

# Theoretical Articles

## A Vindication of Eibl-Eibesfeldt's Concept of *Tötungshemmungen* (Conspecific Killing Inhibitions)? Human Ethology, Military Psychology, and the Neurosciences

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### Abstract

I present the literature pro and con the concept of 'killing inhibitions' in humans and animals, as formulated by students of preindustrial warfare such as Turney-High, Quincy Wright, and Keeley; (human) ethologists and primatologists such as Lorenz, Tinbergen, Eibl-Eibesfeldt, Sommer, Vogel, Ghiglieri, and Wrangham; students of contemporary military psychology/psychiatry and combat motivation such as Grossman, Bourke, Gabriel, and Shalit; and neuroscientists such as Koenigs et al. and Miller et al.

In a chapter of his *The Golden Bough*, aptly entitled "Taboo and the Perils of the Soul", Frazer (1890) was the first to acknowledge the existence, and summarize the available evidence of disculpation ritual, taboos and purification ceremonies (or lustration), indicative of some sense of guilt, in the post-war behavior of 'primitive' peoples. In his *Totem und Tabu*, Freud (1913) was so impressed by these examples of disculpation ritual that he discussed the subject at length, connecting the

expiatory ceremonies following the killing of an enemy with the general ambivalence of taboo.

In his famous "*Krieg und Frieden aus der Sicht der Verhaltensforschung*" (1975; translated in English as "The Biology of War and Peace", 1979) Eibl-Eibesfeldt postulated the existence in humans of '*Tötungshemmungen*' (innate conspecific killing inhibitions). "Man, like other organisms, has inhibitions against killing as part of a biological filter of norms... In all cultures there is a marked inhibition against killing a fellow human being, and if it is desired to ignore it, as in war, for instance, special indoctrination is necessary is the sympathetic appeal of common humanity is to be disregarded. Sympathy as the subjective correlative of the inhibition on killing is felt in all cultures, and is everywhere released by the same signals. Thus inhibitions on aggression are innate in us".

Neuroscience has found the possible neuroanatomical substrate for these killing inhibitions. Interestingly, recent publications by D.L. Smith (2007), and Roscoe (2007) have reasserted that powerful killing inhibitions exist in humans (and chimpanzees). Unfortunately, humans have designed a number of strategies ('distancing devices') to overcome these killing inhibitions, more or less easily, without 'pangs of conscience'.

### 'Bad Conscience'

"Cold-blooded slaughter has really never been approved by the bulk of mankind" (Turney-High, 1949: 207; see Marett, 1933; Q. Wright, 1942; and Keeley, 1996; for similar statements). We have been led to think that disregard for enemy life and his feelings are characteristic of 'primitive' warfare, Turney-High (1949: 222) stated, but this is not necessarily so, as evidenced by ambivalent feelings toward the enemy and guilt-expiating ritual, both of which seem to be universal and betraying 'bad conscience'.

Ritual seems to have a primarily apotropaic function; it reduces fear and anxiety. It has the

effect of coordinating preparations for action among several organisms. It also functions as a means of organizing the perception of reality, i.e., chaos is replaced by order (Kennedy, 1971).

Rituals seem to play an important and even indispensable role in social intercourse. According to Durkheim, societies must periodically recharge their social and moral sentiments of solidarity. Furthermore, rituals receive their special character from underlying and overarching semiotic structures that arrange concepts in patterns of binary oppositions (P. Smith, 1991). The ritualistic confirmation of an ethnocentric cosmos apparently played a major role throughout the history of war (Meyer, 1993).

