Parts III and IV

In these parts the author explains how eusociality first developed in invertebrates, more than 100 million years before humans, and how recent research has lead to a new theory that extends our understanding of biological evolution to include social evolution. Ultimately, he argues that human evolution has been vastly accelerated by our cultural/social behaviors in a way that cannot be explained by biological evolution alone, and in a way that is unmatched by any other eusocial species.

Part V: WHAT ARE WE?

20. What Is Human Nature?

Human nature is the inherited regularities of mental development common to our species. They are the “epigenetic rules,” which evolved by the interaction of genetic and cultural evolution that occurred over a long period in deep prehistory. These rules are the genetic biases in the way our senses perceive the world, the symbolic coding by which we represent the world, the options we automatically open to ourselves, and the responses we find easiest and most rewarding to make.

Experiments to test the theory of the coevolution of genes and culture: Color perception, incest, lactose tolerance.

21. How Culture Evolved

As defined broadly by both anthropologists and biologists, culture is the combination of traits that distinguishes one group from another. A culture trait is a behavior that is either first invented within a group or else learned from another group, then transmitted among members of the group. Most researchers also agree that the concept of culture should be applied to animals and humans alike, in order to stress its continuity from one to the other and notwithstanding the immensely greater complexity of human behavior.

Archaeologists have joined geneticists and neuroscientists in the effort to understand the evolutionary origin of language and mind. In order to retrace the steps and timing of these elusive events, they have initiated a new field of study called “cognitive archaeology”.

The remarkable advance of Late Paleolithic human culture was evidently due to the ability to link stored memory in different domains to create new forms of abstraction and metaphor. On the other hand, Neanderthal culture stagnated because they apparently were unable to make these linkages. Virtually no progress occurred in Neanderthal technology or culture during their two hundred millennia of existence. No tinkering with tool manufacture, no art, and no personal decoration—at least none exists in the archaeological evidence we have so far.

Homo sapiens meanwhile pressed forward, and at about the time Neanderthals left the scene the cognitive achievements of sapiens flowered dramatically. Ten thousand years later, the innovations marking the Late Paleolithic era had begun: elegant representational cave art; sculpture; bone flutes; etc.

22. The Origins of Language

Is Noam Chomsky right? Is there really a universal grammar? It doesn't look like it. In fact, as experimental and field research has progressed in recent years, a view of the evolution of language different from “deep
grammar” has emerged. The alternative allows for epigenetic rules, entailing “prepared learning,” in the way languages of individual cultures evolve. But the constraints imposed by these rules are very broad. For example:

- Cultural: More vowels used in warm climates (they carry further outdoors), than cool climates.
- Genetic: There is a correlation in geographical patterns between the use of voice pitch to convey grammar and word meaning on one side and the frequency of the genes technically labeled ASPM and Microcephalin, which affect the development of voice pitch.

23. The Evolution of Cultural Variation

With the exception to adaptations to disease humans, at the genetic level, are essentially identical, but we know that there are real phenotypical differences between groups of humans—altitude tolerance is one example—so how is this explained. Since the 1970s, biologists have been aware of the genetic processes by which the evolution of plasticity is most likely engineered. It is probably not by mutations of protein-coding genes, which prescribe a basic change in the amino acid composition of proteins. It is more likely by changes in the regulatory genes, which determine the rate and conditions under which the proteins are produced (eusocial invertebrates use this mechanism to create task-adapted individuals within a genetically identical hive). So, adaptation to different environments explains some of the diversity in culture we see today.

Author claims:...that the failure of natural selection to create an independent universal grammar has played a major role in the diversification of culture and, from that flexibility and potential inventiveness, the flowering of human genius.

24. The Origins of Morality and Honor

Individual selection is responsible for much of what we call sin, while group selection is responsible for the greater part of virtue. Together they have created the conflict between the poorer and the better angels of our nature.

