

The Aquatic Ape Theory: challenge to the orthodox theory of human evolution

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The Aquatic Ape Theory postulates that humans evolved through an aquatic stage during which time they lived largely in water. The theory was first discussed in the 1940's but it has many difficulties. Although it has never gained wide acceptance in the scientific community, a number of well respected academics have supported this view. The Aquatic Ape Theory was proposed mainly because the current human evolution theory faces many problems, most of which remain unresolved. The Aquatic Ape Theory claims to deal better with these problems, but also has major difficulties of its own.

The Aquatic Ape Theory (AAT) is 'one of the more successful' alternatives to orthodox human evolution theory.¹ The mainstream theory, called the African Savannah model (or just the Savannah Theory), teaches that human ancestors were once arboreal apes that descended from the trees to live on the African Savannah. Contrary to ST, AAT argues that, during the one major gap in the human fossil record,² human ancestors called *Homo aquaticus* once existed in a semi-aquatic phase in lakes and rivers.³ Morgan argues that this time of history, which she calls the *aquatic period*, occurred when a large area of what is now continental Africa was flooded.⁴ The theory's main argument is that humans possess many physical adaptations that appear to be very much out of place for Savannah dwellers—but these same traits make perfect sense if they are considered adaptations to a water environment.⁵

The most prominent spokesperson for AAT is Elaine Morgan, a respected British science writer published by major publishing houses, including Oxford University Press. Morgan is also a popular speaker: attendees at her spring 1999 Harvard University talk claimed that she presented very convincing evidence for her case. Morgan's most popular work is *The Descent of Women* (1972), which focused on what she concluded was the critical importance of sexual selection in evolution. The research for this book caused her to seriously question the current Savannah hypothesis.⁶ Morgan's AAT was most highly developed in her recent book *The Aquatic Ape Hypothesis* (1999). This work has produced many favourable reviews in major mainline journals such as *Nature*. The theory has also been the subject of at least two Ph.D. theses. As we will document, AAT has as many or more problems than ST, but it does effectively document the many shortcomings of the Savannah hypothesis.

History of the theory

AAT was first discussed in print by Max Westenhöfer, a German scientist who proposed the idea in the 1940s. The theory was further developed by British marine biologist Alistair Hardy (1896–1985), an oceanography professor at Oxford. Hardy presented the details of his theory in a paper

titled 'Aquatic Man—a present and future' at a British scientific meeting in 1960.⁷

AAT has received qualified acceptance by a number of mainstream scientists including Glenn Isaac, Phillip Tobias, and Michael Crawford.⁸ One of the world's leading paleoanthropologists, Phillip Tobias, even invited Morgan to speak at a conference on human evolution at the University of London held by the Dutch Physical Anthropology Association in 1987.⁹ One product of the Dutch conference was a scholarly anthology of the papers presented titled *The Aquatic Ape: Fact or Fiction?*¹⁰

Some observers have concluded that the theory's value lies in its ability to clarify weaknesses in ST. They further note that the scientific establishment's general unwillingness to address these questions does not do it much credit. Watson concludes:

'... despite the diligent research done in East Africa by paleontologists Richard Leakey and Donald Johanson, there are gaping holes in the evolutionary [fossil] record, some of them extending for 4 to 6 million years. Modern apes, for instance, seem to have sprung out of nowhere. They have no yesterday, no fossil record. And the true origin of modern humans—of upright, naked toolmaking, big-brained beings—is, if we are to be honest with ourselves, an equally mysterious matter. There is, therefore, plenty of room for an alternative explanation. And there is at least one [AAT] that has been around, if largely overlooked or dismissed, for more than 20 years.'¹¹

Although some chimp-like fossils have been discovered since 1982, the same problem is still true today and is a major reason why AAT is still being debated.¹² The more research completed, the more we realize that 'humans differ more markedly from the African apes than apes differ from one another.'¹³ Many Darwinists conclude that something drastic must have happened to our human ancestors 'which did not happen to the ancestors of the other apes' to produce these enormous differences.¹³ What happened, according to AAT, was that apes were forced into the water to survive.

