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Make love and war?

Everyone is familiar with the hippy mantra 'make love, not war' – an ideal that inspired a generation. Looking at the world and our past, however, it is 'make love *and* war' rather than the 'flower power' ideal that seems to be the normal condition. Philosophers, such as Jean Jacques Rousseau and Thomas Hobbes, proposed that war is a natural state for humans resulting from the increasing competition in the growing human population following the advent of agriculture. Nowadays 'make love and war' seems to be the natural state for humans, whether it be in highly technically advanced and 'sophisticated' societies, such as those involved in the major regional wars of the twentieth century, or in less technically developed societies, like traditional hunter-gatherers, such as the Nuers and the Nimba of Sudan, the Australian Aborigines and the Batak of Asia or the Jivaro and the Yanomamö Indians of South America. Some traditional societies are constantly at war, while others have periods of relative peace, but it was shown that a state of war is characteristic of nearly 95% of all known human societies. When in our past did this situation start to prevail? What are the benefits of war? How did it happen that humans are so violent when at the same time showing so many cooperative and altruistic propensities? Do we see the same coexistence in chimpanzees? How can we learn from them to understand us?

I propose that by looking at our closest living relatives, the chimpanzees, our cousins of the forest, we can gain insight as to why altruism and aggression coexist in the same species. Knowledge acquired from other animal species can help us to improve the understanding of our own nature. The crucial point here is that in all communities of wild chimpanzees studied we saw from time to time extremely violent interactions with neighbours, and such conflicts can result in individuals being killed and groups annihilated. Chimpanzees are known,

with humans, for being the only primates able to make and use tools as well as to hunt for meat in groups. Warfare provides another similarity between humans and chimpanzees.

The similarities between chimpanzees and humans in these behaviours have been highlighted by previous authors, in such famous books as *The Naked Ape*, *Chimpanzee Politics*, *In the Shadow of Man* or *Demonic Males*. Classically, the origin of war has been proposed to result from an inbuilt drive for aggression in both human and chimpanzee males that produce high levels of violence. Male bonding was proposed to result from this common tendency for violence among males on which chimpanzees' ability to form alliances would be overlain. Arguments about humans' appetite for violent behaviour are presented that set humanity apart from the violence shown by other animal species. Humans' ability to incorporate tools into social conflicts would enhance the potential for this destructive and 'unnatural' aggression.

LOVE IS WHAT MAKES WAR POSSIBLE

I came to this very different conclusion after years of following the forest chimpanzees. At a first glance this may sound contradictory, but if you follow my reasoning, you will acknowledge, I hope, that there is some intuitive sense to such a proposition. To make war and to respect someone for killing other human beings, you must first have an extremely strong sense of belonging to 'one group', which leads to a disregard for the human dimension of outsiders. It is this 'dehumanization' of non-group members that makes war at the same time both special and disturbing. To me, this is the natural consequence once cooperation and altruism with, and towards, other group members have infiltrated every aspect of social life. Only then will outsiders be despised to such an extent that killing them will not only be acceptable but even sometimes applauded. Xenophobia, the hatred of outsiders, results from extended within-group solidarity. Thus, in contradiction to the hypotheses which propose that war is caused by destructive forces, I suggest that war results from strong within-group solidarity.

What makes solidarity within groups so important? The year-long observations of the chimpanzees of the Taï National Park in Côte d'Ivoire revealed how predation pressure forces individuals to seek protection among other group members and results in both sexes spending more time together than they would in the absence of predators. The more time one spends with other individuals, the less likely one is going to be singled out in a leopard attack. Once

individuals gathered to protect themselves from leopard attacks, two social innovations followed. First, the more individuals spend time together, the more they are going to compete with one another for access to food resources. This exemplifies the major dilemma of group living, as the cost of competition for food is inherent and increases with the number of individuals together. This could be alleviated by developing special relations with specific individuals through increased coalitions and friendships, so that such partners support one another in social conflicts. Second, cooperation and altruism between group members represent the best way to counter the negative effects of attacks by powerful predators such as leopards. Single individuals have hardly a chance when facing a leopard, while cooperation and altruism can be life-saving. Once established, the ability to cooperate can be extended to other aspects of social life and that is what we see in Taï chimpanzees.

In addition, in chimpanzees, within-group solidarity coincides with between-group hostility. The main reason is that females in long-lived and slow-growing animals, like humans and chimpanzees, are for the most part of their lives occupied with caring for dependent offspring, periods during which they are not fertile. Thus, adult males, even if they fight one another for access to females within the group, have a great common interest in joining together to win access to additional females from other groups. Thus, sex competition that is predominantly an individual challenge becomes a social challenge in slow-maturing species facing high predation pressure. This shift from individual to social is not limited to the sexual domain, as the pursuit of reproductive success does not restrict itself to mating. The acquisition of new mates plus stable social conditions and secure access to food resources are all needed to improve reproductive success and could be improved and secured through collective warfare. This duality between competition and cooperation is one of the key elements of male sociality, both in chimpanzees and in humans.

