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Book Title	Applied Evolutionary Anthropology	
Chapter Title	Evolutionary Anthropology, Co-operation and Warfare	
Copyright	Springer Science+Business Media New York 2014	
Corresponding Author	Prefix	
	Family name	Layton
	Particle	
	Given name	Robert
	Suffix	
	Division	Anthropology Department
	Organization	University of Durham
	Address	Durham, UK
	Email	r.h.layton@durham.ac.uk
Abstract	<p>The chapter begins by reviewing recent work by Robert Kaplan and Steven Pinker, both of whom invoke Hobbes to support their argument that men are naturally violent or warlike. Kaplan and Pinker conclude that only 'strong government' can guarantee that society will not break down into anarchy. However, the failure of Western military interventions in Iraq and Afghanistan to install strong government and enforce peace points to the need for a better understanding of the dynamics of conflict and co-operation. I therefore examine critically the anthropological evidence for violence among chimpanzees and in small-scale human societies that Pinker and others cite in support of their Hobbesian arguments and identify both inaccuracies in the data cited and problems in their interpretation. In the second part of the chapter, game theory and the concept of fitness landscapes are introduced to show how evolutionary anthropology can provide a more nuanced explanation for human competition and co-operation. These provide more accurate guidelines for practical application in forestalling civil disorder or restoring peace.</p>	
Keywords	(Robert) Kaplan - (Steven) Pinker - (Thomas) Hobbes - War - Chimpanzees - Game theory - Fitness landscape - Civil disorder	

Chapter 8

Evolutionary Anthropology, Co-operation and Warfare

Robert Layton

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 2 Steven Pinker, both of whom invoke Hobbes to support their argument that men are
 3 naturally violent or warlike. Kaplan and Pinker conclude that only 'strong govern-
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 14 guidelines for practical application in forestalling civil disorder or restoring peace.

8.1 Introduction

16 War is 'a relationship of mutual hostility between two groups where both try by
 17 armed force to secure some gain at the other's expense' (Sillitoe 1978, p. 252).

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18 In principle, warfare can be distinguished from interpersonal violence (Younger
 19 2008, p. 927). While the Yanomamö (Chagnon 1983, 1988) practise inter-village
 20 warfare, the Ache and Ju'hoansi (Hill and Hurtado 1996, pp. 172–3; Lee 1979,
 21 p. 383, 389) only experience a low level of interpersonal violence, resulting in a
 22 much smaller proportion of violent deaths. Are humans naturally violent, as Thom-
 23 as Hobbes (1588–1679) argued, or are they naturally sociable, as Adam Ferguson
 24 (1723–1816) countered? These apparently opposed positions have been recently
 25 restated by Kaplan (1994, 2000) and Pinker (2002, 2011) on one side and Aureli
 26 et al. (2002) on the other. How can they be resolved through a more nuanced ap-
 27 proach that examines the conditions under which violence or peaceful sociability

R. Layton (✉)
 Anthropology Department, University of Durham, Durham, UK
 e-mail: r.h.layton@durham.ac.uk

M. A. Gibson, D. W. Lawson (eds.), *Applied Evolutionary Anthropology*, Advances
 in the Evolutionary Analysis of Human Behaviour 1, DOI 10.1007/978-1-4939-0280-4_8,
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AQ2 Fig. 8.1 Wola (New Guinea Highlands): a battle being fought across a sweet potato garden. (© Paul Sillitoe)

28 predominate, in such a way as to draw practical conclusions that can be imple-
29 mented in conflict prevention and peace building?

30 **8.1.1 The Hobbesian Position**

31 Robert Kaplan is a US journalist who advocated the Second Iraq War and who has
32 exercised a strong influence on the US foreign policy. In his 1994 paper 'The com-
33 ing anarchy', Kaplan wrote:

34 We are entering a bifurcated world. Part of the globe is inhabited by Hegel and Fukuyama's
35 Last Man, healthy, well-fed and pampered by technology. The other, larger, part is inhabited
36 by Hobbes's First Man, condemned to life that is 'poor, nasty, brutish and short' (p. 60).

37 Kaplan identifies the causes of Africa's alleged descent into Hobbesian anarchy in
38 irrational religious beliefs, loose family structure and high birth rates, declining coca
39 prices, international drug cartels that have discovered the utility of weak, financially
40 strapped West African regimes and hardwood logging that continues 'at a madcap
41 speed', causing soil erosion. Beyond these specific causes, Kaplan (1994, p. 72)
42 also finds what he calls an innate atavism: 'In places where the Western Enlighten-
43 ment has not penetrated and where there has always been mass poverty, people find
44 liberation in violence.'

45 Kaplan republished this essay in a collection of the same title (Kaplan 2000).
46 While his other essays are not always as sensationalist, the book does provide



Fig. 8.2 Wola man with a bark shield drawing his bow.
(© Paul Sillitoe)



47 an extended argument for ‘strong government’. It is prefaced with a quote from
 48 **Leviathan**, ‘Before the names of Just and Unjust can have place, there must be some
 49 coercive power’. The theme of man’s natural propensity for violence continues:
 50 When standing armies are reduced in peacetime, ‘we will have as much violence
 51 as before, only it won’t take an organised form’ (p. 175). Kaplan (2000, p. 178)
 52 concludes ‘consensus can be the handmaiden of evil, since the ability to confront
 53 evil means the willingness to act boldly and ruthlessly and without consensus, the
 54 attributes that executive, national leadership has in far more abundance than any
 55 international organisation’.



56 Steven Pinker’s book *The Blank Slate* (2002) is a far more substantial study
 57 than Kaplan’s. Pinker is an evolutionary psychologist. His book is directed against
 58 social scientists who argue that the human mind is entirely shaped by culture. Pink-
 59 er wrongly identifies Durkheim as the founding father of this argument, a point
 60 to which I will return. He introduces his case by contending that human behav-
 61 iour is generated by both genes and culture but, as his argument proceeds, Pinker
 62 turns increasingly to argue that emotions and drives, in particular the propensity

63 to violence, 'have a common logic across cultures, are difficult to erase or redesign
64 from scratch [and] were shaped by natural selection acting over the course of human
65 evolution' (Pinker 2002, p. 73).

66 Pinker begins by posing a rhetorical question: Was Rousseau (CF Rousseau
67 [1963/1755], p. 187) correct to portray man in his natural state as a gentle creature
68 or was Hobbes correct to argue that man's natural state was a war of every man
69 against every other man? If Hobbes was right, then we need the police and army
70 to enforce an 'uneasy truce', and if people are naturally nasty, then children must
71 be disciplined and tamed (2002, p. 7). In the past two decades, Pinker contends,
72 anthropologists have gathered data on life and death in pre-state societies, and
73 found Hobbes was right, Rousseau wrong. Pinker's main sources appear to be
74 Chagnon's study of the Yanomamö and two surveys by Daly and Wilson (1988)
75 and Keeley (1996).