Evidence for the Aquatic Ape Theory

The main evidence is humans have ‘several features that are seen more often in aquatic than terrestrial mammals: nakedness, thick subcutaneous fat-layer, stretched hindlimbs, voluntary respiration, dilute urine, etc.’¹⁴ To explain these differences, AAT concludes that the environment in which early prehumans lived suddenly changed about five million years ago during the Pliocene (or Miocene) Era. It then argues that environmental changes pushed prehuman primates into local waterways for survival just before they evolved into the hunter/gatherer stage.^{3,15} Once they adapted to this environment, the environment changed again, pushing them back out onto land and again forcing them to adapt to land environments. Left over as vestigial or remnants of this human evolution stage are numerous adaptive traits that allowed our prehuman ancestors to live in water. The putative ex-aquatic apes then evolved into *Homo habilis* or *Homo erectus* and finally *Homo sapiens*.

The examples used in an attempt support the semi-aquatic phase of human evolution include the fatty layers on the skin, and the other characteristics of humans that are typical of dolphins, whales, walrus, and other marine mammals. The theory’s supporters conclude that the only mode of life that can account for all of these adaptations in humans is aquatic.¹⁶ Each of their main arguments will now be considered.

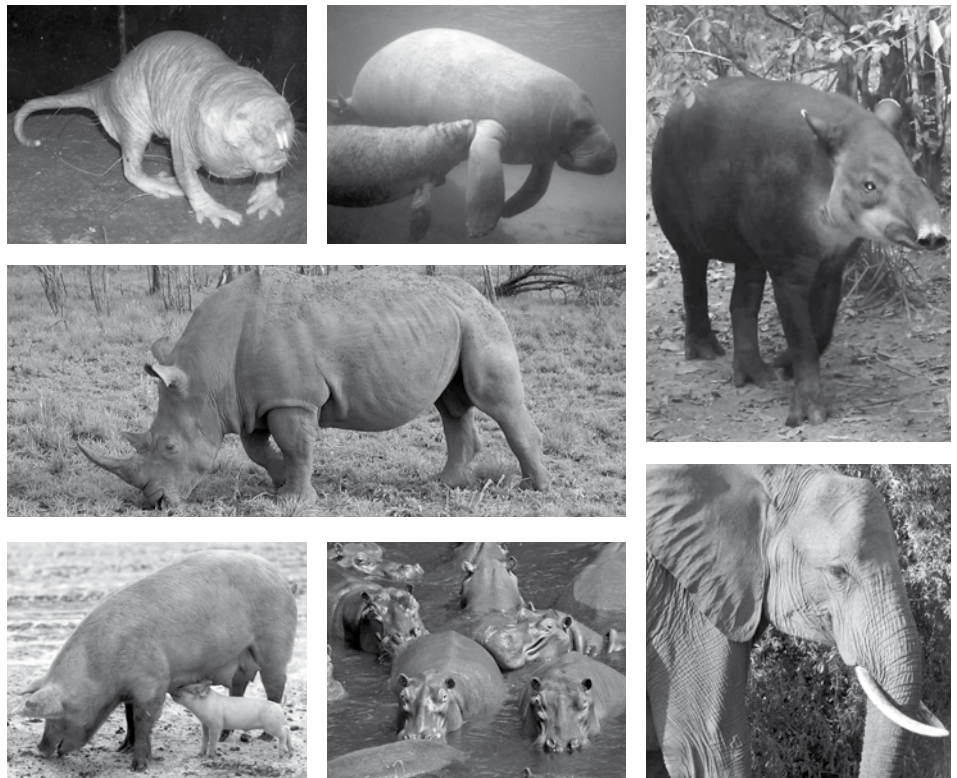
Walking upright

A major motivation for the *Homo aquaticus* theory is an attempt to explain why humans evolved to walk upright.¹⁷ This is a critical concern because according to AAT’s proponents ‘it was the way we walked, rather than the way we thought, which first set us apart from our anthropoid cousins.’¹⁸ In books for general readers, and even in textbooks, bipedalism evolution is often ‘not presented as a problem’ but, in fact, is a *major* problem.¹⁹ The current orthodox explanation is that the changing climate caused the trees in our ancestral home to disappear, increasing the level of open grass land. These new environmental conditions forced prehumans out of the trees which forced them to walk on two legs. The problem with this explanation, Ingram notes, is why resort to walking on two legs when four is often a superior means of travel.²⁰ He argues that this is one reason why bipedalism is very rare in the animal world.

All proposed explanations—such as walking on two legs was selected because it conserves energy—have failed when examined carefully. For example, a chimp walking on two legs compared to a chimp walking on four reveals that the two modes of locomotion use about the same amount of energy. Therefore, walking on two legs would *not* be more efficient, at least until bipedal locomotion was perfected, as is the case in modern humans.

Another theory is that standing up allows one to see farther to spot enemies sooner, but this advantage does not require walking, but simply the ability to balance on two legs as do some chimps, apes and other primates. If walking were such a great evolutionary advantage, why is it so rare and why was it not adopted by many other animals? For selection to function, bipedalism must have been an advantage for the *first* creatures that evolved it, not its descendants six million or so years later.

