Introduction | Shaping Our History

In 1405 Admiral Zheng set off from China with a glorious armada, leading three hundred magnificent ships on a thirty year odyssey to distant lands as far afield as Africa. Everywhere he went, Zheng – a Muslim by birth whose father had completed a pilgrimage to Mecca – heightened the prestige of the empire. He left such a fine impression that in some parts of Southeast Asia he was even deified, with temples still venerating him to this day. His ships inspired awe in those he visited – not surprisingly since his crew of twenty-seven thousand men was larger than the entire population of many ports of call. Indeed his fleet was the greatest the world had ever seen, dwarfing the technological capabilities of Europe at that time. Zheng's largest ships had as many as nine masts and luxurious cabins with balconies, while his armada included transports for troops and horses, patrol boats, warships and tankers holding freshwater.[1]

Later that century, Christopher Columbus set sail from Spain with a crew of ninety men in three threadbare boats, each of which could have fit ten times into one of Zheng's. After just three days, one of their rudders broke, and they had to stop in the Canary Islands for repairs.

And yet, in spite of this awesome technological chasm, it was Columbus' voyage that would change the course of history, while Zheng's armada left virtually no imprint on the world. Why?

In this book, we'll try to get inside the minds of people like Zheng and Columbus to gain a new perspective on this and other crucial questions of history: Is it our true nature to be selfish and competitive, or empathic and community-minded? How did the rise of agriculture set the stage for our current ecological crisis? Why did the scientific revolution take place in Europe, and not in Chinese or Islamic civilization? What are the root causes of our modern global culture of rampant consumerism and is there any way we can change it?

Pioneering the new field of cognitive history, this book will show how different cultures construct core metaphors to make meaning out of their world, and how these metaphors forge the values that ultimately drive people's actions. It will explain why a hunter-gatherer tribe insulted the anthropologist who gave them a fat ox for Christmas; why a great Muslim scholar received fifty lashes for his scientific research; and what drove a prominent Church Father to castrate himself.

The book is based on a simple but compelling theme – culture shapes values, and those values shape history. It will show the layers of values that form the norms of mainstream Western culture,

and how these continue to shape our world today. That is why, although this book focuses on history, it can help us understand not just where we came from, but where we're headed.

There has never been a more important time to contemplate this question.

Imagine a satellite being launched into orbit, but its controls aren't working too well. If the trajectory gets too steep, it will break through earth's gravity field and soar into outer space. If it accelerates too rapidly, atmospheric resistance will cause it to come crashing down in a fiery ball. Only if everything is managed with great care will the satellite achieve a stable orbit. The trajectory of our civilization is a lot like that satellite. At the accelerating rate of technological innovation, artificial intelligence may soon transcend our own, and human DNA might be re-engineered to produce a genetically enhanced species – like the satellite leaving its home planet forever. On the other hand, the rate at which we're exploiting the earth's resources is unsustainable: in addition to climate change, there's a rapidly accumulating list of equally daunting crises, such as capacity limits in crucial resources, deforestation, and a massive extinction of species. If the convergence of these multiple threats becomes too much to handle, our global civilization could face a total collapse – like the satellite hitting too much resistance and crashing down.

To me, and perhaps to you too, neither of these scenarios is attractive. But is it possible for our civilization to manage its trajectory capably enough to reach a stable orbit? What would it take to achieve that? If we want to steer our future towards a sustainable path, it's important to know how we got into this unstable and potentially disastrous trajectory to begin with. The operating system of that satellite is buried deep within the values that shape our civilization. That's what we'll be unearthing in this book.

An archaeology of the mind

Each of us conducts our lives according to a set of assumptions about how things work: how our society functions, its relationship with the natural world, what's valuable and what's possible. This is our worldview, which often remains unquestioned and unstated but is deeply felt and underlies many of the choices we make in our lives. We form our worldview implicitly as we grow up, from our family, friends and culture, and once it's set, we're barely aware of it unless we're presented with a different worldview for comparison. The unconscious origin of our worldview makes it quite inflexible. That's fine when it's working for us. But suppose our worldview is causing us to act collectively in ways that could undermine humanity's future? Then it would be valuable to become more conscious of it.[2]

