

Paper Number: 2491

## The mistaken drive to define the 'Anthropocene' as an officially recognized unit of the Geologic Time Scale

Finney, S.C.<sup>1</sup>

<sup>1</sup>California State University at Long Beach, Long Beach, CA, 90840, USA; Stan.Finney@csulb.edu

---

The drive for official recognition of the 'Anthropocene' by the International Commission on Stratigraphy (ICS) as a new unit of the Geologic Time Scale has received consideration in the scientific and public media (e.g., *Nature*, *Science*, *The Economist*, to name a few). An Anthropocene Epoch would give official recognition to the extent of human impact on the Earth system and to the stratigraphic record that now includes evidence of that impact. However, the stratigraphic record is negligible, and it is human observation and records of those observations, all precisely dated, that are the source of knowledge of human impact. With a proposed starting date of 1945, the history of an Anthropocene Epoch has been, and is being, directly observed and studied by scientists worldwide, and extensive instrumentation records all facets of the Earth system. There is little need to study the stratigraphic record of the Anthropocene, which is limited and scattered, and would only serve to document what already is known to have occurred, where and when. There is little difficulty in knowing the timing of varied human impacts at different locations in the Earth system with the resolution of human calendars and chronometers. There is little need for stratigraphy, and none whatsoever for chronostratigraphic correlation for discovering and determining ages and extent of these events and effects. Although there is a chemostratigraphic signal of radionuclides released by atmospheric testing of nuclear weapons, discovery of that signal contributes nothing to the enormous and detailed human observations of each individual explosion. It is that source that one would search to study the human impact of nuclear and thermonuclear weapons testing. The same applies to the so-called 6th mass extinction of life on Earth during the Anthropocene. The stratigraphic record provides precious little information. It is the observations and records of zoologists, botanists, and ecologists that hold the evidence. The units of the Geologic Time Scale are based on the chronostratigraphic units of the ICS International Chronostratigraphic Chart. These units are based on extensive stratigraphic content. The history of the Anthropocene as proposed is human history. It is expressed in terms of human calendars; its events (human impact at all scales) are widely known general knowledge, most of which is not recorded in the stratigraphic record.

Ignoring the lack of stratigraphic content for the Anthropocene, associating its base with the radionuclide signal that peaked in the early 1960s defines a boundary that serves no useful purpose other than to make the case that it can serve as a Global Boundary Stratotype Section and Point (GSSP), which should be officially recognized by ICS and ratified by IUGS as an international geostandard. A boundary defined by a GSSP is correlated as an isochronous surface as widely as possible. Such a definition is not necessary for the Anthropocene because there is no need for chronostratigraphic correlations. The dates of all events in all parts of the Earth as they initiated and spread were recorded as they occurred. Furthermore, such a definition for the Anthropocene would exclude the human impact that was occurring and spreading over the Earth for hundreds and even thousands of preceding years as human populations grew and spread and consumed ever-increasing volumes of Earth resources. For example, it places most of the great dams of the western United States (Grand Coulee, Shasta, Hoover) and the sediment they began to impound in the Holocene, but places those that came after 1950 (Glen Canyon, Merowe, Aswan, Itaipu, Three Gorges) in the Anthropocene. Yet, human impact of dams is cited regularly as a signal for the Anthropocene.

If recorded human observations began 540 million years ago, there would be no chronostratigraphic units nor boundaries (GSSPs) for the Phanerozoic because all its events (human, biotic, climatic, geologic) would be in human records. The same applies to the Anthropocene; it is recorded human history. The Anthropocene Working Group has a responsibility to address this fundamental difference with the chronostratigraphic units that are officially recognized by ICS.