76 Pinker cites Locke and others as sources of the economic, or social contract
77 tradition that society is an arrangement negotiated by rational, self-interested
78 individuals. He rightly argues this theory consistent with 'the modern theory of
79 evolution'; reciprocal altruism is the social contract restated in biological terms
80 (2002, p. 285). Behavioural strategies evolved to benefit the individual, not the
81 community. However, he goes on to assert, as if this were a conflicting argument,
82 that morality was preceded by billions of years of the morally indifferent process
83 known as natural selection (Pinker 2002, p. 318). In Pinker's view, Hobbes captured
84 'the consequences of this background amorality.... He showed how the dynam-
85 ics of violence fall out of interactions among rational and self-interested agents'
86 (p. 318). But Hobbes also showed us the solution, 'a governing body that is granted
87 a monopoly on the legitimate use of violence can neutralise each of Hobbes' rea-
88 sons for quarrel.... Adjudication by an armed authority appears to be the most ef-
89 fective violence-reduction technique ever invented' (Pinker 2002, p. 330). Just to
90 make it clear that he is recommending a policy of autocratic authority, Pinker adds:
91 'Democratic leviathans have proved to be an effective anti-violence measure, but
92 they leave much to be desired' (p. 332).

93 In Pinker's more recent book *The Better Angels of Our Nature* (2011), Hobbes
94 remains a qualified authority. Hobbes 'used fewer than a hundred words to lay out
95 an analysis of the incentives for violence that are as good as any today' (Pinker
96 2011, p. 33). Hobbes was describing a state of anarchy, and 'Archaeologists tell us
97 that humans lived in a state of anarchy until the emergence of civilisation some five
98 thousand years ago, when sedentary farmers first coalesced into cities and states'
99 (p. 35). On the other hand, Pinker now concedes that Hobbes 'got a lot of it wrong'
100 (p. 52) and democratic leviathans are given more credit.

101 Considering the slender character of Hobbes's argument, and the existence of
102 competing theories of human nature in seventeenth-century political philosophy,
103 it is surprising that Hobbes can still be cited as an authority. Hobbes's method was
104 to start from the essential properties of the natural kind or class of things—such as
105 *man*—and derive a universal principle:

106 By experience known to all men and denied by none, to wit, that the dispositions of men
107 are naturally such that except they be restrained through fear of some coercive power, every
108 man will distrust and dread each other. (From *Philosophical Rudiments*, quoted in Peters
109 1967, p. 62)

110 Hobbes was not, then, the kind of academic authority such as Darwin, whose
111 conclusions are based on extensive empirical research, but rather the sort that has
112 derived axioms from first principles. The salience of Hobbes's book *Leviathan*
113 stems partly from the moment that it was published, shortly after the English Civil
114 War. During the period between the King's execution in 1649 and Cromwell's as-
115 sumption as Lord Protector in 1653, 'there was constant discussion and experi-
116 mentation to find an appropriate form of government to succeed the monarchy'
117 (Peters 1967, p. 31). Hobbes's arguments were therefore used both to justify Crom-
118 well's Protectorate and the restoration of Charles II. 'The doctrine of sovereignty
119 which emerged from his writing was one that could be used to justify any absolute
120 *de facto* government' (Peters 1967, p. 32).

121 I will argue that a more nuanced understanding of human violence can be gained
122 by taking an 'ecological' approach to social relations, according to which there may
123 be certain social circumstances that encourage violent competition for desirable re-
124 sources and other circumstances that favour peaceful co-operation. The conditions
125 conducive to peace or violence are addressed with regard to Polynesian islanders
126 by Younger (2008). Younger uses statistical methods, identifying population size,
127 degree of isolation and egalitarianism or hierarchy as key variables contributing to
128 a peaceful or violent society, but I will take a more dynamic approach to explain
129 the evolution of social strategies in different natural and social environments. When
130 writers are reluctant to acknowledge such more complex scenarios, they must bol-
131 ster their selective use of empirical evidence by appealing to the axiomatic truths
132 put forward by an authority. This may particularly be the case where the writer's
133 own interest group has been instrumental in constructing an adverse social environ-
134 ment for others, or where he seeks justification for authoritarian government.

135 8.2 Competing Arguments

136 Hobbes was not the only political theorist stimulated by the English Civil War. The
137 Levellers were a radical political sect active during the Civil War, who campaigned
138 against the monarchy and private property, and in favour of universal male suffrage.
139 While they fought on the Parliamentary side in the Civil War, they were not popular
140 with Cromwell, who had some of them executed. The Levellers were among the
141 political thinkers of the Enlightenment who had been inspired by Tacitus's account,
142 in Chap. 11 of his *Germania*, of the rough-hewn democracy of the Germanic peo-
143 ples beyond the edge of the Roman Empire. *Germania* was republished in Antwerp
144 in 1574 (Dudley 1968, p. 234). Its rediscovery had a profound effect on English
145 political thought, as Tacitus's Germanic people were taken to be the ancestors of



146 the Anglo-Saxons. Tacitus's account stimulated the political theory of the 'Norman
147 Yoke', that the Norman Conquest had imposed an oppressive, centralised hierarchy
148 on what had been a more egalitarian Anglo-Saxon society that brought the prin-
149 ciples of Germanic democracy to England (Hill 1958). The broadest interpretation
150 made by seventeenth-century writers was to equate the Anglo-Saxon society with
151 the natural human state of primitive communalism. Hill argues that the Levellers
152 were the first to deduce from this a universal principle, the natural rights of man
153 (Hill 1958, p. 81).

154 **8.2.1 John Locke**

155 Another possibility—championed by John Locke and Adam Ferguson—is that hu-
156 mans have always been capable of building co-operation and reciprocity because
157 they recognise that social order is in their long-term self-interest. Locke published
158 his *Two Treatises of Government* in 1689, 30 years after Cromwell's death. Locke
159 argued that people possessed 'natural rights' that they were entitled to defend
160 against an oppressive state. 'Men living together according to reason, without a
161 common Superior on Earth with Authority to judge between them, is *properly the*
162 *state of nature*' (Locke [1960/1689], p. 280, his emphasis).

163 Locke's approach was taken up in the following century by Adam Ferguson,
164 who wrote 'Mankind are to be taken in groupes [sic], as they have always subsisted'
165 (Ferguson [1995/1767], p. 10). Before the state assumed responsibility for up-
166 holding the law, people owed their safety to 'the warm attachment of their friends,
167 and to the exercise of every talent which could render them respected, feared or
168 beloved' (p. 211). They were 'intangled [sic] together by the reciprocal ties of
169 dependence and protection...' (p. 71). Ferguson may have been thinking of the
170 Levellers' argument for the origin of democracy in ancient Germanic society when
171 he wrote, 'The inhabitants of a village in some primitive age, may have safely been
172 intrusted to the conduct of reason to regulate their own affairs' (Ferguson 1995,
173 p. 63), but he also had access to the account of the Iroquois Confederacy published
174 by the French missionary and anthropologist Lafitau (1681–1746), a social order
175 which, Ferguson concluded, was rationally sustained by its members' self-interest
176 (Ferguson 1995, p. 64).

177 A recent restatement of this view has been put forward by the primatologist
178 Felipe Aureli and colleagues. Aureli et al. (2002, p. 325), writing generally about
179 primates (apes and monkeys), point out that 'for gregarious animals, conflict of
180 interest, while unavoidable, may compromise the benefits of group living or neigh-
181 bourliness, *especially when it escalates into aggression*' (my emphasis). Male
182 chimpanzees within a community engage in reconciliations after conflict more
183 frequently than do females (Aureli et al. 2002, p. 334).

