
The abandonment of the obsolete term “Tertiary” in stratigraphic nomenclature: a succinct overview (2014)

The term Tertiary has been omitted from the IUGS stratigraphic charts since at least 1989, as shown in the chart compiled by Cowie and Bassett (1989). In the accompanying notes to that chart (note 6), it is stated that since 1976, the ICS has subdivided the Cenozoic Erathem into the Paleogene, Neogene, and Quaternary systems. As of today, the term Tertiary remains absent from the ICS standard chronostratigraphic chart available on their website: <http://www.stratigraphy.org>.

The abandonment of the term Tertiary was undoubtedly a result of the decision to subdivide the Phanerozoic Eonothem/Eon into three logically distinct parts: the Paleozoic, Mesozoic, and Cenozoic Erathems/Eras, replacing the older terminology of Primary, Secondary, Tertiary, and Quaternary. This same logic also led to the omission of the Quaternary from the Geological Time Scale 2004, published under the auspices of the ICS (Gradstein et al., 2004). However, the Quaternary was reintroduced as “under discussion” in the subsequent edition of the Geological Time Scale 2008 (Ogg et al., 2008).

In a volume dedicated to Charles Lyell’s work, Berggren (1998) published a paper on the chronostratigraphic nomenclature of the Cenozoic Era, concluding that Tertiary and Quaternary should be abandoned as “relicts of now outmoded, and inappropriate, pre-Lyellian stratigraphy.”

Nevertheless, stratigraphic charts such as those by Haq et al. (1987) and Hardenbol et al. (1998) continued to use Tertiary and Quaternary as Systems/Periods, with the Paleogene and Neogene treated as subdivisions of the Tertiary (Haq et al., 1987) or of the Cenozoic (Hardenbol et al., 1998).

National stratigraphic charts, including the Geological Time Scale of the Geological Society of America, also continued to display the Tertiary (and Quaternary) as a formal period, subdivided into Paleogene and Neogene. Similarly, the USGS Geological Names Committee (2009) maintained the term Tertiary as a Period/System, with Paleogene and Neogene as Subperiods/Subsystems, “until a decision is made on the subdivisions of the Cenozoic.”

A formal proposal to define the Tertiary Period – from the base of the Danian to the base of the Quaternary – with Paleogene and Neogene as its subperiods, was published in a special issue of *Episodes on the Quaternary Period/System* (Head et al., 2008). Given that the Quaternary has now been officially defined as a Period/System, there is a logical basis for considering the Tertiary to be of equivalent rank. One of the authors of this proposal, Amos Salvador, had already argued in 2006 for the formal recognition of Tertiary as a Period/System based on a literature review that demonstrated its continued widespread usage (Salvador, 2006).

North American geologists also supported this view at the First International Conference on Stratigraphy in 2013 (Lisbon), advocating for the revitalization of Tertiary based on common usage (Edwards et al., 2013). Additionally, Aubry et al. (2005), in a forum article in *Episodes on the Quaternary* issue, proposed classifying Tertiary and Quaternary as Sub-eras/Suberathems of the Cenozoic Era/Erathem, noting: “although there has been little opposition to removing Tertiary from modern time scales... strong interest has been expressed to resurrect it”. The ICS has continued to omit the term Tertiary from its charts, even after the Quaternary was ratified as a Period/System. The Geological Time Scale 2012, published with ICS involvement, also discouraged the use of Tertiary, although it acknowledged its ongoing widespread usage (Gradstein et al., 2012, p. 856).

In 2012, the Stratigraphy Commission of the Geological Society of the UK reviewed the formal or informal use of Tertiary. Their findings were summarized in a balanced, well-written paper (Knox et al., 2012). The arguments for reinstating Tertiary as a formal period were led by Robert Knox, while Paul Pearson advocated for maintaining Paleogene and Neogene as separate periods and using Tertiary only informally.

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