Eating Culture
An Anthropological Guide to Food
Gillian Crowther
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Eating Diet Culture Evolution: Adaptation

Gillian Crowther

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www.d.umn.edu/cla/faculty/troufs/anthfood/aftexts.html#title
Diet and Evolution: Adaptation

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Diet and Human Evolution

• Exploring the Diets of Extinct Humans Through Paleontology
  • Teeth
  • Skulls and Jaws
  • The Postcranial Skeleton

• What Is Adaptation?
  • Using Chemistry to Infer the Diets of Extinct Hominids
  • Our Place in Nature
  • A Brief Who's Who of the Early Hominids
  • What Did Early Hominids Eat?
  • What Can We Say About the Diets of Fossil Homo?
  • Summary
  • Highlight: Lactose Intolerance
“There is a difference between ‘fine-tuning,’ via selection and adaptation, the features that individuals of a species have, and the emergence of those features in the first place.”

The Cultural Feast, 2nd ed., p. 24
“There is a difference between ‘fine-tuning,’ via selection and adaptation, the features that individuals of a species have, and the emergence of those features in the first place.”
"There is a difference between 'fine-tuning' = adaptation, the features that individuals of a species have, and the emergence = evolution the first place."

The Cultural Feast, 2nd ed., p. 24
“Unfortunately, Darwin confused adaptation (the ‘fine-tuning’) with evolution (the emergence of novelty), and this is still done today”
“Darwin’s portrayal of natural selection is that it is a force that is constantly choosing variations believed to be the most advantageous, thereby creating the ‘fittest’ individuals.”

“. . . but this may not be how things work in nature.”

*The Cultural Feast, 2nd ed.*, p. 24
“... a more realistic way to look at selection is to focus on the elimination of the unfit (say, by death) rather than the selection of the fittest.”
“The difference between these two views is important: Darwinian selection implies a constant culling and improvement of the cream of the crop, whereas the idea based on elimination of the unfit emphasizes the survival of the just ‘OK.’”
“Although we may see an animal eating certain foods and behaving, or locomoting in certain ways, this does not mean that these are the only foods and activities the animal can embrace.”
... chimpanzee groups, for e.g., utilize different foods efficiently in different microenvironments
microenvironments are small ecological zones within larger areas, and these often offer a variety of different foods . . .
microenvironments
microenvironments
microenvironments
microenvironments

The Prehistoric African Savannah
around Lake Turkana
in what is now Modern Kenya
Illustration by Jay H. Matternes

http://www.amnh.org/exhibitions/atapuerca/africa/branches.php
Biodiversity Hotspot Enabled Neanderthals To Survive Longer In South East Of Spain

ScienceDaily (Feb. 2, 2009) — Over 14,000 years ago during the last Pleistocene Ice Age, when a large part of the European continent was covered in ice and snow, Neanderthals in the region of Gibraltar in the south of the Iberian peninsula were able to survive because of the refugium of plant and animal biodiversity. Today, plant fossil remains discovered in Gorham’s Cave confirm this unique diversity and wealth of resources available in this area of the planet.

See also:
Earth & Climate
- Ecology
- Biodiversity
- Ice Ages

Reference
- Neandertal

The international team jointly led by Spanish researchers has reconstructed the landscape near Gorham’s Cave in Gibraltar, by means of paleobotanical data (plant fossil records) located in the geological deposits investigated between 1997 and 2004. The study, which is published in the Quaternary Science Reviews, also re-examines previous findings relating to the glacial refugia for trees during the ice age in the Iberian Peninsula.

www.sciencedaily.com/releases/2009/02/090202140046.htm
in terms of larger ecological areas, with the exception of humans, primates are typically tropical and temperate climate animals . . .

**Distribution of Nonhuman Primates**

_Humankind Emerging, 7th ed., p. 93_
Primates are tropical and temperate climate creatures.
chimpanzee groups utilize foods efficiently in different microenvironments. That is, they are opportunistic feeders. "... if it's a matter of their survival, they can do it."
Few of us think much about Jean-Jacques Rousseau these days. We remember his noble savage, his idealized view of mankind in its pristine splendor, when life was gentle, innocent, and natural. Not that most of us reject Rousseau's thinking. Just that after the battle and astonishment of the Me Generation and Reagan's eighties, it no longer seems feasible to posit the possibly superior moral state of primordial humans.

Their ostensibly superior physical state, however, is an issue of more than passing concern, and here a Renaissance view of some continues to hold sway—a view, that is, with an eighties spin. A society that spends billions of dollars on medical care, health clubs, and looking good, what we want to know is: how was the physical health of primate Anus (as they were then called)? What was their secret workout regimen for achieving their beautiful primitized bodies? What were cholesterol levels like in the Garden of Eden?