184 **8.3 The Evidence for Levels of Warfare** 185 **in Stateless Societies**

186 To disentangle the levels of inaccuracy and misunderstanding perpetuated by
187 Kaplan and Pinker, we need first to look at the evidence on which they rely, and
188 second at how it is misrepresented. Proponents of the argument that mankind's in-
189 nate violence constantly threatens to undermine society find Chagnon's study of the
190 Yanomamö a particularly useful source, and Pinker cites him repeatedly. I therefore
191 start this section of the chapter by looking critically at Chagnon's data, and at the
192 use made of these data by Wrangham and Peterson in their 1997 book *Demonic*
193 *Males: Apes and the Origin of Human Violence*. It should be noted that while they
194 provide information that would support a Hobbesian argument, neither Chagnon
195 nor Wrangham and Peterson explicitly cite Hobbes. Their argument with regard to
196 forms of government is simply that a centralised state can guarantee a lower level
197 of violence than exists among stateless societies. Chagnon (1988, p. 990) cites the
198 case of a young Yanomamö man who went to the territorial capital to be trained as
199 a nurse, where he discovered police and laws. He told Chagnon how he had visited
200 the territorial governor and urged him to make both police and law available to the
201 Yanomamö. Wrangham and Peterson (1997, p. 77) propose that to combat men's
202 genetic capacity for violence, people have built civilisations with laws and justice,
203 diplomacy and mediation (Wrangham and Peterson 1997, p. 198).

204 **8.3.1 Chagnon on the Yanomamö**

205 The Yanomamö, horticulturalists (swidden cultivators) in forests on the borders of
206 Venezuela and Brazil, live in semi-permanent villages. Chagnon treats each Yano-
207 mamö village (correctly) as a 'sovereign' entity. Alliances are based on the regular
208 exchange of women in marriage (Chagnon 1983, p. 149). No village can contin-
209 ue to exist as a sovereign entity without establishing alliances with other groups
210 (p. 147). Despite an agreed gradation in levels of violence, including chest pound-
211 ing and club fights (p. 66), which enables people to resolve grievances without
212 killing (p. 170), warfare is endemic among the Yanomamö, and accompanied by a
213 'bellicose' ideology that strong villages should take advantage of weaker ones by
214 capturing their women. Chagnon argues (1983, p. 86) that the desire for women
215 causes 'much' of Yanomamö warfare; but later he writes, 'Although few raids are
216 initiated solely with the intention of capturing women, this is always a desired side
217 benefit' (p. 175).

218 In his 1988 paper, Chagnon claimed that violence enhances male reproductive
219 success; men who have killed more people have more wives and children than men
220 who have not killed. Such men are called *unokai*. Chagnon (1988, p. 985) does not
221 claim the existence of a gene/allele for violence, but he does claim that being a killer
222 among the Yanomamö enhances one's reproductive success. Warfare is therefore

223 adaptive (for men!) among the Yanomamö, and the Yanomamö are typical of 'prim-
224 itive societies' (1988, p. 985). This is echoed by Pinker, who comments that such
225 arithmetic, if it persisted over many generations, would favour a genetic tendency
226 to be willing and able to kill (2011, p. 612).

227 Chagnon has probably inflated the proportion of genuine 'killers' in the popula-
228 tion. His 1988 paper records that 44% of men over 25 claim to have killed someone,
229 but only 30% of adult men died violently (Chagnon 1988, p. 987 versus p. 986).
230 Seventy-five percent of claimed killings (p. 262, 345) can be accounted for by the
231 54 *unokai* who reported having killed two or more men (Chagnon 1988, Fig. 1,
232 'Number of victims for which living killers *unokaied*'). These 54 constitute a mere
233 14% of the adult male population of 380 included in Chagnon's Table 3 ('Mari-
234 tal success of *unokais* and *non-unokais*'). Chagnon has demonstrably exaggerated
235 *unokais*' relative reproductive success by adding up the number of children born to
236 *unokai* and *non-unokai* of all ages above 20 and concluding that *unokai* have three
237 children for every one born to a *non-unokai*. Many *non-unokai* are young men just
238 starting to have children. Their family size will inevitably be smaller. Survivors
239 may claim *unokai* status later in life. The most accurate measure of the advantage of
240 being an *unokai* is to compare reproductive success among *unokai* and *non-unokai*
241 over 40, where family size is most probably complete. *Unokai* over 40 have 1.67
242 children for every child born to a *non-unokai*. They are advantaged, but not to the
243 extent implied by Chagnon's all-age ratio of 3:1.

244 8.3.2 *Wrangham and Peterson: Demonic Males*

245 Wrangham and Peterson, whom Pinker (2002) also cites, go further than Chagnon
246 in three respects. First, they equate the Yanomamö with the original human condi-
247 tion. While admitting that the Yanomamö are not hunter-gatherers they contend that
248 'No human society offers a better comparison in this regard [with chimpanzees]. ...
249 because they have been so remarkably protected from modern human influences'
250 (1997, p. 64). Wrangham and Peterson blithely disregard the fact that, far from
251 'uncontaminated' by contact with the outside world, the Yanomamö have interacted
252 with outsiders since the eighteenth century, as victims of slave raiders, enemies of
253 settlers and subjects of missionary endeavours (Fischer 2001).

254 Second, they argue explicitly for a genetic basis to human violence (1997, p. 196,
255 198). Has sexual selection shaped our psyches, to make us better fighters? they ask
256 rhetorically (p. 182). Is it the emotion of pride that underlies violence among both
257 chimpanzees and humans (p. 190)? The road from 'maybe' to 'is' is short one, and
258 two pages later they conclude that 'the molecular chemistry of DNA...contains
259 destructive elements' (Wrangham and Peterson 1997, p. 198). This conclusion al-
260 lows Wrangham and Peterson to go further than Chagnon in a third respect, tracing
261 the origin of human violence to our primate ancestors prior to the divergence of the
262 evolutionary pathways leading to modern humans and chimpanzees (i.e. a period
263 of more than 6 million years), an argument paraphrased by Pinker (2011, p. 38).

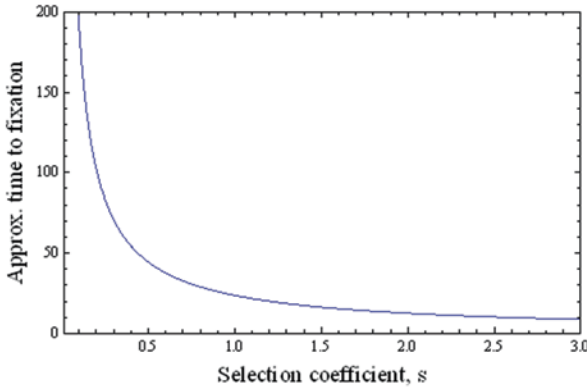


Fig. 8.3 Graph showing the number of generations required (*vertical axis*) for a fitter allele to displace a less fit, alternative allele, depending upon the fitness differential between the two alleles (*horizontal axis*)

264 Chimpanzees, Wrangham and Peterson write, provide ‘surprisingly excellent models of our direct ancestors. It suggests that chimpanzee violence preceded and paved the way for human war’ (p. 63). ‘Our ape ancestors have passed to us a legacy... written in the molecular chemistry of DNA’ (p. 198) which causes our desire to intimidate the opposition.

