

Why Study Genetic, Cultural, and Epigenetic Evolution?

I *believe* that in order to explore the broad and deep taxonomy of clinical and neurophysiological dissociation over the next several years our group wants to be on the same page about evolution. Many of us routinely say that we are a primitive species based on our addiction to violence and the cumulative cultural effects of warfare. Some of us *believe* we have a little Bonobo in us, but most of us realize that our distant ancestors were chimps.

But that is not the main reason we say we are primitive. The main reason, I *believe*, is that we are moored in our *belief systems*, which are inherently an aspect of our implicit, unconscious knowledge processing (Modell) brains where subsymbolic representations intertwine with symbolic representations. Our brain has evolved to create patterns and to make meaning from them (Gazzaniga, Interpreter function). I *believe* that this applies equally to our superstitions, our beliefs in witchcraft, ghosts, Santa Claus, and various divinities. (I want to separate belief systems from spirituality.) It is noteworthy that nearly all western philosophers until Nietzsche, such as Descartes, Locke, Hegel, Kant, and Kierkegaard ultimately grounded both “rational” and “empirical” “truths” in their religious belief systems. Belief systems, especially group belief systems, are far more powerful than political ideologies because they address the fundamental questions of existence.

Cultural evolution: In December or January we will read Maryanne Wolf’s *Proust and the Squid*. This book demonstrates clearly the power of cultural evolution. It states that the reading/writing brain becomes *structured* to think in more complex, abstract ways than the brain of the oral tradition. This means that cultures around the globe always have functioned, and continue to function at different levels as defined by the capacity for abstract thought and presumably other mentalization functions.

Epigenetic evolution: Check out PBS/Nova Science Now: Epigenetics. (Randy Jirtle, Duke, geneimprint.org) Apparently genes can be prevented from replicating by placement of methyl transferase (CH3) groups. Consequences for both the individual and his/her progeny can be profound. Currently physiological changes are being investigated. I would think this may also apply to neurophysiological and hence psychological changes.

How does *Before the Dawn* alter our perspectives?

Wade’s model states that every human on the planet is *genetically* related to a small group of immigrants that left Africa 50 k years ago and reached Australia four thousand years later. If this theory is correct then it only took about 49,900 years for a human to create psychoanalysis and publish *Interpretation of Dreams*. And rather than thinking we have had all of our current mentalization capacities for 50 k years, we may wonder how we have been acquiring them over time and that especially our self reflective capacities (i.e. the capacity to look at ourselves with perspective, to have an inner

dialogue with ourselves) are quite recent and are continuing to evolve. We are continuing to change both physically and culturally.

I am adding the following ideas from a talk entitled, *Yoga and the Mind*.

Out of Africa: Darwinian and Cultural Evolution

Anthropologists believe that there have been many hominid groups and many migrations out of Africa during the past few million years. In his remarkable book *Before the Dawn*, Nicholas Wade notes that genetic evidence suggests that anatomically modern-languaged humans originated in Africa about 200,000 years ago. We assume these groups, including *Homo erectus* and Neanderthals, possessed our basic attachment and embodiment abilities as well as certain reasoning and memory capacities.

However, these groups lacked crucial elements of mentalization that give *Homo sapiens* a particular Theory of Mind (Fonagy et al).

Most importantly, it appears that the artifacts left by all hominid groups other than *Homo sapiens*, were crude tools that did *not* evolve in sophistication over hundreds of thousands of years.

Furthermore, since 50,000 years ago, we see a trail of ever-increasingly sophisticated *artifacts and symbolic practices* that we attribute to “*human behavior like our own*” (Ben Campbell). Karl Marx, a contemporary of Darwin, called mankind *Homo faber*, meaning producer or maker, the animal who changes his/her environment according to his/her needs.

The current hypothesis is that our common ancestors migrated out of Africa JUST 50,000 thousand years ago, spread through Asia into Australia in the next four thousand years, and out-competed all other hominid groups, including *Homo erectus* and the Neanderthals. As I noted, anthropologists, including Ben Campbell, believe that the basic mechanisms of brain maturation and emotional development during infancy (including attachment capacities (mid brain, PFC), multitasking (PFC, 1m yrs), neocortical semantic memory networks, and some recall memory (Stickgold, p. 64)) may be very old in hominids. However, the developmental processes of later childhood and adolescence represent a new level of brain *flexibility* and *plasticity* in *Homo sapiens* that is influenced by *learning* and *novelty*, or using Michael Tomasello’s words, by *imitation* and *innovation*. I center these achievements in the human imagination, particularly as we reconfigure our brains during adolescence and evolve our capacity for abstract thought (Piaget) which demonstrates quintessential neurodynamic plasticity.

Our ancestors evolved the complementary capacities for *human consciousness*, *language*, and *metaphor* (Modell), all rudimentary components of the reflective “*I self*.” The human reflective “*I self*” has a critical evolutionary lineage both within our species and in each individual throughout the life span.

Most animals live mostly in the present moment. Humans use their imagination in three time zones—past, present, and future. Symbolic thinking, imagination, and our sense of the past and future help us to see ourselves *apart* from the present moment of time.