Many think that in certain respects our bodies are better than they do. When you subtract the accidents, infections, and incontinence that beset them, our forebears might not have had it so bad. In a 1985 article in the New England Journal of Medicine, physiologist anthropologist S. Boyd Keen and Melvin Konner did an impressive job of reconstructing the likely diet of our Paleolithic ancestors, and they concluded that there was much to be said for the high-fat, low-salt, low-carb diet their evidence suggested.

Anthropologists studying the hunter-gatherers in the Kalahari Desert, a group that's believed to retain the way of life of early humans, have come to similar conclusions. Among the !Kung, for example, one finding that we could view as a normal part of human aging are proven not to be inevitable. After all, hunger is not love, blood pressure and cholesterol levels do not rise, degenerative heart disease doesn't seem to develop. As we all know among our seniors and hypertensives and hardening arteries, it is getting harder for us to avoid the uncomfortable suggestion that we have fallen from a state of metabolic grace.

For the past decade I have been observing a group of some of our closest relatives as they fell from their own potential metabolic grace into something resembling our nutritional ad lubricam. My subjects are olive baboons living in the Masai Mara National Reserve in the Serengeti Plains of Kenya.

Chiefly I'm interested in the relationship between their social behavior and dominance rank, the amount of social stress the baboons experience, and how their bodies react to it. Certainly I didn't set out to investigate the influence of eighteenth-century French philosophy or twentieth-century American life by looking at a remnant primitive society in the African plains. But to study these monkeys I am interested in, I have to combine scientific behavioral observations with some basic lab work: drawing the animals' blood, measuring hormones, monitoring blood pressure, and conducting other clinical tests to find out how their bodies are functioning.

Masai Mara is a wonderful place to be a researcher. It's a fairly idyllic place to be a baboon, a vast untouched landscape of savannas and woodlands and one of the last great refuges for wild animals left on Earth. Herds of wildebeests roam on the open plains, booms lounge beneath the leaf-topped acacia
... and effective adaptive food use is a characteristic of primates in general, even monkeys...
Scientists Find Monkeys Who Know How to Fish

Scientists discover long-tailed macaque monkeys in Indonesia that know how to fish.

By MICHAEL CASEY AP Environmental Writer

BANGKOK, Thailand June 10, 2008 (AP)

Long-tailed macaque monkeys have a reputation for knowing how to find food — whether it be grabbing fruit from jungle trees or snatching a banana from a startled tourist. Now, researchers say they have discovered groups of the silver-haired monkeys in Indonesia that fish.

A long-tailed macaque monkey looks for fish in a river in Lesan, East Kalimantan, Indonesia.
Science News
Tool-wielding Chimps Provide A Glimpse Of Early Human Behavior

ScienceDaily (Nov. 13, 2007) — Chimpanzees inhabiting a harsh savanna environment and using bark and stick tools to exploit an underground food resource are giving scientists new insights to the behaviors of the earliest hominids who, millions of years ago, left the African forests to range the same kinds of environments and possibly utilize the same foods.

Chimpanzees crave roots and tubers even when food is plentiful above ground, according to a new study published in the journal Proceedings of the National Academy of Sciences (PNAS). The research provides evidence that tool-wielding savanna chimpanzees extract underground food resources by cracking hard layers of soil with their sticks. The study is the first to show that chimpanzees use tools to access food underground.

“... if it’s a matter of their survival, they can do it.”
--The Cultural Feast, 2nd ed., p. 27

“... on the level of chewing and ingesting one kind of diet versus another, any human is just like any chimpanzee or lemur: if it’s a matter of their survival, they can do it.”

--The Cultural Feast, 2nd ed., p. 27
and sometimes getting food is really easy, for humans and non-human primates . . .
take tidal pools for instance
Panamic Fanged Blenny, *Ophioblennius steindachneri*: [Adults] are common and always found in tidal pools, even with extreme low tides, with plenty of water and a place to hide under a rock . . . . Collected in January 2008 in a dry El Tule Tidal pool, Km. 17, San Jose del Cabo, Mexico . . .

http://tirugondar.wordpress.com/2008/08/03/yehliu-and-the-yehliu-geopark/
in a major innovative work
Felipe Fernández-Armesto
talks about
Eight Food Revolutions . . .
Eight Food “Revolutions”

1. Invention of Cooking
2. Discovery that Food is More Than Sustenance
3. The “Herding Revolution”
4. Snail Farming
5. Use of Food as a Means and Index of Social Differentiation
6. Long-Range Exchange of Culture
7. Ecological Revolution of last 500 years
8. Industrial Revolution of the 19th and 20th Centuries

Simon & Schuster 2003
Eight Food “Revolutions”

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two of them are especially relevant here . . .
Old World Monkeys, for e.g., utilize lots of resources, including sea resources . . .
and other primates efficiently utilize foods in their microenvironments . . .
Old World Monkeys: Langurs

. . . but remember always . . .

the hunter is also the hunted . . .
New World Monkey: Squirrel Monkey

The Primates, Time-Life (1974) p. 49
Reconstruction of the death of a hominin by a leopard, based on fossils found in South Africa

http://australianmuseum.net.au/image/A-leopards-lunch/
“tropic level”
is
an animal
or a plant’s position
in the food chain
Were human ancestors hunted by birds?

