

Some socks were built to last (1,700 years in the case of this one)

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A 1,700-year-old child's left-foot sock discovered in Egypt. Photo courtesy of the British Museum.

Ancient Egyptians have long been admired for their exquisitely crafted pyramids, paintings and sarcophagi. Now, researchers are really digging an Egyptian sock.

This stripy sock was discarded around the third or fourth century A.D. This was after Cleopatra had been overthrown by the Romans. After Cleopatra was removed from power the Roman Empire controlled Egypt as its province.

The sock was fished out of a landfill during the 1913–1914 excavation of the Egyptian city of Antinoopolis. The sock later ended up in the collections of the British Museum in London, England. While previous research had pinpointed its age, not much else was known about the sock. Nor is much known about its matching partner, which probably was lost to time. Perhaps it is buried in some other ancient laundry pile.

Now, new research is unraveling the sock's secrets. Scientists at the British Museum are hoping to better understand ancient Egyptian clothing manufacturing and trade. The scientists decided to analyze the dyes in the sock, along with several other textiles dating between about A.D. 250 and 800.

Special Imaging Reveals Sock Dyes

They avoided trying older techniques, which required an invasive approach that could damage the fabric. Instead they used multispectral imaging, which only needs to scan the surface of artifacts. Certain colors may have broken down to the point that they're not visible to the naked eye. Still, multispectral imaging can detect tiny color traces under different wavelengths of light. Then it combines them into a single image. Think of it as a camera for invisible ink.

Sure enough, the analysis revealed that the sock contained seven colors of wool yarn. They were woven together in a complex, stripy pattern. Just three natural, plant-based dyes were used to create the different color combinations featured on the sock, according to Joanne Dyer, a scientist at the British Museum. She's also the lead author of the study, which appears in the journal PLOS ONE, a magazine that publishes scientific studies. Red came from madder roots, blue from woad leaves and yellow from weld flowers, she said.

In the paper, she and her co-authors explain that the imaging method also revealed how the colors were mixed to create green, purple and orange. In some cases, fibers of different colors were spun together. In others, individual yarns went through multiple dye baths.

Such detail is pretty impressive, considering that ancient sock is both "tiny" and "fragile," said Dyer. Given its size and orientation, the researchers believe it may have been worn on a child's left foot.

Egyptians To Blame For Sock-Sandal Trend

The sock offers more than just a look into youth fashion trends from approximately 1,700 years ago. Analyzing its construction tells us much about the time period in which it warmed tiny feet. The period of Egypt's late antiquity is rich with history: During this time, Egypt experienced great unrest that ended with the Muslim conquest of the region in A.D. 641.

"These events affect the economy, trade, access to materials," Dyer tells Davies. This "is all reflected in the technical makeup of what people were wearing and how they were making these objects."

As it happens, socks are believed to have been used by humans since the Stone Age, many thousands of years ago. The earliest versions, though, were just animal pelts or skins meant to be wrapped around feet. These may not much resemble that Fruit of the Loom six-pack you have in your sock drawer.

The ancient Egyptians employed a single-needle looping technique, often referred to as nålbindning, to create their socks. Notably, the approach could be used to separate the big toe and four other toes in the sock. Perhaps this kicked off the hotly debated fashion trend of wearing socks with sandals.