We can think of a society's worldview like a building that's been constructed layer by layer over older constructions put together by generations past. Imagine the mainstream Western worldview, with its implicit beliefs in science, progress and economic growth, as a house we're living in comfortably. As in a regular house, we're used to seeing the walls, decorations and furnishings every day, but only rarely, if something goes wrong, are we called upon to probe through the masonry and inspect the house's infrastructure. Rarer still are those times when we need to delve into the house's foundations. But now we've learned that we're living in an earthquake zone: there's a growing awareness that we may be creating our own Big One in the form of global climate change, resource depletion and species extinction. If our worldview is built on shaky foundations, we need to know about it: we need to find the cracks and shore up the weaknesses before it's too late.

Unlike modern houses, where the foundations are part of the blueprint and constructed specifically for the house, the foundations of a worldview comprise the earlier worldviews of previous generations. As we probe further into history, we excavate deeper into the cognitive layers of our ancestors. That's why we can think of this exercise as an archaeology of the mind.

It's not just a matter of delving deeper in time, but also into the underlying structures of human cognition: the entire set of processes, conscious and unconscious, that we rely on to know our world and respond to it. In recent decades, cognitive scientists have made important discoveries into how we learn, as infants, to make sense of the reality around us. They've shown that our worldview is based on root metaphors that we use to frame other aspects of meaning, without even realizing we're doing so. These core metaphors, which arise from our embodied existence, structure how we conceptualize our world. HIGH is better than LOW; LIGHT is better than DARK; our life is a JOURNEY along a PATH. Throughout this book, we'll see how root metaphors have played a crucial role in structuring the worldviews of different cultures.[3]

What causes us to create these root metaphors in the first place? As we dig deeper into the archaeology of the mind, we find that, unlike other mammals, we humans possess an insatiable appetite to find meaning in the world around us. In the words of a little doggerel:

> Fish gotta swim; bird gotta fly.
> Man gotta sit and say why? why? why?[4]

As far as we know, asking why is something only humans do, so if we want to know *why* we ask why, it helps to look to the source of what makes us uniquely human. Fortunately, in recent decades, cognitive neuroscientists have come a long way in their efforts to answer this. They've identified the

prefrontal cortex (PFC) as the part of our brain primarily responsible for our thinking and acting in ways that differentiate us from other animals. It mediates our ability to plan, conceptualize, symbolize, make rules, and impose meaning on things. It controls our physiological drives and turns our basic feelings into complex emotions. It enables us to be aware of ourselves and others as separate beings, and to turn the past and the future into one coherent narrative.[5]

The Patterning Instinct

Think of whatever we do that animals don't do: talking, reading, driving a car, planning for retirement, or making music. These uniquely human activities require the involvement of our highly developed PFC, especially during the period when we're learning them for the first time. These PFC-mediated modes of thought may be called our conceptual consciousness. Now think of what we share with other mammals: hunger, sexual urges, pain, aggression, desire for warmth, caring for our offspring – we can call this collection of cognitive experiences our animate consciousness. While many of the PFC's advanced functions exist to some degree in other creatures – chimpanzees, dolphins and parrots, for example – their predominance in humans is overwhelmingly different in magnitude and scope, accounting largely for our current domination of the world.[6]*

How does our PFC allow us to think in this way? Cognitive neuroscientists tell us that the PFC is the most connected part of the brain and one of its primary functions is to make sense of all the inputs it receives from other parts of the nervous system: the senses, primary emotions, feelings and memories. One important way it does this is to detect patterns in what it receives: What's new? What's recurrent? What's important? What correlates with something else? Out of these patterns, as infants, we begin to make sense of our surroundings: recognizing family members, picking up on speech formations, and gradually learning to become members of our community. As we grow older, we continue to rely on our PFC to make meaning of all the different events we experience and to construct models for how to live our lives.[7]*

Through the capabilities of the PFC, our species has evolved a patterning instinct: an instinct unique to humans that lends its name to the title of this book. It deserves to be called an instinct because it emerges in human behavior at the earliest stages of development, well before any cultural learning has taken place. In fact, this instinct is what's responsible for an infant's ability to engage in cultural learning. As we'll see in a later chapter, when an infant is only nine months old, she has already begun to identify the unique phonetic patterns of her native language, and by twelve months

she's learned to ignore phonetic units that don't exist in her own language. No-one tells her to do this; she does it by instinct. This human instinct for patterning is embedded in our cognition, maintaining its activity throughout our lives. We create narratives about our past and future, we construct an identity for ourselves, we categorize things, putting more value on some and less on others. And, just like our distant ancestors, we continually search for meaning in our lives and the world around us.[8]

