

Re: Savanna mammals

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- *From:* Lee Olsen <paleocity@xxxxxxxxxxx>
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On Jan 20, 10:59 pm, Marc Verhaegen <m_verhae...@xxxxxxxxxxx> wrote:

I'm not interested in just-so opinions, I'm interested in serious arguments.

Aquatic Ape (non)Theory: Comments on a Recent Guest Lecture
by

Cameron M. Smith

PhD, Department of Archaeology

"If you were among the unfortunate crowd who spent a good amount of time listening to visiting lecturer Elaine Morgan recently, regarding the 'Aquatic Ape Theory', be advised of the following points.

1. Aquatic Ape Theory has been scientifically reviewed, and, despite what was presented at this lecture, it has been found to be severely wanting. AAT is not a 'credible alternative theory'; it is what is known as a post-hoc accommodative argument. Strictly speaking AAT does not really have a coherent body of theory, only a few disassociated (non)explanations for a few biological characteristics of the genus Homo. People should be aware that AAT is NOT 'mainstream' or 'a viable alternative' as claimed at the lecture.

2. AAT is poorly regarded because it is a poor explanatory device. It is poorly regarded because it has been examined and found to be invalid. It is not poorly regarded because of some scientific cover-up or paranoia. It is not poorly regarded because scientists cannot accept change. Scientific knowledge does change, all the time, and it has been pointed out that science is the worst place to try to hide anything because fraud will be exposed through experiment. AAT is simply a theory that has been evaluated (and ditched) by most serious anthropologists.

3. The presentation on 14 October is an embarrassment to Simon Fraser University, and the sponsoring hosts. How this pop/crypto/science 'theory' was given equal billing with real research efforts is beyond me. The fact that the 'theory' was included in a series of lectures dealing with darwinian processes (The Institute of Humanities' 'Old

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Minds and Bodies in New Worlds: A Darwinian Perspective on Our Past, Present and Future' lectures) is a travesty, as AAT crumbles when examined for internal darwinian logic. Unfortunately, having the speaker lecture on AAT was akin to having SFU sponsor Erich von Daniken to speak about spaceship depictions in Maya tombs.

Here's a point to consider when evaluating AAT. I did not learn this point from some academic overlord with an anti-AAT agenda; I learned it while trying to avoid becoming crocodile food in Africa. When I spent several months with a team at Lake Turkana, Kenya, investigating some of the most important early hominid sites in the world, one of our overriding concerns — while swimming, bathing, or catching fish with a net — was to watch out for crocodiles in the shallows. A croc can be on you, crush your legs in its jaws, and drag you under to drown before you have time to screech for help.

The fact that crocodiles co-existed in time and space with early hominids is a colossal blow to AAT, which does not explain what advantages early humans would have gained by spending time in crocodile-populated waters; an environment where they could not make fires, throw stones or sticks, use other tools, or have any hope whatever of escaping the most common predator. A troop of early hominids wading in a lakeshore or swampy forest would best be described as a crocodile banquet. The cute, feel-good images of babies swimming freely in a pool, shown in the AAT video, have nothing to do with the real situation of predator avoidance in Africa. Ask the Dasenich or Turkana people who live around Lake Turkana: only visiting maniacs swim in that lake.

There's much else to say, but I have a 650-word limit. Please keep in mind, the 'savanna hypothesis' has indeed been largely abandoned, but that does NOT validate AAT a priori. Neither is AAT validated because of the common sentiment that 'it is someone's opinion, and everyone is entitled to an opinion'. Opinion is not the same thing as scientific theory.

The damage of this lecture was to those who came to the lecture expecting, and possibly believing, that AAT was a viable body of theory. It is not, and it does not deserve that label."

Cheers,

Cameron M. Smith

Bramble and Lieberman (2004), in a much-discussed review article in Nature, cite a number of derived Homo features they claim to be adaptations for more efficient endurance running in arid, open habitats.

<http://www.newscientist.com/article/dn12381-duplicate-genes-help-huma...>

July 2007

Human beings can run long distances because we carry multiple copies of a gene that helps supply our cells with energy, a new study suggests. That

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<http://tinyurl.com/7u5wo>

In fact, he walked and ran with better mechanics than we do today. The mechanics of his femur, femur head, pelvis, and lower back are superior to those of today. We have had to sacrifice some of that efficiency of walking and running to give birth to children with larger brains.

Leakey (1994:55): Two independent lines of research converged on the conclusion that early Homo was an efficient runner, the first human species to be so.

<http://www.mnh.si.edu/anthro/humanorigins/ha/WT15k.html>

The hips were more slender and adapted to walking and running over long distances.

http://news.bbc.co.uk/cbbcnews/hi/animals/newsid_1804000/1804830.stm

Man beats horse in 50 mile desert race

http://www.naturalhistorymag.com/master.html?http://www.naturalhistorymag.com/1206/1206_samplings.html

December 2006 January 2007

Running Man Couch potatoes may disagree, but people are fairly well built to run in the heat. We sweat more per unit of body surface area than any other animal, and our upright posture exposes less body surface to the sun than would walking on all fours, and more surface to the cooling wind. On the hunt, those traits give people a distinct advantage over most quarry. In fact, Australian Aborigines and various Native American and African groups have traditionally practiced persistence hunting, chasing antelopes or other game in the midday heat, often for hours, until the animals overheat and collapse.