The aquatic theory proposes that humans became bipedal because it was useful to help adults keep their heads above water when walking in semi-shallow water. If the water were neck deep, though, children would risk drowning. Lovejoy notes that moving from quadruped to a biped means of locomotion is ‘insane’ because it ‘deprives us of speed and agility and all but eliminates our ability to climb



Animals such as manatees, whales, elephants, hippos, rhinos, dolphins, naked mole rats and humans are all called naked because they have sparse fine body hair instead of abundant thick hair such as on horses. Because many of these animals are aquatic or semiaquatic, AAT supporters argue that this is evidence for an aquatic human past. Several good reasons, though, exist for human lack of body hair, such as enabling our sweat gland cooling mechanism to function.

trees which yield many important primate foods, such as fruit and nuts.²¹ Living neck deep in water would not only have encouraged walking upright, but purportedly would also have provided the needed conditions to facilitate the evolution and development of this trait. The only evidence AAT points to is at least one animal that lives near water often walks upright on two legs: the proboscis monkey of southeastern Asia.

Hairlessness

Of the many thousands of mammal species, only a few, including manatees, whales, elephants, hippos, rhinos, dolphins, naked mole rats, and humans, are hairless.²² Of the few mammals that are hairless, most are either aquatic or tend to do best when around water, or at least mud, such as pigs (they use water to cool themselves).

Nakedness is an advantage for aquatic mammals because it allows the body to move through water more easily. The hair on humans do not stick out at random, but are arranged diagonally, all pointing inward towards the midline of the body—a pattern that allows the least resistance to water flowing over the human body when swimming.¹¹

Hair and fur simultaneously facilitate cooling (they dissipate heat) and warming (they insulate body from the cold). Consequently, lack of fur requires other mechanisms to help achieve these goals.²³ The lack of hair on humans means another form of insulation must be utilized, and that means is subcutaneous fat. This fat layer creates another problem—we have to sweat to cool ourselves off when we are in a temperature environment that is too high for our metabolism.

AAT tries to explain the existence of our head hair: it evolved to protect us from the sun while we were still aquatic. If this claim was valid, one needs to ask why the rest of our upper body is not similarly protected by hair. Morgan concludes that human nakedness has been even harder to explain by evolution than bipedality and that few viable theories exist.²⁴ Darwinists commonly try to explain human ‘hairlessness’ by sexual selection, a clearly inadequate theory.²⁵ Morgan concluded that many physical anthropologists just ignore the problem because they have no better explanation.²⁶ Some anthropologists even argue that we are actually hairier than chimpanzees because our hair follicles happen to be closer together, although the hairs on humans are very thin and short!

