## The evolution of human minds

## William Calvin

The beyond-the-apes story starts about 7 million years ago. To understand the emergence of mind – and particularly the higher aspects of consciousness that so set us apart from the rest of the animal kingdom – we need to understand what the great apes are capable of. And what they don't do.

It is just in the last 1 percent of that up-from-the-apes period that human creativity and technological capabilities have really blossomed. It's been called "The Mind's Big Bang." In our usual expansive sense of "mind," the history of the mind is surprisingly brief, certainly when compared with the long increase in brain size and the halting march of tool making. What came before was not, as we usually assume, a series of increasing approximations to the modern mind. So what set the stage for this creative explosion?

We tend to see ourselves as the narrator of a life story, always situated at a crossroads between past and future, swimming in speculation. We can construct alternative explanations for how we got where we are, emphasizing one aspect or another as a path. Looking ahead, we imagine various trajectories. We refine our guesses, editing out the nonsense, and achieve a clearer glimpse of our crossroad choices.

Because our less imaginative ancestors couldn't think about the future in much detail, they were trapped in a here-and-now existence. They could anticipate routine happenings (like meals), but not in our extended sense of speculation and worry. No "what if" and "why me?" They were conscious in the sense of choosing between alternative courses of action, but with their unstructured type of mental life, you couldn't narrate a life story or conceive of dying someday. Without creative intelligence, there's no crossroad and no end of the road.