

CHAPTER 4

Warfare, biology and culture

As chapter 3 has shown, there have been many violent conflicts in Europe, Africa and Asia during the 1990s. Society seems increasingly vulnerable to apparently mindless acts of destruction. Some authors have concluded that humans are genetically disposed to violence and that culture provides an inadequate safeguard. Robert Kaplan argues that where there is mass poverty, people find liberation in violence. 'Only when people attain a certain economic, educational and cultural standard is this trait tranquilized' (Kaplan 1994: 73). Richard Wrangham and Dale Peterson argue there is evidence to suggest 'that chimpanzee-like violence preceded and paved the way for human war, making modern humans the dazed survivors of a continuous, 5-million-year habit of lethal aggression' (1996: 63). Chapter 4 therefore looks at evidence for the evolutionary significance of human warfare. It argues that warfare and peacemaking are equally important in human social evolution.

WAR IN SMALL-SCALE SOCIETIES

Paul Sillitoe defines war as 'a relationship of mutual hostility between two groups where both try by armed force to secure some gain at the other's expense' (Sillitoe 1978: 252; cf. Ember and Ember 1997: 3). The frequency of warfare

among human populations has led some to argue that warfare is the product of an inherent human disposition, a genetically determined drive to aggression. During the 1960s, writers such as Robert Ardrey (1967) and Konrad Lorenz (1966 [1963]) popularised the idea that warfare was linked to 'instinctive' defence of territories, and therefore part of human nature. Raymond Dart's alleged evidence for cannibalism among Australopithecines (Dart 1925, 1959) appeared to confirm our ancestors had long killed members of their own species. Close parallels were drawn between human territoriality and that of other species. It has, however, since been shown that Australopithecines were victims of animal predators rather than members of their own species (Brain 1981). Research into territorial behaviour among animals reveals that territoriality is much more flexible than Lorenz and others had supposed. Even among bird species, aggressive behaviour and territoriality were found to depend on the specific costs and benefits of defending a resource in a particular environment. Davies, for example, studied the feeding patterns of pied wagtails in the Thames Valley of southern England and found that some individuals defended territories along a river, while others fed peacefully together in flocks on nearby flooded pools (Davies 1981).

More recent observations of inter-group violence and the defence of territories among chimpanzees have nonetheless again raised the prospect that warfare may be a genetic trait that we and chimpanzees have inherited from our common ancestors. Jane Goodall (1986) and Toshisada Nishida, Mariko Haraiwa-Hasegawa and Yukio Takahata (1985) reported cases of chimpanzees extending their territories by attack on adjacent groups, leading to the claim of a direct connection between male chimpanzee aggression and human warfare. A second observation has led to the claim that warfare evolved

as a means of obtaining more wives. In many primate species, males typically leave their natal group at puberty and have to join another before they can reproduce. Among both chimpanzees and many small-scale human societies it is, on the contrary, females who leave their natal group to join their husband's group. Social anthropologists have long argued that the exchange of marriage partners between social groups is one of the most fundamental ways in which humans create alliances (Tylor 1903, Lévi-Strauss 1969). The discovery that females also move between groups among chimpanzees potentially throws light on the origin of the inter-group alliances in human society (Rodseth et al. 1991) and provides grounds for contending other groups were attacked to obtain their women rather than their territory. Napoleon Chagnon, for example, claims that Yanomami fight for access to women and to revenge deaths caused by sorcery (Chagnon 1997: 97).

Chimpanzees and humans are unusual if not, as Wrangham and Peterson claim, exceptional among animal species in killing members of their own species. 'That chimpanzees and humans kill members of neighbouring groups of their own species is, we have seen, a startling exception to the normal rule for animals' (Wrangham and Peterson 1996: 63). Claims of a common origin for human and chimpanzee inter-group aggression were stimulated by reports of so-called 'warfare' between two troops of chimpanzees at Gombe (Goodall 1986) and in the Mahale mountains, both sites in Tanzania (Nishida, Haraiwa-Hasegawa and Takahata 1985, Nishida 1979). Males appear to patrol territorial borders, and five attacks leading to deaths were observed at Gombe, culminating in the annexation of territory containing females.

There is still some question about how typical this pattern is, and to what extent it may have been influenced by the research team's practice of supplying the Gombe

chimpanzees with bananas. After the supply of bananas had been drastically reduced, the Gombe community split into two groups and became polarised within a range they had previously apparently shared. Over a period of two years the males of the larger group killed at least some of those in the smaller group (Goodall 1986: 503–14). Encroaching farmers may also have displaced other chimpanzees into the area, increasing the pressure on food resources (Ghiglieri 1984: 8). It is plausible that provisioning and consequent population increase, followed by a sudden reduction in the food supply, affected the intensity and/or frequency of inter-group violence at Gombe. The Mahale mountains of Tanzania, on the eastern side of Lake Tanganyika, contain at least eight chimpanzee communities, each consisting of up to 100 individuals (Nishida, Takasaki and Takahata 1990: 66, table 3.2). While territories are generally exclusive, groups 'M' and 'N' showed, for a time, some overlap of ranges (Nishida, Takasaki and Takahata 1990: 71, fig. 3.4). Group 'M' subsequently gained exclusive access to the area previously shared. There is circumstantial evidence for raiding, but no direct evidence that one group of males systematically wiped out another in order to gain access to females. As Joseph Manson and Richard Wrangham (1991) therefore acknowledge, there are only two known cases (one confirmed and one probable) of group extinction via lethal raiding (Manson and Wrangham 1991: 371).¹

¹ Michael Wilson, William Wallauer and Anne Pusey (2004) report three further intercommunity attacks observed at Gombe, and one finding of a dead adolescent male who had apparently been killed by other chimpanzees. All the attacks were perpetrated by parties of males who appeared to have deliberately ranged beyond their usual core territory in search of individuals from neighbouring communities. Two of the observed attacks led to the death of an infant, the third to the severe wounding of a young male. They occurred in 1993 and 1998. Observations were suspended during 2000 and

Chagnon's work on the Yanomamö has played an important role in the advocacy of such an approach to human violence. It was Chagnon's ethnography of the Yanomamö that provided Wrangham and Peterson with the evidence for their claim for a direct link between human and chimpanzee 'warfare'. Chagnon's study, originally subtitled *The fierce people* (Chagnon 1968) and still (fifth edition) bearing a cover illustration of armed warriors, presents a vivid picture of pervasive warfare in a society on the borders of Brazil and Venezuela. Chagnon has also claimed evidence of an intrinsic link between warfare and natural selection. In 1988, he published data showing that *unokai* – Yanomamö men who had killed other men – reproduced more successfully than did non-killers. According to Wrangham and Peterson, *unokai* have 2.5 times the average number of wives as other men, and more than 3 times the average number of children as other men. This allowed Wrangham and Peterson to conclude 'lethal raiding among the Yanomamö, it seems, gives the raiders a genetic success' (Wrangham and Peterson 1996: 68). Wrangham and Peterson pose the rhetorical question: 'Is the elaborate . . . edifice of cerebral material that makes up our humanity still deeply infused with the essence of that ancient

2001 in case the chimpanzees were emboldened by the presence of humans, but the dead male was discovered in 2002. While the sample is small, Wilson, Wallauer and Pusey conclude that the age and sex of the victims support the hypotheses that the benefit of such incursions into neighbouring territories is to reduce the number of rival males, or to reduce competition for food in zones where the territories of adjacent communities overlap. They tend to reject the alternative hypothesis that infants are killed to induce the mother to defect to the attackers' community. Their approach is consistent with Aureli, Cords and Van Schaik (2002): 'such violence, like other forms of aggression, is a *strategic option* employed when assessment of expected *costs and benefits* indicates that attack will yield net benefits to the attackers' (Wilson, Wallauer and Pusey 2004: 524).

forest brain' embodied in the common ancestor of chimps and humans (Wrangham and Peterson 1996: 62)?