Another argument for *Homo aquaticus* include the fact that in contrast to all other primates our nostrils point downward, which helps keep water out of the nose when swimming. A better explanation is that the existing nose design keeps rainwater out of our nose while walking. Even acne is interpreted as evidence that our aquatic ancestors secreted large amounts of oil sebum to prevent the skin from drying out and to facilitate traveling through the water like a greased pig.

Sweating

Sweating, although an effective means of cooling, causes loss of sodium as well as potassium and other needed ions. Living near water would cool the body without needing to sweat (and, as a result, we would not lose as much salt), and living near salt water would easily replenish the salt that was lost during sweating.²⁷ Loss of vital salts is a problem for plain-dwelling animals, but not for those that live close to, or in, the sea. Actually, aquatic animals often need to eliminate some salt and, conveniently for humans, crying effectively does exactly that. This method is hypothesized by aquatic theorists to have evolved to shed the excess salt that resulted from living in salt water. Morgan claims that humans exude through their tears and sweat ‘greater quantities of salt water than any other mammal.’²⁸ Interestingly, humans are the *only* mammals that shed tears. She also claims, but cites no evidence, that sweat glands were lost in human evolution in all except a few areas, such as in the armpits and the pubic area.²⁹

Holding breath

The ability to hold one’s breath is critical when swimming.²⁷ This human ability is in great contrast to all other primates, a fact that is used as evidence against the evolution of humans from land primates, and, Ingram notes, is a difficult problem for aquatic skeptics. One explanation by Langdon argues that the musculature of quadrupeds is designed so that it is ‘impossible for them to disentangle their breathing from their movement: as the legs move, their lungs contract and expand.’³⁰ An example is animals on a treadmill breathe according to movement, i.e. at high speeds they can take in one breath per stride, but slower walking frees the upper body, including the diaphragm and chest muscles, allowing for voluntary breathing control.

A better explanation is that holding one’s breath is critically important for speech—‘a unique human ability that depends on precise control of breathing’, but which Darwinists teach evolved millions of years *after* the first bipeds walked on earth.³¹ Ingram argues that precise control of breathing would have facilitated the evolution of speech, but this assumption doesn’t explain why we acquired the ability to speak in the first place.³¹ Conversely, he notes that breathing control clearly would have benefited an animal that spent long periods of time underwater as the *Homo aquaticus* advocates postulate.

Subcutaneous fat layers

Another putative proof of aquatic life is the fact that humans are the only *primates* to have subcutaneous fat layers. The fat serves to help insulate the body to reduce heat loss when underwater, helping to keep us warm. The virtually continuous layer of fat under the skin of both human males and human females (although greater in females) is most similar to that of aquatic mammals, including whales, seals, walruses and manatees. The fat streamlines our body,

facilitating more effective swimming. Furthermore, the fat of humans is bonded to the epidermis from the underneath, a trait rare in apes but found in many sea mammals.

Aquatic ape theorists use this fact to argue that subcutaneous fat was developed to reduce heat loss in aquatic environments—a critical factor, because heat loss is much more rapid in water than in the same temperature of air. As Ingram concludes, ‘all of these changes were presumably accomplished by the usual evolutionary mechanisms of natural selection: those individuals who had more sweat glands or more extensive fat had a slight advantage and so were the most prolific’ reproducers.²³ A better explanation is that the fat layer is necessary because humans lack body hair that most all mammals utilize to maintain body temperature.

Born fat

Yet, another difference is human babies are born with a comparatively thick layer of fat covering their entire bodies. Human babies with their chubby cheeks and five to nine pound birth weights are in stark contrast to infant monkeys and apes, all which resemble emaciated toothless old men—skinny and horribly wrinkled.

