Review of: "The Anthropocene Borderline Problems"

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The article approaches the term Anthropocene by proposing it as a borderline problem and discussing if it fits better as an Epoch or as an Event. The author uses a rich bibliography and presents an interesting essay about it. Still, I have some comments.

1. The Anthropocene may make sense for the non-specialized public and professionals working with short-term periods, including historians and historical archaeologists. However, for experts working with long-term periods, like geologists, probably is not. Still, the focal matter is that it cannot be ignored the extensive and dramatic impact of humans on the Planet because it produced and still produces massive changes. However, these changes are not as recent as many Anthropocene aficionados claim.

The Last Glacial Maximum (LGM) was the coldest period humans ever lived, which caused a severe demographic contraction and the clustering of human groups in refugia areas. Genetic and archaeological data confirm that, after the LGM, people exited those refugia to repopulate the continents, which implied a significant demographic expansion. The long warm-wet conditions established in the last ca. 15 thousand years (although with fluctuations) created a spiral where these better conditions supported amounts of flora that, in turn, supported a wide variety of fauna, and both supported humans. However, the strategies for survival (including the introduction of more effective hunting methods) lead to an increase in human demography. When entering the Holocene, nature productivity was insufficient to support human demography and the hunter-gatherer lifestyle and people and to change strategy, entering the first step of significant impact on the Planet: domestication.

Domestication was the intentional human selection of some faunal and floral species, changing their behaviour and increasing their population enormously at the cost of other individuals of those species and other species in general. This action had others directly related to it: the creation of new vast artificial landscapes in the shape of agricultural fields, massive deforestations to gain space for these fields and for construction, the manipulation of water courses to ensure their flow through the entire year and to create artificial lakes sometimes where water didn’t even exist before. The direct consequence of this was social complexity and, with it, the creation of another artificial landscape composed of permanent large villages and towns, the intentional and rapid destruction of hills and mountains for quarrying rocks and mining copper, tin, gold, silver, iron, the artificial combination of minerals in artificial alloys and their massive production, and the construction of new and artificial landmarks such as gigantic monuments, tells, walls, towers, shell middens, etc., and the recurrent exchange of materials across thousands of kilometres. It was still 11 thousand years ago, and this way of life rapidly spread across Eurasia and Africa and then to the Americas.

One can argue that human life kept more or less the same way until the maritime expansion after the fall of

Constantinople that, along with was is described above, added to it the massive importation/exportation of biotic (floral and faunal species) and abiotic (rocks and metals) resources between continents.

Therefore, if the idea is to add the term Anthropocene to the International Chronostratigraphic Chart, then it should replace Holocene (which means - entirely recent - may be considered hollow) with the term Anthropocene. Such would encompass the real long-term human impact on the Planet as it appends rather than what is mediatic, which leads us to the second point.

2. Being the impact of humans on the Planet impossible to ignore, the use of the term Anthropocene carries problems of different natures. One is that it violates the rules established by experts to define geological aeons, eras, periods, epochs, and stages. Another is that the Holocene is so short that we don't know if it is only one long warm period that may end dramatically at any moment and, in the end, we are still in the Pleistocene! To this, one must add all the exposed across point 1 where it is demonstrated that the Holocene is dramatically and constantly affected by tge increase of human changes on the Planet, being this extensively shown across the globe by thousands of paleoenvironmental, archaeological and historical scientific works produced across the last century, which lead us to point 3.

3. As shown by the author, the cited bibliography, and other works, one of the main goals of highlighting the human impact and calling it Anthropocene is the "potential for societal action", "helpful in causing transformative societal action", "(i) spreading knowledge across social communities, (ii) eventual societal action, and (iii) influencing governance, culture, and institutions.", "Examining which concept of an Anthropocene has better potential to activate knowledge for societal action". All these goals have nothing to do with the nature of science which is to question, investigate, describe, and interpret phenomena. They correspond to political porpoises and group or individual interests that select some criteria over others to bias the information in such a way that allows making a point that easily infiltrates the minds of people that lack all knowledge about the issue. That is why it "has since metamorphosed, diversified and gained substantial public visibility", "Since 2017, the number of scientific publications using the notion of an Anthropocene has increased further. Google Scholar lists for the keyword 'Anthropocene' ~60k and ~74k publications for 2000-2016 and 2017-2022, respectively." This appends because the name is very catchy, and people do not know the entire history of human impact on the Planet after the LGM, but only look to the last century or so. One must give complete information about human impact on the Planet to the public, including to the experts in other areas that look at the phenomenon from a short-time perspective.

Still, this issue must be debated and, after the scientific outcomes are clarified, they can be used to explain to the public how humans are affecting the Planet in the last 12 thousand years and develop strategies for its sustainability.