269 **Yanomamö unokai over 40 have** 1.67 children for every 1 child born to non-*unokai* in the same age bracket is, in terms of Darwinian natural selection, a huge advantage. Suppose we interpret Wrangham and Peterson’s (1997, p. 198) claim that human violence is ‘written in the molecular chemistry of [our] DNA’ at its most literal, and postulate a model in which there were two alleles of a gene, one causing a peaceable character in men and the other a violent disposition. If those men carrying the violent allele have 1.67 children born for every 1 child fathered by a man carrying the allele for a peaceable nature, the ‘violent’ allele would quickly displace its alternative in a population of similar size to the Yanomamö. In an effective population of approximately 500, a single allele with a biologically plausible yet still large selective advantage of 1.1:1.0 over another at the same locus, with no dominance assumed, can spread within approximately 190 generations, or 5,000–6,000 years (see Fig. 8.3).¹ If the reality were as simple as this, then the present state of affairs among the Yanomamö would be transient and certainly not the original human condition. Approximately 38% of Yanomamö men aged 41 or over in Chagnon’s sample claim *not* to be *unokoi*; so, if such a selective process is at work, it is still incomplete. Further, Chagnon only documents the situation

¹ Ewans’s (2004) equation 1.28, $t(x_1, x_2) = \int_{x_1}^{x_2} \{1/2Sx(1-x)\}^{-1} dx$, gives the time required for the frequency of an allele to move between two values x_1 and x_2 , assuming the fitness differential, s , in a bi-allelic system and in the absence of any allelic dominance. The following graph shows the time taken (in generations) for the allele to spread from its initial frequency $x_1 = 1/N$ through to $x_2 = 1 - 4(2Ns)^{-1}$ (see Ewans, Eq. 5.50), which is close to fixation (assuming high s) and beyond which dynamics are stochastic.



286 over two generations. It is possible that non-*unokai* have more surviving grand-
287 children than do *unokai*.

288 How valid is Wrangham and Peterson's claim of violence among chimpanzees?
289 Both Goodall (1986) and Nishida et al. (1985) reported cases of chimpanzees (*Pan*
290 *trogodytes*) extending their territories by attacks on adjacent groups, apparently
291 supporting the claim of a direct connection between male chimpanzee aggression
292 and human warfare. Among both chimpanzees and many small-scale human soci-
293 eties, it is females/women that leave their natal group to join the group in which
294 they will reproduce. The discovery that females also move between groups among
295 chimpanzees potentially throws light on the origin of the intergroup alliances in
296 human society (Rodseth et al. 1991) and provides grounds for contending other
297 groups were attacked to obtain their women rather than their territory (e.g. Chagnon
298 1997, p. 97).

299 There is, however, still some question as to how typical is the pattern reported
300 by Goodall, and to what extent it may have been influenced by the research team's
301 practice of supplying the Gombe chimpanzees with bananas. After the supply of
302 bananas had been drastically reduced, the Gombe community split into two groups
303 and became polarised within a range they had previously apparently shared. Over
304 a period of 2 years, the males of the larger group killed at least some of those
305 in the smaller group, and took over their territory. Encroaching farmers may
306 also have displaced other chimpanzees into the area, increasing the pressure on
307 food resources (Ghiglieri 1984, p. 8). The Mahale Mountains of Tanzania, on the
308 eastern side of Lake Tanganyika, contain at least eight chimpanzee communities
309 (Nishida et al. 1990, p. 66, Table 3.2). While territories are generally exclusive,
310 groups 'M' and 'N' showed, for a time, some overlap of ranges (Nishida et al.
311 1990, p. 71, Fig. 3.4). Group 'M' subsequently gained exclusive access to the
312 area previously shared. There is circumstantial evidence for raiding, but no direct
313 evidence that one group of males systematically wiped out another in order to gain
314 access to females. While the killing of vulnerable individuals in border zones is
315 now well documented (Wilson and Wrangham 2003; Wilson et al. 2004), Manson
316 and Wrangham (1991) acknowledged that there are only two known cases (one
317 confirmed and one probable) of group extinction via lethal raiding (Manson and
318 Wrangham 1991, p. 371; Wilson and Wrangham 2003, p. 372). Sean O'Hara (per-
319 sonal communication), who carried out field research at Budongo where there was
320 less pressure on land, found that male chimpanzees there engaged less frequently
321 in border patrols (see Reynolds 2005; Bates and Byrne 2009), further questioning
322 the universal applicability of the Gombe incident.

323 Mameli and Bateson (2006) discuss 26 possible scientific definitions of in-
324 nateness. Among these 26, they identify 8 that are reasonably sound and test each
325 against 9 case studies of behaviour for which claims of innateness have been made.
326 The three that score most highly are (see their Table 1, p. 177 and Table 2, p. 180):

- 327 • Definition 3: 'It reliably appears during a particular stage of the life cycle', e.g.
328 onset of sexual maturity—but, they note, this can also be characteristic of learned
329 traits (p. 158).

- 330 • Definition 12: 'All environmental manipulations capable producing an alterna-
 331 tive trait are evolutionarily abnormal' (p. 164).
 332 • Definition 25: 'It is a standard Darwinian adaptation'—but they note again that
 333 many learned traits are standard Darwinian adaptations, albeit transmitted by
 334 culture (pp. 173–4).

335 In the following paragraphs, I will argue that none of these three definitions justify
 336 treating human aggression as an innate trait.

337 **8.3.3 *The Evidence from Hunter-Gatherers***

338 Wrangham and Peterson are surprisingly vague about violent combat among hunt-
 339 er-gatherers. 'Unfortunately for anthropology, much less is known about warfare
 340 among equivalently isolated foraging people' (Wrangham and Peterson 1997, p. 71),
 341 but they seek to dispel the notion that hunter-gatherers are peaceful, citing a survey
 342 of 31 hunter-gatherer societies by Ember (1978) which reported that 64% engaged
 343 in warfare once every 2 years (p. 75). They also cite Eibl-Eibesfeldt (1989), another
 344 secondary source, for the statement that among the 'Murngin' (Yolngu) of north-
 345 ern Australia, 28% of deaths were due to warfare (Wrangham and Peterson 1997,
 346 pp. 75–77), but Eibl-Eibesfeldt has misquoted his primary source, Lloyd Warner.
 347 Warner, who conducted extended fieldwork among the Yolngu from 1926 to 1929,
 348 estimated that in a population of around 1,500 men, approximately 200 had been
 349 killed over a period of 20 years (Warner 1958, p. 147), and not 200 out of 700, as
 350 reported by Eibl-Eibesfeldt. This gives a substantially lower proportion of violent
 351 deaths at c. 13%.