Christopher Boehm (1992) begins from a similar characterisation of chimpanzees, but draws his comparison more generally with 'the warlike non-literate societies that feud' (Boehm 1992: 140). Among these he includes some hunter-gatherers but also the cattle-herding Nuer and the Tiv farmers of Africa, New Guinea horticulturalists and Montenegrin tribesmen in Europe (Boehm 1992: 154, 162). He argues these societies are all characterised, like chimpanzee communities, by patrilineal recruitment to groups and patrilocal residence. That is, people both belong to, and live with, their father's group. Boehm accepts that not all human hunter-gatherer societies defend the boundaries of their territories, and bases much of his discussion on the hunting, herding and horticultural societies which best fit his model.

Violence and peacemaking

I argue that violence and peacemaking are both parts of a broader social complex. One cannot be discussed without the other. In the early 1970s, Jonathan Miller gave a seminar to the Anthropology Department at University College London about Sir Henry Head and W. H. Rivers's experiments on nerve regeneration, conducted after the First World War. Head and Rivers concluded that a primeval all-or-nothing nervous response was first restored, later to be overlain by a civilised, moderated reaction. Miller compared this to the notion that modern cars/automobiles possess a primeval, Model-T Ford accelerator, barely kept in check by sophisticated, modern brakes. As Miller pointed out, even the Model-T Ford required an integrated system of accelerator and brake in order to function effectively. According to Wrangham and

Peterson (1996: 64), the chimpanzee evidence shows that warfare is not an instrument of policy or a product of social conditions. 'The appetite for engagement, the excited assembly of a war party, the stealthy raid, the discovery of an enemy and the quick estimation of odds, the gang-kill, and the escape are common elements that *make intercommunity violence possible* for both' (Wrangham and Peterson 1996: 71, my emphasis). This is the 'primeval accelerator' approach.

A recent review article (Aureli, Cords and Van Schaik 2002) stresses that violence is costly for all social animals. Ways of placing a brake on violence are beneficial to all social species:

For gregarious animals, conflict of interest, while unavoidable, may compromise the benefits of group living or neighbourliness, *especially when it escalates into aggression*. If this induces the losers to leave the group, they forfeit the benefits of group life, or face the risks associated with transfer into another group. The departure of the losers may also reduce the benefits of group living to the winners and, even without leaving, aggression may jeopardise future co-operation. Similar costs are likely in territorial species that have stable relations with neighbours. (Aureli, Cords and Van Schaik 2002: 325, my italics)

Filipo Aureli and his co-authors conclude: 'Behavioural mechanisms that mitigate conflicts, prevent aggressive escalation and resolve disputes should therefore be strongly selected in animals living in stable social organisations' (325). One example they cite in favour of this hypothesis is that male chimpanzees engage in reconciliations after conflict more frequently than do females (Aureli, Cords and Van Schaik 2002: 334). In other words, aggression risks depriving individuals of the benefits gained from a social relationship.

A potential objection to extending Aureli, Cords and Van Schaik's findings to human societies is that they are primarily concerned with relationships between members of the same local group. They do, however, argue 'similar costs are likely

in territorial species that have stable relations with neighbours' (see above). In a paper written with my colleague Robert Barton (Layton and Barton 2001) we argue that a comparison of human and chimpanzee territoriality reveals that hunter-gatherers have developed flexible forms of territorial behaviour which generally circumvent the conditions that apparently lead to inter-group violence among chimpanzees. Chimpanzees live in social groups comparable in size to human hunter-gatherer bands (20–100 individuals), but chimpanzee groups are autonomous, whereas hunter-gatherers in low latitudes can move freely between bands within a larger regional community sustained by various forms of exchange. The regional community typically comprises about ten to fifteen bands, often totalling 500 people but sometimes numbering up to 1,500. This phenomenon is what Lars Rodseth et al. (1991) and Clive Gamble (1998) called 'the release from proximity', the emergence of social networks which *depend* on uniquely human genetic skills yet extend and transform the social environment into which the individual human is born (cf. Geertz 1973c).

What ecological pressures might have favoured the development of wider social networks among humans? Eric Alden Smith (1988) provided an explanation for the benefits to hunter-gatherers of being able to join different bands, or forage temporarily on the territory of another band. Smith argued that in many environments inhabited by hunter-gatherers, bands in a region would be uncertain about which area would contain the most abundant resources at any time, and would recognise resources fail in different territories at different times. This is particularly the case in the semi-arid tropical environments in which modern humans are thought to have evolved. If one band's territory experiences better rainfall than its neighbours, the band will benefit from allowing

other bands to share its windfall, provided those bands in turn allow their former hosts to camp with them when the unpredictable sequence of rainfall favours the former guests. In these circumstances mutual access to each other's territories is an adaptive strategy. The patterns of inter-band visiting and gift exchange characteristic of hunter-gatherers function to maintain the regional network of social relationships upon which rights of mutual access depend. Even Chagnon (1988: 987) reports that Yanomamö lineages frequently move between villages and this, to some extent, inhibits raiding between villages containing recent allies.

Layton and Barton (2001) concluded that permeable territorial boundaries are most adaptive in a sparse, patchy and unpredictable environment (cf. Davies and Houston 1984, Dyson-Hudson and Smith 1978). Since most chimpanzees live in forest, whereas modern humans probably evolved in a savanna environment, we hypothesised that the genetic capability for sustaining social relationships that allow movement between bands evolved after the separation of the human and chimpanzee lines of evolution. We argued the patrilineal basis of many of the human societies cited by Boehm (1992) is ideological rather than actual. In other words, men may address each other as 'brother', but the actual composition of the coalition at the core of human local groups is, in practice (and unlike chimpanzees), rarely if ever exclusively a group of males biologically descended from a common ancestor (see chapter 2). The starting point for any comparison between humans and any non-human primate species must be the *behaviour* of both species, not the ideology of one and the behaviour of the other. Chimpanzee territorial behaviour cannot therefore be equated with the ancestral human pattern.

