

# 1 The Origins of a Theory

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## SUMMARY

The theory of a possible aquatic phase in human evolution was first presented in 1942 by Max Westenhöfer in Germany; it was also independently conceived by Alister Hardy in 1929 and published by him in 1960. This chapter quotes Hardy's reasons for delaying the publication, describes the reception accorded to his ideas, and outlines some subsequent developments.

## THE BEGINNINGS

Alister Hardy first conceived the idea of a possible aquatic phase in human evolution in 1929 on reading the following passage from Wood Jones's *Man's Place Among the Mammals*:

The peculiar relation of the skin to the underlying superficial fascia is a very real distinction, familiar enough to anyone who has repeatedly skinned both human subjects and any other members of the primates. The bed of subcutaneous fat adherent to the skin so conspicuous in man, is possibly related to his apparent hair reduction, though it is difficult to see why, if no other factor is invoked, there should be such a basal difference between man and the Chimpanzee.

Hardy's response was immediate. As a marine biologist, he was more familiar with the skinning of sea mammals than of either human or non-human primates. The phenomenon described by Wood Jones in connection with human bodies reminded him irresistibly of his own first-hand experience of the skin of various species of aquatic mammals in which a layer of subcutaneous fat is the norm. He wondered whether in man also it might initially have been an adaptation to a more aquatic way of life.

Other parallels between man and aquatic mammals soon sprang to his mind, such as the naked skin, the relatively streamlined silhouette of human beings compared with that of other primates, and the occasional incidence of interdigital webbing. He reasoned that for a primate which spent much of its time wading in water, an erect posture would become obligatory and, at the same time, easier to sustain without overbalancing. The precision hand-grip and the unusual arrangement of hair tracts on the human body (much debated at the time) could have been acquired in the same way.

He did not publish his ideas for over thirty years. His friends warned him that if he publicly advocated such a bizarre theory it would blight his career. They were probably right. At the end of his life he was refreshingly candid about his reasons for keeping silent: 'I wanted to get a good professorship; I wanted to be a Fellow of the Royal Society'. As it turned out, long before he was ready to publish, a version of the hypothesis appeared in print in Germany, as one passage in a book entitled *The Unique Road to Man* (*Der Eigenweg des Menschen*), written in 1942 by Max Westenhöfer, a professor at the University of Berlin.

Westenhöfer's account of the aquatic theory was that of a man who had not made up his mind about it. He made no claim to be the originator; neither did he credit anyone else with originating it. He seemed, rather, to assume that it had been around for some time and that his readers were likely to be familiar with it in general terms. It is quite conceivable, since Hardy spoke of his ideas to some of his friends and pupils in the interwar years, that speculation about it had already spread farther afield than Oxford, and had crossed to the Continent without being traceable to any particular source.

Westenhöfer searched the literature of primate anatomy for any reference to aquatic influence, and for species-specific features of human anatomy which remained unaccounted for. He made no attempt to identify the aquatic phase with any specific date, place or causative event. One of the papers, written by G. L. Sera in 1924, hypothesises a very early aquatic phase. Sera sought to account for some differences between Old World and New World primates by suggesting that the ancestors of the platyrrhines had undergone a period of aquatic development not shared by the catarrhines. Westenhöfer's general conclusion was that an aquatic experience at some time or other was a promising hypothesis worthy of further consideration.

Unfortunately, Westenhöfer's book was published in the middle of the Second World War. Europe had other things on its mind, and the usual channels for the exchange of scientific ideas were silted up. By the time they ran clear again, the heretical hypothesis had apparently been forgotten. Certainly Hardy knew nothing of Westenhöfer; he died in 1985 at the age of eighty-nine without ever learning that he had been forestalled. By 1960 he had achieved the aims he had set his sights on: the Oxford professorship and the FRS, and a high reputation as the author of authoritative works in his own field. He now felt able to lower his guard sufficiently to outline his theory to a local sub-aqua club that he had been invited to address. A version of his speech was communicated to the local press, and it appeared in garbled form under sensational headlines in the Sunday newspapers. Hardy published one article and one radio lecture to clarify what he had actually said and believed.

Since he was a man who inspired affection as well as respect, academic scholars adopted what they saw as the kindest and most British way of dealing with an embarrassing situation: they behaved as if he had not spoken or, at least, as if no one had happened to be listening at the time. Among many who were in all other respects his staunchest admirers this attitude never wavered, so that when he died his obituaries praised him for many things but conspired to ignore his aquatic 'indiscretion'. This has promulgated the myth in some quarters that Hardy had propounded the whole thing as an impish practical joke which some misguided people were naïve enough to take seriously. However, in the last year of his life he was interviewed about the subject on film\* and he made it absolutely clear that he regarded his hypothesis as revolutionary, and significant, and entirely valid.

I first came across Hardy's theory on reading a brief reference to it in 1970 in Desmond Morris's book *The Naked Ape*, and vainly searched through books and journals on evolution for further information or commentary about it. Apparently for ten years it had been silently sinking into oblivion. I therefore wrote to Hardy saying that I intended to write a book about it. He knew nothing about me, and I did not conceal that I had no qualifications for entering the arena other than my conviction that he was right. So my letter came to him as, in his own words, 'a bit of a shock', since he had never relinquished the idea of one day writing at greater length on the subject himself.

However, he responded with characteristic generosity. On 26 October 1970, he wrote:

Yes, of course you must go ahead and do so with my enthusiastic blessing. I hope it will be a great success. As it is turning out, it may well be the best arrangement from my point of view. You will be interesting – I hope and think exciting – the general public in the idea, and . . . preparing a wider public for my more zoological and anatomical treatment of the subject than I might otherwise expect. Press on with it as hard as you can, although I am in no hurry to publish quickly and my chapters are not written – just lots of notes.