Ritual (especially pre-battle or preparatory ritual) reduces anxiety and fear and institutes confidence. It reinforces the solidarity of the group by dramatizing its status structure. It strengthens group boundaries, justifies its hostile or defensive activities, and expiates its guilt. It supports the warrior values and the warfare process by ceremonially transforming the guilt of killing into self-righteous virtue and strength. The great ritual efforts to induce commitment may be seen, according to Kennedy (1971), as culturally developed means for overcoming the subconscious repugnance to killing as well as for reduction of fear. The warrior value system apparently needs a great deal of social buttressing, from early training in fierceness through divine validation and many shaming devices to fear-reducing rituals (Kennedy, 1971; see also Turney-High, 1949; Andreski, 1964; Potegal, 1979; van der Dennen, 1979, 1980, 1995; Goldschmidt, 1988, 1989). As noted by Goldschmidt (1988, 1989) in his study of inducement to military participation in 'primitive' societies, inducements are necessary because men dread the fact of war. Even in those societies that place great emphasis upon military exploits and in which men are prone to exaggerate their military prowess, we find clear evidence that, such public statements to the

contrary notwithstanding, men fear their own military pursuits (e.g., the Yanomamö: Chagnon, 1977: 35-36, 130).

In a chapter of his *The Golden Bough*, aptly entitled "Taboo and the Perils of the Soul", Frazer (1890) was the first to acknowledge the existence, and summarize the available evidence of disculpation ritual, taboos and purification ceremonies (or lustration), indicative of some sense of guilt, in the post-war behavior of 'primitive' (a.k.a. 'preindustrial', 'traditional', 'acephalous', 'pre-state', 'non-state', 'preliterate', 'foraging', 'tribal' and 'band-level') peoples. The purpose of the seclusion and the expiatory rites which the warriors who have taken the life of a foe have to perform is, he points out, "no other than to shake off, frighten, or appease the angry spirit of the slain man".

In his *Totem und Tabu*, Freud (1913) was so impressed by these examples of disculpation ritual among preindustrial peoples that he discussed the subject at length, connecting the expiatory ceremonies following the killing of an enemy with the general ambivalence of taboo:

We conclude from all these regulations that other than purely hostile sentiments are expressed in the behavior toward the enemy. We see in them manifestations of repentance, or regard of the enemy, and of bad conscience for having slain him. It seems that the commandment, Thou shalt not kill, which could not be violated without punishment, existed also among these savages long before any legislation was received from the hands of a God.<sup>1</sup>

Much of the post-war ritual activity in preindustrial societies seems clearly to indicate the expiation of guilt, even more than it

<sup>1</sup> "Wir schließen aus all diesen Vorschriften, daß im Benehmen gegen die Feinde noch andere als bloß feindselige Regungen zum Ausdruck kommen. Wir erblicken in ihnen Äusserungen der Reue, der Wertschätzung des Feindes, des bösen Gewissens, ihn ums Leben gebracht zu haben. Es will uns scheinen, als wäre auch in diesen Wilden das Gebot lebendig: Du sollst nicht töten, welches nicht ungestraft verletzt werden darf, lange vor jeder Gesetzgebung, die aus den Händen eines Gottes empfangen wird" (Freud, 1913).

indicates a *rite de passage*, marking the return to the normality of daily life, or the release of tension and the victory gloating of triumph. "Victory has ever been strong medicine" as Turney-High (1949) put it.

Various kinds of ritual penance after killing were widespread in 'primitive' (and ancient) societies. Fasting, sexual abstinence, and separation were common, as were ritual responsibilities such as sacrifices for vows given. Often the returning warrior was considered sacredly polluted and had to undergo additional purification rituals.

The Pima, for example, regarded the killing of an enemy to be such a dangerous act that, according to some observers, a Pima warrior withdrew from battle the moment he killed his opponent to begin his rites of purification, or lustration (Kroeber & Fontana, 1987).

The Papago considered an enemy life precious and its destruction a murder, even though committed by a Papago warrior in legitimate war. A Papago man who had killed an enemy was unclean and dangerous, and the ordeal of purification (lasting sixteen days) necessary to readmit him to society was even more severe than the hardships of the warpath. The Papago wounded were also thought to have received contamination from the enemy, and were forced to purify themselves for four days (Densmore, 1929).

The Jivaro killer also had to go through a lengthy and troublesome purification rite, but presumably from different motives than those of the Papago; fear of the enemy spirit thirsting for revenge (Karsten, 1923).

Similarly, among the military Zulu the victorious slayer had to receive magical medication to purge him of 'nuru', his victim's vengeful spirit (Junod, 1927; Krige, 1936). An Ibo warrior, after decapitating an enemy, licked some of the blood from the knife in order to become identified with the slain, thereby

becoming immune from attack by his ghost (Meek, 1937).

