Re: Proven facts (Re: Savanna hunters run down kudus (Re: AAT all washed up(WARNING: graphic photo)

Source: http://sci.tech−archive.net/Archive/sci.anthropology.paleo/2007−07/msg00588.html

- *From*: Marc Verhaegen <m_verhaegen@xxxxxxxxx>

- *Date*: Thu, 26 Jul 2007 09:11:15 +0200

Op 25−07−2007 23:43, in artikel
1185399831.633642.125180@xxxxxxxxxxxxxxxxxxxxxxxxxxx, Lee Olsen
<paleocity@xxxxxxxxxxx> schreef:

> PAs usu.look only to the fossil & archeological evidence when they reconstruct human evolution, but fossils are scarse & incomplete, fragmented pieces of bone without soft parts, frequently of uncertain relation to living species; often, species, age & sex are unknown;

> sometimes
> the
> geological
> age &
> paleo−environment
> are
> uncertain.

Liar, you made that up.

Don't be ridiuclous.

No answer, but this irrelevancy:

> Says the man who thinks mountain beavers are semi−aquatic
> (TREE
> 2002:213−214). Lee−Thorp correctly thrashed tooth− wear
> data. So did
> you when you claimed in TREE that mountain beavers ate
> the same type
> food as capabaras,

Liar:

> Liar:
> Verhaegen et al. (2002:213−14):
> "Tooth microwear studies indicate that
> Australopithecus afarensis molar enamel had a
> glossy polished surface that is typical of the molars
> of capybaras Hydrochoerus hydrochaeris and
> mountain−beavers Aplodontia rufa [24].
> Both these semi−aquatic rodents feed mainly on riverside herbs,
> grasses and the bark of young trees."

OK, my boy, I apologise, you're no liar here, but it doesn't alter the conclusions: afarensis like capibaras & mountain beavers fed on succulent, not dry plants. I just googled: " Mountain beaver are strict herbivores and eat just about any type of succulent vegetation available including plants that are often inedible to other species such as nettle, bracken fern, and salal." Glossy appearence of enamel resembled that in capibaras & afarensis

(BTW, gorillas love nettles), IOW, afarensis did not live in dry savanna.
Whether or not we should call mountain beavers semi−aquatic (I guess not, I probably relied on the word "beaver") is irrelevant here, but repeatingly trying to use that as an argument (!) only shows your misinformation, lack of logic, childish behaviour & inability to show us wrong. Keep running after your kudu, my boy...

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Marc Verhaegen, Pierre−François Puech and
Stephen Munro
Aquarboreal ancestors?
TRENDS in Ecology & Evolution Vol.17 No.5 May 2002
−−

Only illiterates think a mountain beaver is semi−aquatic.
http://wdfw.wa.gov/wlm/living/mtn_beavers.htm

Since capybaras are semi−aquatic (have partially
webbed feet) and mountain beavers are terrestrial (do not have webbed feet),
then it follows (since neither has the same diet) any similarity
between tooth wear of these two animals is purely coincidental and has nothing what−so−ever to do
with demonstrating an animal is semi−aquatic. This makes a moot point of the polish observed on
Australopithecus afarensis teeth in trying to make a case for it eating "swamp herbs" ,
since terrestrial animals like the mountain beaver also have "glossy" polish on their molars
and do not eat "swamp herbs"

There is another problem to consider, if the research on mountain beavers is sloppy in this paper,
perhaps the tooth wear study cited is no more accurate, since one of the authors of TREE 2002
paper is also cited for the tooth wear data [24]. A real research
paper would have cited at least three independent sources.
Citing your own work only is circular and a cheap trick.

One reason this amateur paper is in the "opinion" department of TREE, rather than accepted as
original research, is because of the ridiculously sloppy
work demonstrated above. Who peer−reviewed this nightmare of mis−information anyway,
a local kindergarten class?

http://www.scienceinafrica.co.za/2001/december/hominids.htm
Dr. Lee−Thorp correctly points out:

1) For instance, the giant molars of the Australopithecines suggest that they needed to process very tough food (see figure to the right) (Ungar, 1998). But phylogenetic history also plays a role in tooth morphology, and adaptations are not necessarily the same as actual behaviour. For example, Papio baboons have tooth shapes indicative of fruit diets, but many modern baboons eat as much as 50% grass for which they are poorly equipped. The problem is worse in animals that are 'generalists' (ie. can eat a bit of everything) like hominids.

