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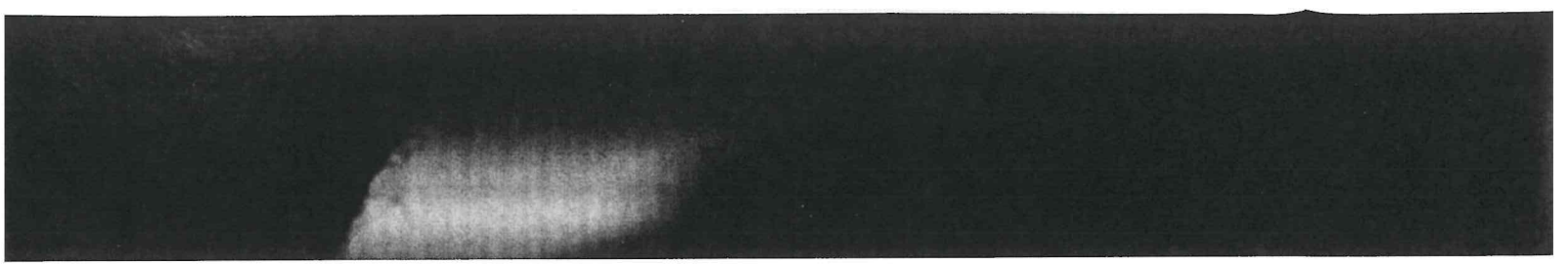
The Role of Women in Human Evolution

Margaret Ehrenberg

Human evolution has traditionally been discussed in terms of the role which "Man the Hunter" played in devising weapons and tools for catching and slaughtering animals for food, how he needed to walk upright on two feet to see his prey above the tall savanna grass, and how he was more successful than other species in his hunting exploits because he teamed up with other men and learnt the value of co-operation. And what of "woman," meanwhile? Was she sitting at home, twiddling her thumbs, waiting for "man" to feed her and increase his brain capacity and abilities until he became "*Homo sapiens sapiens*"? The argument went that as human evolution progressed, more and more time was needed to look after infants, so females no longer had time to hunt, and male co-operative hunting became essential in order that the men could bring enough food home to feed the family. As a result, male-female bonding in monogamous unions was an essential and a very early development. While most accounts of human evolution have assumed that all the advances in human physical and cultural development were led by men, a number of recent studies suggest alternative possibilities and have pointed out the vital role which must have been played by women.

Research into the earliest stages of human evolution is based on three strands of evidence. Physical anthropologists study the remains of early human skeletons, to assess the way in which they developed. For example, it is possible to tell from the structure of the legs and back whether an individual would have walked upright on two legs, or used the forearms for balance. Changes in the size of the skull through time give an indication of brain capacity. Secondly, the study of the behavior of other animals, and especially primates, particularly those species closest to humans such as apes and chimpanzees, reveals some patterns that may have been shared by the earliest humans before cultural norms began to play an overriding part. For example, chimpanzees may be studied to see if males and females eat or collect different foods, or to find out whether they share any of the differences in child-care practices seen in human women and men. Thirdly, archaeological evidence for tools, settlements, environment and diet sheds light on the social and cultural development of the earliest humans.

Some scholars within all these three areas have turned away from the traditional male-dominated view of evolution and have begun to formulate an alternative model, allowing that female primates and hominids have played an important part, if not the key role, in the development of human behavior. Different authors have stressed different factors in this development. Adrienne Zihlman[1] argues that changes in the environment were crucial in necessitating social and economic changes in



human populations in order to exploit this environment efficiently. Sally Slocum[2] points out that the only division of labor by sex amongst other primates is that females take primary care of their young, while males tend to dominate in protecting the group. She argues that a division of labor in food collecting is therefore unlikely to have been a key feature of early human behavior. Other feminist writers[3] suggest that the female's choice of a co-operative and gentle mate was a critical factor in human evolution, as the chances of survival were improved by caring more closely for near relatives; in all mammals, and especially in primates, this is much more a female task or trait.

Among the physical changes which took place in the early stages of human evolution were increases in the size of the brain and the teeth; a decrease in sexual dimorphism (difference in size between males and females); increased hairlessness over the body; and bipedalism, or walking on two feet, rather than using the forelimbs for support, as chimpanzees and apes do. While an infant chimpanzee can cling to its mother's cover of body hair, leaving her hands free for walking or carrying food, a young human or early hairless hominid would need to be carried by the mother: this seems a much more likely stimulus both to bipedalism and to the invention of tools for carrying the infant as well as food than is the need to see prey animals over tall savanna grass and to throw simple weapons at them, which has been the traditional explanation for these changes.