Since inter-group violence will threaten regional social networks, it is most likely to occur where little value is attached

to such networks. Mutual access is least adaptive in environments where resources are dense and patchy, but seasonally predictable in distribution (the opposite of the scenario described by E. A. Smith). The best-documented exception to the right to forage on neighbouring band territories was found on the northwest coast of North America, where resources are densely distributed, and predictable in their seasonal abundance. Northwest coast territories were held, and their boundaries defended, by hunter-gatherer lineages. Trespassers were killed (Boas 1966: 35); land could be alienated and slaves taken during warfare (Garfield and Wingert 1966: 14, 29). This pattern was not a primeval one. Herbert Maschner (1997) dates the origin of northwest coast warfare to the period between AD 200 and AD 500, when the post-glacial sea level had stabilised and modern vegetation patterns become established.

In many small-scale human societies, inter-group conflict is more restrained than on the northwest coast. The anthropologist W. E. H. Stanner witnessed a 'large-scale fight' between two Australian Aboriginal groups in 1932. The men were arranged in two parties, one painted with white, the other with yellow pigment. They stood in two irregular lines, about sixty paces apart. Women ran into the midst of the combat to give their men further weapons. Despite the 'anger, challenge and derision' on both sides, there was also control. Only light duelling spears were in use. 'I saw one powerful aborigine, on what seemed the weaker side, run abruptly from the middle of the fight to wrestle fiercely with supporters to gain possession of the heavy, iron-bladed spears. They would not yield them, and sought to pacify him' (Stanner 1960: 65). Towards sunset, the battle ceased 'and some of the antagonists began to fraternise . . . No one had been mortally hurt though many had painful flesh wounds' (66). Several weeks later, Stanner attended an initiation ceremony. Both sides to the dispute were

present. Even though they were 'at violent enmity . . . [the] bad feeling had been suppressed, after the aboriginal fashion, for a necessary tribal affair' (67). Stanner's vivid account gives an impression of the delicate counterbalancing of violence and peace that Aureli, Cords and Van Schaik's argument predicts (for a similar account of regulated conflict among the Yukpa of Venezuela, see Halbmayer 2001: 63). I therefore agree with Randall McGuire's review of warfare among the Pueblos of the southwest United States: 'People are not by nature either peaceful or warlike; some conditions lead to war, others do not' (McGuire 2002: 141).

HOW PROTOTYPICAL IS YANOMAMÖ WARFARE?

Evidence for the flexibility and situational aptness of warfare calls the typicality of the Yanomamö into question. Chagnon's depiction of the Yanomami came under intense scrutiny after the publication of Patrick Tierney's book *Darkness in El Dorado* (Tierney 2000). This book renewed debate on the 'naturalness' of warfare in simple human societies and highlighted a serious debate between sociobiology and cultural anthropology. Tierney, a journalist who had worked in the South American rain forest, interviewed anthropologists, missionaries and others who were familiar with Chagnon's work among the Yanomami. He noted that Chagnon's supervisor believed in the existence of genes for 'leadership' or 'innate ability' (Neel 1980). James Neel had argued that, in small-scale societies, male carriers of these genes would gain access to a disproportionate share of the available females, thus reproducing their own genes more frequently than less 'innately able' males. Tierney claimed Chagnon's work has been directed toward portraying the Yanomamö as exactly the kind of originary human society envisaged by Neel, displaying a Hobbesian

state of savagery (cf. Chagnon 1988: 990). Tierney claims Chagnon had 'recooked' his data to fit sociobiological predictions and deliberately fomented conflicts between Yanomami as, for example, during Timothy Asch's films *The feast* and *The ax fight*, where (he alleges) artificial villages were used for sets (but see Biella 2000). Not only was Chagnon's work exploited by Venezuelan politicians and gold miners to justify massacres of Yanomami and expropriation of their land, Chagnon himself joined forces with corrupt politicians to gain control of Yanomami lands for illegal gold mining and continued anthropological access.

News of Tierney's book *Darkness in El Dorado* circulated, before its publication, through an email that Terry Turner and Leslie Sponsel sent to Louise Lamphere, President of the American Anthropological Association in late August 2000. The email was rapidly disseminated across the Internet. I will not try to give a comprehensive review here of the Yanomamö debate, but focus on issues of direct relevance to this chapter.

Sociobiology and cultural anthropology

The vehemence of Turner and Sponsel's email is an expression of a current debate in the United States between sociobiologists and cultural anthropologists. Among the most outspoken critics of cultural anthropology are the evolutionary psychologists Lida Cosmides and John Tooby (Cosmides, Tooby and Barkow 1992), who argue the human mind is endowed with complex, genetically determined skills that developed through natural selection during the long period our species lived by hunting and gathering (see chapter 3). According to Cosmides and Tooby, variation in human behaviour can be explained as the emergence of local

adaptations predicated on the mind's inherent skills rather than – as social anthropologists might argue – cultural variation (see chapter 2). Tooby quickly jumped to Chagnon's defence (<http://slate.msn.com/HeyWait/00-10-24/HeyWait.asp>), and pointed out many inaccuracies in Tierney's citations (see also Ruby 2000). Tooby further pointed out that Turner and Sponsel were long-time adversaries of Chagnon (See Tooby's website <http://www.psych.ucsb.edu/research/cep/eldorado/witchcraft.html>).

The dispute between evolutionary psychologists and cultural anthropologists is partly an issue concerning the preferred level of analysis. Cosmides and Tooby's primary targets are the French sociologist Emile Durkheim and the US anthropologist Clifford Geertz. Geertz is interested in culturally specific 'webs of significance'. His research method is dedicated to resolving the problems of interpretation posed by trying to understand an exotic culture's values, figures of speech and assumptions (e.g. Geertz 1973a, 1973b). If one wanted to understand the cultural significance of the head-dresses worn in Highland New Guinea during warfare and competitive feasting, for example, one would need to gain entry to culturally specific worlds of meaning, not examine the universal features of conflict.

There is, however, a more fundamental issue identified by Durkheim (1938 [1901]), that of the emergent properties of interaction (again, see chapter 2). As Michael Fischer comments,

What seems to infuriate cultural anthropologists about sociobiologists is their insistence on extrapolating from quite interesting statistics of animal mating and patterns of investment in care of offspring, and the various predictive models that can be made of these patterns, to the Vietnam War or the decisions of the Supreme Court. (Fischer 2001: 13)

Chapter 2 noted that evolutionary theorists debate whether the primary motor of evolution is the gene (Dawkins 1976), or the ecological system that exerts selective pressures on genetic variations in a population. Stuart Kauffman (1993) and Simon Conway Morris (1998) argue that the environment to which organisms adapt is transformed by the emergent properties of interaction. At least some of the cognitive skills cited by Tooby and Cosmides (language, co-operation) are only adaptive in a social environment, i.e. an environment characterised by the emergent properties of social interaction. Here, I believe, social anthropologists can validly criticise narrow theories of genetic causation that discount the way the environment that exerts selective pressures is constructed. The extent to which violence is adaptive will also depend at least partly on the socially constructed environment. The alleged adaptive significance of warfare among the Yanomami must be assessed in the context of the specific natural and social environment in which the Yanomami live.

