An Evolutionary Case for Veganism
From Gregory F. Tague, as published on Mother Pelican
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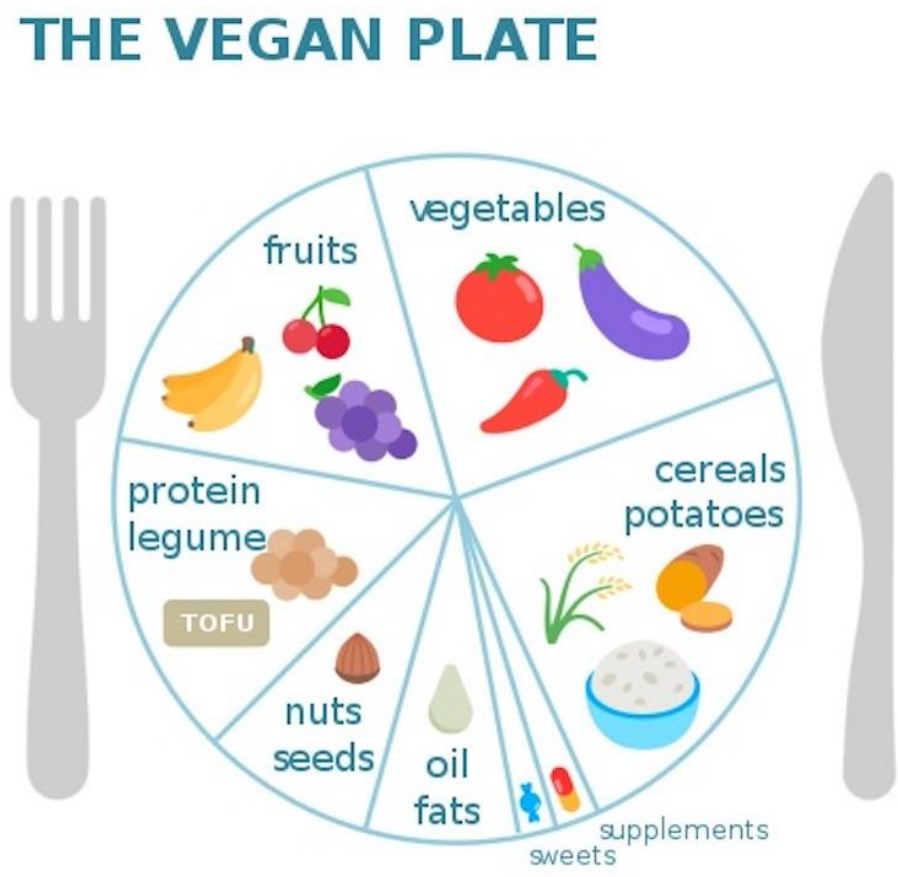
Cultural Evolution, Selection, and Evolutionary Psychology



Healthy vegan meal composition shown using the food plate method. Image credit: Tischbeinahe - Own work, 29 November 2021, CC BY-SA 4.0, Wikipedia.

There appears to be a cultural struggle for dominance between the corporate agriculture of meat and any vegan ecology. Consumers want to think about whether those two are compatible and how their conflict plays out in cultural evolution. The dangers and rewards are both high. Tim Lewens (2015) sees Peter Richerson and Robert Boyd (2005) as posing a "kinetic" theory or "patterns of variation." Selection, for them, is not paramount. Rather, they are more to "population thinking."

Social learning and influence frequencies, in this model, count more than any focus on the innateness of inherited Stone Age mentality seen in evolutionary psychology. These authors pointedly say that "social learning" is a strategic ingredient as humans adapted and continue to do so culturally (Boyd, et al. 2011). Population thinking and evolutionary psychology are not necessarily mutually exclusive since populations consist of evolved brains and innate archetypes and instincts. Selection can also mathematically intensify in a population any "partially-adapted forms," thus increasing variants of that trait (Lewens 2007).

Is there shared belief (via memes) or true replication and retention (via selection), asks Lewens (2015). Emphasizing cumulative population inheritance, cultural evolution may not need replicators. Alex

Mesoudi (2011) might disagree, as he leans more to selection theory. Without eliminating selection, stress can be placed on human culture and not "human nature," depending how one defines human, including which ancient and extant ape species. What and how we learn is embedded in our species history, evolutionarily on both the individual and group levels. There are cognitive mechanisms enabling learning from others and the environment. Hence, there's an intersection of biological and cultural evolution. Consider the rise of cultural values and norms. For instance, along with the preponderance of meat and dairy, there's a definite interest in and flirtation with veganism.