A key aspect of the debate about the evolution of sex-role behavior centers on food collection, and the way in which females and males may have foraged for different foods. Many discussions, including those written by some feminist anthropologists, assume that from a very early stage in evolution females primarily gathered plant foods, while males mainly hunted animals, the pattern usual in modern hunter-gatherer societies. Many recent arguments about other aspects of the role played by females in human social and technological evolution depend on this belief, even though it is rarely argued out fully. At one end of the scale other primates show little evidence for differences in food collecting behavior between females and males, while at the other all modern foragers apparently divide subsistence tasks on the basis of sex. The question, therefore, is when and why this difference came about, and whether looking after young offspring would have a limiting effect on hunting by females. One view[4] suggests that although males unburdened by young might have caught meat more often than females, a regular division of labor would probably have come quite late in human evolution, as the physical differences between females and males are insufficient to make one sex or the other more suitable for either task. Recent work has also questioned whether meat actually filled a significant part of the early human diet, suggesting that this would have been far more like that of other primates, based almost entirely on a wide range of plant foods. What meat was eaten in the earliest phases of the Paleolithic was probably scavenged, rather than hunted. Both these factors are problematic for the traditional view, as they suggest that hunting was neither an important factor in physical evolution, nor in the social and economic balance between female and male activities. Both sexes would have obtained vegetable foods and occasional meat, and brought some of their day's collection back to the homebase for sharing.

If there was little division of labor in the earliest phase of human development, when and why did it become usual? Two chronological points may have provided possible contexts. Initially, hominids would have been content to catch small game or to scavenge meat caught by other animals, or to collect those that had died naturally, but perhaps around 100,000 years ago they developed suitable tools and techniques for hunting large animals. While hunting small game would not have been hazardous, big-game hunting might often have resulted in death or injury to the hunter rather than the hunted. In small societies, such as these early human groups and present-day forager societies, every unexpected death is a serious blow to the viability of the community, particularly the death of women of child-bearing age. Mobility would

also have been more important in hunting large game; the hunter would have to move rapidly and quietly, with hands free to throw a spear or shoot an arrow. It would not be possible to do this while carrying a bag or basket of gathered food, nor a young child, who might cause an additional hazard by making a noise at a crucial moment. Thus gathering and hunting become incompatible as simultaneous occupations; pregnant women and those carrying very small infants would have found hunting difficult, though gathering is quite easily combined with looking after young children. It is therefore possible that at this stage women began to hunt less, until a regular pattern of dividing subsistence tasks was established.[5]

Another possible context for the origin of the division of labor[6] is the change in environment which hominids found when they first entered Europe. It is argued that this spread could not have occurred until the perceptual problems of coping with a new environment had been resolved, by splitting food foraging into separate tasks. During the Lower Paleolithic in East Africa, plants and animals would have been abundant, so vegetable foods and small game would have provided plenty of easily obtainable food with only the occasional large game caught to supplement the diet. As the hominid population increased and went in search of new territory, some hominids moved north into Europe. There they encountered colder conditions in which plant foods were harder to come by, so meat would have formed a more significant part of their diet. If this problem was not serious enough to necessitate a solution when hominids first moved into Europe, it would have become so with the onset of the last glaciation when conditions became very much colder and vegetation more sparse (this period equates archaeologically with the Upper Paleolithic). The time and danger involved in hunting large animals became more worthwhile, but would not have provided a regular, guaranteed source of food, and would have been more dangerous. A solution might have been for only part of the community to concentrate on hunting, while the rest continued gathering plants and small animals. It is likely that this division would usually have been on a female-male basis for the reasons already suggested.

On the other hand, more detailed studies of chimpanzee behavior suggest that there may be slight differences in the food collecting behavior of females and males of nonhuman primates, which could argue for an early gathering/hunting division.[7] Although chimpanzees eat very little animal flesh, males make nearly all the kills and eat more of the meat; however, termite fishing, involving the use of sticks as fishing rods to poke into the termite mounds, a skilled task requiring patience and simple tool use, is far more commonly carried out by females. Whether the "changing environment" theory or the latter argument is preferred, both hypotheses suggest that a division of labor on the basis of sex would have been an early development in human history.