Even if some people have a genetic predisposition to violence, this might not trigger co-ordinated social conflict. The question of whether social trends can be explained by scaling up from the intrinsic properties of the individual was another issue addressed by Durkheim. Durkheim (1952 [1897]) attacked the idea that suicide rates in late nineteenth-century France could be explained as waves of 'copycat' actions following an individual suicide. He argued that an increase or decrease in the suicide rate arose from the state of society. Durkheim postulated a range of personality types vulnerable to different kinds of suicide, ranging from the despair brought on by isolation, to giving one's life for the fatherland in the heat of battle. Durkheim argued that during periods of social disintegration the first type would be more vulnerable, but the second type would be most vulnerable during a period

of intense patriotism. A similar issue is debated in a recent volume sponsored by the British Psycho-Analytical Society in response to the terrorist attacks of 11 September 2001. Does one have to study the psychology of the terrorist to explain the attack on the World Trade Center, or is it enough to posit a random range of personality types and study the social conditions that push some individuals into action? Among contributors to this debate, Renos Papadopoulos argues that psycho-analysts 'seem to have missed glaring external factors such as environmental pressures, socio-political realities, and historical legacies' (Papadopoulos 2002: 269). Stuart Twemlo and Frank Sacco go further, acknowledging that terrorism may be directed 'against the inadmissible perversion of a whole society' (Twemlo and Sacco 2002: 101).

Jürg Helbling proposed that the specific context of Yanomamö social behaviour encouraged violence. He argued that they are trapped in a form of the Prisoner's Dilemma that discourages the development of reciprocal altruism. Each lineage must convey the impression that they are 'tough guys' rather than trusting suckers. Further, if their partners in an exchange relationship betray them, the effect of military defeat would be so devastating that it would be too late to punish the partners by not reciprocating in the next round of the game, as many of the 'suckers' would be dead (Helbling 1999: 108–9). This creates a social environment that favours aggressive individuals. Alliances will only be sustained if both sides anticipate a long-term benefit, an outcome that is difficult to rely upon under such circumstances (Helbling 1999: 111).

Wrangham and Peterson claimed that 'no human society provides a better opportunity for comparison than the Yanomamö . . . because they have been so remarkably protected from modern political influences' (Wrangham and Peterson 1996: 64). One of Tierney's most valid criticisms

is that the Yanomami were not representative of the original human condition when Chagnon studied them. Far from being 'uncontaminated' by contact with the outside world, they had interacted with outsiders since the eighteenth century, as victims of slave raiders, enemies of settlers and subjects of missionary endeavours. Fischer (2001) agrees that one of the most disconcerting aspects of writing about the Yanomamö is the way that their long history of contact with slavers, rubber tappers and others has sometimes been ignored.

The American Anthropological Association task force created to investigate Tierney's claims noted that Chagnon's 1988 *Science* paper (which reported that 44 per cent of Yanomamö men claimed to have killed someone) coincided with a disastrous moment in the Yanomami struggle for land rights, when the Brazilian president authorised the division of Yanomami land into reserves in order, it was claimed, to bring them under control. The Brazilian anthropologist Manuela Carneiro da Cunha pointed out in 1989 that Chagnon's paper had been widely reported in the popular press, both in Brazil and the United States. It is highly likely his arguments were damaging to the Yanomami, justifying violence against them, and Chagnon had not done enough to counter these negative images, despite toning down his language in later editions of his ethnography (American Anthropological Association 2002: 1.32–4).

Chagnon's data

In view of this controversy, it is important to re-examine Chagnon's original data. Chagnon (1988: 985) does not claim the existence of a gene for leadership, but he does claim that being a killer among the Yanomamö enhances one's reproductive success. Chagnon (1988: table 2) shows that those

claiming *unokai* (killer) status undoubtedly have more children than non-*unokai*. *Unokai* average 4.91 children, non-*unokai* average 1.59 children. Compared across all adult age groups, *unokai* therefore do better than non-*unokai* by a ratio of 3:1 (Wrangham and Peterson's wording (1996: 68) misleadingly implies this is the difference between *unokai* and the average number of wives and children in the whole sample). Tierney (2000: 159) objects that Chagnon included unmarried men in his sample. In fact, Chagnon (1988: table 2) does not distinguish between unmarried and married men, but he does break down the figures into age groups. The figures supplied in Chagnon's table show that 94 per cent of men aged between twenty and twenty-four are non-*unokai*, but only 38 per cent of those aged forty-one and over. The status of *unokai* is achieved. Many non-*unokai* must either die young, or become *unokai* with age. Chagnon's sample of men aged twenty to twenty-four includes 5 *unokai* in a total of 83, while his sample of men over forty includes 75 *unokai* in a total of 121. This demonstrates many men who are not *unokai* between the ages of 20 and 24 can expect to achieve that status later in life. Chagnon asks whether becoming an *unokai* makes one more vulnerable to violent death and replies that it does not. 'Of 15 recent killings . . . nine of the males were under thirty years of age, their ages at death and the political histories of their respective villages at the time they were killed suggest that few, if any of them, were *unokai*' (990). Since only 14 per cent of men under thirty are *unokai*, this is not surprising.

A Yanomamö man reaches marriageable age in his early twenties (Chagnon 1997: 154). Table 2 in Chagnon 1988 supplies data on family size for men aged twenty onwards. Most of the young men who have just started to have children are non-*unokai*. The size of their families will inevitably be smaller than those of older men. Chagnon has therefore overestimated the

advantage of being an *unokai* by combining data for incomplete and completed families. The most accurate measure of the advantage of being an *unokai* is to compare reproductive success among *unokai* and non-*unokai* over forty, where family size is most probably complete. *Unokai* over forty have an average of 6.99 children, non-*unokai* over forty have an average of 4.19. In other words, *Unokai* have 1.67 children for every 1 child born to a non-*unokai*. They are advantaged, but not to the extent implied by Chagnon's all-age ratio of 3:1. The advantage is, moreover, not sufficient to eliminate non-*unokai* from the population. Thirty-eight per cent of men over forty are non-*unokai*. If one were to make a narrow presumption of genetic causation, this would suggest some form of polymorphism (i.e. that there are also selective advantages to being a non-*unokai*). One does not need to assume narrow genetic causation to see that killing is not the whole story.

