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**The columnist**  
**Graham Lawton**  
 investigates carbon  
 offsets for flights **p22**

**Aperture**  
 The reconstructed  
 face of a Neanderthal  
 found in Iraq **p24**

**Letters**  
 Terraform a new  
 world or shift biology  
 to live there? **p26**

**Culture**  
 Eggs offer a new way  
 to think about the  
 story of life **p28**

**Culture columnist**  
**Emily H. Wilson** on  
 astronomical delight  
*Enlightenment* **p30**

## Comment

# Our mark on the planet

Criticisms of the proposed Anthropocene epoch miss the point. Humanity's impact on Earth is real, whether formalised or not, says **Jan Zalasiewicz**

**T**HE concept of the Anthropocene was born at a scientific meeting in Mexico in 2000, conjured by chemist and Nobel laureate Paul Crutzen. "We aren't in the Holocene any more, we're in... the Anthropocene," he said, as the speed and magnitude of planetary impact by industrialised humanity was hammered home.

A proposal by the Anthropocene Working Group to define the Anthropocene as a geological epoch was rejected this March, after a vote of the Subcommittee on Quaternary Stratigraphy, which set up the group. The vote was disputed and flew in the face of the mass of evidence presented, yet it was still countersigned by the International Commission on Stratigraphy and the International Union of Geological Sciences. However, the Anthropocene these bodies targeted was a myth.

The real Anthropocene is still, all too clearly, with us.

Crutzen's concept is simplicity itself: there has been a major, irrevocable planetary shift from Holocene to Anthropocene conditions. Graphs of a swathe of parameters, including major greenhouse gases, shift from the near-horizontal tracks they held for millennia to near-vertical lines in the past century or so. The change, most profoundly expressed in the mid-20th century, is dramatic.

But many criticisms of the concept have focused instead on what the Anthropocene isn't:



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on myths or misconceptions. These lie at the heart of the recent formal rejection.

There is the charge that the Anthropocene fails to represent all human impacts. True enough – but this wholly misses the point. It is departure from the stable planetary system of the Holocene that is key to recognising a new epoch. This in no way diminishes from the fact that humans have been changing local and regional environments for many millennia. The Anthropocene was never meant to refer to "all things anthropogenic".

It is also said that the

Anthropocene is too short to be an epoch; that it is just a blip in Earth's history. It is brief so far, yes – but the past seven decades have fundamentally altered the planet and set it on a new trajectory. Just the climate impacts from using fossil fuels – of which 90 per cent have been burned in the last 70 years – will reverberate for at least tens of thousands of years, driving us into a climate hotter than it has been for at least 3 million years. And many of the biological changes of the past 70 years are permanent, irreversibly scrambling Earth's biogeographic communities as

species invasions soar. It is no blip.

Some geologists say there simply aren't enough strata dating from modern times for the Anthropocene to be part of geology. That is wrong. Humans have, since the mid-20th century, been prodigious reshapers of the landscape and movers of rock and sediment: far more so now than natural sediment movers such as glaciers and rivers. Anthropocene strata are already abundant – and they are full of distinctive markers like human-made radionuclides, pesticide residues, metals and microplastics. The geology is real.

These and other myths about the Anthropocene have persisted despite being refuted. This suggests they are reactions more rooted in ideology, or personal philosophy, than in evidence.

Why has the Anthropocene been so misunderstood? Probably because it is deeply uncomfortable, bringing tranquil geological abstractions up against ugly contemporary problems. New scientific knowledge can shake long-held perspectives, so it isn't surprising the Anthropocene has met resistance. But this new epoch is real, whether formalised or not. Recognising our role in speeding Earth towards a radically new future is a prerequisite to coping with the resulting changes. ■



Jan Zalasiewicz is in the Anthropocene Working Group, which contributed to this essay