Both humans and chimpanzees are long-lived, slow-growing social primates that faced high predation pressure from, respectively, cave bears, lions and sabre-tooth tigers for the former and leopards or lions for the latter. Basic common biology in both species predestined them to respond similarly to high predation pressure. What I am proposing is that some salient environmental conditions experienced by chimpanzees in the rainforests of Africa are similar to those faced by our ancestors and that war resulted from such prevailing ecological and demographic pressures. It was the development of strongly affiliated

and supportive behaviours within the social group that resulted in warfare and this appeared very early in the shared human/chimpanzee evolutionary line.

TELL ME WHAT YOU WEAR, AND I WILL TELL YOU WHO YOU ARE

Such a saying captures the significance of the environment to everyone. Not only does one have to wear different types of clothes in Scandinavia compared with the Amazon or the Sahara, but such climatic differences will force one to eat different types of food, and to hunt or extract food in different ways, and the amount of food that can be gathered will influence the size of a group of individuals able to survive on such resources. The paramount importance of the environment is too easily forgotten for humans like us living in heated or air-conditioned houses. Nonetheless, for others, it sets the basic conditions under which the struggle of survival unfolds. No one can escape it, and each one has to use all his or her physical and intellectual abilities to solve the daily challenges. Simple things like finding water, a safe place to sleep or escaping predators require dramatically different solutions depending upon the ecology encountered. It is the daily challenges faced during growing up that mould the individual and everyone is the product of such experience.

The hugely successful book by Frans de Waal, *Chimpanzee Politics*, in 1982 has made the complex social life of the chimpanzee familiar to a large audience. The heroes of his book lived in the zoo of Arnhem in the Netherlands, where they had the luxury to live in a large group with three adult males, a unique situation for zoos at the time. Frans de Waal's precise descriptions rightly emphasized the complex strategies males were following to climb up the dominance ladder in the group, but to a person familiar with the life of wild chimpanzees, the situation in the zoo remained strikingly simple. For one, food is being brought to the animals twice a day and they simply have to sit and eat what is given to them, while wild chimpanzees spend about 40% of their time, day after day, looking for and processing food. Sometimes, food is difficult to obtain, involving the need to use tools or to hunt to capture it. Second, in a zoo, a group of chimpanzees spends all their lives together within one enclosure, while all their wild counterparts live in fission–fusion groups where rarely more than a third of the group members are seen together at a time. This requires much greater flexibility and planning when it comes to social fights and coalitions

compared with those detailed in *Chimpanzee Politics*. Thirdly, chimpanzees in a zoo are protected within an enclosure and face no external danger. This is hugely different to the situation of wild chimpanzees that are constantly under the threat of being attacked by neighbouring chimpanzees and by natural predators, such as leopards or lions. Such differences have wide-ranging consequences on the behaviour of the chimpanzees, and, in many ways, to me, sometimes captive chimpanzees seem to belong to another species than the wild ones. To make sense out of the complex social behaviour we see in chimpanzees, it is essential to consider the ecological contexts under which they emerged and understand how flexible chimpanzees can react to differences in these contexts.

On the wild side of the species, the best-seller book *In the Shadow of Man* by Jane Goodall in 1970 made many people aware that chimpanzees are indeed wild animals, not only living in zoos, or to be seen riding a bicycle or dressed up as 'humans' in shameful advertisements for whatever commercials. Her book made the public attentive that chimpanzees are individuals with strong personalities, that so-called uniquely human tool skills are daily occurrences to them and that they overcome daily challenges to survive. The chimpanzees she observed live in the Gombe National Park near Lake Tanganyika, a mosaic of gallery forest with many open woodlands and savannah with a breathtaking view on the lake and the sunsets. They are part of a small population of chimpanzees constituting the easternmost distribution of the species in Africa, while the vast majority of chimpanzees have always lived in the heart of the dense tropical rainforest of Central and West Africa. This point is of importance as, for one, the amount of food available to the chimpanzees is limited in such a mosaic open habitat, while the dense rainforests of Africa with tall emergent trees loaded with fruits are providing plenty of food to specialized fruit eaters like the chimpanzees. This has important social consequences, as in rich forests, opposed to a savannah, larger groups of individuals can forage together and many aspects of the social life of the chimpanzees are influenced by such an environmental difference. Second, the higher biodiversity of the African rainforest comes not only with more fruits but with many more animal species, including large populations of leopards that are, besides man, the main predators of chimpanzees. The absence of predation pressures in the chimpanzees studied by Jane Goodall and the relative openness of their habitat seems to have led to a whole cascade of behavioural differences that we are only now uncovering and these are the central tenet of my arguments.