Approximately 30 per cent of deaths among adult males in the region of the Yanomamö tribe are due to violence (Chagnon 1988: 986), but 44 per cent of living men aged twenty-five or older claim to have killed someone (987). That means either that a proportion (32 per cent) of claimed killings must be spurious or, at least, that more than one person has been responsible for the same killing. 'Many victims are shot by just one or two raiders, but one victim was shot by 15 members of the raiding party' (Chagnon 1988: 987). Chagnon (1988: fig. 1) documents the number of victims for whom living killers *unokaied*. He notes that 60 per cent (83 of 137) claim to have participated in only one killing while, at the other extreme, one man claims to have participated in sixteen different killings. A small proportion of men stand out as multiple killers (two claim fourteen killings each, another two claim twelve). Seventy-five per cent of claimed killings (more than enough to account for the level of reported deaths) are accounted for by the

fifty-five *unokai* who reported having killed two or more men. These fifty-five constitute a mere 16 per cent of the adult male population. For most men, the aim is probably simply to have a reputation for fierceness (see Halbmayer 2001: 62 on the Yukpa of northwestern Venezuela). Tierney points out that very few women are actually abducted among the Yanomamö. Even Chagnon's low figure of 17 per cent is higher than that recorded elsewhere among the Yanomamö, and some of these were probably willing elopements (Tierney 2000: 159–64). It is curious that, even though 30 per cent of Yanomamö men get killed in fighting, Chagnon still claims there is a shortage of marriageable women (Chagnon 1997: 157).²

Warfare and territoriality

The Yanomamö reportedly say inter-village warfare does not take place over resources (Wrangham and Peterson 1996: 66). Although Chagnon denies that Yanomamö warfare is for territorial gain, he writes: 'Where the Yanomamö have bordered the territory of other peoples they have fought with them and consistently pushed them out . . . and have virtually exterminated the Makú Indians' (Chagnon 1967: 129). It seems clear there is a territorial dimension to Yanomamö warfare (cf. Helbling 1999: 106), and that it is not solely motivated by the quest for wives. In general, the population densities of human hunter-gatherers are very low compared with other primates. It is populations living at high densities that are prone to boundary defence and its corollary, cross-boundary raiding, which may result in deaths. Inter-group warfare is well

² Are more than 30 per cent of Yanomami girls the victims of infanticide? Chagnon says he has not published on infanticide since 1985, in order to protect the Yanomamö from prosecution, but he has never observed a case of infanticide (1997: 94).

documented on the northwest coast of North America (Rosman and Rubel 1971) which was noted above as an exception to the common pattern of flexible territoriality among hunter-gatherers. A good case has recently been made for its former existence in western Arnhem Land, north Australia (Taçon and Chippindale 1994), at a time that coincided with the flooding of low-lying land when sea levels rose after the last glacial period. In both cases, population density is exceptionally high for recent hunter-gatherers (northwest coast: 0.4 to 0.67/km², coastal Arnhem Land: 0.3–0.5/km²). The central Yanomamö were reported to have a density of 0.34 persons/kilometre² (Lizot 1977: 122), which falls within this range.

Warfare and mating

Why might adult men among the Yanomamö fall into two categories, 'killers' and 'non-killers'? The 'group selection' fallacy was mentioned in chapter 2. *If* social behaviour is genetically determined, individuals who forgo their own reproductive interests to benefit others will not transmit their altruistic genes to the next generation. Altruism will be displaced by selfishness. When altruistic behaviour is genetically determined, it can only persist if it enhances the bearer's reproductive success. Could this be the case among Yanomamö? The two theories concerning the evolution of altruism were summarised in chapter 2. One argues that altruism will be favoured by natural selection if the fortunate recipient of an altruistic act carries the same gene as the altruist who makes the sacrifice. This is known as kin selection. The alternative theory is that, if the giver and receiver have a continuing social relationship, the altruist will receive help from the other at a later date. This is known as reciprocal altruism. It is represented in Axelrod's model for the evolution of co-operation,

and exemplified by the rights of mutual access to territories between hunter-gatherer bands in uncertain environments. 'Free-riders' are those who accept resources without reciprocating (see chapter 2), while the victim of non-reciprocation is a 'sucker'.

In his analyses of Yanomamö behaviour, Chagnon (1982) is explicit in his intention to explore the explanatory power of a kin-selecting model, but his data suggest that reciprocal altruism may also play a part in structuring behaviour toward socially recognised kin, despite the high risk noted by Helbling (1999) in his application of game theory to Yanomamö behaviour. Competition for spouses among the Yanomamö is reduced by a form of reciprocal altruism. A pair of men in different groups agree to exchange their sisters so that each can have a wife (Chagnon 1979), and this alliance can be perpetuated by further marriage exchanges. Yanomamö marriage strategies are based on the distinction between parallel and cross cousins. Parallel cousins (children of the father's brother and mother's sister) belong to one's own lineage. Cross cousins (children of the father's sister and mother's brother) belong to the lineage with whom one's father exchanged sisters (see Figure 2.1, p. 60). Cross cousins are ideal marriage partners if an alliance is to be extended. Parallel cousins are classed as 'sister' or 'brother', cross cousins as 'wife' or 'brother-in-law'. The latter terms are extended to other members of an allied lineage. Forty per cent of Yanomami marriages are between people *culturally classified as cross cousins*, but who are not in fact first cousins. Chagnon recognises that culturally based (rather than genetic) distinctions between parallel and cross cousins are crucial to marriage exchange (Chagnon 1982: figs. 14.12–13; Chagnon 1979). Use of the kinship terminology, according to which a man calls women of his own lineage 'sister', and those of an allied lineage 'wife', can therefore be

regarded as a signal of commitment to continued reciprocal, altruistic exchange between two groups. This level of social organisation is definitely not found in chimpanzee communities, and is based on the unique capacity of humans to construct inter-group relations.

Chagnon claims that the age difference between men and women at marriage creates different generation lengths of men and women and frequently requires the rules to be broken if marriage practices are to work (1997: 154). This is a common problem in classificatory kinship systems (see Keen 1982 for an example from Australia). It is more likely that, as Chagnon illustrates (1997: 147), rules are subject to competing interpretations rather than broken. When a particular classification no longer reflects political expediency, the leader of a Yanomami lineage takes the initiative in signalling lineage fission. He does so by reclassifying distant 'sisters' (distant parallel cousins) as 'wives' (Chagnon 1979). Chagnon subtitled his 1982 paper 'Man the rule breaker'. But to conclude that man is more of a rule breaker than a rule maker does not tell us who makes the rules (or why).

An alternative vision of Yanomamö society might go as follows. Horticultural societies are particularly vulnerable to warfare because they have dense patches of desirable resources (their garden crops), but lack an overarching social organisation to regulate inter-village access to gardens peacefully. A precarious form of reciprocal altruism is therefore negotiated around marriage exchanges that seek to guarantee order, a good example of Adam Ferguson's concept of civil society in the 'state of nature'. But this order is repeatedly undermined by free-riders who organise raids or split large lineages to their personal advantage, while jeopardising the lives of others. Villages that split may become enemies (Chagnon 1988: 987, 988), and small villages are more vulnerable to attack than

large ones (Chagnon 1988: 986). Promoting raids may bring short-term gains, but undermine longer-term social relationships. If Yanomamö men can loosely be divided into 'killers' and 'peacemakers', this would reflect the precarious balance between the two competing strategies in their social life.