The almost masochistic character of these transformative rituals may appear from the following example. Among the Taulipang Indians of South America, victorious warriors "sat on ants, flogged one another with whips, and passed a cord covered with poisonous ants, through their mouth and nose" (Métraux, 1963: 397; Ehrenreich, 1997: 12).

"There has existed" Turney-High (1949) concludes his perceptive review, "a dread of taking enemy life, a feeling that if the life of a member of the we-group was precious, so was that of a member of the other-group. Fear of death-contamination has demanded expiation or purification among many folk".

Schiefenhövel (1995: 355) stated: "In the Eipo [a people of the New Guinea highlands] could several times be observed a ritual that supports this argument".

On the other hand, in his *Zeitgemäßes über Krieg und Tod* (*Thoughts for the Time on War and Death*) (1915) Freud ventures an evolutionary speculation on early man. He sketches the "*Mensch der Frühzeit*" as "*gewiß ein sehr leidenschaftliches Wesen, grausamer und bössartiger als andere Tiere. Er mordete gern und wie selbstverständlich. Den Instinkt, der andere Tiere davon abhalten soll, Wesen der gleichen Art zu töten und zu verzehren, brauchen wir ihm nicht zuzuschreiben*" ("Man in prehistoric times certainly was a very passionate creature, more cruel and malicious than other animals. He murdered gladly and as natural. We do not have to attribute to him the instinct which is to inhibit killing and consuming conspecifics in other animals" – *my transl.*).

Furthermore "The very emphasis of the commandment 'Thou shalt not kill' makes it certain that we spring from an endless ancestry of murderers with whom the lust for killing

was in the blood, as possibly it is to this day in ourselves”.

Freud here introduces the thesis of the missing inhibitions in man – a thesis which would be elaborated later by Lorenz – against killing conspecifics (*‘Tötungshemmungen’*).

So, we have to come to the awkward conclusion that, on the one hand, Freud acknowledged the existence of ‘bad conscience’ after killing (in *Totem und Tabu*), but denied the existence of conspecific killing inhibitions (in *Zeitgemäßes über Krieg und Tod*).

### Missing Inhibitions: Lorenz

According to Ardrey (1961) and Washburn & Hamburg (1968) aggression may be explained from the fact that the human being is, or has been, a predator. But, according to Lorenz (1963, 1966, 1970), man is aggressive precisely because he is *not* a predator. Lorenz limits the meaning of the term ‘aggression’ to intraspecific (or conspecific) fighting (so excluding predation or ‘interspecific aggression’), and he sees precisely in predatory species strong inhibitions against overt conspecific aggression. Most animals possessing potentially lethal weapons (such as horns, claws, hooves, fangs, canines, poison, etc.) also have strong conspecific killing inhibitions. During the evolution of humans, however, such conspecific killing inhibitions were not selected because humans missed the organs which could be used as potentially lethal weapons. At least a quick kill, as in predators, was nonexistent in humans, which provided the potential victim with the opportunity and time to flee, or to pacify or remotivate the aggressor by means of submission. Therefore, there were no selection pressures to ‘build in’ conspecific killing inhibition mechanisms.

“In human evolution, no inhibitory mechanisms preventing sudden manslaughter were necessary, because quick killing was impossible anyhow; the potential victim had

plenty of opportunity to elicit the pity of the aggressor by submissive gestures and appeasing attitudes. No selection pressure arose in the prehistory of mankind to breed inhibitory mechanisms preventing the killing of conspecifics until, all of a sudden, the invention of artificial weapons upset the equilibrium of killing potential and social inhibitions” (Lorenz, 1966: 207).

Lorenz (1963), basing himself on an hydraulic model of aggression, regards human hypertrophied aggression as an anomaly compared to other species. Indeed, man seems unusually murderous, for his development of weapons came so fast that he has not yet evolved the biological mechanisms of restraint, the built-in inhibitions so common in the ritualized aggression of other species.

