

# *Are We in the ‘Anthropocene,’ the Human Age? Nope, Scientists Say.*

A panel of experts voted down a proposal to officially declare the start of a new interval of geologic time, one defined by humanity’s changes to the planet.



By Raymond Zhong

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The Triassic was the dawn of the dinosaurs. The Paleogene saw the rise of mammals. The Pleistocene included the last ice ages.

Is it time to mark humankind’s transformation of the planet with its own chapter in Earth history, the “Anthropocene,” or the human age?

Not yet, scientists have decided, after a debate that has spanned nearly 15 years. Or the blink of an eye, depending on how you look at it.

A committee of roughly two dozen scholars has, by a large majority, voted down a proposal to declare the start of the Anthropocene, a newly created epoch of geologic time, according to an internal announcement of the voting results seen by The New York Times.

By geologists’ current timeline of Earth’s 4.6-billion-year history, our world right now is in the Holocene, which began 11,700 years ago with the most recent retreat of the great glaciers. Amending the chronology to say we had moved on to the Anthropocene would represent an acknowledgment that recent, human-induced changes to geological conditions had been profound enough to bring the Holocene to a close.

The declaration would shape terminology in textbooks, research articles and museums worldwide. It would guide scientists in their understanding of our still-unfolding present for generations, perhaps even millenniums, to come.

In the end, though, the members of the committee that voted on the Anthropocene over the past month were not only weighing how consequential this period had been for the planet. They also had to consider when, precisely, it began.

By the definition that an earlier panel of experts spent nearly a decade and a half debating and crafting, the Anthropocene started in the mid-20th century, when nuclear bomb tests scattered radioactive fallout across our world. To several members of the

scientific committee that considered the panel's proposal in recent weeks, this definition was too limited, too awkwardly recent, to be a fitting signpost of Homo sapiens's reshaping of planet Earth.

"It constrains, it confines, it narrows down the whole importance of the Anthropocene," said Jan A. Piotrowski, a committee member and geologist at Aarhus University in Denmark. "What was going on during the onset of agriculture? How about the Industrial Revolution? How about the colonizing of the Americas, of Australia?"

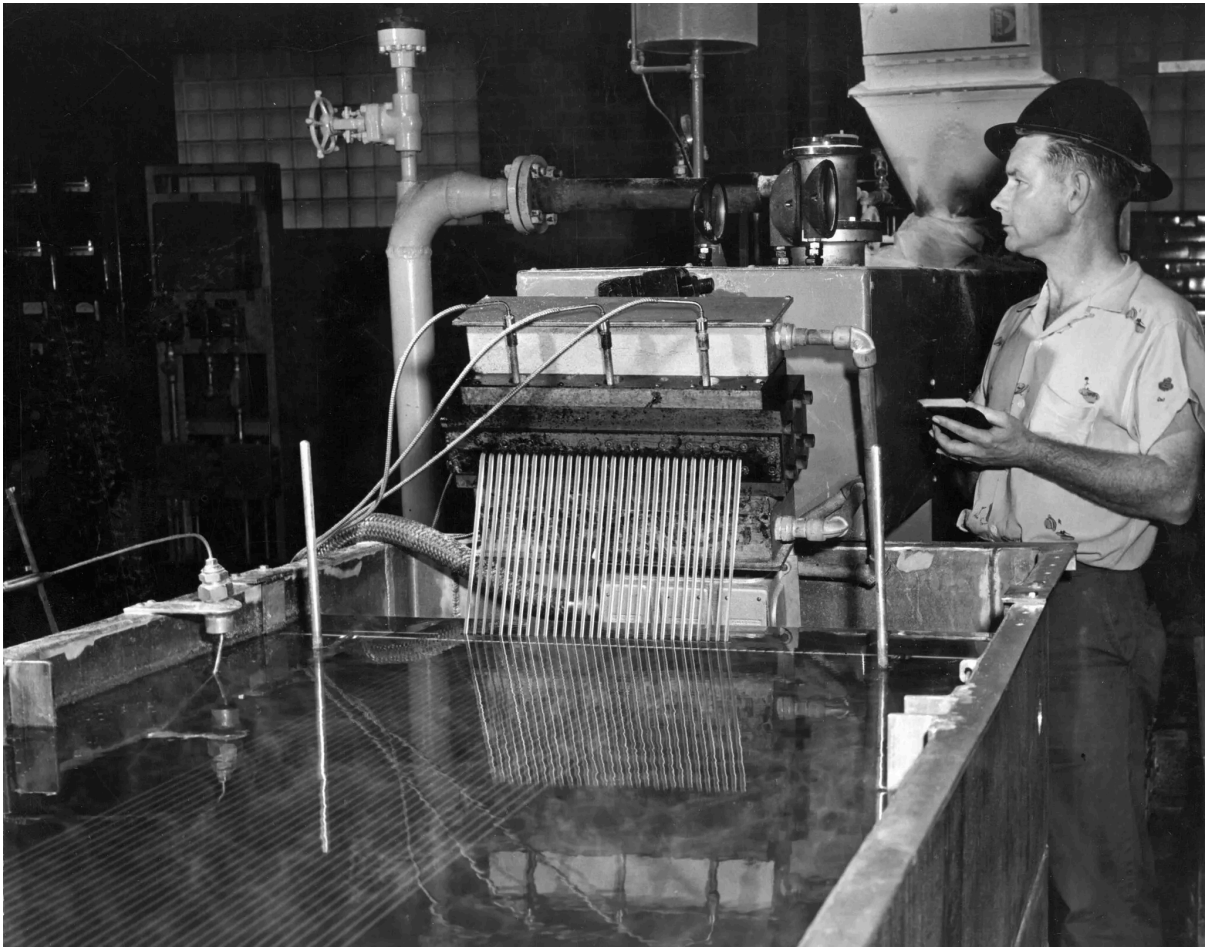
"Human impact goes much deeper into geological time," said another committee member, Mike Walker, an earth scientist and professor emeritus at the University of Wales Trinity Saint David. "If we ignore that, we are ignoring the true impact, the real impact, that humans have on our planet."