Ability to swim at birth

Without training, all normal babies display proper breath control that allows them to swim under water.¹¹ Human also have lower-limb structure that is well adapted for swimming.³² Fat babies that can swim from birth would obviously not have evolved on an African Savannah. Humans also have a diving reflex, as do all diving mammals. Immersion of the face produces a depressed heartbeat, a reflex that also effectively facilitates underwater birthing.³³ Being born fat with the instinctive ability to hold one’s breath underwater and with a natural ability to swim are all characteristics of both humans and animals that live in, or by, the sea. Of course, because humans are adapted to the water does not prove that we evolved from an aquatic life form.

Respiratory valves

The human soft palate can elevate in order to close off the nasopharynx, a very different design than that used in all other primates. This design is ‘a necessary feature of aquatic mammals that must be able to keep water out of the respiratory passage’ and would not evolve in a Savannah environment unless it served another very different function.³⁴

Descended larynx

Humans are also unlike apes in that they have a ‘descended larynx’ (meaning it is located much farther down the trachea toward the lungs than all other primates). In humans, the larynx actually sinks *lower* as the baby grows. In adults, it is located at the junction of the food tube and larynx (windpipe) into the lungs, directly below the base of the tongue. Most animals that have this design are aquatic, such as seals, lions, walruses and dugongs. Furthermore, so far as known, this design feature exists in one primate only—*Homo sapiens*.³⁵



Photo from www.sxc.hu, by Aurora Romano

AAT adherents argue that the large subcutaneous fat layers found in babies supports an aquatic past for humans. In fact several good reasons exist for the fat layer and some non-aquatic newborn animals have a similar fat layer.

This design feature makes gulping large amounts of air very easy, a very useful trait for under water swimming. A better reason for this design is it allows speech in humans—the only mammal that has acquired a language—which is why some Darwinists argue that upright posture and a descended larynx evolved first, and only later was speech able to evolve.³⁶ Some researchers conclude that upright posture forced the larynx down. Morgan argues that an aquatic environment selected for this design feature.

Love of water

Another evidence Ingram lists is, why are humans so fascinated with large bodies of water? Ingram argues that our attraction to water is evidence of a genetic bond to a watery past. Conversely, the out of Africa advocates point out that the second choice is of humans is landscapes with trees typical of African Savannahs. Humans also love to live in mountainous as well as tropical areas, but this does not prove that we evolved in either environment. As Rees stresses, ‘until some hard evidence is found though, I fear we are left with several equally convincing theories floating in a sea of speculation.’³⁷ This same observation is still true today.

Baboon marker

Another piece of evidence is the finding that all twenty-three African primate species have what is called ‘a baboon marker’, indicating that their ancestors were infected by a retrovirus. But, conversely, not a single non-African primate

species (including all seventeen Asian species) carries this marker. This marker distinctly divides the African and Asian species into two groups. The fact that humans do not carry the marker argues that we are most closely related to the Asian species, disproving the out-of-Africa model for the last common ancestor of *Homo sapiens* that now dominates. The presence of the baboon marker is indicative of ancestral contact with the baboon virus in a similar way that sickle cells in blood indicate ancestral contact with malaria. Conversely, using disease commonality to prove evolutionary relatedness is problematic because many animals not claimed to be our close relatives, such as ducks, pigs, rats and guinea pigs, have similar disease susceptibility as humans.

Paranasal sinuses

Evans concludes that the ‘role of the paranasal sinuses in man has been in dispute and as yet no satisfactory explanation has been offered for these “unwanted” spaces.’³⁸ He concludes that a ‘study of the comparative evolutionary development of the sinuses in man and other primates’ reveals that humans have several ‘unique physical characteristics’ that are ‘not seen elsewhere in the ape family, or indeed in other terrestrial mammals, including some relating to the upper aerodigestive tract’ that ‘are not satisfactorily explained by the traditionally held theory of evolutionary development of early man directly from the arboreal ape.’³⁸