However, just like in the case of Freud, Lorenz sometimes is ambiguous about the killing inhibitions. Consider the following quotations: “If moral responsibility and unwillingness to kill have indubitably increased, the ease and emotional impunity of killing have increased at the same rate. The distance at which all shooting weapons take effect screens the killer against the stimulus situation which would otherwise activate his killing inhibitions” (Lorenz, 1966: 208). And “Aggressive behaviour and killing inhibitions represent only one special case among many in which phylogenetically adapted behaviour mechanisms are thrown out of balance by the rapid change wrought in human ecology and sociology by cultural development” (Lorenz, 1966: 211). It does not seem as if Lorenz is talking here about ‘missing’ inhibitions.

### Pseudospeciation: Tinbergen

Especially Tinbergen (1968, 1981) has pointed out how violence changes in character from intraspecific to interspecific/predatory the more the enemy is dehumanized and ‘pseudospeciated’. No holds are barred in hunting down a foreign species.

MacCurdy (1918) foreshadowed this valuable concept of pseudospeciation (the term was originally coined by US psychiatrist Erikson [1966]) in his *Psychology of War*. According to him, early tribal warfare had fixed the idea that strangers were another species, and thus was overcome the natural taboo (i.e., inhibition) against killing conspecifics. Humans by their herd nature were doomed to split into groups, and these groups behaved biologically like separate species struggling for existence. During times of war, he suggested, humans still felt vestigial emotions of hostility to their enemies as species other than themselves (Crook, 1994).

"In order to understand what makes us go to war", Tinbergen (1968) contended, "we have to recognize that man behaves very much like a group-territorial species". As a social, hunting primate, man must originally have been organized on the principle of group territories. Having thus implicated group-territoriality in the evolution of human warfare, Tinbergen goes on to delineate other preconditions: the upsetting of the balance between aggression and fear (to which he adds the somewhat arcane assertion: "and this is what causes war"), is due to at least three other consequences of cultural evolution: the invention of long-range weapons which make killing easy, sophisticated indoctrination, increased population pressure, and other factors. In a later article (Tinbergen, 1976) he contended: "For a long time the step towards actual killing must have been prevented by the evolution of protective, cultural codes. But modern man, i.e. man from at least 10000 years ago, has taken the disastrous step to war by using his unique capacity for foresight and experience, and recognizing that under certain circumstances killing does pay, because a dead man will not return to fight again". In order to account for this transition, he discussed what might be called a process of "emancipation of violence", i.e., "aggressive behavior" in the service of a number of different functional and

motivational systems; and he introduced the concept of "super-motivation". Man is the only mammal to blur the sharp dividing line between intraspecific aggression and interspecific predation: "... the enemy is to the warrior not merely another human being; he is at the same time a dangerous predator, a parasite, and/or an obstacle to be removed". Thus, war, insofar as the enemy is dehumanized, becomes interspecific killing. Tinbergen pointed out that interspecific forms of agonistic behavior, in contrast to intraspecific forms, have either very weak inhibitory mechanisms or none at all. In summary: Tinbergen's concept of "supermotivation" means a motivational amalgamation of intraspecific aggression and fear, plus interspecific predation (insofar the enemy is effectively dehumanized): an explosive mixture.

### **Eibl-Eibesfeldt: Cultural Filter Superimposition and Preadaptations**

Let us bear in mind, then, that individualized human aggression is effectively held in check by a number of phylogenetic adaptations. In all cultures there is a marked inhibition against killing a fellow human being, and if it is desired to ignore it, as in war, for instance, special indoctrination is necessary is the sympathetic appeal of common humanity is to be disregarded. Sympathy as the subjective correlative of the inhibition on killing is felt in all cultures, and is everywhere released by the same signals. Thus inhibitions on aggression are innate in us. The commandment "Thou shalt not kill" is based on this constitutional factor. The invention of weapons facilitated murder and necessitated additional cultural patterns of control (Eibl-Eibesfeldt, 1979: 100-101; transl. Eric Mosbacher)<sup>2</sup>.