Before cognitive neuroscience, astute observers of the human condition already understood the drive for meaning to be a defining characteristic of humanity. The father of evolutionary theory, Charles Darwin, saw it as a natural consequence of human cognition, writing that "as soon as the important faculties of the imagination, wonder, and curiosity, together with some power of reasoning, had become partially developed, man would naturally crave to understand what was passing around him, and would have vaguely speculated on his own existence." Anthropologist Clifford Geertz recognized something similar, describing a human being as a "symbolizing, conceptualizing, meaning-seeking animal," whose "drive to make sense out of experience, to give it form and order, is evidently as real and as pressing as the more familiar biological needs." Geertz saw religion, art and ideology as "attempts to provide orientation for an organism which cannot live in a world it is unable to understand."[9]

Somehow, though, this drive to make sense of the world around us, while it's given us so much that we value, has also brought our civilization to the brink of collapse. How could this have happened? Is it an inevitable result of human nature, or is our present situation culturally driven: a product of particular structures of thought that could conceivably be re-patterned? The answer to this question – and its implications – may be one of the most important factors affecting the future direction of the human race.

Core patterns of meaning

The path from the earliest human search for meaning to our current precarious situation is what we'll be tracing in this book. It's a fascinating journey, offering up new possibilities to understand our human condition along the way, while occasionally challenging some of our deepest assumptions. The path can be segmented into different periods, each characterized by the core pattern of meaning by which people made sense of their world. These periods, with their patterns of meaning, give the book its structure. Here's what they look like.

Section I: EVERYTHING IS CONNECTED

What makes us uniquely human? Is it our true nature to be competitive or cooperative? The answers to these key questions can be found in our earliest history, and we'll begin by considering the surprising recent findings by scientists that overturn prevailing views of human nature. We'll discover how pre-humans developed a nonverbal form of communicating with each other, using mime, laughter, chanting and communal dancing, well before language came on the scene. When it finally did, we'll examine how a new form of mythic consciousness arose, causing our ancestors to find meaning in every aspect of their daily existence and that of the animals and plants around them.

We'll see how this new consciousness led early hunter-gatherers to form their worldview around the first pattern of meaning: EVERYTHING IS CONNECTED. The natural world was infused with spirits, while the earth was seen as intimately involved with their activities, like a parent. Were their lives really savage, brutish and short (in the famous words of Thomas Hobbes) or did they enjoy ease and plenty? With the light cast on this question by modern anthropologists, we'll gain insight into how hunter-gatherers saw each other and their universe, and how, in spite of their connection with the natural world, they conducted their own form of mass extinctions around the globe.

Section II: HIERARCHY OF THE GODS

Hierarchies and wealth. Property and land ownership. These things seem like they've been part of the human experience since time immemorial, but we'll see that's not the case. These new notions only arose when foragers began settling in one place, beginning about ten thousand years ago. We'll discover how, along with the domestication of animals and plants, humans were themselves domesticated by the emergence of agriculture. Was this something our ancestors chose, or was it an inexorable process in which they were unwitting participants? As we answer this question, we'll explore how, along with its benefits, agriculture also brought an unprecedented level of anxiety into the human condition.

The hierarchical structure of agrarian societies helped shape a new conception of the universe. In agrarian civilizations around the world, a HIERARCHY OF THE GODS emerged, stratified and distant from ordinary people, mediated by priests. People still viewed themselves as connected with the natural world, but now they believed their own active participation was required to keep the cosmos running. We'll see how prayer, worship and sacrifice became crucial parts of the human endeavor to propitiate the gods, who could take terrible retribution on those who failed to honor them.

While early civilizations everywhere shared important cognitive patterns, they also began to distill different meanings from the cosmos. We'll investigate some of these patterns of meaning spanning the globe, from China to Mesopotamia, from Egypt to Harappa. And we'll discover the unlikely culture, on the fringes of the great civilizations, that was destined to outlast nearly all of them and leave the greatest imprint on the cognitive structures of our modern world.