352 Pinker's Fig. 2.2 (2011, p. 49) compiles ethnographic data from hunter-gatherers
 353 and hunter-horticulturalists based on secondary sources. These data include a very
 354 high figure for Ache of c. 32% (higher than both Yanomamö samples in the horticultu-
 355 ralist) and far higher than Hill and Hurtado's primary data cited below. The Murn-
 356 gin are still shown at c. 22%. The table is selective, on the grounds that small bands
 357 such as the !Kung San and the Inuit 'are not a representative sample of our anarchic
 358 ancestors': These people, he argues, have survived as hunter-gatherers only because
 359 they inhabit remote parts of the globe that no one else wants (Pinker 2011, p. 41),
 360 and the environment of evolutionary adaptedness 'is not the cut that is most relevant
 361 to the Leviathan hypothesis'. Pinker asserts that the inhabitants of 'flusher environ-
 362 ments' such as the Northwest Coast of North America, Amazonia and New Guinea,
 363 although they practise swidden cultivation, are far closer to pure hunter-gatherers
 364 than they are to sedentary, full-time farmers (also 2011, p. 41). The Northwest Coast
 365 and Amazonian cases will be re-examined below.

366 Primary data are given for the Ache of Paraguay by Hill and Hurtado (1996) and
 367 for the Ju/'hoansi (!Kung) of the Kalahari by Lee (1979). Hill and Hurtado (1996,
 368 p. 172–3) calculate the proportion of total deaths attributed to violence, among all
 369 individuals aged 15+, when the Ache lived as hunter-gatherers before settlement
 370 on a mission (Table 8.1).

Table 8.1 Causes of death among ache hunter-gatherers. (Hill and Hurtado 1996, p. 172–3)

	Male	All (male + female)
<i>Total deaths of which caused by violence:</i>	103	153
Abandoned	2	5
Club fight/killed by ache	9	11
Shot by paraguayen	33	48
Captured by paraguayen	0	1
Subtotal	44	65
<i>Percentage of deaths due to violence</i>		
Between ache	11%	10%
From paraguayans	32%	32%

Table 8.2 Causes of death among Ju/'hoansi hunter-gatherers. (Lee 1979, p. 383, 389)

In the course of feuds	15
Single killings that did not provoke retaliation	7
Marital disputes	5 (including 2 women)
Innocent bystanders	At least 5 (including 1 woman)

371 Lee (1979, p. 383, 389) identified 22 instances of homicide among Dobe
 372 Ju/'hoansi during the 35 years between 1920 and 1955. These are listed in Table 8.2.

373 In 1964, the Ju/'hoansi population at Dobe, including temporary residents was
 374 466, while in 1968 it was 584 (Lee 1979, p. 43). A total of 32 deaths in a popula-
 375 tion of approximately 525 is equivalent to 6% of the population dying violently
 376 over 35 years. These data show that violent death may be much less prevalent
 377 among hunter-gatherers than among the Yanomamö, and also lower than implied
 378 by Pinker's data (Pinker 2011, p. 54 argues the!Kung were more violent during the
 379 time they fought encroaching Bantu pastoralists and European settlers).

380 Warfare among hunter-gatherers is not always as ruthless as Pinker reports.
 381 In 1932, the Australian anthropologist Stanner witnessed a 'large-scale fight' be-
 382 tween two Aboriginal groups. Despite the 'anger, challenge and derision' on both
 383 sides, there was also control. Only light duelling spears were in use. Towards
 384 sunset, the battle ceased 'and some of the antagonists began to fraternise'. Several
 385 weeks later, Stanner attended an initiation ceremony. Both sides to the dispute
 386 were present. Even though they were 'at violent enmity.... The bad feeling had
 387 been suppressed, after the aboriginal fashion, for a necessary tribal affair' (Stan-
 388 ner 1960, p. 65–7).

389 It is true that warfare was endemic among hunter-gatherers on the Northwest
 390 Coast of North America in the recent past, but the origin of this intensive warfare
 391 can be estimated from the archaeological record. The Northwest Coast has been
 392 inhabited by hunter-gatherers since 9000 BC (Maschner 1997). During the long
 393 period between 9000 and 3500 BC, groups were small and mobile. The first evi-
 394 dence for conflict on the Northwest Coast occurs by 3000 BC, coinciding with the
 395 earliest shell middens, and is seen primarily in nonlethal skeletal injuries. This was
 396 probably due to stabilisation of the postglacial sea level; a denser and more predict-
 397 able resource distribution allows stronger territoriality (Maschner p. 210 ff, 217). In

398 the 'Middle Pacific' period (1800 BC–AD 200/500), skeletons from northern areas
399 evidence a sharp upsurge in hand-to-hand fighting, with 48 % showing some injury,
400 although only 15 % of skeletons from further south show such injuries. From AD
401 200–500, however, the onset of warfare is evident in the construction of defensive
402 sites, the aggregation of what may have been single lineages into large community
403 villages and population decline. The bow and arrow were introduced to the region at
404 that time, intensifying the violence of conflict. Northwest Coast warfare is a product
405 of specific ecological and social conditions.

406 **8.4 Explaining the Incidence of Violence** 407 **in Human Societies**

408 The above evidence does not prove that hunter-gatherers are peaceful and
409 horticulturalists warlike, but it does show that levels of violence among politically
410 uncentralised societies vary. If we are to understand the phenomenon of violence
411 in the absence of a sovereign, this variation is as important as its mere presence
412 to some degree. The incidence of violence can usefully be explained by recourse to
413 game theory.

414 **8.4.1 Game Theory**

415 The modern theory for the evolution of co-operation originated in John Von Neu-
416 mann and Oskar Morgenstern's *Theory of Games* (1944). The best-developed part
417 of their theory concerned 'zero-sum two-person games'. In a zero-sum game, the
418 winnings are fixed, and the two players are therefore in competition to see who
419 can gain the largest share, a Hobbesian situation. The model was taken up by post-
420 World War II military strategists. Air battles were represented as duels between a
421 pair of opposing planes. There was a trade-off between two conflicting strategies:
422 waiting until the opponent approached, so as to have a better chance of hitting him,
423 and firing first to avoid being hit: a version of the game of 'Chicken'.

424 As nuclear weapons grew more destructive, however, strategists in the USA
425 came to appreciate that the duel model was inappropriate and co-operation advanta-
426 geous. The USA and the Soviet Union now shared an interest in avoiding mutually
427 assured destruction (MAD). This dilemma posed sociologically more interesting
428 questions. Co-operation, negotiation and disarmament could benefit both, if the
429 other could be trusted (Nasar 1998). Was it possible to turn confrontation between
430 the USA and the USSR. into a non-zero-sum game, without the intervention of an
431 overarching sovereign?

432 The model of the *Prisoner's Dilemma* was devised to explore how mutual trust
433 could be achieved without the intervention of an umpire. This uses the model of
434 two suspects who have been arrested and are being interrogated in different rooms,

435 to explore the conditions under which co-operation can evolve. The prisoner
436 wonders whether he can trust the other to remain silent. Each is told that, if they
437 alone implicate the other in the crime, they will be rewarded. If both confess, both
438 will receive a moderate sentence, since their confession helped the police solve
439 the crime. If one refuses to confess (i.e. refuses to 'defect'), even though the other
440 has done so, his sentence will be heavier. If the other prisoner is suspected of hav-
441 ing confessed, it will therefore be better to take the same course oneself (Trivers
442 1985, pp. 389–90).