2) Some foods leave microscopic traces on teeth. Certain diets such as those rich in hard fruits or grasses leave tiny distinctive damage patterns on enamel surfaces. Based on different microwear patterns, Fred Grine suggested that Australopithecus africanus ate a diet with fleshy fruits and leaves, while A. robustus ate harder, more fibrous foods (Grine, 1981). Unfortunately microwear only reflects the consistency of foods eaten in the last few days or weeks, and many foods, such as animal flesh, are "invisible". Scatters of stone tools and animal bones in former living sites can provide some clues about how food was acquired although the stone tools do not tell us much about diet.

3) None of the hominids analysed so far ate a diet like that of the modern chimpanzee, gorilla, or even orangutan, all of which eat nearly 100% C3 foods. This is not to say that they did not eat fruits and leaves − they most probably did. But they also ate quantities of actual grasses, or animals that ate the grasses, or both. Grass itself is difficult to process and to extract the nutrients (unless one is well−equipped to do so, like a cow), so it's difficult to visualise how such a large "grass" signature could occur unless the hominids ate some animal foods. C4 −consuming invertebrate and vertebrate animals were abundant and easily collected by hominids. Raymond Dart was on the right track all those years ago, even if his environmental scenario was not quite right!
The important point is that we now know that all of these hominids were willing to eat C4 resources that are generally ignored by our primate cousins, the chimpanzees, gorillas, and orangutans. Chimpanzees, for instance, stick to C3 'forest' foods even when grasses or grass−eating animals are abundant. It seems that hominids early on became dietary generalists who broadened their diets and thus their resource base. This may have been the seminal step in the development of the hominid lineage. It makes sense when one considers that global climates changed between about 4 − 1.8 millions years ago, causing African forests to be replaced by woodlands and grasslands.

Australopithecine lifestyle

The list shows that some very early hominids, more than later australopithecines, have been found near lacustrine molluscs (Lukeino and Tabarin ca. 6.5 and 5 Myr BP). Ardipithecus ramidus, supposedly another early hominid, must have lived in a wooded habitat, amid predominantly colobine monkeys (Aramis ca. 4.5 Myr BP). Pliocene australopithecines ca. 4−3 Myr BP apparently frequently dwelt in warm and humid, more or less closed environments (gallery forest or wooded habitat in Kanapoi, Chad, Hadar, Makapansgat, but inconclusive for Garusi−Laetoli). Pleistocene robust
australopithecines since 2.5 Myr BP probably lived in generally dryer and more open landscapes (grassland in Kromdraai and Konso), but their remains lay in riverbanks, lagoons, marshes, lake−margins, near papyrus (Olduvai) and reed (Kromdraai, Olduvai, Chesowanja).
Although ?all nine Konso A. boisei specimens were recovered among the predominantly dry grassland fauna of KGA 10¹ (Suwa et al., 1997), this does not mean that they lived in a savanna milieu, since ?nearby subsites were also moist and wooded¹ (Delson, 1997). Fragmentary fossils like those of Laetoli and Konso are often the remains of carnivore meals (Morden, 1988). Leopards, which preyed upon australopithecines, prefer to feed in dry circumstances and therefore drag away their prey, sometimes several hundred meters (Brain, 1981).
The preponderance of wet environments in our list is striking, but this was not considered to be inconsistent with a savanna view, because it was believed that the fossil record sampled a disproportionate number of habitats related to water (see the above citation from Shipman and Harris, 1988). To be sure, that the hominids have been discovered in humid or wet habitats does not allow firm conclusions about how much time they spent there, but the possibility that wetter rather than drier conditions influenced hominid evolution can not be ignored. Therefore, paleo−ecological
data must be verified and supplemented through anatomical and especially dental studies of the fossils.
It is generally agreed that all australopithecines have skeletal features of bipedality. Early graciles also show clear indications of tree climbing such as curved manual and pedal phalanges, though such features are less obvious in the robusts.

Dental studies suggest that whereas gracile australopithecines preferred softer fruits and vegetables, the robusts¹ diet included harder food items (e.g. Robinson, 1954; Du Brul, 1977; Walker, 1981; Puech, 1992; Lee−Thorp et
al., 1994). Estimates of robust australopithecine bite force suggest ?low−energy food that had to be processed in great quantities¹ and food objects ?hard and round in shape¹ (Demes & Creel, 1988). Du Brul (1977) noticed dental isms between the robust australopithecines and the bamboo−eating giant panda Ailuropoda melanoleuca (broad, high and heavy cheekbones, reduced prognathism and front teeth, broad back teeth, premolar molarisation), as opposed to gracile australopithecines, respectively non−panda bears.