Yes, after over 40 years of observing chimpanzees, we are only now starting to be aware of the extent of their behavioural flexibility and it is my intention in this book to specifically address this dimension. My experience with different chimpanzee populations living in forest regions of West and Central Africa as well as in the open woodlands of East Africa made me directly aware of how radically the ecology affects their behaviour. Not only is it fascinating to discover how an animal species can so flexibly respond to challenges, but at the same time we can identify the aspects within the ecology that influence such behavioural changes. I will use this knowledge to investigate what favours warfare between social groups, and what influences differences in the choice of sexual partners, in achieving paternity success, in investing in offspring, and in exhibiting cooperation, altruism or aggression. Due to the biological and psychological proximity between humans and chimpanzees, similar factors might have similar consequences and this approach can help us to understand the evolution of such behaviour in the human line.

In the many books discussing the origin of human social and technological uniqueness, be it from a psychological, philosophical or biological point of view, the chimpanzee population of reference has mostly been the Gombe chimpanzees. As such, humans were revealed to possess a much higher level of female sociality, more complex cooperative behaviour, and to have a more developed reliance on non-vegetable food items and tool use. Other authors have based their comparisons on captive chimpanzees. Certainly captive chimpanzees are chimpanzees, but they have spent their whole life under totally artificial conditions in human-made social settings, just as human prisoners remain human beings. However, no one would seriously consider restricting studies on humans to prisoners! Chimpanzees, just as humans, belong to one of the most adaptable primate species on this planet: chimpanzees are found in the deepest rainforests all the way into the very dry savannah regions provided there are some gallery forests. I propose here to open the door to the complex world of the chimpanzees.

HOW TIME HAS IMPROVED THE QUEST FOR OUR ROOTS

The development of field work on wild chimpanzees and other apes for the last 40 years has brought us to the point where we can start to understand ‘what makes us human?’, and some answers about ‘what is a chimpanzee’ are emerging. All traditional human societies have

myths that explain the origins of humans and their relationships with other animals. Religion and science have zealously taken up the challenge and generated their own propositions. For centuries, philosophers have proposed answers to the question based on incomplete and often romantic ideas about the nature of animals.

Now the quest for 'what makes us human?' has become for the first time a science: studies on wild chimpanzees started some 45 years ago and after years of painstaking efforts, numerous, detailed, intriguing and fascinating information about eight populations throughout Africa has provided a uniquely complex and detailed, but still incomplete, picture of our cousins of the forest. Foremost, we have learned that chimpanzees are much more diverse than originally thought, to the point where it is becoming more and more arbitrary to talk about 'the chimpanzee'. We should describe them rather as the 'Taï chimpanzee' or the 'Gombe chimpanzee', just as we talk about the Inuits, the Touareg or the !Kung Bushmen in recognizing the diversity that exists in these traditional hunter-gatherer societies. Sociality of the sexes, vocalization, tool use, hunting behaviours, diet and cultural traits, all have been shown to differ profoundly between different chimpanzee populations.

Furthermore, we are unravelling for the first time some of the most secret aspects of the social life of wild animals. Biologists, philosophers and human behavioural scientists agree that one key motivation in life is the drive to reproduce and provide the best environment for the resultant offspring. If such a drive is purely instinctive and genetic in insects and fishes, it is generally agreed that in mammals, and especially primates, the fulfilment of such a drive can also be the result of individual strategic choices, depending on the specific living conditions each animal faces. Decisions might vary; for example, an individual living in a large social group during a drought in a savannah with little available food will make different decisions from an individual living in a small group in a tropical rainforest during the main fruiting season. Decisions may also differ depending on whether the individual in the first situation is a low ranking group member or a high ranking one in the second situation. Such choices are faced daily and decisions will differ over time.

What's new in this debate? The key problem we faced in the past was that fertilization in birds and mammals is internal and therefore we had no way of being sure about paternity in wild animal populations. If maternity is relatively easy to observe, paternity remained a big mystery. Now our understanding of animal sexuality has been revolutionized by the introduction of new genetic techniques in the

field of wild animal studies. This silent revolution has taken place over the last two decades and is still ongoing. Being able to confirm maternity and decipher paternity of wild animals by using tiny amounts of DNA found in faeces, urine or chewed food remains changed the field and we can for the first time answer such a basic question as 'who is the father?'. To take just one example, the application of genetic methods to monogamous bird species has revealed in many species a surprisingly high percentage of paternities not attributable to the long-term male partner. What was viewed as monogamous behaviour is in many species restricted to their sociality; reproductively, both sexes can be polygamous! Much work has been carried out recently in applying these new technologies to wild chimpanzee populations. Thus, we are now in a position to compare the sexual strategies of individuals in different social groups and determine how successful such strategies are. In other words, for the first time, we can judge how evolution works at an individual level.