Great Apes and Other Primates

Genetically, morphologically, and behaviorally humans are similar to great apes since we are apes. Michael Wilson (2021) believes there are adaptive peaks. For gorillas, it's body size and guts for fermentation. For bonobos, it's the moist forest. For chimpanzees, it's foraging in broad areas with culture. For orangutans, it's an arboreal life feeding from fruit trees. Presumably, we are to accept that the adaptive peak for humans is in the farming of animals that is driving poor health and climate change. As Peter Andrews and R.J. Johnson (2019) fear, we are developing physiological and psychological adaptations to eat highly processed supermarket foods.

In the long run, that's not sustainable. In order to survive, all animals must eat and find new and better ways to harvest food, minerals, and water. Human behavior could be constrained by culture in how food preferences of a group can counteract resources in spite of availability (e.g., a perceived need for meat over plentiful plant foods). For great apes, diet is correlated to habitat and the consequential structures of morphology, like dentition, and physiology, like digestion and behaviors to survive and reproduce. A vegetarian or even vegan-like culture is part of our prehistoric roots and should once again be embraced.

Chimpanzees, Bonobos, Gorillas, and Orangutans

Chimpanzees can spend half the day eating with even more time allocated for food resourcing. There are about 180 types of vegetation covering 140 tree and plant species. Commonly consumed are 155 or so plant types consisting of fruits (50 percent), leaves (about 25 percent), buds (about 25 percent), supplemented by seeds, flowers, stalks, inner plant tissue, along with tree bark and resin. In all, about 230 different plant foods are eaten. Insects, bird eggs, birds, and small mammals are also eaten on occasion. Mainly as folivores, gorillas fuse around one male with several females in leaf-rich locations and feed among about 230 different plant foods. Among lowland gorillas, those in the higher eastern areas can show dietary similarity to mountain gorillas. Eastern lowland gorillas with small and scattered populations, who range in nether regions, feed more on fruits and insects.

Gorillas seem to range more widely than chimpanzees, utilizing a variety of vegetation to feed and nest. A study by Juichi Yamagiwa, et al. (1996) shows that in 256 fecal sample analyses of 54 gorillas and 394 fecal sample analyses of 22 chimpanzees, there was less than 1 percent insect remains for the gorillas to 30 percent for the chimps, with 2 percent showing mammal remains for the chimpanzees. Thus, their foods differed dramatically in spite of their genetic and habitat similarities.

Orangutans rely on a multifaceted compound diet of fruits, nuts, leaves, bark, sap, shoots, stems, honey, fungi and other such foods, including insects. Orangutans closely inspect and eat up to about 400 different foods, mostly plants. Gisela Kaplan and Lesley Rogers (2000) indicate that because of their need to travel and recall fruit locations, orangutans have excellent spatial and temporal awareness. Their staple nourishment comes from wild, ripe fruit like durians mangosteens, mangoes, merang, belale, jackfruit, snakefruit, ramutans, and banitan nuts. There could be nearly two dozen fruiting trees and vines monitored, each ripening at different times of the year across various locations of the Asian forest.

Though rare, orangutans have been seen to eat small mammals, but this could be driven by food stress or the physical requirements placed on a lactating female.

Early Humans and Homo Species

Briana Pobiner (2020) indicates that meat and fat would not have dominated hominin diets before 2mya but for passive or marginal scavenging. The many allied hominin species who predate us and prepare for our entry were not obligate meat eaters. By 4.2mya, hominins had already developed, compared to chimps, larger, flatter cheek teeth and smaller canines, even in males (Warren, et al. 2019). Enamel thickened. These evolved adaptations were for grinding and crushing foods like nuts, seeds, and fibrous material found close to the ground as opposed to nutriments in trees. Retained ape-like tendencies were adaptations for feeding, nesting, and protection in trees.

From about 4.5-2.3mya covering *Ardipithecus* with conservative molars geared for frugivory to *Australopithecus africanus* (circa 3mya) with molars more specialized for tough foods, say Mark Teaford and Peter Ungar (2000), hominin dietary competencies in teeth size and enamel evolved in response to climate and available resources. Phytolith (mineral plant particle) analyses of *Au. Sediba*(circa 2mya) reveal a diet from both grasslands, similar to that of savanna chimps, and forests, including fruit, leaves, and bark (Henry, et al. 2012; Welker 2017).

