Geological Society of America

Structural Geology & Tectonics Division

2017
Career Contribution Award

Presented to Arthur W. Snoke

Citation by Allen J. McGrew

On behalf of a diverse team of co-nominators coordinated by Darrel Cowan, I am honored to welcome Art Snoke as the 2017 GSA Career Contribution Awardee in Structural Geology and Tectonics. Art's eclectic career has ranged across continents and delved into the origins of mountains across Earth history from the Archean to the Recent. He has directly influenced the careers of dozens of collaborators and students and reframed issues as diverse as ophiolites, mylonites and fault rocks, the interplay of tectonics and magmatism (especially in arcs), deep- crustal processes and the extensional exhumation of deep-seated terrains, and the origins, assembly and growth of the continents.

Art began his career with a Stanford thesis on his beloved Klamath Mountains, where he quickly established himself with a prescient synthesis invoking a primitive arc setting for the Preston Peak ophiolite. From there, Art went on to a career far too diverse to credibly summarize in these few words. In addition to the Klamaths, his work on Tobago, West Indies and the Baker terrane of northeast Oregon inform our understanding of arcs and accretionary processes. In his years at the University of South Carolina, he and Don Secor teamed up to reframe understanding of the Alleghanian orogeny. With his move to the University of Wyoming, Art developed a characteristic encyclopedic knowledge of Wyoming geology and a new passion for early Earth tectonics and the origins of the continents. My own interest in Art's work was sparked by his application of new approaches to the kinematic analysis of shear zones to extensional tectonics in the Ruby-East Humboldt metamorphic core complex. His most widely cited work remains the seminal 1984 Lister and Snoke synthesis on S-C mylonites. Subsequent generations of structure students can thank Gordon and Art for popularizing the term "asymmetric mica fish."

While Art's career is rich in conceptual innovation, his chief legacy may be his talent for synthesis and for convening important conversations. Many have benefited from his field trips or conferences, and his five books memorialize his genius for synthesis. To call out just one, his work with Jan Tullis and Vicki Todd in the Photographic Atlas of Fault-related Rocks was particularly influential in instituting a coherent framework for the study of fault rocks. With such notable accomplishments, perhaps the most surprising of Art's many gifts is his conspicuous humility. Like so many other past recipients of this award, Art exemplifies science as a fundamentally social enterprise. I count myself fortunate to be among the many beneficiaries of his personal warmth and generosity. With Art, it is always about the science, never about ego. The sentence I most associate with him is, "Al, I never worked with anyone from whom I didn't learn something." Art, I know I speak for all your students and many colleagues when I say, "We learned more." Thank you.

Response by Arthur W. Snoke

Thank you, Al, for your generous words. Thanks also, to the Geological Society of America, Structural Geology and Tectonics Division, and the nominators supporting this honor. I am humbled to join the rich company of previous recipients.

My career-long fortune has involved tutoring from inspiring mentors, interacting with outstanding colleagues, and learning from interested students. Every one of those geologists helped train me in structural geology and tectonics. Receiving this honor caused me to ponder key decisions linked to developing my career. I wish I could say they were carefully planned. But, as in research, they took me down diverse paths— always interesting and often unpredictable.

The decisions to attend Franklin & Marshall College and Stanford University were strategic and wise. In fact, Don Wise, an enthusiastic and inspiring teacher, introduced me to structural geology and tectonics. Tony Morse taught me the 'how' of pursuing scientific research via my senior thesis. Back then, I didn't fully appreciate what an incredible opportunity that Franklin & Marshall provided.

I enrolled at Stanford University in 1967 at a time when 'New Global Tectonics' was first being applied to the complex histories of mountain belts. Outstanding geologists such as Bill Dickinson and Ben Page were applying these new concepts to the Mesozoic history of California. It was an exciting time to be at Stanford, because all of us were sharing a major paradigm-shift in Earth sciences.

The next stroke of good fortune was to serve as a field assistant for Porter Irwin of the U.S. Geological Survey in the southern Klamath Mountains in 1968. Porter suggested that I study the ultramafic-mafic rocks in the Klamath Mountains, and he directed me to the Preston Peak area. That was sage advice because the area exposed two suites of ultramafic-mafic rocks that recorded different aspects of the tectonic evolution of the western Klamath Mountains.

While pursuing my studies in the Klamath Mountains, my fellow graduate student, Vicki Todd, was working in northwestern Utah on a metamorphic terrain characterized by recumbent folds, mylonitic rocks, and low-angle faults. I also became interested in such complexities. To that end, my dissertation advisor, Bob Compton, supported my plan to develop a post-doctoral project in the Ruby Mountains–East Humboldt Range, Nevada. I was offered a NRC-USGS fellowship to work under Max Crittenden on mylonitic rocks and low-angle faults in the northern Ruby Mountains. In turn, Keith Howard masterfully introduced me to the geology of the area. That introduction led to research that continues today. Northeastern Nevada, across several decades, has proven to be a fertile area for research for many graduate students.

Studies in the Ruby–East Humboldt core complex focused my interest in mylonitic rocks. Indeed, that led to working with Jan Tullis and Gordon Lister on various

aspects of mylonitic rocks. In 1981, Jan, Vicki, and I convened a Penrose Conference on the petrogenesis of mylonitic rocks. That conference was transformative for me, because it brought together geologists working on fault rocks from around the world. New collaborations were spawned, including my work with Gordon on S–C mylonites.

After I finished my post-doctoral studies, I joined the geology faculty at the University of South Carolina in 1974. Don Secor introduced me to the geology of the South Carolina Piedmont, and that began long-term research collaborations. At that time, study of the internal zone of the southern Appalachians was undergoing a renaissance, especially through combining detailed field investigations with radiometric dating.

I enjoyed a productive decade at the University of South Carolina. But an opportunity arose to join the geology and geophysics faculty at the University of Wyoming (UW). UW provided new opportunities and collaborators including: Carol Frost, Ron Frost, Jay Lillegraven, Scott Smithson, Bobbie John, Kevin Chamberlain, and Dave Fountain. I also initiated research collaborations with Cal Barnes, which continue today. Jim Wright and I worked together in documenting a geochronological history for the Ruby–East Humboldt core complex. My career as a regular faculty member at UW lasted 31 years, until retirement in 2015. I have not stopped doing research, and I hope to continue for many years.

Being a field-oriented geologist has been a remarkable experience and led to a scientifically fulfilling career. However, my greatest legacy is my 45 graduate students. It has been very satisfying to watch their careers evolve over the years!

What can I pass on to my younger colleagues, especially students, as gained from 50 years as a geologist? Examples are many, but I have selected five items especially important to me. (1) *Search out good mentors*. From my previous comments, early-career mentors were crucial to my professional development. (2) *Collaborate with other scientists, especially ones having complementary expertise.* (3) *Learn to identify good research problems.* Some will be at the cutting edge of a topic, but others may at first seem only to have potential to evolve into unexpected results. (4) *Regularly participate in field trips and conferences.* You could then see a wealth of geologic settings and meet leaders in the field. When you have more experience, convene conferences and organize your own field trips. (5) *Be prepared to recognize the unexpected among field relationships and lab results.* Almost invariably in science, it is the anomalies that lead to real breakthroughs in understanding.

In closing, I want to thank my partner in life, my wife, Judy. When she realized that fieldwork was destined to be a major part of my career, she agreed that the family should share the summer field seasons together. Thus, we took our daughters, Cindy and Alison, to the Klamath Mountains and northeastern Nevada. They know the joys of sleeping in a tent from early ages.

Thank you again for this very special honor.