During the past twenty years, Louis Liebenberg, an animal tracker and the owner of CyberTracker Software in Cape Town, South Africa, has observed the only persistence hunters still left, the !Xo and /Gwi bushmen of the central Kalahari in Botswana. He reports a success rate as high as 80 percent and a meat yield that beats hunting with bow and arrow, club, or spear. Only hunting with dogs proved superior.

Conditions have to be just right: the days must be long and hot, and the terrain must slow down the quarry. Furthermore, the hunters must be terrifically fit the runs Liebenberg observed lasted as long as six-

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and-a-half hours and covered as many as twenty-two miles. And the hunters tracking skills must be exquisite; finding and following the quarry every time it bolts out of sight or mingles with a herd is no easy task teamwork helps. But done right, Liebenberg says, persistence hunting is so effective that it may have helped select for the excellent thermoregulatory system, bipedal posture, and long strides that we all possess. Perhaps sadly, the practice is dying out, though the physical skill endures in those who shun couches and run for fun.
(Current Anthropology)

Stéphan Reeb

However, while some of these supposedly cursorial adaptations¹ appear first in the fossil record in *H. habilis*, others appear first in *H. erectus*, and others still in *H. sapiens*, suggesting a much more complex story than proposed by Bramble and Lieberman. Their conclusions are reached without systematic comparisons with other animals (including endurance runners) and with general comparisons restricted to fossil hominids and *Pan*. Since convergent traits are strong indicators of evolution in similar environments (Bender 1999), a systematic comparison with a broad range of animals with a variety of locomotor strategies would have been more informative. In addition, discussion of possible locomotion styles is restricted to walking and running, with no consideration at all given to activities such as wading, swimming or underwater foraging, yet humans are regular waders and more accomplished swimmers and divers than other primates. Most of the list's adaptations¹ for walking could just as easily be explained by wading. One of the frequent explanations¹ in the list is ³stress reduction², a reference to the vertical posture of humans with the weight resting on two legs. But this says nothing about endurance running, with standing, wading, walking or short distance running all using a similar posture, and therefore all requiring stress reduction. Other explanations¹ include ³counter rotation², ³thermoregulation² and ³stabilization², but no comparative data to corroborate these interpretations are provided. In other words, their explanations¹ are ad hoc suppositions, applied to one example (human ancestors) without any consideration as to whether these supposed adaptations are seen in other animals, which means their explanations¹ are statistically invalid (n=1). Long legs, and possibly shortened forearms, could be seen as running adaptations, but these are just as typical of wading and swimming species compared with runners (Hildebrand 1974: 584, Bender 1999). In a waterside scenario, wading and swimming would be preadaptive to the humanlike vertical¹ locomotion that Bramble and Lieberman (2004) believe to be a direct adaptation to endurance running. In our view, frequent terrestrial locomotion, whether for walking or for (relatively slow) running, was more recent (*Homo sapiens*) and could not be derived directly from an ancestral locomotion in forests, whether on the ground or in the

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branches, because in that case a more baboon-like locomotion would be expected (the Rbaboon paradox¹).

Most of Bramble and Lieberman's Radaptations¹ are not what we would expect in a cursorial (running) animal. For example, their list includes ³enlarged posterior and anterior semicircular canals², but there are no comparisons with, for instance, giraffes (heads high above the ground), gibbons (fast and versatile locomotion), kangaroos (cursorial bipeds), or swimming or diving species. It is conceivable in fact that the frequent change of posture seen when diving for seafood (descending and ascending) required a different labyrinth structure, and that the larger *Homo erectus* labyrinth was adapted to terrestrial walking and running as well as to wading, swimming and diving locomotions.

There is no indication that an ³expanded venous circulation of neurocranium² had anything to do with thermoregulation, but there is long-standing evidence of expanded venous networks in diving species (Slijper 1936). More balanced heads and short snouts are not seen in cursorial species, whether bi- or quadrupedal, and low shoulders are to be expected in wading and underwater swimming.

What Bramble and Lieberman refer to as ³narrow body form², ³narrow thorax² and ³narrow pelvis² is not clear to us: compared to most primates, humans have a relatively broad thorax and pelvis (laterolaterally), and this was even more so in the case of australopithecines. In our opinion, the combination of Rflared¹ iliac blades and long and relatively horizontal femoral necks as seen in *Homo erectus* indicates well-developed ad- and abduction, which is obviously not an adaptation for running, but would not be unexpected and indeed would be advantageous for a species that had to regularly wade, tread water, swim or climb. In *Homo sapiens* the pelvis (bi-iliac diameter) did become narrower and the femoral necks shorter and more vertical, and we agree with Bramble and Lieberman that this could be related to more frequent terrestrial locomotion.

Plantar arches, enlarged tubera calcanei, close-packed calcaneo-cuboid joints and short toes are not seen in cursorials, whether bi- or quadruped, to the contrary: running species are typically unguli- or digiti-, not plantigrade, and typically have elongated toes.

In conclusion, comparative data suggest that none of the features described by Bramble and Lieberman (2004) are typical either of savannah dwellers or frequently running animals, whether slow or fast. Until the features are considered in the context of swimming and wading as well as terrestrial movement, their interpretations should be considered with extreme caution. As it is, there is no obvious reason why any of the features cited could not have been of advantage in a littoral environment. We do not deny that humans today are adapted to terrestrial locomotion including walking and moderate running, but in our opinion the peculiar human anatomy is not directly derivable from a typical primate ancestor who moved from closed to more open, arid habitats.