

Photographing Petrified Wood

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Petrified wood is the fossilized remains of trees that were unable to organically break down due to conditions that inhibited decomposition from bacteria. Most known samples of petrified wood were alive between 15 and 375 million years ago. Examples can be found all over the world in areas where sedimentary beds allowed for trees to become trapped.

The Sample

Although this sample has not been identified by its place of origin and material, there are some clues about what it's made of. The brown and yellow in the wood show a presence of iron and manganese oxides, with quartz filling cracks that were formed later. The rest of the structure is silica which quickly fill the open gaps in the wood.

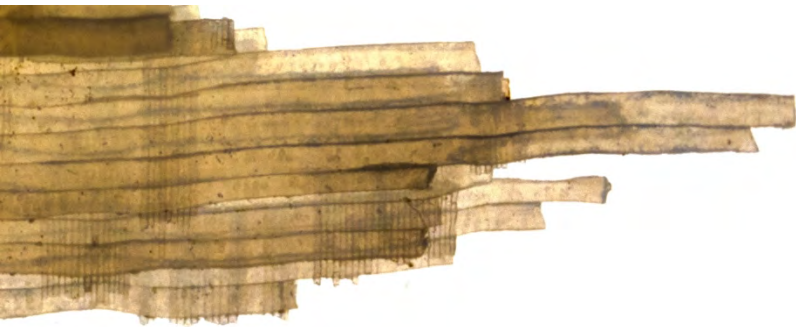


How petrified wood is formed

- Lack of oxygen
Oxygen helps bacteria and fungi break down wood, which destroys the wood before fossilization can occur.
- Pressure
Trees have a short period of time to start fossilizing, so wet sediments or mud create pressure and contain the minerals needed to replace the wood.
- Time
The process can take as little as 5 to 10 thousand years but can be further shaped over millions.



Preserved cells in the sample



Tracheid cells

Found in all vascular plants, tracheid cells transport water and provide structure for the trees. They make up most of the tree's plant matter.

Ray Cells

Ray cells run perpendicular to the Tracheid cells, and are used to store nutrients and minerals, as well as transport them outward from the center.

Photographic Process

To be able to photograph the individual cells without a microscope, a high magnification macro lens was used along with transmitted light. The advantage of this lens is the ability to capture images at 5x magnification, which was used for all transmitted light images.

Pieces of the sample were removed with a razor blade, examined, and carefully chosen to display certain characteristics such as the ray cells. The samples were placed on a plexiglass diffusion panel and directly photographed.



Equipment Used:

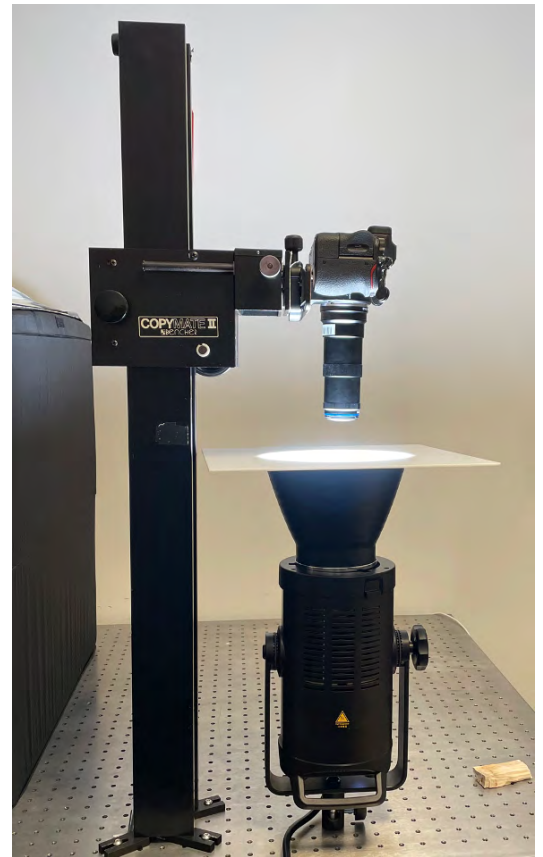
Copy-stand for precise focusing

Nikon Z7

Laowa 25mm f/2.8 Macro lens

Diffusion Panel

LED Light Source



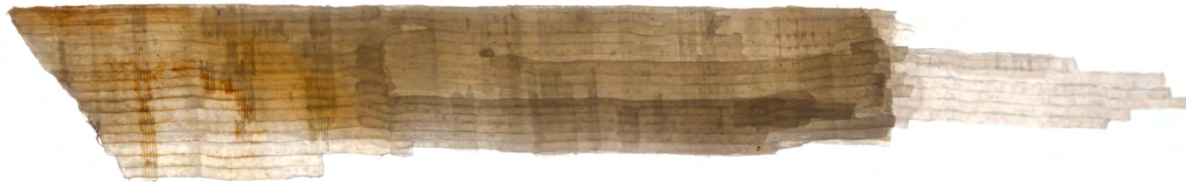
About me

I'm Wyatt Hyzer, a senior studying Photographic Sciences at the Rochester Institute of Technology. My interests span across the entire topic of imaging, and I hope to work in the development of imaging processes and optics. You can find contact information and some of my work on my website wyatthyzer.com.



This article was created as a final project in the Photomacrography course at Rochester Institute of Technology.

Special thanks to my professor Ted Kinsman for lending the sample and teaching techniques and methods for capturing these images.



Sources:

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Rock Seeker. (2022, May 23). *The Ultimate Guide to Petrified Wood (what it is and how it's made)*. Rock Seeker. Retrieved December 9, 2022, from <https://www.rockseeker.com/petrified-wood/>