Research provides a break in the case of a famous hominid’s death

Associated Press
Updated: 2:47 p.m. ET Jan. 12, 2006

JOHANNESBURG, South Africa - An American researcher believes he has solved the mystery of how one of the most important human ancestors died nearly 2 million years ago: An eagle killed the 3½-year-old ape-man known as the Taung child.

The discovery suggests that small human ancestors known as hominids had to survive being hunted not only by large predators on the ground but by fearsome raptors that swooped from the sky, said Lee Berger, a senior paleoanthropologist at Johannesburg’s University of the Witwatersrand.

“These types of discoveries give us real insight into the past lives of these human ancestors, the world they lived in and the things they feared,” Berger said in...

Lee Berger, a paleoanthropologist at the University of the Witwatersrand, holds a replica of a part of the skull of the Taung child in Johannesburg on Thursday. An African crowned eagle is also pictured.

http://www.msnbc.msn.com/id/10819471/
Oldest Human Hair Found in Hyena Poop Fossil?

Charles Q. Choi
for National Geographic News
February 9, 2009

The oldest known human hairs could be the strands discovered in fossil hyena poop found in a South African cave, a new study hints.

Researchers discovered the rock-hard hyena dung near the Sterkfontein caves, where many early human ancestor fossils have been found.

Each white, round fossil tuft, or coprolite, is roughly 0.8 inch (2 centimeters) across. They were found embedded in sediments 195,000 to 257,000 years old.

Until now, the oldest known human hair was from a 9,000-year-old Chilean mummy.

The sizes and shapes of the coprolites and their location suggest they came from brown hyenas, which still live in the region’s caves today.

Modern brown hyenas are known to hunt baboons and other large mammals when they are rearing cubs, the researchers note.

But for the most part the animals are scavengers, so the research team thinks the human hair came from a corpse the hyenas stumbled upon.

The finding is a reminder that humans and our relatives were "lower on the food chain than we are at present," paleoanthropologist Randall Susman of Stony Brook University in New York State said in an email.

“tropic level”
in the end, one thing to remember might be . . .

“. . . aspects of an animal’s dietary and locomotory behavior cannot necessarily be reconstructed from features of its teeth and skeletal anatomy.”

“Looking at the ‘hardware’ alone may not give us much insight into the variety of diets for many existing and extinct primates.”

The Cultural Feast, 2nd ed., pp. 26-27
and in the end, the real question might be . . .
You Are What You Eat: Some Differences Between Humans And Chimpanzees Traced To Diet

ScienceDaily (Feb. 3, 2008) — Using mice as models, researchers at the Max Planck Institute for Evolutionary Anthropology traced some of the differences between humans and chimpanzees to differences in our diet.

Humans consume a distinct diet compared to other apes. Not only do we consume much more meat and fat, but we also cook our food. It has been hypothesized that adopting these dietary patterns played a key role during human evolution. However, to date, the influence of diet on the physiological and genetic differences between humans and other apes has not been widely examined.

By feeding laboratory mice different human and chimp diets over a mere two week period, researchers at the Max-Planck-Institute for Evolutionary Anthropology in Leipzig, Germany, were able to reconstruct some of the physiological and genetic differences observed between humans and chimpanzees.

Related Stories

Humans And Chimps Differ At Level Of Gene Splicing

www.sciencedaily.com/releases/2008/01/080130092139.htm
Science News

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Humans consume a distinct diet compared to other apes, like this chimpanzee eating an apple. Not only do we consume much more meat and fat, but we also cook our food. It has been hypothesized that adopting these dietary patterns played a key role during human evolution. (Credit: iStockphoto/Stephanie Swartz)

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Humans And Chimps Differ At Level Of Gene Splicing [Nov. 15]

www.sciencedaily.com/releases/2008/01/080130092139.htm
and . . . as suggested at the beginning of Chapter 2, Diet and Human Evolution . . .

NOTE:
“hominids”
are now generally reclassified as

“hominins” --
“We are what they ate”

*The Cultural Feast, 2nd Ed.*, p. 17
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