<sup>2</sup> "Wir wollen festhalten, daß die individualisierte Aggression des Menschen durch eine Reihe von angeborenen Verhaltensweisen wirksam unter Kontrolle gehalten wird. Die Hemmung, einen Mitmenschen zu töten, ist in allen Kulturen ausgeprägt, und will man sich über sie hinwegsetzen, wie etwa im Krieg, dann bedarf es besonderer Indoktrinierung, damit die mitmenschlichen Appelle, die Mitgefühl wecken, nicht wahrgenommen werden. Mitleid als subjektives Korrelat zur Tötungshemmung wird in allen Kulturen empfunden und überall durch die gleichen Signale ausgelöst. Aggressionshemmungen sind uns demnach angeboren. Das Gesetz »Du sollst

According to Eibl-Eibesfeldt (1975, 1977), man, like other organisms, has inhibitions against killing as part of a biological filter of norms. Yet he kills conspecifics on a large scale. How does this come about? Man tends to form closed groups. Cultural peculiarities tend to diverge rapidly, and the varieties of culture behave as if they were different species [Erikson's (1966) "pseudospeciation"]. Others are not considered to count as full members of mankind, or even as human beings at all. By cultural definition, intraspecific aggression gets shifted to the level of interspecific aggression, which is destructive in the animal kingdom as well. Facilitated by communicational barriers and by armament which kills quickly, and often at a distance, man shuts himself off against all appeals normally releasing the fighting inhibitions which are subjectively experienced as pity. Upon the biological filter of norms which inhibits killing, is superimposed a cultural filter of norms commanding killing of the enemy. This leads to a conflict of norms, bad conscience, guilt and ambivalence, as already noted by Freud (1913). It takes quite a lot of indoctrination and coercion to bring people to fight each other. Unfortunately, war had functions to fulfill, it is not to be considered an evolutionary "cul de sac" or pathology. "War is to be attributed neither to degenerate, misdirected animal instincts nor to necrophilia nor to any other pathological degeneration of basic human impulses. It is not a functionless deviation, but a specifically human form of intergroup aggression that helps human groups to acquire land and natural resources" (1979: 186).<sup>3</sup>

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*nicht töten!*« ist bereits in dieser Anlage begründet. Mit der Erfindung der Waffe und damit der Möglichkeit zum Totschlag bedurfte es zusätzlicher kultureller Kontrollmuster" (Eibl-Eibesfeldt, 1975: 121).

<sup>3</sup> "Der Krieg ist weder auf entartete, fehlgeleitete, tierische Instinkte noch auf Nekrophilie oder andere pathologische Entartungen des menschlichen Antriebslebens zurückzuführen. Es handelt sich nicht um eine funktionslose Entgleisung, sondern um eine spezifisch menschliche Form der

And he continued: "Finally, we do not explain war as resulting from an innate aggressive drive. It is the result of cultural evolution, which is certainly based on phylogenetic evolution and carries it further. In the process of cultural pseudospeciation, human groups set themselves off from each other as if they were representatives of different species. The inborn aggression controls that, in man, serve to defuse aggression, as they do in the case of animals, thus work only in intragroup conflict. Intergroup conflict assumed traits reminiscent of interspecific [the English translation erroneously states here 'intraspecific'] conflict in animals: it became destructive (1979: 168)... For a long period of human history at least, war favored the selection of fighting spirit and aggression. But, as Bigelow pointed out, in addition to fostering the military virtues, it also encouraged intelligence and the ability to cooperate in intergroup competition" (1979: 182).<sup>4</sup>

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*Zwischengruppen-Aggression mit deren Hilfe Menschengruppen um Land und Naturgüter konkurrieren*" (Eibl-Eibesfeldt, 1975: 222).