Despite some exceptions where a family is able to promote its own interests while also benefiting society there is nevertheless an iron rule in genetic social evolution. It is that selfish individuals beat altruistic individuals, while groups of altruists beat groups of selfish individuals.

Kinship influences the structure of the network, but it is not the key to its evolutionary dynamics, as is wrongly posited by inclusive-fitness theory. Instead, what counts is the hereditary propensity to form the myriad alliances, favors, exchanges of information, and betrayals that make up daily life in the network.

Key point: There is a principle to be learned by studying the biological origins of moral reasoning. It is that outside the clearest ethical precepts, such as the condemnation of slavery, child abuse, and genocide, which all will agree should be opposed everywhere without exception, there is a larger gray domain inherently difficult to navigate. The declaration of ethical precepts and judgments made from them requires a full understanding of why we care about the matter one way or the other, and that includes the biological history of the emotions engaged. This inquiry has not been done. In fact, it is seldom even imagined (esp. by the doctrinally righteous).

25. The Origins of Religion

The evidence that lies before us in great abundance points to organized religion as an expression of tribalism. Every religion teaches its adherents that they are a special fellowship and that their creation story, moral precepts, and privilege from divine power are superior to those claimed in other religions. Their charity and other acts of altruism are concentrated on their coreligionists; when extended to outsiders, it is usually to proselytize and thereby strengthen the size of the tribe and its allies. No religious leader ever urges people to consider rival religions and choose the one they find best for their person and society.

The conflict among religions is often instead an accelerant, if not a direct cause, of war. Devout believers value their faith above all else and are quick to anger if it is challenged. The power of organized religions is based upon their contribution to social order and personal security, not to the search for truth. The goal of religions is submission to the will and common good of the tribe.
Bottom line: The author clearly believes religious faith is better interpreted as an unseen trap unavoidable during the biological history of our species—regrettable mistake that needs to be corrected.

26. The Origins of the Creative Arts

The creative arts became possible as an evolutionary advance when humans developed the capacity for abstract thought. The human mind could then form template of a shape, or a kind of object, or an action, and pass a concrete representation of the conception to another mind. Thus was first born true, productive language, constructed from arbitrary words and symbols. Language was followed by visual art, music, dance, and the ceremonies and rituals of religion.

So what makes a design Art? The author argues that our biological limitations set an upper and lower limit on amount of complexity that we can comfortably apprehend, and that when a particular design falls within that sweet spot we are strongly attracted/aroused by it.

In a similar way, landscape architecture is influenced by our prehuman evolution in the African savanna forest. We have a preference for dwelling on a height that is near a body of water and looks down on fruitful parkland (with large animals in sight, even if only represented by sculpture).

Part VI: WHERE ARE WE GOING?

27. A New Enlightenment

In this chapter the author makes an impassioned argument for the rejection of organized religion and magical thinking as a necessary step in human evolution. He sees the conflict between scientific knowledge and the teachings of organized religions as irreconcilable. He believes the chasm will continue to widen and cause no end of trouble as long as religious leaders go on making unsupportable claims about supernatural causes of reality.

The same is true for dogmatic political ideologies based on unchallengeable precepts, left or right, and especially where justified with the dogmas of organized religions. They may contain intuitive wisdom worth hearing. Their leaders may mean well. But humanity has suffered enough from grossly inaccurate history told by mistaken prophets.

Why does the author feel such urgency? Because, he argues, the earth is the only home humans will ever have (the dreams of manned space exploration not withstanding), and we will destroy it if we do not move beyond our religious and political tribalism.

Ending on a positive note: So, now I will confess my own blind faith. Earth, by the twenty-second century, can be turned, if we so wish, into a permanent paradise for human beings, or at least the strong beginnings of one. We will do a lot more damage to ourselves and the rest of life along the way, but out of an ethic of simple decency to one another, the unrelenting application of reason, and acceptance of what we truly are, our dreams will finally come home to stay.