443 At first sight, the most rational plan seems to be to defect rather than trust the
444 other prisoner to remain silent (or, in the case of nuclear war, trust them to refrain
445 from launching an attack). Mutual defection (attack) is however more costly than
446 co-operating with the other prisoner to remain silent. Each prisoner faces the di-
447 lemma that, although defection is less risky than co-operation, if both defect they
448 will both do worse than if they had co-operated with each other, since they would
449 be freed if neither confesses.

450 The dilemma shows that if each prisoner pursues their immediate private inter-
451 est every time they are arrested they do not achieve the best long-term outcome for
452 themselves, let alone for the other prisoner; a Hobbesian war of each against all
453 would be the result. Robert Axelrod realized that co-operation would only develop
454 if the prisoners can anticipate each other's intentions (Axelrod 1990). Since they are
455 secluded from one another in the cells, anticipation must be based on prior knowl-
456 edge. If the game is played once with an unfamiliar 'partner', the stable strategy
457 will be to defect (Axelrod 1990, p. 10), but if it is played repeatedly by the same
458 players the stable strategy may be to co-operate through remaining silent. To rely
459 on co-operation, the prisoners must have already interacted with each other in ways
460 that test their loyalty to one another. They must, in other words, have evidence of
461 the other's commitment to reciprocal altruism. This provided a clear explanation
462 for the desire to perpetuate social relationships out of self-interest, the condition
463 envisaged by Locke, by reassuring others of one's friendly intent. The discovery led
464 to the introduction of the original telephone 'hot line' directly linking the presidents
465 of the USA and USSR.

466 A more sophisticated theory for the evolution of war is therefore required. The
467 notion of warfare being hard-wired in the human genome goes against the funda-
468 mental axiom of Darwinian evolution that no adaptation is universally 'better' than
469 another; each adaptation is a response to its local ecological context. Genes, indi-
470 viduals and species interact, each shaping the others' *fitness landscape*.

471 The 'fitness landscape' is a model used in the Neo-Darwinian theory of evolution
472 to represent the variable effects of natural selection on a biological population. It
473 can be borrowed to represent the social environment in which human actors adopt
474 particular learned social strategies (see Kauffman 1993, pp.33–36 for a summary
475 of the ways in which biologists have used the metaphor). In a more or less uneven
476 landscape, peaks represent effective adaptations (Wright 1932, Fig. 2). Populations
477 climb peaks in the landscape as their members become increasingly well adapted to
478 a particular ecological niche. However, the reproductive success of each species is

479 partly determined by the fitness of other species such as predators, prey and symbi-
480 otic relationships with other species. The evolution of other species can thus change
481 the shape of the landscape and destabilise existing adaptations. 'In co-evolutionary
482 processes, the fitness of one organism or species depends upon the characteristics
483 of the other organisms or species with which it interacts, while all simultaneously
484 adapt and change' (Kauffman 1993, p. 33).

485 In an interconnected social world, the 'fitness' of local social strategies is simi-
486 larly determined by interaction with other players within and between communities.
487 Nelson and Winter (1982) introduced this approach to the social sciences in their
488 book *An evolutionary theory of economic change*. Natural selection proceeds blind-
489 ly. The extent to which human social strategies are pursued intentionally is an open
490 question. Subsequent writers (e.g. Elster 1983, pp. 51–61; Allen 1997, pp. 43–4)
491 tended to agree with Nelson and Winter (1982, p. 15, 276) that people are only par-
492 tially informed about the outcomes of their strategies or social decisions. Intentional
493 choice may speed up the rate at which more efficient strategies are adopted, but ulti-
494 mately it is the consequences of people's choices that determine the viability of their
495 strategies, not the actor's intentions (see discussion in Layton 2006, pp. 82–85).
496 An extensive literature on the application of games theory has now developed in
497 the social sciences. For the purposes of this chapter, I simply wish to point out that
498 there are local optima in a social fitness landscape in which either co-operation or
499 intergroup aggression may provide the most adaptive strategy, but these are shaped
500 by ecology, subsistence strategy and intergroup interaction. In the following para-
501 graphs, I first look at how social strategies can be modelled via game theory, and
502 then at how local optima may lead to peace or war.

503 By simulating the Prisoner's Dilemma game in a computer tournament, Axelrod
504 (1990, p. 42) found that the most stable strategy proved to be one called 'tit-for-
505 tat', in which the player begins by anticipating the other will co-operate (and not
506 confess) and then, in subsequent moves, does what the other player did in their
507 previous move. In this way, other players who co-operate are rewarded, but those
508 who defect are punished. The cumulative benefits of co-operation are greater than
509 those of always confessing to the jailer, since mutual betrayal eliminates the reward
510 for confession.

511 The point of the Prisoner's Dilemma is to show how a zero-sum game can be
512 transformed into a non-zero-sum game through repeated interaction building mutu-
513 al trust, *without an umpire* or sovereign, providing there is a benefit to co-operation
514 and the opportunity to build mutual trust through repeated interaction. The Pris-
515 oner's Dilemma explains how co-operation can evolve in a 'state of nature', even
516 when it is in competition with selfishness.

517 The evolutionary biologist John Maynard Smith demonstrated the usefulness
518 of game theory in evolutionary biology in his book *Evolution and the theory of*
519 *games* (1982), where he analysed, among other things, the defence of territories.
520 Maynard Smith termed the strategy that wins against itself and all other existing
521 strategies being played in that field of interaction an evolutionarily stable strat-
522 egy (Maynard Smith 1982, p. 10), but he went on to show that strategies may be

523 evolutionarily stable in one environment, yet not in another. This discovery makes
524 it possible to explain why horticulturalists may behave more aggressively than
525 **hunter-gatherers**.



526 Hunter-gatherer societies give many examples of the benefit of inter-band co-
527 operation and the creation of opportunity to build mutual trust through repeated
528 interaction. Most recent hunter-gatherers do not defend band/clan boundaries be-
529 cause defence is impracticable, nor are bands (unlike chimpanzee communities)
530 typically patrilocal (see Hill et al. 2011; Layton et al. 2012; both of which note fur-
531 ther objections to drawing direct parallels between the chimpanzee community and
532 hunter-gatherer band). Peterson and Long calculate that, even in the rich tropical
533 woodland of northern Australia when the Yolgnu ('Murngin') live, an Aboriginal
534 band of 40 occupying a territory of 400 km² would have had to defend a boundary
535 of 70 km, equivalent to 2 km for every man, woman and child. Boundary defence
536 is therefore not practised anywhere in Australia (Peterson and Long 1986, p. 29).
537 On the contrary, people depend on good relations with neighbouring groups, as an
538 insurance against climatic fluctuations (drought, flood, etc.) which make it advanta-
539 geous to be able to camp with another band. These relations are maintained through
540 regular visits, meetings at collective ceremonies and classificatory kinship allow-
541 ing one to treat non-kin as if they were relatives. The Ju/'hoansi have an exchange
542 system called hxaro, which maintains an extensive network of friendships between
543 women in different bands (Wiessner 1982). When hxaro partners live far apart, it
544 is important to keep up a balanced flow of gifts to let each partner know the other
545 still values the relationship. Women make long journeys to visit their partners and
546 choose them strategically to ensure partners belong to bands located in different
547 ecological zones.

