The Basins, Orogens and Evolution of the Southern Gulf of Mexico and Northern Caribbean

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Dedication: Professor Kevin Burke 1929–2018

Photo: Kevin Burke supervising fieldwork in 1981 with J. Pindell and C. Cooper in the eastern Sierra Bahoruco, southernmost Dominican Republic. Kevin had expected the folded limestones to represent a Late Cretaceous accretionary prism, a model we tested and discarded quickly! Photo courtesy of J. Pindell.

It is out of great respect that we dedicate this volume to the memory of the late Professor Kevin Burke for his instrumental role in guiding our understanding of the tectonic evolution of the Gulf of Mexico and the Caribbean. Kevin was an early proponent of the Pacific origin for Caribbean oceanic crust and island arcs. This led to his realisation that strike-slip deformation is prevalent though often cryptic around the Caribbean. In addition, he recognised that the buoyancy of oceanic plateaus causes them to resist subduction and drive cordilleran-style orogenesis. He also 'relaxed the plate tectonic rules' in the pursuit of defining the Caribbean Plate, recognising instead the existence of wide 'plate boundary zones' dominated by transcurrent fault systems with zones of local compression and extension.

Kevin was able to discuss the geology and evolution of virtually any place on the planet. Many of his seminal insights on plate tectonics, involving rifting, failed arms, mantle plumes and hot spots, came particularly from his work in Africa. This led him to a progressive understanding of mantle dynamics which became known as the 'Burkian Earth'. Kevin suggested that the initial separation of Africa from South America led to the ocean spilling into a rift chasm, which could explain how the world's great salt basins formed.

Kevin was well known for his outspoken philosophy concerning research. He liked to say 'We can only build models and test them', and 'In geology, it's rarely just one or the other [factor], but usually both'. Another of his beliefs was that two apparently different viewpoints can both be right, but the trick is to figure out how they can be right together.

Professor Burke bestowed his own honours upon respected colleagues, sometimes in amusing ways. He named his low shear-wave velocity provinces within the lower mantle 'Tuzo', 'Jason' and 'Tanya', to affectionately commemorate the work of J. Tuzo Wilson, Jason Morgan, and Tanya Atwater. Kevin along with John Dewey also coined the term 'Wilson Cycle' to denote the sequence of continental rifting, ocean opening, ocean closure, and continental collision.

Up until his passing Kevin remained a very active and young-at-heart geologist. He was often heard at conferences in heated discussions within a melee of scientists at the poster boards, causing a mixture of relief and trepidation depending on whether he agreed with you.

More can be found about Professor Kevin Burke at: https://en.wikipedia.org/wiki/Kevin_C._A._Burke