THE BROADER PICTURE ON WARFARE IN SMALL-SCALE SOCIETIES

If we want to understand when and why human warfare began, it seems that we need to look at the emergent properties of social and ecological systems. Layton and Barton (2001) hypothesised that human warfare first occurred when hunter-gatherers moved into environments with dense and predictable resources. In the areas of the world best studied archaeologically, this would have occurred in post-glacial times, during the Mesolithic. The cultural invention of farming, creating defended fields of dense crops, will have exacerbated the trend. Carol and Melvin Ember (1997) found that hunter-gatherer societies were not particularly peaceful, but had a lower frequency of war than non-foragers. They also found that victors in those societies that fight at least once every two years almost always take land or other resources from the defeated. Land is less likely to be at issue among hunter-gatherers that allow mutual access to each other's territory.

Warfare originated on the northwest coast of North America as a consequence of change in the natural ecology. The coast has been inhabited since 9000 BC, but during the long period between 9000 and 3500 BC groups were small and mobile (Maschner 1997). At that time, unstable sea levels precluded the development of dense, predictable food resources. The first evidence for conflict on the northwest coast occurs by

3000 BC, coinciding with evidence for more stable foraging movement in the form of shell middens, and is seen primarily in non-lethal skeletal injuries. Herb Maschner cautions that violent conflict may have occurred earlier, without generating archaeological evidence. From AD 200–500, however, the onset of warfare is evident in the construction of defensive sites, the amalgamation of what may have been single lineage communities into large villages and population decline. The bow and arrow were introduced to the region at that time. ‘The wars that did result in changes in territory, at least in every recorded case, were the result of expansionist activities by the most populous and strongest group in a region, and the group that had the greatest amount of subsistence resources in their own territory’ (Maschner 1997: 292). Those with least territory had neither the wealth nor the numbers to undertake a successful attack.

Paul Sillitoe (1978) examined the role of Big Men in warfare in New Guinea. Big Men are not simply strong men who can push others around; while admired as skilful organisers and talkers, they must respect the Melanesian principle that all men are equal and free to control their own affairs. Here is another example of Adam Ferguson’s civil society in the state of nature. Big Men’s scope for political action depends on the flexibility of local social organisation, and the extent to which it allows disaffected individuals to join influential leaders in other villages. Big Men fear the encroachment of rivals and try to use force to sustain or extend their own influence. Insecure Big Men are more likely to foment discord (Sillitoe 1978: 265 and table 4). Sillitoe distinguishes between minor wars that punish a breakdown in reciprocity between groups who regularly trade and exchange marriage partners, and deep-rooted wars that persist between groups that lack such interrelationships but seek constantly to revenge past killings by the enemy

(compare Halbmayer 2001: 59, 61 on South America). Routing the enemy is more popular in major wars between settlements not normally linked by exchange. 'There is a good chance a war [of redress] . . . will end in the rout of the defeated and the pillage of their settlement' (Sillitoe 1978: 263).

Sillitoe notes that different types of military engagement tend to be found in different New Guinea environments. Swamp and dense rain forest support a lower density of population, so there are both fewer occasions for people to meet and less scope for Big Men to construct inter-community networks. Sillitoe rejects a simple correlation between population pressure and frequent war (Sillitoe 1978: 269; see also Sillitoe 1977), but it is clear that war for territorial conquest is most prevalent in certain environments.

VIOLENT CONFLICT IN COMPLEX SOCIETIES

Chapter 2 noted that anthropologists prefer to address theoretical issues through analysis of the simplest human societies, where the fundamental aspects of social life can most clearly be seen. The applicability of their conclusions to complex societies needs to be demonstrated. Among horticulturalists, warfare arises from broken alliances between neighbouring villages, or irresolvable conflict between socially unrelated groups. In complex societies, many recent ethnic conflicts have been associated with instability in the nation state. The question here is, what factors lead to the collapse of large-scale social networks? Chapter 3 showed that the breakdown of social order rarely if ever results in total anarchy or lack of social interaction. When the existing social order does break down, ethnicity and kinship are two key dimensions on which to reconstruct trust, but on a smaller scale, between people who interact and claim exclusive rights to resources. Kinship

and ethnicity are not primordial forms of social organisation that resurface during periods of anarchy. They are called upon where they have continued to be salient aspects of government or civil society. What parallels can be drawn with warfare among the Yanomamö? Rather than accepting Wrangham and Peterson's argument that we are confronted with a primordial lust for 'the excited assembly of a war party, the stealthy raid, the discovery of an enemy and the quick estimation of odds, the gang-kill' (Wrangham and Peterson 1996: 71), I argue the parallel lies in the construction and opportunistic repudiation of social relationships. Two similarities stand out: the conflict of interest between those who benefit from order and disorder, and the role of outsiders in supplying weapons that increase the destructive impact of conflict.

Who has an interest in promoting disorder?

Albanian blood feuds are brought to an end by creating classificatory brotherhood between the groups. Both parties must agree that honour has been satisfied. Clan leaders (*bajraktars*) acted as judges, who arbitrated in disputes. The Ottoman Turks relied on them heavily (Whitaker 1968: 259). In northern Albania, traditional leaders, local Catholic priests, and a national mission led by Pjetër Ndreki have all helped to settle blood feuds during the 1990s. However, Stephanie Schwandner-Sievers reports that younger men (in their forties and fifties), who were born under Communism, are unfamiliar with the traditional rituals of reconciliation and are unwilling to accept them (140). Many of this generation are also involved in trading drugs, weapons and women between Albania, Montenegro, Kosovo and Italy. There are fortunes to be made in trading illegal drugs; therefore it is in the interest of gangs to prevent the restoration of state control. In Sierra Leone,

groups of bandits in pursuit of loot and diamonds imitate rebel tactics, making it harder to establish peace negotiations (Richards 1996: 7, 132).

Stephen Handelman (1994) argues that the rise of the black market in Russia during the 1960s increased the power of criminal gangs that had existed for many decades. During the Chubais privatisation programme, introduced under President Yeltsin, gangs gained control of black market trade and co-operated with local state officials with whom they shared an interest in weakening central control over the economy. After privatisation, a number of criminal cartels became linked to high government officials, who used organised crime groups to empower their struggle for control of the industries, banks etc. that once belonged to the state. 'The Russian gang is arguably the only Soviet institution that benefited from the collapse of the USSR' (Handelman 1994: 87). In 1997, the Russian parliament voted by 288 to 6 that privatisation had been unsatisfactory. Fifty-seven per cent of Russia's firms were privatised, but the state only received \$3–5 billion, because the firms had been sold at nominal prices to corrupt cliques who had an interest in sustaining disorder in civil society.