Tool-using was once thought to be a distinctly human attribute, but in simple form it is now known to be shared with several of the higher primates, and even other animals and birds. Most early theories suggested that tool-using by humans was intimately linked with hunting, which in turn was assumed to be a male task, and that the earliest tools would have been spears for hunting animals and stone knives or choppers for butchery. This idea was partly encouraged by the archaeological evidence of the early stone tools, most of which are thought to have had such functions. However, this is partly a circular argument, as on the one hand the function of these tools is far from certain, and many would have been just as useful for cracking nuts or digging roots, and on the other, the very earliest tools would almost certainly have been made of wood, skins, or other perishable material. Artifacts such as digging sticks, skin bags, nets, clubs and spears can be made entirely of organic materials, and would not have survived, so the extant stone tools are probably quite late in the sequence of hominid tool use. The evidence of tool use by other primates and by modern foragers, combined with a more balanced theoretical view, suggests that other factors and possibilities need to be considered.

One of the most significant human tools must be the container. Whether it be a skin bag, a basket, a

bag, a basket, a wooden bowl or pottery jar, it allows us to carry items around or store them safely in one place. The container may have been one of the earliest tools to be invented, though unfortunately there is little archaeological evidence to demonstrate this. Chimpanzees can carry things in the skinfold in their groin, but when hominids became bipedal this skin was stretched and the fold was lost. The use of a large leaf or an animal skin, carried over one arm or the developing shoulder, or tied to the waist, might have replicated this lost natural carrier.[8] One of the most important things that a female hominid would need to carry would be her young offspring. The complex interaction of bipedalism, food gathering, the loss of hair for the infant to cling to, and changes in the structure of the toes which made them useless for clinging to its mother would have made it necessary for the mother to carry the child. The development of a sling for supporting the infant, found in almost all modern societies, including foraging groups, is likely to have been among the earliest applications of the container.

The first tools to aid in foraging and preparing foodstuffs are perhaps more likely to have been used in connection with plant foods and small animals than in the hunting of large mammals. The tools and actions required for termite fishing, for example, are not unlike those required for digging up roots more easily. Modern foraging groups often choose a particularly suitable stone to use as an anvil for cracking nuts, which they leave under a particular tree and then return to it on subsequent occasions. Higher primates also use stones for cracking nuts, so it is very likely that early hominids would have done this even before tools were used for hunting. The role of women as tool inventors, perhaps contributing many of the major categories of tools that are most essential even today, cannot be dismissed.

The introduction of food gathering, as opposed to each individual eating what food was available where it was found, was another significant advance which would both have necessitated and been made possible by the invention of the container. More food might be gathered than was needed immediately by one individual, either for giving to someone else or for later consumption. With the exception of parents feeding very young offspring, this behavior is unusual among other animals and presumably would not have been common amongst the very earliest hominids, but gradually developed to become a hallmark of human behavior. Another change would have involved carrying this food to a base, which would imply both conceptual and physical changes, made possible by the use of containers, and may also have made it necessary to walk on two legs, leaving the hands free to carry the food, either directly or in containers. The development of consistent sharing, not only with offspring but also with others in the group, and exchanging food brought from different environments of savanna and forest would have been a stage towards living in regular social groups.

Environmental changes would also have led to social changes within early hominid groups. In savanna grassland, as opposed to forest, it would have been more difficult to find safe places to sleep overnight, and water would have been harder to obtain. Once a suitable location was discovered, there would have been a greater tendency to remain there as long as possible rather than sleeping in a different place each night, thus introducing the idea of a homebase.

Women also played a key role in social development. A major difference between human development and that of other animals is the greater length of time during which infants need to be cared for and fed: this has probably contributed to a number of human characteristics, including food sharing and long-term male–female bonding. The sharing of food between mother and offspring would necessarily have continued for longer in early hominids than in other primates, and it is argued that when a mammal too large to be consumed by the hunters alone was killed, the males would have shared it with those who had shared with them in their youth, that is their mothers and sisters, rather than with their sexual partners. This argument is supported by a primate study[9] that shows that banana sharing almost always takes place within matrifocal groups rather than

between sexual partners. This has important implications for the primacy or otherwise of monogamy and marriage. Several scholars have also pointed out that in this situation the female would choose to mate with a male who was particularly sociable and willing to share food with his partner while she was looking after a very young infant. As well as preferring those most willing to share, females would choose those males who appeared to be most friendly. Not surprisingly, female chimpanzees will not mate with males who are aggressive towards them. The more friendly-looking males would probably have been smaller, or nearer in size to the female, and would have had less pronounced teeth, and therefore have been less aggressive-looking. Over thousands of years this female sexual preference would have led to gradual evolutionary changes in favor of smaller, less aggressive, males.