Homo habilis (circa 2.5mya) had a larger cranial area and smaller cheek teeth than *Australopithecus* and *Paranthropus* (circa 2-2.4mya), though there was variation in the evolutionary matrix with some specimens having teeth like*Australopithecus*. Later, Homo erectus (circa 1.8mya) had smaller teeth and a larger cranial capacity. The early hominin australopiths were followed by *H. erectus* who thrived for a very long time as a chronospecies, namely, from *H. ergaster* and other relations in Africa to a larger brained *H. erectus* in Eurasia (Warren, et al. 2019). Then, by about 500kya from the ergaster/erectus sphere (with some species on the margins) there is *H. heidelbergensis* with a much larger brain and more culture. *H. erectus* lived until as late as 60kya and in one form 12kya as *H. floresiensis* on Indonesian islands, so a very successful species. From these archaic humans Neanderthals arise in Europe during the Ice Age. Far in the deep south of Africa another archaic human evolved as *Homo sapiens*.

Neanderthals and Homo Sapiens

In Lower Paleolithic people like Neanderthals and their predecessors *H. heidelbergensis* and *H. erectus*, circa 2mya to 250kya, there would have been seasonal ecological and social strategies for food gathering and processing. Theirs was a generalized diet, says Robert Hosfield (2020), open to continuing debate about levels of plant v. animal foods. He notes, for instance, that Neanderthals ate seeds and leafy plants, and not only meat, eggs, or marine foods, to supply essential fatty acids. Energy was needed to capture spotty prey.

Most Lower Paleolithic areas occupied were temperate woods offering abundant plant foods, so meat was not necessarily a daily experience, says Hosfield. Researchers (Fellows, et al. 2021) found amylase enzyme residue on Neanderthal teeth indicating a boost in sugars from starchy foods and hence a diet dependent on plants. The typical viewpoint, however, is that the Neanderthal diet was heavily geared toward red meat though raw and cooked vegetables were readily consumed based on dental analysis (Paskey & Cisneros 2019).

One interesting note from Hosfield (2020) is how Neanderthals might have eaten rotten meat stored underground or in water as an alternative to cooking. This practice of preservation and preparatory digestion, although offensive to most modern humans, demonstrates how there is a cultural ecology of food that can change. Similarly, with scarcity of seasonal plant food in colder climes, these people,

Hosfield notes, engaged in gastrophagy or the eating of partially digested remains in an animal's stomach. In some hunter-gatherer cultures this method of eating predigested foods is still practiced. This procedure would be unacceptable to some societies today, bolstering the point about the cultural ecology of food. Energy and time are required to find and prepare meats, as in cooking; instead, pounding of plant foods would have been easily employed.

Neanderthals, generally, were not specialized to a particular environs or taxa, says Robert Power (2019), but lived on a subsistence strategy of the best foods, counting many plants but still animals. Isotope and other analyses, Power goes on, reveal how high protein food, like meat, present at best a "generalized picture" of cultural food ecology. Correspondingly, Hosfield (2020) says that recent research using isotopic and dental analyses reveals less reliance on protein rich animal diets among Neanderthals, especially in comparison to current hunter-gatherers. These conclusions vary, contingent on the time of year, geographical location, and mobility.

Evidence reveals, Power stresses, that Neanderthals ate nuts, seeds, olives, roots, berries, lentils, peas, vetchling, grass husks, legumes, fruits, etc. Laura Weyrich, et al. (2017) show that DNA evidence culled from a cave in Belgium, a cavern in Spain, and a grotto in Italy, disclose there's no surprise that Neanderthals varied their diets based on regional ecology. These samples reveal lots of meat eating, not an ideal diet (Cordain, et al. 2000). However, from a cave in Spain, there is no evidence of meat eating and, instead, mostly mushrooms, pine nuts, moss, and forest gatherings. Microwear analyses from other ecological areas, says Weyrich, indicate diets centered on what was available, like plants.

