

## **Letter of support Steve Stanley**

Dear Dr. Hilgen:

I strongly support the position of Bill Berggren and his colleagues holding that the Neogene should extend to the present. Since the Tertiary has been removed as a geologic period, it is only logical to remove the Quaternary from this status. I see no reason why the Quaternary should not be granted a position at a lower level in the hierarchy without displacing the Pliocene, Pleistocene, or Holocene. I realize that there is much disagreement as to where its lower boundary should be positioned if it is recognized in this way.

Sincerely,

Steve Stanley

## Letter of support Eric Delson

Dear colleagues

I have been a student and researcher of Quaternary topics for over 40 years, from before I attended the 1965 INQUA in Colorado. Despite being a vertebrate paleontologist with concentration on humans and other primates, I am a firm believer in the primacy of the marine realm in the definition of chronostratigraphic and geochronologic units (and I discussed this in the stratigraphic commission at the Moscow INQUA meeting). The Plio-Pleistocene boundary depends upon the beginning of the Calabrian stage, which is now well fixed at Vrica and elsewhere and dated close to 1.8 Ma. For me, the Cenozoic is best divided into Paleogene and Neogene, the latter extending up to the present; in fact, I have argued for the inclusion of the "Holocene" as a substage of the Late Pleistocene (in Delson et al., 2000).

Past suggestions to begin the Pleistocene and/or the Quaternary at 2.5 Ma or other point chosen to supposedly reflect the onset of terrestrial glaciation strike me as absurd at best. From the London IGC statement onward, climatostratigraphic events are accepted as secondary to chronostratigraphic ones, and the "Golden Spike" has been placed, finally, at Vrica close to the first appearance of the "northern guests" of earlier authors. A number of committees have voted on this topic, but the 2.5 Ma date will not be allowed to die a peaceful death. If it were up to me, I would simply ban the Quaternary as a time-term altogether, along with Tertiary (no to mention Secondary and Primary).

I consider that the proposal to define sub-era(them)s to receive the Quaternary (and Tertiary) with boundary of 2.5 Ma between them is a bad idea, but it is a generous nod to the Quaternarists of the world. We who study the Pleistocene do not need a special term to distinguish us, any more than do those who study the Pliocene (as I do), Miocene or Cretaceous. The analogy to the preCambrian is just: is the study of geologic intervals before the Cambrian any less active because of that name change? I think not.

In sum, I suggest that those who study the Quaternary also study the Pleistocene and can revel in the fact that ours is the shortest epoch, about which the most is known. We do not need an outmoded term to feel confident about our own research. We can keep the term INQUA for our organization, and perhaps we can make individual membership a real option, rather than just restricting it to a club of national organization "members".

Sincerely, Eric Delson

PhD Geology, Columbia University

Professor and Chairman, Department of Anthropology, Lehman College, City University of New York;  
Coordinator for Physical Anthropology, PhD Program in Anthropology, CUNY Graduate School;  
Professor of Ecology & Evolutionary Biology and of Earth & Environmental Sciences, CUNY Graduate School;

Director, New York Consortium in Evolutionary Primatology;

Research Associate, Dept. Vertebrate Paleontology, American Museum of Natural History;

Secretary, the Paleoanthropology Society

Associated with:

International Quaternary Association (past member AMQUA)

Regional Committee on Mediterranean Neogene Stratigraphy

IUGS Subcommittee on Neogene Stratigraphy

E. Delson, I. Tattersall, J. A. Van Couvering, and A. S. Brooks, Eds. (2000) Encyclopedia of Human Evolution and Prehistory, 2nd ed. New York: Garland.

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November 25, 2008

Dr. F.J. Hilgen  
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Dear Dr. Hilgen:


I write in support of the proposal that the Neogene remain unabridged by the Quaternary.

When formerly paired with the Tertiary, the Quaternary was sensible in that context. I also agree completely that the concept of an interval of time known as Quaternary has precedent in the Earth Sciences and is useful in many ways.

At the same time I do not believe that inaugurating it as a chronostratigraphic unit comparable in hierarchy to the Neogene has any historical precedent, or makes sense in any procedural or useful way.

The preferred compromise proposed by M.-P. Aubry and others seems to be a viable operation. There may be others. None of those should result in the Quaternary being 'on top' of the Neogene.

Sincerely,

  
Michael O. Woodburne  
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November 26, 2008

Dr. F.J. Hilgen  
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Dear Frits,

With regard to the SNS ballots, for which I submitted a vote of 'Yes' on the Neogene proposal and 'No' on the Quaternary proposal, I would like to comment that I strongly favor a Neogene that extends up to the present and certainly am opposed to the Quaternary decapitating it. The bipolar glacial Quaternary would be best treated in its own column, perhaps buttressed by the Tertiary (which might even be divided into a nonglacial period corresponding to the Paleocene and Eocene and a unipolar glacial period corresponding to the Oligocene, Miocene and [Early] Pliocene), and its base placed where advocates think most useful (e.g., at the 2.6 Ma Gauss/Matuyama boundary) but in any case, the Pleistocene should be left linked to the base of the Calabrian. The Cenozoic geomagnetic polarity time scale was developed from marine magnetic anomalies and is closely tied to marine-based chronostratigraphy (now including orbital tuning in long continuous marine sections) and thus fits naturally with a Neogene that is continuous to the present rather than a truncated concept.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Dennis V. Kent". The signature is fluid and cursive, with the first name "Dennis" being larger and more prominent than the last name "Kent".

Dennis V. Kent  
Board of Governors Professor of Geological Sciences, Rutgers University  
Member, U.S. National Academy of Sciences