Section III: THE PATTERNS DIVERGE

Western Pattern: SPLIT COSMOS, SPLIT HUMAN

Eastern Pattern: HARMONIC WEB OF LIFE

In ancient Greece, a radically new way of thinking about the universe emerged. We'll discover what caused Greek philosophers to split the human experience into two by proposing a divided cosmos, with a heavenly domain of eternal abstractions and a worldly domain polluted with imperfection. And we'll see how this SPLIT COSMOS was paralleled by a SPLIT HUMAN, composed of an eternal soul temporarily imprisoned in a physical body destined to die.

Where did God come from? Recent discoveries have transformed our understanding of who really wrote the Old Testament, when they did it – and perhaps most importantly – why they did it. We'll review these astonishing findings, and trace how Christianity combined the Hebrew vision of a single all-powerful god with the divided cosmos of the ancient Greeks to create the world's first systematic dualistic cosmology. We'll glimpse the agonies of the early Christians struggling with the self-hatred and existential fragmentation arising from their new conception of humanity. And we'll watch how the metaphor of a SPLIT COSMOS led to a new understanding of the world as merely a desacralized theater for the human drama to be enacted.

Meanwhile, in China, a very different pattern of meaning evolved. We'll explore how the early Chinese saw themselves embedded in a HARMONIC WEB OF LIFE, which led to a view of a cosmos where the purpose of life was not to seek everlasting salvation, but to harmonize one's existence within the hierarchical network of family, society, heaven and earth.

We'll explore the gulf between the dualistic view of the cosmos that developed in Europe and the integrated cosmology of China. As we do so, we'll dive into one of the most acrimonious debates of modern academia: whether language affects the patterns of thought of its native speakers or not. We'll find how the frontlines of this battle have recently shifted, and review startling evidence that the

ancient divergence of worldviews between Europe and China still continues to structure different ways of thinking between modern East Asians and Westerners.

Section IV: CONQUEST OF NATURE

China was more advanced technologically in the eleventh century than Europe in the seventeenth century. Yet, it was in Europe that the scientific revolution occurred, fundamentally transforming human experience across the globe. Why Europe and not China? We'll explore this crucial question, arriving at an answer that challenges prevailing theories of history. As part of our inquiry, we'll see how the language of the Old Testament, giving man dominion over the animals, was perceived in Europe as a clarion call for the scientific CONQUEST OF NATURE, framing the pattern of meaning that has encompassed the world through the present day.

In modern times, the clash between science and religion may seem like the inevitable result of two fundamentally contrasting worldviews. However, we'll discover that, far from being diametrically opposed, the Christian worldview served for centuries as an incubator for scientific cognition, which might never have flourished without it. By shining light on these deep linkages, we'll discover certain hidden beliefs underlying scientific thought that usually remain unquestioned, even by some of the greatest scientific minds of our age.

More recently, the Western capitalist model has enveloped the globe, catalyzing a dramatic increase in the consumption of natural resources, with its implicit promise that the future offers greater prosperity and happiness for all. In recent decades, this rampant consumption has begun to take its toll, raising such specters as a massive extinction of species, a global freshwater crisis and runaway climate change. Equipped with our learnings from history, we'll take a look at patterns of meaning in the prevalent modern mindset, and identify some faulty underpinnings driving our global civilization on its unsustainable course.

Section V: TRAJECTORIES TO OUR FUTURE

The fifth pattern is left unnamed, because it has not yet emerged. The book concludes by examining some of humanity's possible future trajectories, spanning the grimmest to the most dazzling. We'll investigate how earlier civilizations drove themselves to collapse, and ask what lessons might apply to us. Will technology be our savior? We'll savor some of the breathtaking possibilities offered by artificial intelligence and genetic enhancement and ask: how would that affect our experience of being

human? Would it exacerbate the chasm already existing in today's world between the haves and have-nots, possibly even leading humanity to bifurcate as a species? Finally, we'll explore an alternative scenario: a transformation of global norms based on a realization of our intrinsic connectedness with each other and with the natural world. Might a greater understanding of our cognitive patterns help us to construct a more integrated worldview that could put humanity on a sustainable path? I've written this book in the hope that this is indeed the case.