Papyrus and reed were present in the paleo−environment of the later

australopithecines (e.g. Olduvai, Chesowanja, Kromdraai), and Cyperaceae and
Gramineae are part of the diet of living African hominoids. Gorillas eat sedges and bamboo shoots and stalks, gorillas and chimpanzees eat cane, chimps and humans eat water lilies, and rice and other cereals are staple food for humans. Supplementing their diet with parts of grasslike plants might have been enabled the robusts to bridge the dry season, when fruits and soft vegetables were scarce.

Studies of dental enamel microwear provide other details. In the early australopithecines of Garusi−Laetoli and Hadar (A. afarensis 4−3 Myr BP), the cheekteeth enamel has a polished surface and the microwear looks like that of the capybara Hydrochoerus hydrochaeris and that of the mountain beaver Aplodontia rufa (Puech et al., 1986). These animals are semi−aquatic rodents that feed mainly on sappy marsh and riverside herbs, grasses and bark of young trees. It has recently become clear that Western lowland gorillas G. g. gorilla spend some time eating aquatic herbaceous vegetation (AHV) like Hydrocharitaceae herbs and Cyperaceae sedges (Doran & McNeilage,
1997).
Comparisons of molar enamel in South African fossils show that A. robustus ate substantially more hard food items than A. africanus (Grine & Kay, 1988). Incisal microwear suggests that A. robustus may have ingested foods that required less extensive incisal preparation than the foods consumed by A. africanus, such as fruits (Ungar & Grine, 1991), and ?incisors need not be employed in the manipulation of hard objects¹ (Ungar & Grine, 1989). The enamel of the East African robusts (Olduvai and Peninj) displays more pits, wide parallel striations and deep recessed dentine, resembling that of the beaver Castor fiber, that eats riverine and riverside herbs, roots of water lilies, bark and woody plants in a temperate climate. ?Many food plants growing in marsh land and indeed many grasses, have high concentrations of siliceous particles known as opal phytoliths. The consumption of such foods produces a great deal of wear, and the enamel and dentine have a blunted appearance. Ancient Egyptians ate papyrus shoots (Puech et al., 1983b) and we suppose that [O.H.16] did the same with swamp margin plants¹ (Puech, 1992). Whereas the East African robusts seem to have had aquatic plants and papyrus shoots in their diet and ate more woody plants than the earlier australopithecines, habilis O.H.16 apparently supplemented the AHV of the earlier australopithecines with acid fruits (Puech, 1984). In the habilis cheekteeth, the margins of the striae have been polished and slightly etched, resembling the microwear of the coypu Myocastor coypus. This rodent feeds on reed, sedges, marsh plants, fruits and molluscs in river and lake margins. It thus seems that an early australopithecine diet of fruits (larger front teeth) and AHV (polishing) was supplemented with unripe fruits (acid etching) in habilis, and with woody plants in the robusts (more wear).
The suggestion of Walker (1981) that A. boisei KNM−ER 406 and 729 were bulk−eaters of whole fruits, ?small, hard fruits with casings, pulp, seeds and all¹, could explain the deep recessed occlusal dentine, but not the glossy appearance of heavily polished enamel, which is more typical for marsh plant feeders. In terrestrial grazers such as sheep, tooth wear is

faster, with a different gradient and fabric−like grooves.
These microwear data are consistent with the strontium/calcium ratios in Swartkrans fossils (Sillen, 1992). Apart from partial carnivory (rather unlikely with the robusts¹ dentition, see Du Brul, 1977; Walker, 1981), Sillen provides two possible explanations for the low Sr/Ca of A. robustus: eating leaves and shoots of forbs and woody plants (kudu diet), and eating food derived from a wet microhabitat, for instance, from well−drained streamside soils.
In our opinion, the coincidence of several independent lines of evidence (paleo−milieu, dental morphology, enamel microwear, Sr/Ca ratios) leaves little doubt that some or all australopithecines fed regularly on AHV growing in shallow waters, much more than Western gorillas do today (Chadwik, 1995; Doran & McNeilage, 1997). It is conceivable that hominid bipedality first arose in the shallow waters of gallery or mangrove or swamp forests. ?One of the strong points about the aquatic theory is in explaining the origin of bipedality. If our ancestors did go into the water, that would forced them to walk upright¹ (Stringer, 1997). That a gradual evolutionary transition from forest to marshland is possible is illustrated by the Western lowland gorillas that spend some time feeding on AHV, wading bipedally, sitting and playing in marshy forest clearings (Chadwik, 1995; Doran & McNeilage, 1997; NDR TV film, 1997).− Hide quoted text −

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