Evans argues that these differences between humans and apes are ‘much more logically explained by a period of aquatic adaptation at a crucial period in the evolution of pre-hominid man.’³⁸ He concludes that the sinus air cavities serve a buoyancy function and also aid in protecting the upper airway tract in aquatic environments. The external ear canal design also supports the theory that humans were well adapted to an aquatic environment. Evans concludes that the explanation of these

‘... unique hominid characteristics in terms of an aquatic evolutionary theory may help to resolve some of the enigmatic inconsistencies between man and other higher primates, and may account for man’s eventual emergence as the dominant species, and perhaps an explanation for the “missing link”.’³⁸

Brain differences

Humans and apes ‘show clear differences in brain anatomy’, especially in the areas of the cerebral cortex and the associated areas that control fine movements of the hand, breathing, and speech musculature.³⁹ Verhaegen³⁹ concludes that AAT best explains all of these differences. He argues these adaptations were required for diving and shellfish collection at sea coasts and must have originated in a semi-aquatic past. All of these aquatic adaptations show that we can exist in a variety of environments; they do not prove we evolved in these environments.

Other evidence

Morgan and others conclude that, in addition to the above, comparing biochemical properties, protein structure, immunological differences, and structural differences in the skeleton, the skin, the hymen, volitional breath control, the diminution of the apocrine glands, the muscles, posture, the means of locomotion, social organization, acquisition of speech, tool use, among others, all reveal that ‘the differences between a man and a chimpanzee are more astonishing than the resemblances.’⁴⁰ Bender, Verhaegen and Oser conclude that the

‘... only satisfying explanation for these different adaptations of humans and nonhuman primates is provided by the Aquatic Ape Theory. It is the only model of human evolution that accounts for the numerous examples of convergent features between people and other vertebrates and the only model that explains these convergencies in connection with a well-defined ecological niche.’⁴¹



Photo from www.istockphoto.com

Many humans enjoy water sports and activities, a fact used by AAT supporters to argue for an innate love of water. Although humans can also hold their breath underwater, have the ability to swim at birth and have respiratory valves that allow swimming and water activities, good reasons exist for these traits for terrestrial life.

Fossil evidence

Morgan⁵ argues that the skeletons of Lucy and other well-known putative human ancestors found near the shores of large lakes indicates that humans once lived in areas that were subject to periodic flooding. Langdon concludes from his review—one of the most extensive ever done on AAT—that the theory will not be disproved on the basis of the anatomy evidence, but rather the fossil record. A main argument that critics use to debunk AAT is that no fossil evidence exists to support the view. Critics also point out that the main evidence for human evolution is bones—and nothing in the bones indicates that hominids were water dwellers.³² Morgan conveniently argues that most of the physical changes necessary for aquatic life would have occurred in the soft parts that do not fossilize.

Of course, the fossil record is also a major problem for the Savannah hypothesis. Langdon admits that ST is also a ‘corpus of work that contains many contradictory ideas and numerous alternative hypotheses that assume a terrestrial habitat for all stages of human evolution.’³⁴²

The existence of a gap in our fossil record is also used as evidence for the aquatic theory (bones were unlikely to be preserved in the water). As humans died, they were devoured by sea creatures that can crush the bones. Morgan correctly argues that lack of fossil evidence is not only a problem for AAT, but is also a major problem for standard view. Ingram adds ‘Are paleoanthropologists insecure with the gaps in their story and so take out their anxiety on the aquatic ape theory?’³⁴³

Verhaegen⁴⁴ notes that recent paleoanthropological studies have found many unique differences in the human dentition, skull, and postcranial bones when compared to fossil australopithecines—features common in both *Homo erectus* and *Homo neanderthalensis* and also in many aquatic animals, such as whales and porpoises.

