucatan Peninsula. Credit: © CINDAQ.ORG

Scientists said it's the oldest known ochre mine in the Americas.

This evidence of ancient cave exploration and mining spans a period of many generations over about 2,000 years and dates from 12,000 to 10,000 years ago, according to the study. That was 8,000 years before the establishment of the Maya culture for which the region is well

known.

The caves have all filled with water in the thousands of years since the original mining was done because of rising sea levels that led to floods.

Cave divers made the discovery hundreds of feet into an underwater cave, at some points squeezing themselves through tiny crevices to reach the find. During nearly 100 dives totaling more than 600 hours, divers found extensive evidence of the prehistoric ochre mining operations.

The finds included remarkably preserved ochre extraction beds and pits, digging tools, shattered debris that has been piled by human effort, navigational markers and fire pits.



A diver from Centro Investigador del Sistema Acuífero de Q Roo (CINDAQ A.C.) in the oldest ochre mine ever found in the Western hemisphere, used 10,000-12,000 years ago by the earliest inhabitants of the hemisphere to procure

the ancient commodity. The mine holds some the best-preserved evidence these ancient peoples was found in a cave that is now underwater in Mexico's Yucatan Peninsula. Credit: © CINDAQ.ORG

"Most evidence of ancient [mining](#) on the surface has been altered through natural and human processes, obscuring the record," said study co-author Eduard Reinhardt, expert [diver](#) and professor at McMaster University in Ontario. "These [underwater caves](#) are a time capsule. With all the tools left as they were 10,000 to 12,000 years ago, it represents a unique learning opportunity."

In addition to the international team of scientists, the divers were also from Mexico's National Institute of Anthropology and History and from the Quintana Roo Aquifer System Research Center (CINDAQ).

Experts say the find is only the beginning of discoveries possible in the caves of the Yucatan.

"It is not what we have found so far, but what we have yet to discover that gets us out of bed every morning," said Sam Meacham, [cave](#) exploration researcher and founder of CINDAQ. "We have no doubt that there is so much more out there just waiting to be found and understood."

The study was published Friday in the peer-reviewed journal *Science Advances*.

More information: B.L. MacDonald et al., "Paleoindian ochre mines in the submerged caves of the Yucatán Peninsula, Quintana Roo, Mexico," *Science Advances* (2020). [advances.sciencemag.org/lookup...1126/sciadv.aba1219](https://advances.sciencemag.org/lookup?...1126/sciadv.aba1219)

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