548 Horticultural societies, on the other hand, are particularly vulnerable to war-
549 fare because they live in economically self-sufficient settled communities next to
550 dense patches of desirable resources (their garden crops), but lack an overarch-
551 ing social organisation to regulate inter-village relations peacefully. A precarious
552 form of reciprocal altruism is therefore negotiated around marriage exchanges
553 that seek to guarantee order. But this order is repeatedly undermined by free rid-
554 ers who organise raids or split large lineages to their personal advantage, while
555 jeopardizing the lives of others. Villages that split become enemies (Chagnon
556 1988, p. 987, 988). Small villages are more vulnerable to attack than large ones
557 (Chagnon 1988, p. 986).

558 Helbling, who also carried out fieldwork in lowland South America, argued that
559 the Yanomamö are trapped in a form of the Prisoner's Dilemma that discourages
560 the development of reciprocal altruism. Each lineage must convey the impression
561 that they are 'tough guys' rather than trusting suckers. Further, if their partners in
562 an exchange relationship betray them, the effect of military defeat would be so
563 devastating that it would be too late to punish the partners by not reciprocating in
564 the next round of the game as many of the 'suckers' would be dead (Helbling 1999,
565 pp. 108–9). This creates a social environment that favours aggressive individuals.
566 For Pinker (2002), this is all too often the outcome of the game.

567 8.5 Where did Kaplan and Pinker go Wrong?

568 8.5.1 Kaplan

569 In Kaplan's image of the future world, the Last Man, healthy, well fed and pam-
570 pered by technology, lives in a cocoon, insulated from the other, larger, part of
571 the world inhabited by Hobbes's First Man. In Kaplan's opinion overpopulation,
572 the spread of disease, deforestation and soil erosion are entirely brought about by
573 local mismanagement. Duffield (2001, p. 27) traces the origin of the approach
574 advocated by Kaplan to a 1981 UN report prepared by Sadruddin Aga Khan that
575 shifted blame from the West to the victims of global change. Cocoa and hard-
576 wood timber prices do not rise or fall due to the actions of local leaders, but due
577 to demand on the international market and the power of multinational companies
578 to manipulate prices, yet the view advocated by developing states, that political
579 instability is caused by global inequality and balance of trade problems was given
580 less attention in the Aga Khan report (see also Richards 1996, pp. 117–124). But
581 it is, of course, impossible to disregard the impact of the global trade network
582 that feeds the healthy 'Last Man' by sucking food and minerals out of the under-
583 developed world while supplying it with the arms used to fight with increasing
584 violence over the resources that remain. At the start of civil war in Chad, in 1966,
585 'there were almost no fighters, nothing to fight with, and no way to get to the
586 fight' (Reyna 2003, p. 279). By Habré's rule in 1986–1987, 'there were perhaps
587 20,000 soldiers in different liberation armies armed with everything from tanks,
588 to missiles, to phosphorous mortars. Habré may have had up to 25,000 people in
589 his army' (Reyna 2003, pp. 276–7). In nineteenth-century Somalia, the most lethal
590 weapon was the spear, but in 1992 'every man and youth I encountered was very
591 visibly armed with a Kalashnikov, or American equivalent, and there appeared to
592 be plenty of heavy weapons in the background' (Lewis 1997, p. 184). Keebet von
593 Benda-Beckmann (2004), writing on recent violence on the Indonesian island of
594 Ambon, states that imported guns and automatic weapons have increased the level
595 of violence to a previously unknown level. The community to be defended has ex-
596 panded from relatives and the village to the entire religious community. The elders
597 no longer know whom to talk to, or how to re-create peace.

598 Bureaucratic governments are expensive to run. Given the low level of income
599 created in their market economy and the state's limited ability to collect tax rev-
600 enue, many African states cannot afford to sustain the bureaucratic government they
601 inherited from the colonial era (compare Migdal 1988). In Kaplan's case, Hobbes
602 is cited as an authority in order to distract attention away from Kaplan's failure to
603 examine the international causes of the situation he portrays.

604 Pinker is also guilty of ignoring the impact of colonisation. Oblivious of the fact
605 that the political chaos in central Africa is at least partly a legacy of the Belgian
606 colonial quest for natural resources, he writes (2011, p. 307) that neither wealth nor
607 peace come from having valuable things in the ground: 'Many poor and war-torn
608 African countries are overflowing with gold, oil, diamonds, and strategic metals,

609 while affluent and peaceful countries such as Belgium, Singapore and Hong Kong
 610 have no natural resources to speak of'. In support of his contention that deaths in
 611 war are declining, he quotes (2011, p. 51, citing Iraq Coalition Casualty Count,
 612 www.icasualties.org) the number of Americans killed in Iraq and Afghanistan in
 613 2005 (that is, 945), but not the number of Iraqis killed by the USA. The heavy Iraqi
 614 death rate is only much later acknowledged (pp. 318–9). Pinker's source (Bohannon
 615 2008) actually cites a higher estimate than Pinker's. The World Health Organisa-
 616 tion, according to Bohannon, estimated 151,000 violent deaths in the 40 months
 617 following the allied invasion of Iraq, a rate of 45,300 per 12 months.

618 8.5.2 *Pinker*

619 In his earlier account (2002), Pinker misunderstands the Prisoner's Dilemma. He
 620 does not make it clear that a zero-sum game can be transformed into a non-zero-sum
 621 game within the 'rules of the game', building mutual trust without an umpire. His
 622 2002 account of the Prisoner's Dilemma only tells the first part of the story, where
 623 the prisoners lack the opportunity to build trust: 'the optimal strategy for each pris-
 624 oner is to defect' (2002, p. 334)—the Hobbesian condition. He wrongly claims 'The
 625 only way to win the Prisoner's Dilemma is to change the rules or find a way out of
 626 the game' (p. 335). Ross (2012, accessed 27/01/2012) interprets Hobbes's argument
 627 as an early example of game theory. 'The structure of his argument is that the logic
 628 of strategic interaction leaves only two general political outcomes possible: tyranny
 629 and anarchy'—the outcome of Prisoner's Dilemma in situations where no trust can
 630 develop. This makes Hobbes an appropriate authority for Pinker.

AQ3

631 Pinker's conclusion in 2002 is particularly puzzling because before reaching
 632 it he cites one of the most remarkable cases of mutual trust built without the in-
 633 tervention of a sovereign, the emergence of the precisely timed artillery barrages
 634 during World War I that allowed both British and German troops to predict when
 635 it was safe to move. Officers exercised autocratic authority and yet had consider-
 636 able trouble bringing the practice to an end and destroying mutual trust (see Trivers
 637 1985, pp. 362–3).

