

The Anthropocene: A New World Epoch?

Has humanity so changed the order of nature on Earth that we have become pioneers of a new era? Proponents of the 'Anthropocene' have declared the beginning of a new geological epoch, supplanting the current Holocene epoch. Considered broadly, Anthropocene is an appropriate name for a radically new human dominated era.

Paul Crutzen and Eugene Stoermer first used the term in 2000 to denote 'the present time interval, in which many geologically significant conditions and processes are profoundly altered by human activities.' Since then a 'Working Group on the Anthropocene' has broadened the scope to 'that period of Earth's history during which humans have a decisive influence on the state, dynamics and future of the Earth system.' That could have begun as early as the beginning of the nineteenth century.

(<https://quaternary.stratigraphy.org/workinggroups/anthropocene/>).

In discussing the proposed Anthropocene epoch there are broader and narrower claims that can be made. The broader claims, involving the whole planetary system, speak to the causes and conditions of a changing planetary geology and its biology. The narrower claims orbit around single disciplines, or groups of related disciplines, such as geology, biology and palaeontology. A number of professional scientists do comment at both levels, but more typically because scientists are specialists in particular fields, most are not comfortable making claims that go too far beyond their peer recognized specialisms. Natural scientists are particularly reluctant to stray into other very different disciplinary fields, such as history, sociology or economics – and vice versa.

Therefore we can expect more support from scientists for narrower and more technically involved concerns about changing geological epochs; it may also take a long time for agreement to be reached about the interpretation of technically complex data and decisions to be made about whether or not we are in a new geological epoch. We can also expect that communication about specialist findings along the way will be dependent upon the vicissitudes of popular media. There are good reasons for this apparently ponderous state of affairs.

It needs to be understood that the whole edifice of scientific specialization depends upon hierarchies within and across specialisms. Further, there are strongly defended boundaries between sets of disciplinary fields such as those between the natural and social sciences. This is a great strength in protecting the integrity of individual fields, but a weakness if one looks to scientists to engage more broadly with complex issues such as climate change, pollution and over-population.

In the current institutional arrangements of western societies, scientists have high cultural status and are often drafted into parliamentary committees that give advice to politicians who then make policy in parliamentary processes. It follows, perhaps surprisingly, that the social and cultural power of scientists is highly limited. Their advice is only optional; one

way or another, groups of politicians and their staffers filter any information that is tabled in parliament. The ability of scientists to communicate vital issues to lay audiences is also highly limited – whether or not they concern broader or narrower issues.

The Working Group (of 38 eminent scientists) is therefore anomalous in the history of science: a group of accomplished scientists making claims that go beyond geology, or any other single discipline, and that is prepared to engage with public media. Historically, this kind of activity tends to occur when there is a great deal at stake – there are groups of scientists still opposed to war and nuclear weapons, and currently social movement organisations such as Lock the Gate, Greenpeace and the Wilderness Society contain broadly engaged scientists. But the Anthropocene Working Group is different in being more academically focused and arguably more global in its concerns.

While the efforts of all these groups of scientists might seem inevitable given the absolute peril that faces Earth, the professional obstacles to scientists being outspoken should not be over-looked. Their 'bread and butter' is usually highly technically focused, and as professionals they are highly dependent on peer assessment and the raising of funds for research. For them, partisan politics is a very risky business.

The relative absence of scientifically credible spokespersons for any interdisciplinary focus on system Earth, is then hardly surprising. This is a huge obstacle to informing public audiences. Television does show us personalities like David Attenborough and Brian Cox but such globally focused experts are a rare treat - constrained as they may be by producers, public broadcasting policy guidelines, and the scientific disciplines they represent.

Nonetheless the activities of the Anthropocene Working Group are heroic, as is the work of other groups of politically oriented scientists. Such groups also often champion another cause in the dissemination of information about our global ecological crisis: the integration of social scientific information (including economics, politics and sociology) into the mix. This is a call for a broad kind of interdisciplinary research to become more important – indeed without such a mix there can be very limited progress at all in dealing with global problems. That is another reason why The Anthropocene Working Group makes such an interesting case study.

In the broadest sense argued by the Working Group, the 'Anthropocene' is not simply the outcome of human technological change that is accelerating towards an all-absorbing cyberworld where machines and artificial intelligence transform the idea of what it is to be human. Rather, the fact that all technology is dependent on Earth's natural resources, and becomes part of global ecology, is the most disturbing finding that supports the postulation of a new geological epoch. The science involved further affirms what has been known since the middle of last century: that mass pollution impacts global geology, biology and ecology. This fact should now inform all of our contemporary thinking - including utopian fantasies seeking technological mastery of the universe.

The underlying problem is why this is not the case. In particular, why are politicians and voting publics so unwilling to confront what is already known about the unsustainability of humanity on Earth? One important reason is that since the publication of The Club of Rome's *The Limits To Growth* in 1972, not many scientists have been brave enough to take on 'the business as usual' lobby. It remains a fact that when science matters, careers and funding are always on the line, or nearly on the line.

