



General Certificate of Education
Advanced Level Examination
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Critical Thinking

CRIT3

Unit 3 Beliefs, Claims and Arguments

Source Material

This source material is to be read in conjunction with questions Unit CRIT3.

The Aquatic Ape Theory



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- 1 What makes humans different from other animals is a question that has puzzled scientists for generations. The most widely held view is that the species of African ape from which we developed came down from the trees and moved out of the forests on to the open grasslands of the savannah; and that our distinctive human features are the result of adaptations to a savannah environment. In that case, we would expect to find at least some of these adaptations paralleled in other savannah mammals. But there is not a single instance of this. This awkward fact has not caused savannah theorists to abandon their hypothesis, but it leaves a lot of questions unanswered, for example why humans lost their body hair, and came to walk with an upright posture.
- 2 The Aquatic Ape Theory (AAT) offers an alternative scenario. It suggests that when our ancestors moved on to the savannah they were already different from the apes; that nakedness, bipedalism (walking on two legs), and other modifications had begun to evolve much earlier, when the ape and human lines first diverged.
- 3 AAT points out that the most enigmatic* features of human physiology, though rare or even unique among *land* mammals, are common in *aquatic* ones. If we postulate that our earliest ancestors had found themselves living for a prolonged period in a flooded, aquatic habitat, most of the unsolved problems become much easier to unravel.

(* 'enigmatic' means puzzling, hard to explain, or mysterious)

The naked ape

- 4 Humans are classed anatomically among the primates, the order which also includes apes, monkeys and lemurs. Among the hundreds of living primate species, only humans are naked. All other non-human mammals which have lost all or most of their fur are either swimmers like whales, dolphins and walruses, or wallowers like hippopotamuses, pigs and tapirs. The rhinoceros and the elephant, though found on land since Africa became drier, bear traces of a more watery past, and seize every opportunity to wallow in mud or water.
- 5 The savannah theory has suggested that humans, especially hunting males, became hairless to prevent overheating in the open grasslands. But no other mammal has ever resorted to this strategy. A covering of hair acts as a defence against the heat of the sun: that is why even the desert-dwelling camel retains its fur. Another version is that being hairless facilitates sweat-cooling. But again many species resort to sweat-cooling quite effectively without needing to lose their hair. Also, for a savannah primate, there would be a high price to pay for hairlessness. Night-time temperatures on the savannah are low. And the theory does not explain why females have even less hair than males. Primate infants are carried around clinging to their mothers' fur; the females would be severely hampered in their foraging when that no longer became possible.

Fat

- 6 One general conclusion seems undeniable from an overall survey of mammalian species: that while a coat of fur provides the best insulation for land mammals the best insulation in water is not fur, but a layer of fat. Humans are by far the fattest primates; we have ten times as many fat cells in our bodies as would be expected in an animal of our size. It is unlikely that early man would have evolved this feature after moving to the plains and becoming a hunter, because it would have slowed him down. No land-based predator can afford to get fat. Our tendency to put on fat is likelier to be an inheritance from an earlier aquatic phase of our evolution.
- 7 It is true that some apes, especially in captivity, may put on weight, but we still differ from them in two important ways. One is that they are never born fat. All infant primates except our own are slender; their lives may depend on their ability to cling to their mothers and support their whole weight with their fingers. Our own babies accumulate fat even before birth and continue to grow fatter for several months afterwards. Some of this fat is white fat, and that is extremely rare in new-born mammals. White fat is not much good for supplying instant heat and energy. It is good for insulation in water, and for giving buoyancy.
- 8 The other difference is that in our case the subcutaneous fat is bonded to the skin. When an anatomist skins a cat or rabbit or chimpanzee, any superficial fat deposits remain attached to the underlying tissues. In the case of humans, the fat comes away with the skin, just as it does in aquatic species like dolphins, seals or hippos.

Other differences

- 9 Human beings are the only mammals in the world that habitually walk on two legs. (The only other creature with a perpendicular gait is an aquatic bird, the penguin.) It is not surprising bipedalism is so rare. Compared with running or walking on four legs it has many disadvantages. It is slower; it is relatively unstable; it is a skill that takes many years to learn, and it exposes vulnerable organs to attack.
- 10 We have been doing it for five million years and in that time our bodies have been drastically remoulded to make it easier, but it is still the direct cause of many discomforts and ailments, and would have been far more difficult and laborious for our ape-like ancestors. Only some powerful pressure could have induced them to adopt a way of walking for which they were initially so ill-suited. One hypothesis is that they first developed big brains, then began to make tools and weapons, and finally walked on hind legs to free their hands for carrying these. But we now know that it was bipedalism that came first, before the big brain and tool-making. However, if their habitat had become flooded, they would have been forced to walk on their hind legs in order to keep their heads above water.
- 11 Another distinctive feature is our ability to hold our breath. In most mammals breathing is involuntary, like the heart beat or the processes of digestion. Voluntary breath control appears to be an aquatic adaptation because, apart from ourselves, it is found only in aquatic mammals like seals and dolphins. Without voluntary breath control it is very unlikely that we could have learned to speak. Yet we have.
- 12 Another physical feature which distinguishes us is that we have a different way of sweating from other mammals, using different skin glands. This method is very wasteful of the body's essential resources of water and salt. It is therefore unlikely that we acquired it on the savannah, where water and salt are both in short supply.
- 13 The most widely discussed contrast between ourselves and the apes is that we have bigger brains. One factor in this development may have been nutritional. The building of brain tissue, unlike other body tissues, is dependent on an adequate supply of Omega-3 fatty acids, which are abundant in the marine food chain but relatively scarce in the land food chain.
- 14 AAT is the only theory which logically connects all these and other enigmatic features and relates them to a single well attested historical event.

The time and the place

- 15 It is now generally agreed that the man/ape split occurred in Africa between 7 and 5 million years ago. The oldest pre-human fossils (including the best known one, "Lucy") are called *australopithecus afarensis* because their bones were discovered in the Afar Triangle, an area of low lying land near the Red Sea. About 7 million years ago that area was flooded by the sea and became the Sea of Afar. Part of the ape population living there at the time would have found themselves living in a radically changed habitat. Some may have been marooned on off-shore islands. Others may have lived in flooded forests, salt marshes, mangrove swamps, lagoons or on the shores of the new sea, and they would all have had to adapt or die.
- 16 AAT suggests that some of them survived, and began to adapt to their watery environment. Much later, when the Sea of Afar became landlocked and finally evaporated, their descendants returned to the mainland of Africa and began to migrate southwards, following the waterways of the Rift Valley upstream.

- 17 There is nothing in the fossil record to invalidate this scenario, and much to sustain it. Lucy's bones were found at Afar lying among crocodile and turtle eggs and crab claws at the edge of a flood plain near what would then have been the coast of Africa. Other fossils of *Australopithecus*, dated later, were found further south, almost invariably in the immediate vicinity of ancient lakes and rivers.
- 18 The Aquatic phase took place more than 5 million years ago. Since then, *Homo* has had five million years to re-adapt to terrestrial life. It is not surprising that the traces of aquatic adaptation have become partially obliterated and have gone unrecognized for so long. But the traces are still there as the above observations demonstrate.

Source: adapted from ELAINE MORGAN, *Aquatic Ape Theory*, 1982
www.primitivism.com/aquatic-ape.htm

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