Hours after the voting results were circulated within the committee early Tuesday, some members said they were surprised at the margin of votes against the Anthropocene proposal compared with those in favor: 12 to four, with two abstentions.

Even so, it was unclear Tuesday morning whether the results stood as a conclusive rejection or whether they might still be challenged or appealed. In an email to The Times, the committee's chair, Jan A. Zalasiewicz, said there were "some procedural issues to consider" but declined to discuss them further. Dr. Zalasiewicz, a geologist at the University of Leicester, has expressed support for canonizing the Anthropocene.

This question of how to situate our time in the narrative arc of Earth history has thrust the rarefied world of geological timekeepers into an unfamiliar limelight.

The grandly named chapters of our planet's history are governed by a body of scientists, the International Union of Geological Sciences. The organization uses rigorous criteria to decide when each chapter started and which characteristics defined it. The aim is to uphold common global standards for expressing the planet's history.



Polyethylene being extruded and fed into a cooling bath during plastics manufacture, circa 1950. Hulton Archive, via Getty Images

Geoscientists don't deny our era stands out within that long history. Radionuclides from nuclear tests. Plastics and industrial ash. Concrete and metal pollutants. Rapid greenhouse warming. Sharply increased species extinctions. These and other products of modern civilization are leaving unmistakable remnants in the mineral record, particularly since the mid-20th century.

Still, to qualify for its own entry on the geologic time scale, the Anthropocene would have to be defined in a very particular way, one that would meet the needs of geologists and not necessarily those of the anthropologists, artists and others who are already using the term.

That's why several experts who have voiced skepticism about enshrining the Anthropocene emphasized that the vote against it shouldn't be read as a referendum among scientists on the broad state of the Earth. "This was a narrow, technical matter for geologists, for the most part," said one of those skeptics, Erle C. Ellis, an environmental scientist at the University of Maryland, Baltimore County. "This has nothing to do with the evidence that people are changing the planet," Dr. Ellis said. "The evidence just keeps growing."

Francine M.G. McCarthy, a micropaleontologist at Brock University in St. Catharines, Ontario, is the opposite of a skeptic: She helped lead some of the research to support ratifying the new epoch.

“We are in the Anthropocene, irrespective of a line on the time scale,” Dr. McCarthy said. “And behaving accordingly is our only path forward.”

The Anthropocene proposal got its start in 2009, when a working group was convened to investigate whether recent planetary changes merited a place on the geologic timeline. After years of deliberation, the group, which came to include Dr. McCarthy, Dr. Ellis and some three dozen others, decided that they did. The group also decided that the best start date for the new period was around 1950.

The group then had to choose a physical site that would most clearly show a definitive break between the Holocene and the Anthropocene. They settled on Crawford Lake, in Ontario, where the deep waters have preserved detailed records of geochemical change within the sediments at the bottom.

Last fall, the working group submitted its Anthropocene proposal to the first of three governing committees under the International Union of Geological Sciences. Sixty percent of each committee has to approve the proposal for it to advance to the next.

The members of the first one, the Subcommittee on Quaternary Stratigraphy, submitted their votes starting in early February. (Stratigraphy is the branch of geology concerned with rock layers and how they relate in time. The Quaternary is the ongoing geologic period that began 2.6 million years ago.)

Under the rules of stratigraphy, each interval of Earth time needs a clear, objective starting point, one that applies worldwide. The Anthropocene working group proposed the mid-20th century because it bracketed the postwar explosion of economic growth, globalization, urbanization and energy use. But several members of the subcommittee said humankind’s upending of Earth was a far more sprawling story, one that might not even have a single start date across every part of the planet.



The world's first full-scale atomic power station in Britain in 1956. Hulton Archive, via Getty Images

This is why Dr. Walker, Dr. Piotrowski and others prefer to describe the Anthropocene as an “event,” not an “epoch.” In the language of geology, events are a looser term. They don't appear on the official timeline, and no committees need to approve their start dates.

Yet many of the planet's most significant happenings are called events, including mass extinctions, rapid expansions of biodiversity and the filling of Earth's skies with oxygen 2.1 to 2.4 billion years ago.

Even if the subcommission's vote is upheld and the Anthropocene proposal is rebuffed, the new epoch could still be added to the timeline at some later point. It would, however, have to go through the whole process of discussion and voting all over again.

Time will march on. Evidence of our civilization's effects on Earth will continue accumulating in the rocks. The task of interpreting what it all means, and how it fits into the grand sweep of history, might fall to the future inheritors of our world.

“Our impact is here to stay and to be recognizable in the future in the geological record — there is absolutely no question about this,” Dr. Piotrowski said. “It will be up to the people that will be coming after us to decide how to rank it.”

**Raymond Zhong** reports on climate and environmental issues for The Times. More about Raymond Zhong