

Hello again, and welcome. I'm Jim Tedder in Washington. Today we take you to a very, very busy place in one of America's largest cities. There we will find scientists down on their hands and knees looking for unusual creatures from the distant past.

Then Steve Ember comes by to talk about a subject that nearly everyone loves ...photography. Today we will hear about an effort to save some early pictures from being destroyed by time.

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Creatures such as fierce-looking saber toothed cats once lived in what is now the second largest city in the United States. The animals' ancient remains are still being found at the La Brea Tar Pits in Los Angeles, California, a century after scientists first began their digging. Today, scientists from all over the world are examining some of these fossils for clues about climate change.

Tall buildings and traffic in the heart of Los Angeles surround pools of thick, gooey tar. Scientists come there to unearth animal remains under the bubbling material.

Shelley Cox praises the chance to work with these fossils. To her, they are treasure.

“I get excited about a mouse toe!”

Shelley Cox cleans the fossils in a laboratory called the Fish Bowl. It is in the George C. Page Museum in Los Angeles, which houses fossils of animals and plants trapped and preserved by the tar at the La Brea Tar Pits. Some of the remains are more than 40 thousand years old.

“We have such a variety of fossils that there is almost something for everyone preserved right here.”

These ancient remains are the reason why paleontologists from around the world come to study the discoveries. Chief Curator John Harris says even saber tooth cats and mammoths could save themselves from the thick, sticky material that caught them in a death-hold.

“They got stuck in asphalt, stuck like flies on fly paper. If they were lucky, they succumbed to hunger and thirst after about a week. If they were unlucky, they were torn apart by wandering predators and scavengers.”

In the past, paleontologists centered their work on large mammals. But the remains of smaller creatures such as snails or insects are now getting more attention. These microfossils give scientists a better picture of the ancient ecosystem. They also tell the scientists how climate change affects organisms.

The large mammals are extinct, gone forever. The “young” creatures that developed from them do not necessarily live in the same area as their ancestors.

“Well, if we have some idea of how life changes when we have changes in climate, then we can take steps when we are actually experiencing those same climatic changes ourselves.”

Scientists say the plants and animals preserved in tar can tell them how global warming in the past affected ancient organisms. The experts say the creatures and plants can help show which species may face the most danger as the modern Earth gets warmer.

## **Smile and say, “Cheese!”**

If you ever get have the opportunity to visit Los Angeles, and the Le Brea Tar Pits, you will probably see many tourists taking photographs of the scientists at work. Photography today is so easy, now that we can make pictures digitally. But in the early days, using a camera was not something that just anyone knew how to do. Steve Ember joins us now with information about picture taking over 150 years ago.

The invention of the daguerreotype in the 19th century led to modern photography. With daguerreotypes, people could sit for just a few minutes while their image was captured in what is now known as a photograph. Before that, people had to sit long hours for an artist to paint a picture.

America's Smithsonian Institution is now working with the Argonne National Laboratory near Chicago to study daguerreotypes. Scientists say these early photos are in danger of being lost forever.

The young woman in one daguerreotype they're working on was most likely a teenager or in her early 20s when the picture was made. Her image was captured on a copper plate with finely polished, shining silver in the middle of the 19th century.

"It was the first time you could go into a studio and have your photograph taken, and you could put it up somewhere and show it off."

That's Daniel Weinberg. He works at the Abraham Lincoln Book Shop in Chicago. He has studied many daguerreotypes. He says they are popular with collectors and historians alike.

"They're luminous, and they're almost three dimensional, and you almost want to step into one."

He also says daguerreotypes were one of a kind, not meant to be reproduced like current photographs. Louis Daguerre of France was the inventor of this first photographic process. The technology was very popular in the United States in the middle of the 1800s.

"It spread like wildfire in the United States. There were hundreds of thousands of daguerreotypes made over a 20-year span."

Ed Vicenzi is a researcher with the Smithsonian Institution. Many of the most important daguerreotypes are now stored at the Smithsonian and in the collections of the United States Library of Congress.

The images include the mysterious young woman we spoke of earlier. Ed Vicenzi calls her “Clara,” although her real name is unknown.

“We don’t know her name, her family, the state she’s from.”

What he does know is that the image is in danger of being lost in the future unless something is done to stop the breakdown of its chemical makeup.

“Daguerreotypes are actually made up of a bunch of nanoparticles on the surface that scatter the light and this is in some ways similar to the way high technology devices are made today, so we’re also interested in what did 19th century photographers know about nanotechnology unwittingly.”

“They were made at a time when the concept of nanotechnology, even the word at that time didn’t exist.”

Physicist Volker Rose is working with Ed Vicenzi at the Argonne National Laboratory. They are using the laboratory's Advanced Photon Source to learn more about the daguerreotype.

"The technology that's available at the Advanced Photon Source will allow me to study the very earliest stages of degradation of daguerreotype plates. They corrode over time, not quickly necessarily, but we need to learn the chemical mechanisms in order to understand how we can preserve these objects for the future."

Ed Vicenzi hopes his efforts at Argonne will provide the answers historians and collectors need to save these images of the past. He says this will make it possible for future generations to study, understand and appreciate what life was like in the 19th century.

Many thanks to my friend, colleague, and ...by the way...excellent photographer ... Steve Ember for that information. I'm Jim Tedder in Washington. More Learning English programs are just ahead. And there is world news at the beginning of the hour on VOA.