Critiques of the theory

Although all of AAT’s claims have been effectively disputed, some of the criticisms of AAT are very revealing about conventional human evolution theory. Daniel Dennett observes that ‘many of the counter arguments seem awfully thin and *ad hoc*.’³⁴⁵ When he asked his colleagues, including distinguished paleoanthropologists and other experts, exactly *why* the theory is wrong, he did not get ‘a reply worth mentioning, aside from those who admit, with a twinkle in their eyes, that they often have wondered the same thing.’³⁴⁶

Major critics include University of Indianapolis Professor John Langdon. He argued that, although humans and certain other ‘naked’ animals have a continuous layer of body fat, many other animals have isolated deposits of fats—the difference is in the amount, not if an animal has subcutaneous body fat. Conversely, aquatic animal fat is continuous and, although effective for insulation, the body can cool

itself efficiently because blood vessels carry heat to the skin where it can be effectively dissipated. Nonetheless, even the *Homo aquaticus* critics agree that they have a point: if we ‘did evolve exclusively on land,’ why did we ‘completely’ abandon ‘the ancestral methods of heating and cooling for the ones we have’.³⁴⁷

The critics also argue that, if fat deposits were a legacy of past aquatic life, this does not explain the major differences between the sexes. For example, women have a much thicker layer of fat and also deposit fat on their hips, thighs, and breasts beginning from around adolescence. On this point Ingram concludes that ‘the fat issue isn’t resolved.’³⁴⁷ Others note that the human fat deposit pattern, claimed to be evidence of an aquatic evolutionary history, is shared by many terrestrial animals including hedgehogs, badgers and some primates, and no one claims that these animals were once aquatic.

Another concern is furry aquatic animals—otters, beavers and seals are good examples—don’t seem to be at any disadvantage in the water and many can swim very effectively. On the other hand, humans can swim, but ‘by standards of any salmon or seal even the most highly trained and talented among us’ is a ‘laughably bad’ swimmer.

‘In cardiovascular equipment we rank among the better-endowed mammals, and we’re not seriously short of muscle. The main troubles trace to our non-streamlined shape and the location of all that muscle; fundamentally we’re terrestrial walkers and runners, not aquatic swimmers.’³⁴⁸

Langdon also argues that travel in water is very slow and energy wasteful for humans, but swimming in water is much faster than trying to walk in water. Langdon explains bipedalism, one of the main arguments for the aquatic theory, by arguing that climbing/suspensory behavior is also a good transition mode to evolve from quadrupedalism to bipedalism. He also argues that the driving force for the human enlarged pharynx and related structures was part of the drive to evolve speech, not to adapt to an aquatic environment.³⁴⁹ In many areas, Langdon admits either a tie, or not enough evidence exists to determine which theory is superior. Often he has no answer to Morgan’s challenges.

AAT critics also point out that although humans have some similarities with certain aquatic species, many major differences exist. One example is a means of temperature regulation that humans use, sweating, which is not found in aquatic animals or in most mammals. Effective thermal regulation through sweating requires sparse fine hair, and this fact better explains human hairlessness than an aquatic past.

The claim that humans naturally take to water is answered by noting that many terrestrial mammals not only naturally take to water, but are far superior swimmers compared to humans. The most common example is dogs, many of which not only love the water but are naturally good swimmers without instruction. Furthermore, the nostril design of many

mammals is far superior to humans. This is true of dogs, bears, beavers and even cats. Humans require both training and practice to become effective swimmers.

Neither theory explains human evolution

Morgan claims that ST is ‘moribund’, and AAT is the only serious ‘alternative’ to ST.⁴ Conversely, the critics of the *Homo aquaticus* theory effectively show it has as many, possibly more, problems than the conventional theory. In a summary of status of *Homo aquaticus* in science, Ingram notes that critics attack the theory for

‘... making no useful predictions, for being so elastic that it can accommodate any piece of contradictory evidence simply by back-tracking (the swimming ape has become the wading ape) and add that there’s absolutely nothing in any hominid fossil discovered in the last twenty years that would support it. They seem irritated that Elaine Morgan and other supporters of the theory shift their ground but refuse to abandon the theory. Of course those same critics neglect to mention that the establishment ideas about human evolution are a moving target too: no one today would use the same scenario for human evolution as was popular twenty-five years ago—Lucy ensured that.’³¹