Unpalatable as it may be, in today's world the postulation of an Anthropocene epoch recognises that nature has been so impacted by human population growth that a new kind of geological deposition is occurring. The deposition of human made materials - such as plastic microparticles and toxic organic compounds - is causing a new kind of global sedimentation. These substances are not restricted to the surface layers of Earth. They turn up in the stomachs and flesh of fish and other animals; they are part of most, if not all, food chains - see, for example, S. Safety, 'New Link in the Food Chain? Marine Plastic Pollution', *Environmental Health Perspectives. News*, 123, 2, February 2015 (<https://ehp.niehs.nih.gov/wp-content/uploads/123/2/ehp.123-A34.alt.pdf>). Microparticles even occur as aerosols in the stratosphere – including 'depleted uranium' aerosols from past wars – see, for example, A. Durakovic, 'Medical Effects of internal contamination with actinides: further controversy on depleted uranium and radioactive warfare', *Environmental Health and Preventative Medicine*, May 2016, Volume 21, Issue 3, pp. 111-117.

On Earth these new sediments have become so obvious that some geologists, biologists and palaeontologists are making the case that such significant global change at the level of Earth's stratification warrants the declaration of a new geological epoch. This is a big claim - in the league of previous episodes of geological change caused by catastrophic events such as climate change, mass volcanism, and meteorite strikes. Because scientists are, as mentioned, notoriously conservative and fussy about evidence, the bigger issue is whether humanity should wait for a consensus of scientists, or whether the rate of precautionary measures should escalate dramatically in defence of an already fragile global ecology.

Considering the disciplinary divides between the natural sciences and all other fields, it is not surprising that experts in other fields might resist big claims from 'across the ditch'. Indeed, because claims about new eras are so familiar to historians and theologians it is quite understandable that they might be cautious about the arrival of a new geological 'epoch'; perhaps everyone ought to resist any encouragement to panic because of apparently apocalyptic scientific findings. After all, in the twentieth century we have survived two world wars, the threat of nuclear holocaust, pandemics, over-population, limits to growth and new age fundamentalism. In previous centuries the world was transformed by religious eschatology, voyages of discovery, trade and technological innovation. Change is definitely in the order of things, and natural scientists are not the only ones to have noticed.

Still, it seems undeniably true that humanity has changed planet Earth. Arguably, global warming and climate change are only the most obvious recent indicators that big changes are occurring on the planet. It is not just that the contemporary world is changing under the impacts of globalisation, new information technology, terrorism and a shifting political world order – we are also 'hollowing out' the planet.

The extrapolation of findings about the changing nature of geological sedimentations is very disturbing but only adds to what scientists already know about an ecology on the brink, and what many others speculate about the increasing fragility of global human society. Most fundamentally, it is clearly arguable that climate change is only one component in a new world dictated by human excess – over-population and over-pollution are causing irrevocable changes that do not favour human life or the survival of a rich diversity of other species. Whether or not there is scientific consensus about a new geological epoch, we cannot ignore the facts of a changing global ecology. This involves much more than a scientific debate.

The subject of human sustainability should be all consuming – indeed the issues involved are so confronting that the most charitable way of understanding the very sluggish response that politicians and the mass media are making is to postulate denial as a kind of mass defensive strategy. Because denial seems to affect all of our major institutions and academies one wonders what amount of hard evidence it will take to persuade tough minded bureaucrats and ruling elites around the planet that we are all participating in a global ecological crisis.

So when some scientists cast the net wider than global warming and climate change, there is good cause to sit back and appreciate the fact that many scientists do contemplate the global fragility of life on Earth. Perhaps they have been doing this for much longer than commonly appreciated. And, indeed, if some geologists argue for a new geological epoch – the Anthropocene – one would think that this should merit ongoing headlines.

The fantasy worlds that politicians and the media seek to distract us with are clearly far more resonant than science or ‘the facts’. Perhaps we really do live in a ‘post-fact’ world.

30 March, 2017



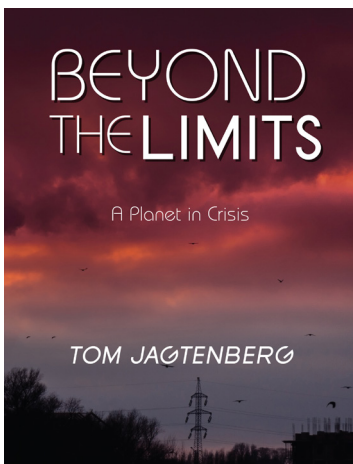
About Tom Jagtenberg

Tom has a longtime interest in the natural world and concern about its decline. His interests, whilst being inter-disciplinary, have always had a focus on nature and the environment.

He worked as a sociologist for thirty years at Wollongong University (where he was a Senior Lecturer) and Southern Cross University (where he was an adjunct research fellow). He is a published author of books and articles about the environment and related cultural fields. Tom has qualifications in science, engineering and sociology – a BE (Chemical and Fuel Engineering, Hons 1, UNSW), an MSc (Liberal Studies in Science, Manchester University) and a PhD (Sociology, University of Wollongong).

Since Tom's student days he has been concerned with the representation of nature in disciplinary fields as diverse as science, sociology, cultural studies and communication studies, natural medicine and political life. He has been a strong critic of the exclusion of non-human interests from academic fields and political parties. As his latest book suggests even Green political parties are limited in the extent to which they can be advocates for other species, their habitats, and even human environments.

Tom retired from academic life to live in Northern New South Wales with his partner. They chose the Northern Rivers region because of its strong ecologically focused community and beautiful environment.



Beyond the Limits

ISBN-13-978-0992560287

Cilento Publishing

No matter how hard politicians try to broker agreements about curbing greenhouse gas emissions there are deeper obstacles that would seem to guarantee Planet Earth's ecological decline.

Beyond the Limits is a hard-hitting and probing analysis of the underlying problems that define the possibilities of any response to the problem of climate change.

All profits from sales will be donated to the buy back charity Bush Heritage Australia