Evolving Human Nutrition: Implications for Public Health by Stanley J. Ulijaszek, Neil Mann, and Sarah Elton

Review by: Grant A. Rutledge and Michael R. Rose

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This is an extremely eclectic book that covers the evolutionary background, medical effects, and socio-political context of our food. To the extent that it has a unifying theme, it would be the mismatch between human evolution and the industrial diet that we are now exposed to. The volume begins by providing a mammalian and primate context to understanding hallucinations, but only for the nonexecutive command brain regions, suggesting a physiological basis for perceiving hallucinations.

We learn that hallucinating sight or sound is more common than hallucinating smells, but depriving the brain such stimuli can also result in powerful smell hallucinations. Musical illusions (like “hearing” that song in our head) involves the activation of a complex neural network. We may not actually be crazy to hear voices in our mind; it may simply be the physiological basis of how brains try to make sense of complex sensory inputs. A critical and important contribution of this book is that far from hallucinations being an abnormal occurrence, the very existence and subsequent understanding of hallucinations provides an important portal into the fundamental understanding of our perceptions of the world. The volume should thus interest readers from fields as broad as the arts, neurosciences, medicine, and literature; indeed, flavors of the book link too many of our fundamental understandings of how we perceive our surroundings.

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This is an extremely eclectic book that covers the evolutionary background, medical effects, and socio-political context of our food. To the extent that it has a unifying theme, it would be the mismatch between human evolution and the industrial diet that we are now exposed to. The volume begins by providing a mammalian and primate context to understanding dietary adaptation, in the process demolishing the idea that there ever was a paleo “Garden of Eden” diet prior to the adoption of agriculture during the Neolithic revolution. Yet the authors clearly have some sympathy with the view of Cordain (2010. The Paleo Diet: Lose Weight and Get Healthy by Eating Foods You Were Designed to Eat. Hoboken (NJ): Wiley) and others that our evolutionary history is relevant to the evaluation of the merit of our diets for our health.

Then it moves on to provide a global public health perspective on dietary change, especially its connection to disease prevalence among particular economic groups and nations. They take their “public health” mandate quite broadly, providing extensive dissections of how social class and imperialistic colonialism have affected access to food, famine, and chronic ill-health, both historically and in our time. Among the terms they use that biologists might find a bit disconcerting is their repeated use of the phrase “structural violence.”

The book delineates several kinds of “nutrition transition,” including the Neolithic transition from hunter-gather foods to those of settled agriculture, as well as the development of the industrial food system over the last century or so. However, their most frequent comparison is between the range of hunter-gatherer diets and the diets of contemporary populations, paying careful attention to the way our industrial diets foster such chronic disorders such as type 2 diabetes, cancer, and heart disease.

Although we consider the range of coverage impressive, and some of the marshaled details compelling, we found their evolutionary reasoning superficial. As Cochran and Harpending (2009. The 10,000 Year Explosion: How Civilization Accelerated Human Evolution. New York: Basic Books) as well as Zuk (2013. Paleofantasy: What Evolution Really Tells Us About Sex, Diet, and How We Live. New York: W. W. Norton and Company) have argued, a great deal of human evolutionary genetic adaptation must have occurred between 10,000 years ago and the present, particularly with respect to agricultural diets. This makes the question of what did, and what did not, happen to our dietary habits since the Neolithic revolution central to the questions raised by Ulijaszek et al. Although they supply a great deal of useful data concerning the biochemistry of hunter-gatherer, agricultural, and industrial foods, they do not supply comparable detail concerning possible evolutionary genetic change during the transitional agricultural phase. But in fairness, we generally know too little about this evolutionary transition from the standpoint of human nutritional biochemistry.

Finally, we wish to raise the question recently put forward by Mueller et al. (2011. Does Aging Stop? New York: Oxford University Press). The strength of natural selection fades with adult age, which may affect our adaptation to recent dietary change in an age-specific manner. Very long sustained selection, say over the million years during which our ancestors
were hunter-gatherers, will most likely build strong adaptation to a particular pattern of nutrition or activity deep into the life history. We concur with Zuk that young people with agricultural ancestry may well be adapted to consume diets based on grass staples, such as wheat, corn, or rice. And like Ulijaszek et al., we too view industrial diets as dramatically wanting, if not perilous to long-term health. But we wonder whether those of us who have agricultural ancestry but are over the age of 30 or 40 years might not also lack sufficient adaptation to agricultural diets, however “organic” and otherwise free of industrial processing. Thus, the issue of how much human populations adapted to our diets during the agricultural phase of human history remains for us the central question around which this book equivocates, perhaps appropriately, while those like Cor- dain or Zuk fulminate.

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IMMUNOLOGY: AN ILLUSTRATED OUTLINE. Fifth Edition.

MISCELLANEOUS

CHARLES R. KNIGHT: THE ARTIST WHO SAW THROUGH TIME.


These volumes successfully bookend the subject of vertebrate paleontology art and illustration from the 20th century to the present. Richard Milner provides a portrait of artist Charles Knight, the single most significant figure in the field in the late 19th and early 20th centuries, along with a discussion of his techniques and influence and a robust survey of his work. Steve White’s multartist survey focuses on pieces produced almost exactly a century later. Accompanying the art are brief but informative interviews with the 10 artists whose work the book collects: Julius Csotonyi, Gregory Paul, Mauricio Antón, Douglas Henderson, Todd Marshall, John Sibbick, Luis Rey, John Conway, Robert Nicholls, and Raúl Martín. Both volumes feature images that even interested observers of paleontological art might have missed. On one hand, Milner examines the range of one of the field’s real giants, covering work Knight created over a period of about 50 years. On the other, White surveys contemporary art, produced mainly over a decade. Both volumes present striking and impressive work, covering much more than dinosaurs, although both focus primarily on vertebrates.

Both titles fall into the size range of coffee table books, although neither is at the largest end of that range. The pages of White’s volume are more than 11 square inches larger than Milner’s, allowing for correspondingly larger reproductions. Milner’s book appears less durable, despite being the smaller of the two—the binding on my copy split shortly after I started reading it. In both works, the reproduction of color and black-and-white images is sharp, striking, and impressive. Without access to the original pieces reproduced, I cannot be sure that the colors are accurate. But the distinction between the palettes is striking. Many of the contemporary images in White’s volume have a brightness and intensity that seems almost neon compared to the subdued colors typical of Knight’s paintings.

Among the most striking differences the books reveal is how much the media used in paleoart have changed over the last 20 years. Traditionalists might favor Knight’s sketches, oil paintings, and sculptures. Artist Doug Henderson observes that “there is something unsatisfactory about digital illustration—too many renderings of various things tend to look too much alike” (p. 84). Whether or not readers agree, the pieces White includes run the gamut from traditional media to digital. At one end of the spectrum are conventional pieces: pastels (by Henderson), oils (Antón, Paul), gouache (i.e., opaque watercolor; Sibbick), acrylics (Nicholls, Marshall), acrylics and ink (Rey), and pen and ink or pencil sketches (by nearly every artist). At the other end of the spectrum are digital paintings (Conway, Csotonyi, Martin) and digital painting-photography composites (Csotonyi, Rey). Works presented by some artists tend toward particular media, but most work in a variety.

Although generations of museumgoers have appreciated Knight’s murals of extinct species, he was also an accomplished painter of extant wildlife. Given the primacy of a few Knight murals, it has long