Date: October 14-19, 2014

Location: Erice, Sicily, Italy

Event: 33rd workshop of the International School of Ethology: What made us human? Biological and cultural evolution of Homo sapiens. Falk's presentation: Evolution of brain and culture: The neurological and cognitive journey from *Australopithecus* to Albert Einstein, October 18. http://www.erice2014humanevo.it/

Abstract:

The evolution of the cerebral cortex of our early ancestors is discussed in light of information gleaned from casts of the interiors of their fossilized braincases (endocasts) and from comparative neuroanatomical and functional studies of brains of living apes and humans. Details about Albert Einstein's brain will also be presented and shown on recently discovered photographs that were taken at his autopsy in 1955. These include unusual features that may have been related to Einstein's extraordinary cognitive abilities. Connecting the dots between the endocasts of *Australopithecus* and the brains of humans, including Einstein, suggests that three associated changes eventually enabled our species to move beyond relatively simple cultural activities like conceptualizing and knapping stone tools to more sophisticated ones such as discovering and using theoretical physics: (1) a significant evolutionary increase in brain size, (2) differential expansion of certain association cortices (e.g., specific prefrontal regions), and (3) increased complexity in the connections between different parts of the brain. The development of language and honing of visuospatial skills were also likely to have been crucial elements in the emergence and evolution of advanced human cognition.