---

[1] Levathes, L. (1994). *When China Ruled the Seas: The Treasure Fleet Of the Dragon Throne 1405-1433*. New York: Oxford University Press; Gernet, J. (2006). *A History of Chinese Civilization*. New York: Cambridge University Press, 398-42; Abu-Lughod, J. L. (1989). *Before European Hegemony: The World System A.D. 1250-1350*. New York: Oxford University Press, 343-4; Ehrlich, P. R. (2000/2002). *Human Natures: Genes, Cultures, and the Human Prospect*. New York: Penguin, 268.

[2] See Beddoe, R., et al. (2009). "Overcoming systemic roadblocks to sustainability: The evolutionary redesign of worldviews, institutions, and technologies." *PNAS*, 106(8), 2483-2489.

[3] See, for example, Lakoff, G., & Johnson, M. (2003). *Metaphors We Live By*. Chicago: University of Chicago.

[4] Quoted in McEvilley, T. (2002). *The Shape of Ancient Thought: Comparative Studies in Greek and Indian Philosophies*. New York: Allworth Press.

[5] For summaries of prefrontal cortex function: Miller, E. K., and Cohen, J. D. (2001). "An Integrative Theory of Prefrontal Cortex Function." *Annual Review of Neuroscience*, 24:167-202; Fuster, J. M. (2001). "The Prefrontal Cortex - An Update: Time is of the Essence". *Neuron, 30*(2), 319-333.; Goldman-Rakic, P. S. (1996). "The prefrontal landscape: implications of functional architecture for understanding human mentation and the central executive". *Phil. Trans. R. Soc. Lond. B, 351*, 1445-1453.

[6] The two forms of consciousness, described here as *animate* and *conceptual*, are recognized by many leading cognitive neuroscientists and referred to by different names such as *primary* and *secondary* consciousness (Gerald Edelman) or *core* and *higher-order* consciousness (Antonio Damasio). This distinction is also recognized in dual process theory which differentiates a fast, automatic mode of thinking called *System 1* and a slower, calculating mode of thought called *System 2*. See Damasio, A. (1999). *The Feeling of What Happens: Body and Emotion in the Making of Consciousness*. New York: Harcourt Inc.; Edelman, G. M., & Tononi, G. (2000). *A Universe of Consciousness: How Matter Becomes Imagination*. New York: Basic Books; Kahneman, D. (2011). *Thinking, Fast and Slow*. New York: Farrar, Straus & Giroux.

[7] The characterization of the patterning function as an important part of the PFC's activity is in no way intended to ignore the enormous complexity of the PFC and its range of functions. The PFC is frequently described as the locus of executive function, which includes attention, working memory, planning, temporal integration, decision-making and inhibitory control. Models of PFC function refer to its hierarchical organization of cognitive networks, its temporal organization of action, and its relational integration. I'm using the term "patterning" as a high level summary to encompass much, but not all, of what makes the PFC crucial to our uniquely human cognition. See Knowlton, B. J., & Holyoak, K. J. (2009). "Prefrontal Substrate of Human Relational Reasoning". In M. Gazzaniaga (Ed.), *The cognitive neurosciences* (pp. 1005-1017). Cambridge, MA: MIT Press; Fuster, J. M. (1988). *The Prefrontal Cortex*. New York: Elsevier, 333-378; Diester, I., & Nieder, A. (2007). "Semantic Associations between Signs and Numerical Categories in the Prefrontal Cortex." *PLoS Biology, 5*(11), 2684-2695.

[8] Kuhl, P. K. (2000). "A new view of language acquisition." *PNAS*, 97(22), 11850-11857. See also Kuhl, P. K. (2004). "Early Language Acquisition: Cracking the Speech Code." *Nature Reviews: Neuroscience*, 5, 831-843.

[9] Sjöblom, T. (2007). "Spandrels, Gazelles and Flying Buttresses: Religion as Adaptation or as a By-Product." *Journal of Cognition and Culture, 7*(3-4), 293-312; Guthrie, S. (1993). *Faces in the Clouds: A New Theory of Religion*. New York: Oxford University Press, 32.