The stronger tie between mother and offspring caused by the longer period of time during which human infants need to be cared for would have resulted in closer social bonds than are found in other species. The primary bond between mother and offspring would be supplemented by sibling ties between sisters and brothers growing up together. Older offspring would be encouraged or socialized to contribute towards the care of younger siblings, including grooming, sharing food, playing and helping to protect them. The natural focus of such a group would clearly be the mother rather than, as is so often supposed, any male figure. Moreover, this group behavior would lead to increased sociability in the male as well as in the species in general. The role of the female, both in fostering this increased sociability in the species and as the primary teacher of technological innovations during this long period of caring, must be recognized.

An increase in human sociability, and particularly female sociability, would have had a number of other positive side-effects. As a result of a mutual willingness to share food and food resources, each individual would have had more access to overlapping gathering areas when a particular resource was abundant. This in turn might greatly increase the chances of the offspring being well fed and therefore surviving, and thus of the survival of the species in general. As the ability to communicate precisely increased with the development of language, it would have become possible for humans to have ordered social relationships with more individuals and other groups. This would have evolved into a pattern very similar to that found in modern foraging groups, many of which include distant relations who regularly meet up with other groups in the course of their annual movements. Males who had moved out of the matrifocal group in order to mate would have learnt a pattern of friendly contact with their ancestral females when they met them in the course of their foraging.

It can therefore be argued that the crucial steps in human development were predominantly inspired by females. These include economic and technological innovations, and the role of females as the social center of groups. This contrasts sharply with the traditional picture of the male as protector and hunter, bringing food back to a pair-bonded female. That model treats masculine aggression as normal, assumes that long-term, one-to-one, male–female bonding was a primary development, with the male as the major food provider, and that male dominance was inherently linked to hunting skills. None of these patterns, however, accords with the behavior of any but the traditional Western male. Other male primates do not follow this pattern, nor do non-Western human groups, in particular those foraging societies whose lifestyle in many ways accords most closely with putative early human and Paleolithic cultural patterns.

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NOTES

1. Zihlman, 1981.
2. Slocum, 1975.
3. For example, Tanner, 1981; Martin and Voorhies, 1975.
4. Zihlman, 1981; Isaac and Crader, 1981.
5. Zihlman, 1978; the same arguments are used by Friedl, 1975 and 1978, who explains in more detail than here why present-day foragers divide food collecting tasks along gender lines.
6. Dennell, 1983, 55.
7. McGrew, 1981; Goodall, 1986.
8. Tanner and Zihlman, 1976.
9. McGrew, 1981, 47.

Gender and War:
Are Women Tough Enough for Military Combat?

Lucinda J. Peach

INTRODUCTION

"Women are not supposed to be in combat. The fact of the matter is they are in combat" (Army Captain Kevin Hanrahan, quoted in Little 2005: 1). As the traditional boundary between "the front line" and "behind the front line" vanishes in the face of the kinds of combat tactics and military technologies now being used to wage war in the twenty-first century, more soldiers, including women, are facing dangerous and life threatening situations. This fact has been made starkly evident with the current Iraq war, where guerilla tactics have put women soldiers constantly in the line of fire. They have routinely participated in convoy missions where they have been at risk of being hit. Women at times even have been assigned as "gunners," positioned at the machine gun on the top of the Humvee during such convoys, while their fellow soldiers of both sexes use their weapons when the convoy stops to "pull a perimeter" and protect the area from hostile fire. As one female Iraqi vet put it, "That may not be hand-to-hand combat, but if it isn't combat, I don't know what is" (Martineau and Wiegand 2005: 6).

In addition, whenever a unit is ambushed, any women in that unit are of necessity "in combat" (Little 2005: 1). Women soldiers in Iraq also regularly serve as military police and at checkpoints, where they are indispensable to search women because of cultural notions regarding women's modesty, but which put them at higher risk of being fired upon (*see* Cox 2006). Despite this indisputable evidence that women serving in the American military are "seeing combat," often on a daily basis, official US policy has been, and continues to