The role of outsiders

Fighting among the Yanomamö may partly be caused by competition for trade goods (Ferguson 1995, Fischer 2001: 10 and Helbling 1999: 105). There is plausible evidence that Chagnon's selective provision of machetes increased the severity of raiding among the Yanomamö. Tierney argued that Chagnon provoked warfare by distributing machetes and other metal goods to win the favour of Yanomami from whom he needed to collect blood samples and genealogies. The desire for steel implements drew Yanomami from other villages toward Chagnon, allowing disease to spread and thus

stoking claims of sorcery. These claims were supported to some extent by the findings of the American Anthropological Association's Task Force. The Task Force report quotes a Yanomami spokesperson, José Seripino, who told a member of the force, 'In those days we didn't have our own motors and he came with all that material – his research materials. The Yanomami needed these things – we were getting them from peasants. So one community has them and another not. Then other communities will get "fighting mad" (Spanish *bravo*)' (American Anthropological Association 2002: 2.97–8, parenthesis in original).

Wrangham and Peterson (1996: 77) claim that violent deaths among the !Kung (Ju/'hoansi) hunter gatherers of the Kalahari are more frequent than in America's worst cities. Richard Lee (1979: 382), the leading authority on the Ju/'hoansi, estimates there were twenty-two instances of homicide among Dobe Ju/'hoansi in the thirty years between 1920 and 1955. In 1964 the population, including temporary residents, was 466, while in 1968 it was 584 (Lee 1979: 43). Fifteen killings arose in the course of feuds, while seven were single killings that did not provoke retaliation. Five deaths were prompted by marital disputes, but at least five victims were innocent bystanders (Lee 1979: 383, 389). While this may seem a high death rate, the homicide rate rose considerably between 1978 and 1980. In just three years there were seven cases of Ju/'hoansi killing other Ju/'hoansi, often in drunken brawls. Murders increased because men were now using weapons issued by the South African army during their war with Namibian nationalist guerrillas (Lee and Hurlich 1982: 341).

The evidence that many recent wars afflicting nation states have been rendered more deadly by the introduction of powerful weapons supplied by other nations is overwhelming. Traditional procedures for resolving disputes may be unequal to the greater scale of destruction. Firearms were introduced

into northern Albania during Ottoman Turkish rule, which made feuding much easier and more lethal (Schwandner-Sievers 1999: 146). While unable to provide precise dates, Schwandner-Sievers quotes sources who deduce that muskets were introduced to neighbouring Montenegro in about 1700, and 'modern' firearms (i.e. breech-loading rifles) in about 1820. In 1907 an Austrian nobleman carried out a survey of deaths in thirty villages over a period of fifteen years, and calculated that 19 per cent of deaths arose from feuding.

Keebet von Benda-Beckmann (2004), writing on recent violence on the Indonesian island of Ambon, notes that some of the contemporary violence resembles a traditional pattern of violent conflict management. If, for instance, a close relative is wounded in a traffic accident, brothers and cousins set out to catch the presumed perpetrator. If found, he will be beaten severely, perhaps even killed. If the alleged perpetrator is not found, negotiation and reconciliation can be undertaken by elderly relatives. Now, however, the traditional social restrictions that previously restrained serious escalation seem to be failing. During the first month of the conflict reviewed in chapter 3 only knives and home-made weapons were used. Imported guns and automatic weapons have since increased the level of violence to a previously unknown level. The community to be defended has expanded from relatives and the village to the entire religious community. The elderly no longer know whom to talk to, or how to re-create peace. The staff of rural mosques are locally appointed and do not belong to a hierarchy beyond the village level, while Christian church organisation is not embedded in *adat* (traditional law). There is, therefore, no clear basis on which to re-establish mutual trust.

In Africa, huge quantities of lethal weapons have increased violence; arms control is very difficult (Ferguson 2003: 5). In

nineteenth-century Somalia the most lethal weapon was the spear, but in 1992 'every man and youth I encountered was very visibly armed with a Kalashnikov, or American equivalent, and there appeared to be plenty of heavy weapons in the background' (Lewis 1997: 184). There was also a lively trade in tanks across the Ethiopian border. Somalia was armed first by the Soviet Union and later by the United States. As clan authority in Somalia broke down during the 1980s, competition among urban elites was often played out along genealogical lines, *but without the constraining rules of customary law* (Besteman, 2003: 292, my emphasis).

At the start of civil war in Chad, in 1966, 'there were almost no fighters, nothing to fight with, and no way to get to the fight' (Reyna 2003: 279). The Frolinat rebels had perhaps a hundred partisans fighting with lances, while President Tombalbaye had a thousand soldiers armed with antiquated rifles and light machine guns. By Habré's rule in 1986–7, 'there were perhaps 20,000 soldiers in different liberation armies armed with everything from tanks, to missiles, to phosphorus mortars. Habré may have had up to 25,000 people in his army' (Reyna 2003: 276–7). There has, as Steve Reyna (277) puts it, been 'a spectacular accumulation of the means of violence in postcolonial Chad'. Many states have been involved, but particularly France, Libya and the United States.

The restoration of trust

If the breakdown of mutual trust can also be interpreted as the consequence of moving from a non-zero-sum game to a zero-sum game, then peace could be restored by persuading opponents that they can both benefit from the cessation of conflict. If this is so, they have an incentive to negotiate peace (compare chapter 2 on the threat of mutual destruction in nuclear war).

In northern Somalia peace was restored in 1991. Locally based Somali clans were able, without outside help, to rebuild peace. They were encouraged by the potential economic benefits of restoring safe travel in search of pasture and safe trade routes. David Pratten also shows how effectively local communities in East Africa can draw on traditional forms of social organisation to combat anarchy and oppression (Pratten 1997 and 2000).

Peace negotiations can be based on a complex assessment of the relative costs and benefits of alternative plans, in the search for a Nash equilibrium. Opponents may be persuaded to accept a compromise that represents the most feasible route to settled co-existence (Barakat et al. 2001: 177). Sultan Barakat and his co-authors describe the negotiations they undertook to rebuild a formerly Muslim village in Bosnia that had been colonised by Bosnian Croats during the civil war of the 1990s. The most feasible solution for allowing settled co-existence between the two parties entailed both sides making compromises. It was agreed that the Muslim refugees would return to their homes and rebuild the mosque in return for handing properties above the current water supply level to the Croats, who would then benefit from a new water supply taking water to higher ground. External agencies can thus play a part by making co-operation a precondition for assistance (see also Leutloff-Grandits 2003). The critical issue concerns the distribution of power between those who see benefit in the restoration of order, and those who, like the Yanomami *unokai*, benefit from disorder.

