Eric Grimm
President, American Quaternary Association
Illinois State Museum

September 9, 2005

Dear Eric:

We are writing to nominate Tom Webb for AmQua's Distinguished Career Award. Tom's innovative research and leadership helped establish strong interlinkages between Quaternary paleoecology and paleoclimatology, and between the proxy-data and modeling communities. His synoptic perspective helped transform Quaternary paleoecology from a site-oriented discipline to one characterized by a stronger data-sharing and interdisciplinary collaboration. Indeed, it helped propel the entire Quaternary field toward greater interaction along these lines.

Tom's early work pioneered the mapping of pollen data and use of multivariate statistics to extract the principal components of variance from fossil pollen datasets. He demonstrated that, at local to sub-continental scales, modern pollen and vegetation patterns closely corresponded, which validated the use of fossil pollen data for paleovegetational interpretations. Tom and Pat Bartlein's postage-stamp maps have become famous (or infamous) for their condensed presentations of the varied responses of individual plant taxa to late-Quaternary climate change. Digital technology finally caught up with Tom's vision in 2004, when animated maps[1] allowed dynamic mapping of late-Quaternary plant movements.

Tom also deserves much credit (along with Imbrie, Kipp, Fritts, and Bartlein) for establishing and developing the whole idea of quantitative (statistical) paleoclimatic reconstruction using proxy data. It is hard to overestimate the impact this has had on the whole field of paleoclimatology and society. Credit here is shared among many, but Tom was one the early champions and revolutionaries who made it happen.

In the pursuit of rigorously grounded paleovegetation reconstructions, Tom was the first to compile databases of modern and fossil pollen records, and the first to apply these databases to systematically explore the spatial and temporal dimensions of late-Quaternary vegetation dynamics. These databases, enlarged over the years, formed the core of the North American Pollen Database, which is still actively maintained at NOAA's National Climate Data Center and widely used by the paleoecological and paleoclimatic communities. While much credit must also go to you and others, we should honor the person who began it all.

Tom was a major voice in the debate during the 1970's and 1980's over whether pollen data could be used as a reliable paleoclimatic proxy. Tom argued strongly that a variety of ecological responses enabled vegetation to rapidly track climate change occurring at

[1] Williams, J. W., B. N. Shuman, T. Webb, III, P. J. Bartlein, and P. L. Leduc. 2004. Late Quaternary vegetation dynamics in North America: Scaling from taxa to biomes. Ecological Monographs **74**:309-334. http://www.ncdc.noaa.gov/paleo/pollen/viewer/webviewer.html

orbital time scales. A classic 1986 paper[2] provided the conceptual foundation for discussing whether vegetation was in dynamic equilibrium with climate, and at which time scales. A 1991 paper[3], led by Colin Prentice, showed that pollen-climate response surfaces generated from one set of pollen taxa could be used to accurately predict the late-Quaternary distributions of a second set of taxa. A 2004 paper[4], led by Bryan Shuman, used independent climate proxies to show a strong climatic control of New England vegetation history.

Tom's vision of an integrated global analysis of terrestrial palaeoclimate archives provided the original inspiration for COHMAP (Cooperative Holocene Mapping Project) and continues to inspire many of the scientists worldwide who were involved in the project. COHMAP demonstrated the power of interdisciplinary collaborations, in particular, the importance of collaborations among specialists in paleo-proxy data and climate modelers. Within COHMAP, Tom's strong background in ecology, paleoecology and climatology allowed him to make unique contributions in combining the paleoenvironmental records with climate dynamical approaches and insights. The 1988 COHMAP paper[5] showed that many of the global patterns of late-Quaternary climate change, as inferred from networks of pollen and lake-level records, could be explained by the dynamical responses of general circulation models forced by changes in insolation, ice volume, and CO_2. The COHMAP initiative also produced the book Global Climates Since the Last Glacial Maximum, which is still a standard reference in the field. Although many scientists contributed to the success of COHMAP, a critical factor was Tom's unwavering belief in what people from different backgrounds could do by working together, given the right inspiration and the right physical and social environment. The COHMAP work was carried forward by the TEMPO and (Testing Earth-System Models with Paleo-Observations) and BIOME 6000 initiatives, in which Tom was a major contributor.

Despite Tom’s research achievements, his greatest gift may be as a mentor and teacher. Tom has inspired a whole generation of paleoclimatologists and paleoecologists, many of whom are now pursuing their own research and educational careers. In undergraduate education, he engaged students and oversaw more undergraduate theses at Brown University than any other professor in the Geology Department. See Appendix for a list of Tom’s former graduate students and postdocs.

Tom is also famous (or, again, infamous) as a meticulous writer and editor who takes joy in the craft of writing. His papers are excellent examples of clear, engaging scientific prose. As subjects to the Webbian editing review, we can attest to Tom’s enthusiasm for

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[2] Webb, T., III. 1986. Is vegetation in equilibrium with climate? How to interpret late-Quaternary pollen data. Vegetatio **67**:75-91.

[3] Prentice, I. C., P. J. Bartlein, and T. Webb, III. 1991. Vegetation and climate changes in eastern North America since the last glacial maximum: A response to continuous climatic forcing. Ecology **72**:2038-2056.

[4] Shuman, B. N., P. C. Newby, Y. Huang, and T. Webb, III. 2004. Evidence for the close climatic control of New England vegetation history. Ecology **85**:1297-1310.

[5] COHMAP Members. 1988. Climatic changes of the last 18,000 years: observations and model simulations. Science **24**:1043-1052.

editing and fearlessly restrucuring (or, as Tom would say, ‘reorgandizing’) a paper. Writing with Tom always included at least one more overhaul than expected, but the final work was stronger for it.

In summary, Tom has been an outstanding researcher, colleague, mentor, teacher, and friend, and we can think of no other more highly deserving of the AmQua Distinguished Career Award. We thank you for the consideration of this nomination.

Sincerely,

Jack Williams
Department of Geography
University of Wisconsin

Patricia Anderson
Department of Earth and Space Sciences
University of Washington

Patrick Bartlein
Department of Geography
University of Oregon

Steve Jackson
Department of Botany
University of Wyoming

John Kutzbach
Center for Climatic Research
University of Wisconsin

Paige Newby
Department of Geological Sciences
Brown University

Jonathan Overpeck
Institute for the Study of Planet Earth
University of Arizona

Colin Prentice
QUEST
University of Bristol

William Ruddiman
Department of Environmental Sciences
University of Virginia

Bryan Shuman
Department of Geography
University of Minnesota

Appendix: List of current and former graduate students and post-docs in the Webb lab

Postdocs

STUDENTS
Patricia Anderson
Patrick Bartlein*
Chris Bernabo
Richard Bradshaw*
Jen Bravo
Jeff Donnelly
Ben Felzer
Denise Gaudreau
Steve Jackson*
Sally Howe
Paige Newby
Jonathan Overpeck
Bryan Shuman
Alison Smith
Bob Thompson*
Chronos Tsedakis
Robin Webb
Jack Williams

*Post-doc