AAT has recently been modified to address some of the criticisms. This new view, called *the aquatic hybrid ape hypothesis*, argues that the human aquatic phase was not *fully* aquatic, but *semi-aquatic* and prehumans ventured into the water less often than the original theory proposed. As evidence for this, Morgan notes that Lucy is perceived by some scientists to walk essentially as do modern humans. Others argue that she moved more like a modern day ape. The modified aquatic ape theory conveniently accounts for this discrepancy—Lucy spent part of her time in the water, and the rest on land.

The major reason why this theory is seriously considered, albeit by a small number of researchers, is because there ‘are still big gaps in the scientific account of human evolution, and such gaps invite speculation.’⁵⁰ Another reason is because critics have not been able to effectively refute AAT (but this reflects more the elasticity of the theory than its strength). The most extensive critique by Langdon admitted that ‘terrestrially adaptive stories are at least as strong as those in the AAH [Aquatic Ape Hypothesis], which is not to say that any are “proven”.’⁵¹ In other words, AAT is as strong as the major competing theory, the African Savannah theory. Evidently respect for the theory is growing. Morgan’s latest book was reviewed

‘... in *Nature* along the lines of ‘Morgan has certainly got her act together,’ but no views on whether the thesis was tenable or not. ... recognition is coming very slowly, through scientists like Philip Tobias and Michael Crawford. The hypothesis

has become more respectable since fossil-hunters discovered hard evidence that our earliest ancestors became bipedal before the Savannah ecosystem came into existence.’⁶

When asked, ‘Do you still feel like an outsider in biology?’ Morgan responded:

‘Not nearly as much as I used to. Over the years I have been allowed to give presentations in about a dozen universities, including Oxford, Cambridge, University College London, Tufts and Harvard—and I have been courteously received.’⁶

The main reason it is taken seriously by some investigators is that Morgan

‘... deftly exposes the hand-waving and wishful thinking that have gone into the establishment’s tale about how—and *why*—*Homo sapiens* developed bipedalism, sweating, and hairlessness on the savanna, not the seashore. Their stories may be as fishy as hers, but some of them are pretty farfetched; they are every bit as speculative, and (I venture to say) no better confirmed. What they mainly have going for them... is that they occupied the high ground in the textbooks before Hardy and Morgan tried to dislodge them.’⁵²

Conclusions

A major problem that the theory tries to explain is that, although genetically similar, there are huge phenotypic differences between humans and chimps. The most well-known difference is mental, but ‘physically and developmentally we’re completely different animals.’⁵³ Rees’s conclusion: ‘until some hard evidence is found though, I fear we are left with several equally convincing theories floating in a sea of speculation’ is still true today.³ AAT has clearly documented major problems with the Savannah evolution hypothesis, but serious problems also exist with the aquatic evolution theory, indicating that neither is supported by the evidence.

Two major problems with AAT are that it does not make clear testable predictions and hominid fossils do not reveal any traces of an aquatic existence. Of course, the same arguments argue against ST as well. Ingram adds that AAT ‘raises some interesting questions about standard view of human evolution.’⁵⁴ Ingram argues that ‘there is much about the generally accepted picture of human evolution that can’t be proven, and perhaps the most important contribution AAT can make is that it directs attention to the weaknesses in the [orthodox] tale, and forces scientist to admit those weaknesses and continue the search for better evidence.’⁵⁴

Recent fossils suggest that ST is wrong: it is now argued by some authorities that the earliest human ancestors ‘came from parts of Southeastern Europe’. The fact that ‘almost every basic hypothesis of human origins has been overturned at least once during ... Tobias’s lifetime’ illustrates how tenuous ST is, and why AAT has gained so much support.⁵⁵

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