OUR BRAIN SHOULD SEE THROUGH OUR EYES

We all are conditioned by what we learn in our early years and this affects the way we look at things and how we interpret them. In addition, religious and philosophical considerations teach us about what the world 'really' is. To complicate matters, as students at schools and universities, we are fed ideas and theories from books about the supposed nature of the world and its animals and how they should behave. Less often are we reminded of what Aristotle told us 2,300 years ago: 'one should study nature in the individuals behaving according to its rules and not in the corrupted ones'. Once in the forest, I realized that chimpanzees had not read any of these books and simply behave in the way that is the most optimal for survival in the world in which they live. This is a healthy intellectual experience, even if it contradicts many of the ideas proposed in the books. It is thus most important that field workers be faithful to the animals they study and accept that it is more important to describe exactly what they are fortunate enough to observe and not confine their observations to proving prevailing theories or current orthodoxy. Only from reliable and detailed data will our knowledge evolve. Theories are just tools to help us progress, while only observations will teach us what nature is.

When I started, with my wife Hedwige, to study the chimpanzees of the Taï forest, projects studying the Gombe and Mahale chimpanzees in the open woodland/savannah of Tanzania were already in their

second decade. We were the newcomers and had to be particularly careful when we made observations that did not fit with what was known from these famous studies. At the same time, the main reason for our project was to study *forest* chimpanzees, given that the vast majority of chimpanzees live, and had always lived, in the depths of the African rainforests. While studying the nut-cracking behaviour of the Taï chimpanzees, we quickly noticed how different they were from what we knew of the Tanzanian chimpanzees. This exemplifies how extraordinarily adaptive chimpanzees are and how fortunate we are to have an animal species so close to ourselves to demonstrate how ecological and demographic factors influence the evolution of many of the most sophisticated social behaviour patterns.

When following the chimpanzees in the forest, we were always aware of their great similarity to us, yet at the same time how very different they were. Chimpanzees are not humans and humans are not chimpanzees. But clearly, with our long common evolutionary history, part of the human is alive in the chimpanzee and, conversely, part of the chimpanzee is alive in us. For some, they are too close for comfort! For us, that proximity provides us with our roots.

In this book, I hope to share with you, readers, the intimacy of the life of the chimpanzees in the Taï National Park of Côte d'Ivoire, how I have experienced it by observing them for 30 years. I will present the complexity of the choices females and males have to make to survive and reproduce in such a dense tropical rainforest (Chapters 2 and 3). Hoping to have raised by then the reader's interest in the Taï forest, I will detail one day in the life of a chimpanzee from dawn to dusk to give you a flavour of what it means to observe animals in their own world and how challenging and diverse life is in the forest (Chapter 4). We will see how chimpanzees in the African forests deal with the predation pressure from leopards, and follow them as they forage through the thickness of vines, cross rivers and swamps to obtain their varied diet, including many different fruits, hard nuts, hidden insects, and mushrooms, and how they hunt for meat, which is natural for wild chimpanzees. The descriptions culminate in the warfare observed in the Taï chimpanzee populations that mirrors some of the most violent human behaviour, while at the same time it reveals some of the most altruistic and heroic facets of the chimpanzee nature (Chapter 5). Throughout the first five chapters, there will be comparisons with what is known from other chimpanzee populations and we will find analogies with humans, as unavoidable similarities or differences will be emerging. However, following my conviction that

chimpanzees are mainly tropical rainforest dwellers, I will limit these comparisons so as not to divert us from a complete impression of the life in the forest. Then in Chapter 6, I will proceed to a much closer comparison with other chimpanzee populations, including the famous Gombe chimpanzees observed by Jane Goodall and colleagues, and detail how differences in leopard predation and food abundance produced a wide array of differences in the behaviour of the females and the males, as well as in the prevalence of some often human-like labelled behaviour like cooperation and altruism (Chapter 6). Finally, I grant a closer look at human behaviour and propose that during man's expansion into new habitats in the last 100,000 years, competition for sex has actually become more violent and destructive, and that in this process women have lost much of the freedom they previously had (Chapter 7). I hope by the end to have convinced many of you that by exploring our chimpanzee heritage, we can identify some of the factors that made us human. This might then lead to a greater admittance of the negative aspects of human behaviour that we witness daily in our so-called civilized world and perhaps help to mitigate them.