<sup>4</sup> "Den Krieg schließlich erklären wir keineswegs aus einem uns angeborenen Aggressionstrieb. Er ist das Ergebnis der kulturellen Evolution, die allerdings durchaus auf der stammesgeschichtlichen Evolution aufbaut und diese weiterführt... Im Prozeß der kulturellen Pseudospeziation schlossen sich Menschengruppen voneinander ab, als wären sie Vertreter verschiedener Arten. Die dem Menschen angeborenen Aggressionskontrollen, die innerärtliche Aggression wie beim Tier entschärfen, wirken damit nur mehr im Innergruppenkonflikt. Der Zwischengruppenkonflikt nahm Züge an, die an den zwischenartlichen Konflikt bei Tieren erinnern, er wurde destruktiv... (1975: 200-201). [Der Krieg] hat sicher selektiv in Richtung auf Aggressivität hin gezüchtet... Der Krieg hat damit die Auslese von Kampflust und Aggression zumindest für eine lange Zeit der menschlichen Geschichte begünstigt. Der Mensch wurde aber in diesem Zusammenhang nicht nur auf Kampftüchtigkeit, sondern auch – wie Bigelow (1970; 1971) betont – auf Kooperationsfähigkeit und Intelligenz selektiert, und zwar in der Konkurrenz der Gruppen" (1975: 217).

## Denials of Killing Inhibitions by Primatologists

Vogel (1989; cf. Sommer, 1987) has argued against the existence of a “biological filter of norms”, which seems to undermine the very fundament of Eibl-Eibesfeldt’s theory. He stated: “As primates we never possessed an ‘innate intraspecific killing inhibition’”. We don’t need to be indoctrinated, according to Vogel, to kill conspecifics.<sup>5</sup>

But even if he denied the existence of “innate inhibitions” against killing conspecifics, Vogel acknowledged the existence of facilitating factors in the process, such as anonymity (facelessness) and distance. In war, the State or God takes over the personal responsibility of the killing from the individual and makes his acts morally neutral if not positive.<sup>6</sup>

Vogel (1989) holds that especially the primates do not possess ‘ritualized’ agonistic behaviors. Consequently, the fights among males over estrous females, or resources which attract females, are horribly vehement and not seldom involve severe injuries and even death: “*Dabei gibt es keinerlei ‘angeborene Tötungshemmungen!’*” Compassion *vis-à-vis* diseased, injured, paralyzed, weakened, or otherwise

<sup>5</sup> “*Als Primaten haben wir nie eine ‘angeborene innerartliche Tötungshemmung’ besessen, einen ‘biologischen Normenfilter, der zu töten verbietet’ hat es in unserer Naturgeschichte nie gegeben, und es bedarf zum Töten des Menschen durch den Menschen – sei dies im Krieg oder bei anderen Gelegenheiten – keiner Indoktrinierung, die den Gegner ‘quasi zum Nichtmenschen’ stempelt*”.

<sup>6</sup> “*Im Krieg übernimmt der Staat oder eine andere von der Gemeinschaft anerkannte Institution – das kann auch ein Gott sein! – die Verantwortung für das Töten, der einzelne ist (offiziell) von dieser schweren Bürde entlastet. Sogenannte ‘höhere Ziele’, Gemeinschaftszwecke ‘entbinden’ im Krieg von persönlicher Verantwortung, sie ‘entmoralisieren’ die Handlungen des einzelnen... Und derartige, den Einzelkämpfer von seiner persönlichen Verantwortung ‘befreienden’ Institutionen sind offenbar fähig, den Menschen so zu ‘entkernen’, das er ungeheure Verbrechen begeht, Untaten, die sonst kaum vollbracht werden würden!*”

incapacitated conspecifics is nonexistent (e.g., Vogel on human langurs; Fossey on gorillas; Goodall on chimpanzees). More often than not, these victims are treated with ‘murderous’ cruelty, as are, generally, members of other groups. Therefore, Vogel concludes: “*Angesichts aller dieser Tatsachen erscheint es mir sehr unwahrscheinlich, daß der frühe Mensch eine angeborene, die eigene Art egalitär umspannende ‘Tötungshemmung’ besessen habe...*” (“In the face of all these facts, it appears to me very unlikely that the early hominids possessed an innate killing inhibition which was equally valid for the whole species”). The crux of Vogel’s criticism is the qualification “*die eigene Art egalitär umspannende ‘Tötungshemmung’*”, which opens the possibility that the early hominids possessed some strength-gradient of killing inhibition according to genetic relatedness (i.e., strong inhibition if the other was familiar, but less or no inhibition if the other was a stranger or a member of another group), as was also envisaged in the following figure (The “*mandala of ethnocentrism-cum-xenophobia*”, from Sahlins, 1965; modified by Alexander, 1975, 1979; and van der Dennen, 1995), throughout which runs a vector of decreasing empathy from House or Family (in which empathy is fully operative) to the Intertribal Sector (in which empathy is absent or virtually so).

