The Creative Spark: How Imagination Made Humans Exceptional

Agustín Fuentes
Dutton; March 21, 2017; 340 pages

Reviewed by Jack Coulehan, MD (AΩA, University of Pittsburgh, 1969)

Ever since reading *Lucy: The Beginnings of Humankind* in 1981, I've been a confirmed paleontology junkie.[1] Donald Johanson's 1974 discovery of a partial skeleton of Australopithecus afarensis (Lucy) set off a wave of popular interest in the study of human origins. Since then, the field has rapidly developed as a result of remarkable technical advances, and new finds.

Some of the resulting books focus specifically on the bones. Was Homo habilis a distinct species? How does Homo erectus relate to Homo ergaster? Others, using DNA analysis, track the radiation of our ancestors to all parts of the world, and still others consider the question of why our near cousin, Homo neanderthalis, some of whose genes are part of us, became extinct?

In *The Creative Spark*, Agustin Fuentes sticks to a single narrative, and excludes other branches of the hominid tree. He aims to identify the crucial factor that initiated the long trek toward modern human society. What was the critical brain function that first emerged? Fuentes calls it the "creative spark," which eventually developed into human imagination and an array of other capacities. The creative spark occurred more than 2.5 million years ago, long predating our massive brain enlargement.

Fuentes discovers its earliest traces in the innovation that produced Olduwan tools about 2.5 million years ago. While earlier ancestors, like today's chimpanzees, probably used stones or modified tree twigs, only Australopithecus and the earliest members of the genus Homo invented the sophisticated process of striking one stone against another to create sharp flakes to cut and scrape animal carcasses. A cursory look at photos of these tools leaves the reader unimpressed. It took another million years to initiate a broader and more sophisticated Acheulean toolkit that included a variety of cutters, scrapers, axes, and spear points.

Fuentes sketches the environment and circumstances under which Olduwan tools were made, showing how truly innovative the stone flakes were. The first toolmakers, whether they were Homo or Australopithecus, lived as bands of medium-sized primates who lacked speed and other protective adaptations. They were extremely vulnerable to predators. They learned to identify advantageous stones for chipping; carry them to a safe place where repeated striking would not attract predators; and engage in a series of calculated blows that resulted in knife-sharp flakes. This is a process that modern imitators require considerable time to master.

Fuentes documents power scavenging, which developed about 1.8 million years ago. Our ancestors could not compete with larger, faster predators for prey. The best they could do was passively scavenge whatever meat was left behind by the big cats and vultures. Bands of hominids developed flexible methods of social cooperation that allowed the group to chase predators away from their kills. They quickly employed their stone tools to cut prime chunks of meat, and then run back to safety before the predators were able to attack them.

Shortly after power scavenging, our ancestors developed social organization. Cooperative parenting, whereby some females and perhaps males, would remain in the living space to take care of the children while others gathered edible plants or scavenged for meat, was developed.

Fuentes' deep storytelling describes the transition from a hunter-gatherer lifestyle to early pastoralism and agriculture. Other books tend to present this change as undeniable progress, but don't say very much about how or why it happened, or how long it took. Fuentes discusses multiple steps in the gradual process of animal domestication, e.g. goats (8,000 years to 12,000 years ago) and sheep, pigs, and cattle (8,000 years to 10,000 years ago) in Western Asia. He shows that settled agriculture arose independently in several Old World and New World locations after long periods during which humans had altered edible plants by conscious selection of favorable variants, e.g., those with larger or more easily accessible edible parts. For example, in Central America a species of grass called teosinte was gradually transformed into maize or corn over several thousand years. Likewise, 10,000 years ago in East Asia, sinewy grasses of the genus Oryza had evolved by human manipulation into rice.

Paradoxically, the evidence indicates that settled agriculture was associated, at least initially, with a decline in human fitness. Skeletal remains from pre- and post-agricultural societies in the same geographical settings make it clear that hunter-gatherer bands enjoyed a rich, varied diet and were relatively disease free, while their early farmer descendants were smaller in stature and often malnourished. Why, then, did agriculture flourish? Fuentes discusses several factors, the most compelling of which is population pressure. A settled lifestyle led to rapid population increase followed by the creation of towns and cities. Traditional hunting and food gathering practices could no longer sustain the greater population. Humans became locked in to the new, less nourishing, but still sustainable mode of existence.

What is the essential creative spark that initiated our long road—albeit short on an evolutionary timeline—to human culture and civilization? Fuentes does not attempt to identify the critical mutation or neurophysiological development. There seems to be no way to pinpoint that. However, he makes it clear that the spark occurred much, much earlier than the proliferation of art 40,000 years ago, or the emergence of a fully human skull and skeleton 200,000 years ago.

Fuentes tells a compelling story of deep origins—a story worth reading. Yet, when all is said and done, the mystery remains.

References

1. Johanson D, Edey M. Lucy: The Beginnings of Humankind. New York: Simon & Schuster; 1981.

Dr. Coulehan is a member of *The Pharos* Editorial Board, and one of its Book Review Editors. He is Emeritus Director of the Center for Medical Humanities, Compassionate Care, and Bioethics at Stony Brook University in New York. His e-mail address is john.coulehan@stonybrookmedicine.edu.

More AΩA member books

The Addiction Solution: Treating Our Dependence on Opioids and other Drugs, by Lloyd Sederer, MD (AΩA, SUNY Upstate Medical University College of Medicine, 1969); Scribner, May 2018, 224 pages

Nuggets from the Golden Age of Medicine: No Relationship to Money, by Kenneth Charles Bagby, MD (AΩA, University of Nebraska, 2005); Outskirts Press Books, June 2018, 99 pages