

How violent conquistadors from Europe changed the eco-balance of planet Earth

Scientists suggest the effect of colonialism can be detected in rock layers and even in the air, Science Editor

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It brought riches to Britain and many other European nations; played a major role in enslaving more than 10 million Africans; and created the first global markets in cotton, tobacco and sugar. But now colonialism has been accused of having an even greater influence. It is claimed that it changed the Earth's very makeup.



This is the view of two UK scientists who believe the impact of colonialism was so profound... it can be detected in Earth's air and rocks, an idea revealed in *The Human Planet: How We Created the Anthropocene*, by Simon Lewis and Mark Maslin, published last week. The two researchers, who are based at University College London, describe the colonising of the Americas and other lands as "a planet-wide human-driven evolutionary experiment" which began in the 16th century and "will continue to play out indefinitely". Most scientists accept that humanity is now influencing our planet in ways that match geological forces such as tectonic plate movements. We are mining the planet's surface, acidifying our oceans, creating new rock layers laced with plastic; and exterminating many species. The consequences of all these actions will be detectable in rocks for millions of years. This new epoch has been named the Anthropocene. However, scientists disagree about the date on which the Anthropocene began. Some say it started with the explosion of the first atomic bombs, events that triggered a technological

revolution while also leaving radioactive records in Earth's rocks. Others say it is more recent in origin and point to plastics that now cover the planet and which, mixed with rocks, are forming their own distinct geological layers. Either way, the Anthropocene's origins are viewed as being relatively recent.

But Lewis and Maslin disagree. They point to a far earlier event: the colonisation of the New World by European explorers, soldiers and settlers in the 16th century.

"The arrival of Europeans, in particular the British and Spanish, had a profound impact on central and southern America," Maslin told the Observer. "They carried germs for smallpox, measles, flu, typhoid and many other diseases that led to the deaths of more than 50 million Americans – who had no previous exposure to these pathogens – within a few decades. Society in America collapsed and subsistence farming there was wiped out."

Forests returned to land that had been abandoned by humans. "We can detect this in Antarctic ice cores," added Maslin. "These provide a history of the atmosphere for thousands of years and show carbon dioxide levels reached a distinct minimum around 1610 because forests, which are much better than farm crops at absorbing carbon dioxide, were now covering vastly increased areas of the American landscape – thanks to the eradication of the people who had once farmed there." This effect continued for decades until America's population of humans was restored.

This is the marker – in 1610 – that really defines the Anthropocene, argue Lewis and Maslin. And it was not just the movement of pathogens by colonialists that triggered the event. So did plants and animals.

Within decades of the discovery of America, Europeans were eating its potatoes and tomatoes, while China and India were consuming its peppers. These imports also had a profound impact. "In China, for example, the arrival of maize allowed drier lands to be farmed, driving new waves of deforestation and a large population increase," say the authors.

The colonising of America resulted in a trade triangle: manufactured goods from Europe were sold to Africa for slaves, who were transported to the Americas to grow cotton and tobacco for Europe. For the first time, the world was bound into a single global economic system. Globalisation had begun and its impact on the planet has since been vast. One result has been the homogenisation of life on Earth. Rats and other pests carried on ships have overrun the habitats of isolated species, while more and more land has been turned over to agriculture.

"A good example is provided by the earthworm," said Maslin. "In the US, most of the earthworms you will find there are actually European. They are better at competing for nutrients. So they have taken over the soil in North America since Europeans brought them across the Atlantic in the 16th century. That is not something you can unpick."

This last point is summed up by the two authors: "The Anthropocene began with widespread colonialism and slavery; it is a story of how people treat the environment and how people treat each other."

Just how the Anthropocene will change and affect our planet is less clear, they admit. "We have become a new force of nature, dictating what lives and what goes extinct. Although in

one crucial respect we are unlike any other force of nature: our power, unlike plate tectonics or volcanic eruptions, is reflexive – it can be used, modified or even withdrawn.”
‘We have become a new force of nature, dictating what lives and what goes extinct’ Mark Maslin, scientist