



**Geological Society of America
Structural Geology & Tectonics Division**

**2008
Best Paper Award
Presented to Bill Thomas**

Thomas, W. (1977) *Evolution of Appalachian-Ouachita salients and recesses from reentrants and promontories in the continental margin*.
American Journal of Science 277, 1233-1278.

Citation by Allen Dennis

It is a pleasure and an honor to be the citationist for Bill Thomas' 1977 American Journal of Science paper: "Evolution of Appalachian-Ouachita salients and recesses from reentrants and promontories in the continental margin."

This landmark paper not only explains the curvature of Appalachian salients and recesses as inherited features from the embayments and promontories of the Iapetus margin, but also comprehensively describes the events of Appalachian - Ouachita orogen from the perspective of the sedimentary rocks deposited on the Laurentian margin, from the rift and drift packages recording Iapetus' opening, to the final Penn-Perm deposits of the Pennington-Lee and Marathon clastic wedges. As such, over the past thirty years it has been the starting point of many investigations. These include 1) variations in upper plate and lower plate rift-drift stratigraphy and evolution; 2) identification of a) tectonic-metamorphic events on the Laurentian margin responsible for Paleozoic clastic wedges, and b) the role of post-accretionary terrane dispersal through provenance studies, high-precision radiometric data and tracer isotopes; 3) the origins and consequences of long-lived continental lithospheric fracture zones (e.g., why does the structural grain of eastern North America change so dramatically with Late Proterozoic rifting? and what are the geodynamic and tectonostratigraphic consequences of those continental lithospheric fracture zones?); 4) the formation and evolution of ribbon continents and the particular and peculiar nature of Iapetus/ Neoproterozoic rifting and reconciliation of these paleomagnetic and geologic data; 5) and the identification of far-traveled Paleozoic Laurentian, peri-Laurentian, or exotic Appalachian fragments (e.g., Argentine Precordillera, North American Cordillera).

Last year at the Annual Meeting in Denver, Jim Hibbard and I convened a theme session devoted to advances deriving from Bill's 1977 paper on its 30th anniversary. Fifty eight authors contributed twenty eight papers to the session. Several people commented that this was the first time a specific scientific contribution, a paper, was so celebrated at a GSA Annual Meeting. In our proposal we indicated our preference for the oral sessions to run on Tuesday so that at their conclusion the conferees could come to the S&T Division Meeting as a group. That is not how the sessions were scheduled. However 11 months later we find ourselves at the Division meeting under much the same circumstances: recognizing the contributions this paper has made to our understanding of lithospheric controls on and responses to sedimentation on a continental margin over the course of a complete Wilson cycle. It has probably been better to spread the fun out this way.

We could not have been more pleased with the breadth and variety of contributions that Bill's paper continues to inspire as evinced by last year's session: A wide range of approaches spanned

stratigraphy, detrital zircon, thermochronology, and tracer isotopes, dip-slip and strike-slip structural restorations, seismic reflection, refraction and potential field methods. Contributions stretched across every segment of the Appalachians: from Newfoundland to the Ouachitas, and Variscan Europe, Neogene central America, and the Argentine Precordillera. Through the prism of Bill's paper we have a better understanding of the role of tectonic inheritance on controlling transform, fracture zone and shear zone geometries, and the stratigraphic controls on our understanding of the history of accretion on the Laurentian margin.

It is clear that Bill's 1977 AJS paper has a giant legacy. Bill has continued to revisit and refresh the themes he put forward there. Here are some examples:

1. Documenting the amount of Late Precambrian extension on the Laurentian margin first in the south and now with John Allen and co-workers in Newfoundland.
2. Demonstrating the control of Iapetan rifting on later structural development through a large number of balanced cross sections.
3. Applying upper plate/lower plate stratigraphic models to observed rift packages along the length of the margin.
4. Articulating the role of significant dextral transport in the Devonian and younger history of the orogen with Ben Ferrill
5. Preparing detrital zircon studies with Scott Samson, Tom Becker and others that yield insight into paleotopography and the exhumation history of the Appalachian hinterland.
6. Work with Ricardo Astini and others on the stratigraphy, paleontology, paleomagnetism and provenance of the Argentine Precordillera.
7. Most recently, Bill's review of the role of tectonic inheritance on the eastern and southern Laurentian margin from Mesoproterozoic Rodinian assembly to Triassic-Cenozoic Atlantic opening in his 2005 Presidential address (GSA Today Feb 2006).