I did not meet Hardy or discuss the contents of my book with him – or with any other scientist – until after it was published in 1972 under the title of *The Descent of Woman*. It featured some additional arguments which Hardy had not considered. Some of them – for example, the regression of the olfactory lobe and ventro-ventral copulation – had already occurred to Westenhöfer and were mentioned in his book (of which I knew nothing until Jürgen Hinrichs-Röhrig drew my attention

\* *Water Babies*. Golden Dolphin Productions, 21–3 McLaren Street, New Sydney 2060, Australia.

to it in 1986). Other arguments, based on weeping and voluntary breath control, were new.

Whatever the book's merits or demerits, it performed one vital service: it attracted enough attention to ensure that the aquatic theory would this time have a greater chance of remaining on the agenda of evolutionary theorists. It was translated into ten languages and blew the spores of the idea all round the world; they germinated in the minds of the young and receptive and of many who were already convinced that there was something missing in the conventional scenario of the emergence of man.

### THE HYPOTHETICAL AQUATIC MODE OF LIFE

For those interested in the history of this idea, the original documents are not always easy to retrieve. I therefore reprinted Hardy's papers on the subject in full in *The Aquatic Ape* (Morgan, 1982), and I append herewith a translation of the relevant passage from Westenhöfer's book.

The postulation of an aquatic mode of life during an early stage of human evolution is a tenable hypothesis, for which further inquiry may produce additional supporting evidence.

The shape of the human foot, broadening towards the front, could indicate a paludine habitat, especially when we note the observations of Mr O. Abel in his *Palaeobiology* (Stuttgart, 1912, pp. 229–30) where he discusses the secondary plantigradism of certain fossilised bog animals, for instance, *Mesodon* and *Coryphodon*, whose footprint shows a remarkable similarity to that of humans. For such a mammal, moreover, a move to an aquatic environment would mean that powerful teeth would become unnecessary due to the relative softness of the available food resources.

The fact that man lacks hair – but probably was hairy at some earlier stage – suggests an analogy with the relative absence of hair in water mammals (whale, sea-cow, hippopotamus), especially since so far there is no other plausible explanation. Another indication is the subcutaneous layer of fat in humans; its capacity for expansion appears to predate human civilisation. The so-called Venus statuettes, dating back to the Stone Age, support this assumption. The hitherto unsolved problem concerning pigmentation in humans may be related to this problem; rather than loss of pigment in the white races, there may have been increased pigmentation in coloured ones, corresponding to the post-natal increase in pigmentation in children of all races.

In his latest book *On the Significance of the Ear Muscle*, Mr B. Henneberg also proposes an aquatic mode of life in the prehuman primate. He assumes that this ancestral hominid featured a contractile

form of the ear muscle, with the anthelix (tragus and antitragus) differing in shape from that of *Homo*, and that this original form was subsequently lost during the transition to life on land. It is still easily possible to reproduce the original form in children by artificial means, and the original feature has in fact been observed in one living newborn baby. In his famous work *Physiology of Movement* [Philadelphia, 1949], Duchenne shows that electrical stimulation of the tragus and antitragus muscles in human beings is capable of closing the entrance of the ear, which is why he calls the two muscles 'constrictor conchae sup. and inf.'

Man shares with the water mammals the regression of the olfactory organ, the bulbus and lobus olfactorius which, according to A. Kappera and Count Haller, is connected with a certain development in the conformation of the brain, not found in the macrosomatic animals.

As further evidence of an earlier aquatic way of living for man, one could also point to the existence of mucous glands in small benign tumours in the skin of man's back which the Prague pathologist Schickel has investigated and which, in the absence of any other possible explanation, with reference to fish and frogs, he has called atavistic. Such mucous glands have survived as the normal condition in the hippopotamus as a physiological adaptation to its aquatic environment, while in humans they appear under pathological conditions about which little is understood.

To this can be added the not particularly rare web-like skin formation on the hand and toes (seen also in *Potamogale*, the otter shrew), and the direction of the body hair towards the elbow on the lower arm in human beings and anthropoids, as well as in other apes and quadrupeds. The usual explanation, that the direction of the hairs functions as protection against rain when the arms are placed over the head, is too naïve to be correct. Apart from the fact that the head does not even get covered, the water then would be conducted forward from the elbow between the hairs of the upper arm and thereby directly to the skin of the armpit and chest, which would hardly be advantageous. Even if this direction of the hairs were peculiar to man, I would see it as not insignificant support for my aquatic hypothesis, since such a direction of the hairs on the lower arm during swimming (stretching the arms forward) would have been useful.

This summary should not be concluded without some reference to the ideas of the anthropologist, G. L. Sera, in Naples. He takes the view that the form and development of the Adam's apple, the shortness of the outer auditory passage, the form of the musculus glutaeocruralis (m. tenuisaimus), some characteristics of the female genitals, the formation of the kidneys, the form and development of the nasal cartilage, and the form of the ear muscle may constitute evidence of a

possible aquatic phase in the evolution of the platyrrhine New World primates. And finally, I would point out that man's way of mating is also the standard method among water mammals such as beavers, cetaceans and sirenians.

The aquatic theory remains an open question. But such hypotheses, which at first sound so improbable, should at least serve as a stimulus to further research, on the principle that a good detective follows up the least promising clues as well as those which seem to point to a simple solution.

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