638 The most significant change in Pinker's position in his 2011 book, is that he
 639 now understands the importance of the iterated Prisoner's Dilemma which, he notes
 640 (2011, p. 533), 'can even be a good model for the evolution of co-operation'. Pinker
 641 does not, however, recognise that hunter-gatherers are acting out the iterated Pris-
 642 oner's Dilemma in their strategies for sustaining inter-band relationships. Rather,
 643 he finds the origin of such strategies in the transparency and intelligibility of a free
 644 market economy, or 'gentle commerce' (2011, p. 287). This advance in Pinker's
 645 analysis enables him to recognise the value of democratic leviathans. To take ad-
 646 vantage of the opportunities of trade, people had to plan for the future, control their
 647 violent impulses, take other peoples' perspectives into account and exercise the cog-
 648 nitive skills needed to prosper in social networks. The Better Angels of empathy,
 649 self-control, morality and reason render autocratic leviathans less necessary, and

650 the state's role need only be to punish aggressors, to cancel out their gains (p. 680).
 651 With a characteristically rhetorical turn of phrase, he notes:

652 Libertarians, anarchists, and other sceptics of the Leviathan point out that when communi-
 653 ties are left to their own devices, they often develop norms of cooperation that allow them
 654 to settle their disputes non-violently, without laws...or the other trappings of government.
 655 (2011, p. 79)

656 But, he counters, these cases do not obviate the need for government.

657 Pinker remains guilty of a larger misunderstanding of social anthropology. It
 658 is important to be clear that, contrary to Pinker's claim concerning 'the blank
 659 slate' (2002, pp. 23–4), Durkheim did not deny the existence of psychological
 660 phenomena. His argument was that their study fell outside the realm of the social
 661 sciences. French language, currency and laws '...should not be confused with
 662 biological phenomena, since they consist of representations and of actions; *nor*
 663 *with psychological phenomena, which exist only in the individual consciousness*'
 664 (1938, p. 3, my emphasis).

665 Durkheim's juxtaposition of psychology and sociology is exemplified by his
 666 ([1952/1897]) theory of suicide. Suicide, he argued, is not precipitated simply by
 667 one individual copying other individuals who have already killed themselves, as his
 668 rival Tarde might have claimed. Some people are weakly integrated into society,
 669 others are highly patriotic. Durkheim postulated that when social relations are erod-
 670 ed, the former are more likely to commit suicide, through a sense of isolation. When
 671 social relations are particularly close-knit, as during war, the latter are more likely to
 672 commit suicide, giving their lives to save others. The sociological phenomenon was
 673 the correlation between suicide rates and the relative coherence of society. A similar
 674 argument can be advanced with regard to human violence; the level of violence
 675 depends on the character of the social environment. Pinker does not consider that
 676 in a highly social species such as ours, where we depend entirely on relationships
 677 with other people, the urge to make peace may be as strong, and as deeply rooted in
 678 psychology, as the urge to violence. It is the shape of the social 'fitness landscape'
 679 that determines the success or failure of such competing strategies.

680 **8.6 Practical Implications**

681 Policy and practice for the resolution of conflict have a vital impact on human well-
 682 being. Policies derived from Hobbes are based on the assumption that men are inca-
 683 pable of peaceful co-operation without the oversight of an autocratic government.
 684 But what kind of an authority does Hobbes provide? To show his relevance, one
 685 must demonstrate that the particular conditions he specified are universally true.
 686 To admit the possibility of other scenarios would undermine Pinker and Kaplan's
 687 arguments for inevitability and/or genetic determinism. Instead, these authors assert
 688 the truth of Hobbes's axiom in order to bypass contrary evidence and conclude that
 689 autocratic government is the only guarantor of peace.

690 Yet, empirical research demonstrates that people are not by nature either peace-
691 ful or warlike; some conditions lead to war, others do not (McGuire 2002, p. 141).
692 A stable nation state can greatly reduce the level of violence. In the French village
693 of 'Pellaport' that I studied between 1969 and 1995 (Layton 2000), two suicides
694 occurred but no murders were committed over that quarter century, in a population
695 that fluctuated between 250 and 300. Yet a bureaucratic state of the form defined by
696 Weber (1947) is costly. Many states in the global South cannot afford such organ-
697 isation. A peasant economy generates little cash surplus, tax revenues are extracted
698 by local leaders, multinationals avoid paying tax and little income may pass up to
699 the centre. The quasi-feudal form of state that emerges is a cheaper but less stable
700 alternative to Weberian bureaucracy. While Weber, following Hobbes, advocated
701 that the state should hold a monopoly on violence, armaments supplied by foreign
702 powers to weak African and Asian states may increase the level of violence, as the
703 cases of Chad, Somalia and Indonesia demonstrate. The nation state can be a mixed
704 blessing. Hobbes' a priori reasoning and Kaplan's Orientalism must be replaced by
705 a consideration of the rationality of different social adaptations in different ecologi-
706 cal and social contexts.

707 The theory of games provides a more nuanced approach to the specific condi-
708 tions that are likely to engender conflict and how trust might be restored (for case
709 studies, see Leutloff-Grandits 2003; Barakat et al. 2001). Where the state fails
710 to provide adequate protection, people will turn to more localised and trustwor-
711 thy support networks, among which the idiom of kinship is frequently prominent
712 (e.g. Al-Mohammad 2010; McGovern 2012). Ethnic or religious leaders seeking a
713 greater share of resources for their group will assert that they are confronted with a
714 zero-sum game (see, for example, Denich 1994; Rao and Reddy 2001); peacekeep-
715 ers should seek to demonstrate that there is, on the contrary, a non-zero-sum game
716 to be played. Providing reliable and trustworthy sources of information about the
717 intentions of other players in the wider society within which small communities
718 are embedded may be crucial.

719 If a Western state were planning to send its army into a country such as Iraq,
720 Afghanistan or Syria today, to create peace, it would be imperative to examine the
721 shape of the social fitness landscape within which local people are choosing, or are
722 like to choose, particular strategies of conflict or co-operation:

- 723 • What is the network of social relationships on which local people depend for
724 their livelihood, and what relationships would they be likely to repudiate?
- 725 • What resources are valuable and accessible enough for local people to consider
726 them worth fighting for?
- 727 • What level of taxation can be raised from legitimate local economic transac-
728 tions?
- 729 • Where do taxes currently go, and how can they be transferred to the state?
- 730 • What level of public services can be delivered through reasonable salaries to
731 state personnel, given the available tax income?

732 If aid fails to bring about peace or prosperity, it is more likely that it facilitated
733 or entrenched social division, rather than that it was intrinsically unproductive

734 (Pottier 1996; Wedel 1998). The UK government has, since 2004, been develop-
 735 ing a 'Stabilisation Unit' within the Department for International Development.
 736 This unit maintains a website <http://www.stabilisationunit.gov.uk/stabilisation-and->
 737 [conflict-resources.html](http://www.stabilisationunit.gov.uk/stabilisation-and-conflict-resources.html) (accessed 26/11/2012) that contains a valuable collection of
 738 up-to-date studies offering lessons learned from recent exercises in peacekeeping
 739 and conflict prevention. While the relationship of these reports to UK government
 740 policy should be kept in mind, this source is highly recommended.

741 **Acknowledgments** The author thanks Jeremy Kendal, Sheelagh Stewart, Sean O'Hara, the anon-
 742 ymous reviewers and the editors for help and advice in preparing this chapter. Responsibility for
 743 any errors rests entirely with the author.

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