In conclusion, sometimes there is a tension between regional geology and "process-oriented" studies. Thomas' 1977 paper bridges that divide. Bill's paper by virtue of its detailed stratigraphic observations and the comprehensive orogenic and temporal scales over which those observations are integrated yields deep insights about the behavior and structure of the lithosphere and the evolution of the Appalachian Wilson cycle. Please join me in recognizing Dr. Thomas' contribution.

Response by Bill Thomas

First, I want to thank the Division and the selection committee for selecting my paper for the Best Paper Award. I greatly appreciate the kind comments from Allen Dennis. To have my paper placed in this category is a great honor, considering the impact of papers that have been previously selected. I certainly did not imagine this occasion tonight when I was completing this paper for publication in the *American Journal of Science*. This award is doubly significant for me, coming as it does just one year after Allen Dennis and Jim Hibbard organized a session in recognition of the thirtieth anniversary of the publication, a session that included an incredible range of applications of the concepts from this paper.

There are many people I should thank, not only for their help with this paper, but for others as well. Rather than risk leaving out someone significant, I'm sure you will all understand if I only name one, my wife Rachel. Rachel is my chief editor. If I can get a manuscript past her, I know that it is clearly written, and that it communicates. And two other things: no sentence will be longer than five lines; and some really neat ideas that I like but that are peripheral to the topic of the paper will be preserved in a section called "Things I Also Know," and that section will be deleted just before submittal for review.

Getting this paper into print was beset by the same work effort and difficulties that many papers endure or enjoy. My first presentation of the ideas that grew into this paper was at the GSA Annual Meeting in Atlantic City in 1969. That was my first GSA Annual Meeting and, of course, my first presentation at an Annual Meeting. Part way through my talk, as I was explaining the distribution of thin-skinned and thick-skinned structures along the Appalachians, laughter broke out in one corner of the audience. A bit disconcerting perhaps. But I found out after my talk that the source of the laughter was John Rodgers and Byron Cooper, who were sitting together and being prodded by Wally Lowry on the subject of my trying to bring their diametrically opposed views together. John reported this incident in his book, *"The Company I Kept."* Subsequently, rejected manuscripts and a rejected abstract for another Annual Meeting kept me working on revisions. When I submitted the manuscript to the *American Journal of Science*, the Editor, John Rodgers, reviewed it himself, and accepted it for publication.

In view of these struggles, we might ask why do we publish papers? The possible answers span a broad spectrum, but overlap, and are not mutually exclusive. On one, perhaps unfortunate, extreme, most of us must publish papers to achieve tenure and promotion, and to gain merit increases in salary. I've never thought that motivation alone would justify the effort of preparing a scientific article for publication.

On the other extreme, publication of research results is its own reward, the personal satisfaction of a job done well enough to have the article accepted for publication through the peer-review system of a journal. The struggle to succeed and the effort to complete the process are rewarded by seeing the article in print. When I was an undergraduate at the University of Kentucky, I was on the track team. I wasn't fast enough to be very good, but I was competitive. I ran the half mile, which at my speed was an 880-yard all-out sprint. That was hard work, and at every practice I ran until it hurt. The reward was participation in track meets, and occasional modest success there. A journal article is somewhat like track, a lot of hard work, working until it hurts, being reviewed until it hurts more, and finally a brief instant of success when the publication appears.

I'm sure that the primary reason we publish papers is the urge to share our scientific discoveries with our colleagues. In effect, a journal article is an open letter to the scientific community. We hope that our ideas will turn out to be useful to others and to be used by others to further scientific research. The ultimate test of quality is whether a paper has proven useful. The number of citations provides one common measure of usefulness, and

this is my most cited paper. However, the usefulness of the paper has another measure, the concepts introduced in this paper are now used in many publications without citation, indicating that these concepts are now considered common knowledge, requiring no citation of the source. In that regard, the non-

citations possibly should be more gratifying than the citations, although the recognition through citations is nice, too. To be recognized here as the best paper brings up another track analogy, the personal best. Even if I could never challenge for the Southeastern Conference record in the 880, I could try to improve on my personal best, and that kept me running. So far, this article is my personal best, although I have another one ready for review, so who knows? For now, it is wonderful to have this article recognized by the Division as the best, as well. Thank you all, very much.