CONCLUSION

Order and anarchy began as an enquiry into why social change sometimes proceeds in an orderly fashion while at other times society disintegrates into disorder and civil war. One possible explanation – advocated by Thomas Hobbes and Napoleon

Chagnon – is that humans are inherently prone to violence, and will only renounce warfare when the state, or some other arbiter, can guarantee everyone will adhere to their social obligations. If the state weakens, anarchy results. Another possibility – championed by John Locke and Adam Ferguson – is that humans have always been capable of building co-operation and reciprocity through recognition that social order is in their long-term self-interest. The scope of social relations, however, fluctuates according to the extent to which mutual trust can be relied upon, or wellbeing increased through joint action. The case studies analysed here support the latter explanation. Social change can undermine trust and deprive people of needed resources. Trust is a fragile resource. Where free-riding brings high rewards (as in the Johannesburg gold rush) people may decide they can dispense with mutual obligations. Where resources are fixed, where others' trustworthiness is doubtful, individuals may sever extensive social ties to acknowledge only members of a village, kin group or ethnic community, often one that asserts a superior right to scarce resources.

Civil society is made up of the relations people construct among themselves, out of self-interest. I do not discount the possibility that men and women may act through disinterested altruism, but it is more persuasive to start from the 'bottom line' – that self-interest must be satisfied if social relations are to persist. Competition and exploitation are as important in human society as are co-operation and mutual aid. Whether civil society is considered a 'good thing', or not, depends both on the character of the social order and the stand-point of the person passing judgement. Those who believe society should consist of individual entrepreneurs will advocate a different kind of civil society to those who believe that mutual aid is the key to human welfare. Where the state is oppressive, civil society can play a valuable role in promoting human

rights. Where a multi-ethnic state is experiencing economic hardship, factionalism in civil society can destroy the lives of many citizens.

Chapter 4 has looked at the Yanomamö case in detail because I believe it illustrates some fundamental points about evolutionary approaches to human social behaviour. Charles Darwin's theory of evolution emphasised variability and contingency: variability in behaviour within a population, and contingency in environments. Even if aggression and warfare bring benefits to individual Yanomami men, this does not justify the conclusion that warfare is in any universal sense adaptive. Not all Yanomami men are 'killers', and those who seek such a reputation take advantage of the particular instability of Yanomami alliances that stems from the difficulty of sustaining trust between villages. From a global perspective, the success of one supposed personality type in one specific social environment is less important than is (as Durkheim suggested in his study of suicide) a general understanding of the relative outcomes of different social strategies in different circumstances.

The arguments for a direct evolutionary link between chimpanzee inter-group aggression and human warfare are simplistic. Humans differ from chimpanzees in their ability to construct social relationships on a wider scale, with individuals beyond the local band. Humans have evolved a greater capacity for learning and for keeping track of multiple social relations. These skills, seen clearly in the cultural interpretation of kinship, do not free humans from the constraints of natural selection, but they do allow us to respond more flexibly and with greater innovation to the challenges of social life. There is undoubtedly a genetic component in our ability to keep track of the state of reciprocal relationships. The evolution of the brain can be matched to the size of social

groups among primates, i.e. apes and monkeys (Dunbar 1993), but the environment to which such a condition is adaptive is largely socially constructed. Peacemaking skills have evolved in concert with the importance of social relationships among primates (de Waal 1989).

Human warfare arises when the web of social relationships is compromised. Human societies are complex systems and vulnerable to periods of disorder. The more unstable the state of the system, the greater the probability that a small, chance event will deflect it along a new historical trajectory (Stewart 1997: 127–9). It is at such moments that selfish leaders or unscrupulous mass media, as in Yugoslavia and Rwanda, have maximum opportunity to change the course of history. In periods of uncertainty, people are willing to accept as leader anyone who offers a simple and quick solution, however inept that solution subsequently proves to be. Once people can foresee the end of mutual dependence within a wider society, they may abandon reciprocal obligations and seek to re-establish relations within a more exclusive group. Warfare can be intensified by the supply of lethal weapons, sometimes beyond the level that can be handled by local procedures for reconciliation. The manipulative activities of leaders play a part in fomenting war, whether they are local Big Men in small-scale, uncentralised societies, or the leaders of nation states. Leaders, however, can only manipulate social relationships constructed and sustained, or repudiated, by the communities within which they operate.

Our species evolved in a social environment. As Adam Ferguson put it in 1767: 'Mankind are to be taken in groupes, as they have always subsisted' (Ferguson 1995: 10). *Order and anarchy* has argued against the view that the capitalist market economy is uniquely conducive to the creation of civil society. Chapter 1 showed that Locke and Ferguson, the originators

of the concept, regarded civil society as much more widely applicable. Historical and recent, non-Western examples were given in support of Locke's and Ferguson's position. The book has therefore argued that 'civil society' should include all those social organisations occupying the space between the household and the state that enable people to co-ordinate their management of resources and activities. It has done so in order to explore the usefulness of Locke's and Ferguson's original conceptualisations of civil society, in which people pursue social relations out of rational self-interest in all types of society, ranging from humankind's 'natural' condition (in politically uncentralised societies) to the nation state. This approach is justified by demonstrating the applicability of the same analytical models (game theory, the Prisoner's Dilemma) to social interaction in both simple and complex societies.

In this broader approach to civil society, no presumption is made concerning the contribution that civil society makes to coherence in the state, nor are some human societies treated as 'more evolved' than others. Civil society may support or undermine the unity of the nation state, depending on historical circumstances. Rationality is not seen as unique to social action in market democracies. While it is entirely reasonable to search for forms of civil society that promote co-operation and order throughout the state, it is unhelpful to label those that do not do so as 'primordial' or 'irrational'. Their situational rationality must be investigated, even if the violence they promote is condemned.

The narrow conceptualisation of civil society on which Seligman (1992) and Gellner (1994) relied implies that traditional social institutions such as kinship and ethnic groups are irrational and therefore followed blindly. Since allegiances to kin or ethnic identities seemed intellectually inexplicable, the only remedy appeared to be to introduce a universal market

economy, dissolve traditional communities and thus infuse behaviour with rationality. In practice, misguided implementation of the principles defended by Seligman and Gellner has promoted social disorder rather than coherence. Failure to understand the rationality of other forms of society makes it harder to anticipate the consequences of social change. Privatisation of common land held by local communities has enabled the rise of a landowning elite and, more importantly, has destroyed the traditional local civil society. Local people are dispossessed of productive resources and become vulnerable to exploitation by potential patrons. We should rather explore the rationality of allegiance to kin and ethnic communities in specific social contexts.

Violence is not inevitable, not an uncontrollable genetically programmed trait inherited from the common ancestor of humans and chimpanzees, but a response to particular conditions in the ecology of society. The desire to promote order is equally entrenched in our behaviour. The wider approach advocated here makes it possible to understand why it is in some people's interests to promote a wider social order, but in others' interests to disrupt it. Socially disruptive actions are sometimes, from the actor's perspective, rational, and civil war is not treated as an outbreak of irrationality, but as a reasoned response to particular social conditions. The aim of this book has not been to defend violence but to explain the conditions that compromise society and cause morally reprehensible behaviour, as much as it has been to understand the origins of social order. It has also sought to demonstrate that inter-ethnic violence and feuding between kin groups in distant parts of the world are precipitated by changes in the ecology of global society, an ecology in which we also participate and which is shaped by the policies of our own governments.