Data shows that anatomically modern humans are not born hunters and eaters of meat. Our australopith prehistory is not one of excessive consumption, and there was little meat eating, if any, in some species. Similarly, later in the hominin evolutionary line, Zink and Lieberman (2016) insist that with smaller teeth, bite force and chewing time decreased advantageously in *H. erectus* by using stones to smash tubers and mechanically process small portions of meat before the advent of cooking. Bonnie Yoshida-Levine (2019) bluntly states that *H. erectus* was not just a meat eater.

Education, Awareness, and Influence

Animal ethics taught in a classroom could have implications in the real world. This proposition was addressed by Eric Schwitzgebel, et al. (2020). These authors say that young people can experience behavioral change and overcome ethical dissonance toward animals. The U.S. study was based on a single class meeting of four very large groups and their attitudes about eating meat. Half the students read about animal farming, watched a video, and engaged in a discussion about animal ethics. The control group of half worked more broadly on the notion of charity. Then, the researchers examined for the entire semester meal card purchases totaling well over ten thousand receipts for about five hundred students. The prediction was that the animal ethics class and discussion would have no effect.

However, the results indicate that for those students who discussed the moral complexities of farming and eating animals meal purchases for meat declined by 7 percent and remained stable for weeks. There was no change in meat eating in the group that discussed charitable giving. The researchers consider any drop in meat purchasing sustained over even a short time from one class meeting quite significant. The authors of the paper say that in such large groups there was probably social or emotional influence, where experiences of those who already ate less meat demonstrated how normal that behavior really is. The authors go on to say that logos-based rational claims might have exerted important guidance in any student's ethical decision to eat less meat.

This paper (Schwitzgebel, et al. 2020) supports claims about the importance of informing young people, and more broadly any given community, about the reasonable claims of avoiding meat and dairy products

for personal and environmental health, to say nothing of the implications concerning animal ethics. Outside of the classroom, we need to get and then hold the attention of young people to these issues. The lesson of making moral choices from brief instruction should be kept in mind. The evolutionary case for veganism is about shifts in cultural attitudes, values, and beliefs that are advantageous to humans, ecosystems, and animals. Cultural leaders have an obligation to teach a food ethos that centers on the health of a person in a larger, ecological environment. The authors of the classroom ethics report confirm their findings in a follow-up empirical study (Schwitzgebel, et al. 2021) attesting how education can be a powerful influencer on the unidirectional behavior of young people in terms of making positive changes to their health, the global climate, or animal lives.

Other scholars conclude that meat eaters dissociate their empathic and disgust emotions from the reality of what's put in their mouths (Kunst & Hohle 2016). This dissonance occurs in how the meat is presented (e.g., a dismembered and headless corpse elicits less revulsion) or the language used (e.g., free-range rather than slaughtered or beef rather than cow). Such stilted attitudes against living creatures arise from culture and education. This disconnection of basic sympathy for animals yet killing them for food is a meat-animal paradox (Dowsett, et al. 2018). The appetite for meat stems from categorizing animals as food without moral standing, as objects without feelings, and as inanimate things that don't suffer (Bratanova, et al. 2011). Studies indicate that teaching faulty ideas regarding how an animal is raised, like the happy farm critter from children's books, determine affective responses to the meat on one's plate (Anderson & Barrett 2016).

Modern Humans and Cultural Theory

We compete culturally, but that's where cooperative change can begin. Some social networks, like communities of vegans, can break maladaptive conformity, like meat and dairy eating, to construct a better outcome among differing groups who are willing to accept the improved change in food ecology. Instruction of young people is the linchpin in any vision of a vegan culture. One study (Wilks, et al. 2020) reveals that children are more geared to saving many pigs over a human life than any adult is inclined. The goal of "humanity" should not be to desensitize children to other life forms. We tend to be influenced to learn from those who share our beliefs (Hilmert, et al. 2006). Because of partisan politics in some countries, there are worries about who shapes the beliefs of children according to whose values. Adults, nonetheless, should not be under some obligation to inculcate children to prioritize humanity over other forms of life. As we can see from many recent events, whether deforestation, habitat loss, environmental catastrophes, or pandemics, that is a very costly proposition.

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ABOUT THE AUTHOR

Gregory F. Tague is a professor in the departments of Literature, Writing and Publishing / Interdisciplinary Studies at St. Francis College, N.Y. Among his many books, his most recent is *The Vegan Evolution: Transforming Diets and Agriculture*, Routledge, 2022. This essay is adapted from that book.