

## 2010 MEDALS & AWARDS

### KIRK BRYAN AWARD FOR RESEARCH EXCELLENCE

Presented to  
**Rolfe D. Mandel**



Rolfe D. Mandel  
Kansas Geological Survey  
University of Kansas

#### *Citation by Alan H. Simmons and E. Arthur Bettis*

The 2010 Geological Society of America Kirk Bryan Award is presented to Dr. Rolfe D. Mandel, Executive Director of the Odyssey Geoarchaeological Research Program and Professor of Anthropology at the University of Kansas. The award is for his 2008 paper *Buried Paleoindian-age landscapes in stream valleys of the central plains, USA*, published in *Geomorphology*. The paper is a masterful merging of stratigraphic, geomorphological and archaeological data across the Central Plains that addresses long-standing questions in fluvial geomorphology and stratigraphy, landscape development and cultural history. Rolfe presents results from more than two decades of his interdisciplinary research in the region, focusing on two tasks; 1) a field-based quantitative evaluation of fluvial response to environmental change across the Pleistocene/Holocene boundary and 2) analysis of how geological processes have filtered the archaeological record of the region's earliest inhabitants.

In his usual fashion, Rolfe accomplishes these tasks through exhaustive field work that supports systematic hypotheses testing. As one support letter put it "The shear numbers of sites studied in detail and the area over which they are found are actually quite

staggering." Rolfe goes far beyond previous work in the Central Plains by systematically investigating the stratigraphic record of valleys through the drainage hierarchy. The result is a comprehensive picture of how the region's *entire* fluvial system behaved during a period of major environmental change. He uses alluvial and soil stratigraphic studies supported by a robust radiocarbon chronology to thoroughly demonstrate that response of the fluvial system to climate and vegetation changes varied systematically through the drainage hierarchy.

The second major accomplishment of the paper is resolution of a long-standing archaeological debate about the region's first inhabitants. He applies his extensive stratigraphic data set to addressing reasons for the apparent paucity of Central Plains Paleoindian sites, while surrounding parts of the Great Plains and eastern Rockies are rich in these sites. Rolfe tackles this complex issue with an attention to pedologic, stratigraphic and paleoenvironmental data coupled with a detailed knowledge of regional archaeological manifestations. He demonstrates that the lack of Paleoindian sites is likely more apparent than real, concluding that geological filters control site visibility and preservation, rather than of an actual lack of human occupation. The sheer number of study sites, their wide geographic distribution and a very robust chronology provide unequivocal support for Rolfe's conclusions. Not content to merely demonstrate why sites appear to be so rare, he also provides realistic targets for future investigations to further his pioneering work on the peopling of the Central Plains. As Jim Knox, one of the numerous supporters of Rolfe's nomination, put it, this is simply a "great influential paper."

This detailed and comprehensive single-authored paper epitomizes the type of regional interdisciplinary research that Kirk Bryan pioneered and promoted; extensive field study with attention to detail followed by careful analysis of relevant data that leads to thoughtful conclusions. Like the namesake of this award, Rolfe's influence and experience are wide-ranging. He has made significant geomorphological, geoarchaeological and archaeological contributions in areas as diverse as the Central Plains, the Big Bend region of southwest Texas, the Ohio River Valley, Jordan, and the Mediterranean island of Cyprus. Many of the more than 30 supporters of Rolfe's nomination for this award commented on their respect for his professionalism, commitment to mentoring, unselfish collaboration and contributions to

Quaternary Science. Dr. Reid Ferring put it best: "In this very real way I believe that (Rolfe) mirrors the standards established by the namesake for this award." We should all be proud to recognize Rolfe, our friend and colleague, with this, the 2010 GSA Quaternary Geology and Geomorphology Division Kirk Bryan Award.

#### *Response by Rolfe D. Mandel*

Thank you, Alan and Art, for your kind words, and for nominating my article for the 2010 Kirk Bryan Award. I also thank my friends and colleagues who supported the nomination. I feel honored that the QG&G Kirk Bryan Award Committee selected me for such recognition, and I am truly humbled to be in the company of the previous awardees, many of whom are my heroes. This brings me to a strange coincidence. The day before I received notification of this award I began a lecture in my geoarchaeology class with the following confession: "Kirk Bryan is one of my heroes." Blank stares were on most faces. One student cautiously asked if Kirk Bryan had been on the TV show "American Idol." It was obvious that virtually none of the students knew of whom I was talking about, much less why I considered him worthy of admiration. They did not know that Kirk Bryan played a role in my career, and even influenced the composition of the paper that is receiving recognition this evening.

During the early 1970s, while I was an undergraduate geography student at the University of Texas, my mentor and close friend, Curt Sorenson, introduced me to Kirk Bryan's work. One of the assigned readings in Curt's soil class was a 1943 *American Journal of Science* article by Bryan and Claude Albritton entitled "Soil phenomena as evidence of climate changes." Their study area was in the Davis Mountains of West Texas, a place close to my heart, and I found the idea of using soils as proxies for Quaternary climate change a fascinating concept. Bryan's work, as well as Peter Birkeland's remarkable book, *Soils and Geomorphology*, got me excited about soil stratigraphy and influenced my graduate research and subsequent focus on soils as components of Quaternary landscape evolution. In 1996 I literally followed in Kirk Bryan's footsteps when I reinvestigated the type locality of the Calamity Creek Formation in the Big Bend region of Texas. Unlike me, Bryan and Albritton did not have the luxury of radiocarbon dating and stable carbon isotope analysis, yet their chronology and reconstruction of late-Quaternary climate

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change, inferred entirely from the morphology and physical properties of buried soils, were remarkably accurate. This is a humbling lesson for all of us.

Kirk Bryan spent most of his career working with archaeologists, especially those who focused on the Paleoindian record. I have done the same thing. Bryan died in Cody, Wyoming, while visiting the Horner archaeological site. It is good to know he passed away doing what he enjoyed in life: looking at soils and archaeological landscapes. I can only hope that when I take my last breath I am looking at a buried alluvial soil somewhere in the Central Great Plains.

In the course of my career many friends and colleagues have been a source of enthusiasm and support. I thank my “dirt brothers,” Art Bettis and Ed Hajic, and fellow geoarchaeologists Paul Goldberg, Vance Holliday, Reid Ferring, and Julie Stein. It has been a *privilege* to work with some world-class archaeologists, including Alan Simmons, Mark Lynott, Jack Hofman, Alston Thoms, Neal Lopinot, Joe Saunders, and Bob Mallouf, to name a few. I am especially grateful to Millard Brent, who in 1971 took me under his wing and pointed me in the right direction, and to my mentors, Curt Sorenson and Wakefield Dort, for their guidance, patience

and friendship. Also, thanks goes to Joe and Ruth Cramer, who established an endowment that supports much of my research at the University of Kansas. Last, but certainly not least, I am grateful to my wife, Sharon, and my son, Daniel, for enduring my frequent departures to places often far from home. Their tolerance and encouragement, and the support of my friends and colleagues, have been my inspiration. Once again thanks to all of you for the recognition that now links my name to my hero, Kirk Bryan.