

Study treads on footprint claim

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<http://news.bbc.co.uk/2/hi/science/nature/4488490.stm>

Impressions in volcanic ash hailed as footprints made by the earliest known human settlers in the Americas may not be what they seem, Nature journal says.

If confirmed, the 40,000–year–old marks would have debunked accepted theories of human migration into the Americas.

But the ash has now been dated to 1.3 million years ago – more than a million years before modern humans evolved.

Relatives of our species living at this time were not capable of making the journey to the Americas, experts say.

One of the Nature paper's authors even suggests the supposed footprints could have been made by picks used to quarry the site.

Controversial date

Earlier this year, a British–Mexican team led by Dr Silvia Gonzalez of Liverpool John Moores University announced that the site at Valsequillo Lake near Puebla in southern Mexico likely contained the oldest evidence of human occupation in the Americas.

The researchers used several methods to date minerals and fossils from above, below and on the footprint layer itself.

Radiocarbon dating was carried out on shells and animal bones in the sequences, and mammoth teeth were dated using a technique called electron spin resonance.

They obtained dates for lake sediments incorporated into the ash by a technique called optically stimulated luminescence.

The results converged on the highly controversial date of 40,000 years. Under the traditional view, the first Americans trekked from Siberia to Alaska across a land bridge that linked these land masses at the end of the last ice age (between about 10,000 and 12,500 years ago).

'Wrong' method

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But Paul Renne, a geochronologist at Stanford University, and colleagues have now used argon dating and palaeomagnetic analysis to show that the so-called Xalnene basaltic tuff on which the purported footprints were found was in fact far older even than Dr Gonzalez and her team suggested.

The results show the tuff is 1.3 million years old. The footprints would therefore predate the first known appearance of Homo sapiens in Africa by more than a million years.

"This casts serious doubt on whether those marks are human footprints," co-author Michael Waters, of Texas A&M University, told the BBC News website.

Although some scientists have conceded it is possible that archaic humans such as Homo erectus could have made it to the Americas, the possibility is considered remote in the extreme.

"If you look at the original work that was presented, there was an optically stimulated luminescence technique. That technique cannot be used to date that sort of material – it should never have been applied," said Dr Waters.

The Texas A&M researcher also criticised the use of radiocarbon dating on shells from the sequences: "Freshwater shell is notorious for producing erroneous ages."

Response planned

Dr Gonzalez told the BBC her team would be submitting a formal scientific response for publication in an academic journal.

On the project website she said: "It is clear that the dates reported by Renne's group need to be replicated and independently confirmed.

"This is important because we applied the Ar–Ar method... and concluded that [it was] not reliable.

"Also, it is not clear from where exactly they took their samples and which fraction was dated. We took our samples directly from the footprint horizons."

Dr Waters said he thought the marks were actually left over from quarrying: "The Xalnene tuff is a lithified volcanic ash. The locals go out there and quarry it for building material," he explained.

"They take picks and bars with chisel-like ends. They'll chip it out and break it into small rectangular pieces.

"What you're seeing in the depressions is where the metal tools are diveting into the tuff. Every time it rains, water collects in the depressions, sediments collect in them and they weather out into oddball shapes."

The British–Mexican team plan to publish their supporting evidence for the

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footprints in the academic journal Quaternary Science Reviews in January.

They are currently preparing an official reply to the study in Nature.

<http://news.bbc.co.uk/2/hi/science/nature/4488490.stm>

Hey Al, there is no shortage of Geology stories from where I am sitting.

Alan

<http://www.velocerautor.free-online.co.uk/enigma.html>

<http://velocerautor.blogspot.com/>

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 - Previous by thread: ***Re: The 'Peak Oil' Put on – the world IS NOT running out of oil***
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 - Index(es):
 - ◆ ***Date***
 - ◆ ***Thread***