## Further Denials of Killing Inhibitions by Primatologists

Despite overwhelming evidence to the contrary, many recent books on war (e.g., Dyer, 1985; Groebel & Hinde, 1989; O’Connell, 1989; Grossman, 1995; Ehrenreich, 1997) insist, in unabashed wishful thinking, that killing is an acquired proclivity that society must inculcate into men... That most men are resistant, reluctant, or personally afraid to kill does not equate to men being inhibited by nature from killing. Everyone – even our warlike sibling species, the chimpanzees – knows that killing is a very serious and dangerous business, and almost everyone is reluctant to kill. But in war, all that most men need to know to prompt them to kill is that their opponent is a true enemy – someone who is either trying to kill them or has seized something vital from them – and that the odds are good of winning. Of

course, many soldiers in politically motivated wars, as opposed to tribal or community-based wars, have refused to kill opponents. But their reluctance is normally the result of their being unconvinced that the opposing men are true enemies who deserve death and/or are worth risking their own lives to kill. Significantly, the more powerful the weapon at hand and/or the greater the distance between a soldier and his opponents, the more willing he is to kill (Ghiglieri, 1999: 178-180; cf. Potts, m.s.).

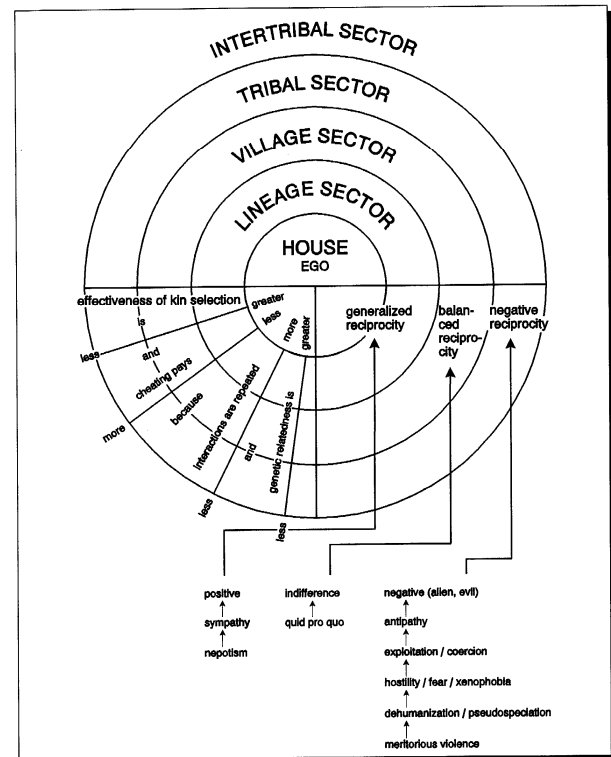
Wrangham (1999: 5) also advanced the notion that men have a ready appetite to attack their enemies. But he also noted that combatants in modern warfare are often reluctant to fight. This is understandable, he stated, because in modern warfare, unlike intergroup aggression in primates, soldiers are organized hierarchically and are ordered into battle by their superiors, regardless of their personal motivation. Participation in raids among pre-state societies, however, is normally voluntary (Keeley, 1996). Thus, reluctance of soldiers under orders does not undermine the more widespread phenomenon of male eagerness for fighting (Wrangham, 1999: 5; cf. Wrangham & Peterson, 1996).

### Dual Heritage

During millions of years of hominid evolution and human codified history, humans practiced a dual standard of behavior: strong inhibitions against killing one of 'us', but a green light to kill 'them' when it was safe to do so.

The writings of classical Greece reveal an extension of this tribal territorialism or ethnocentrism. The known world was larger and more diverse, but 'us' Greeks were still distinguished from 'them' barbarians ( $\beta\alpha\alpha\beta\alpha\alpha\alpha\alpha\alpha$  literally meaning 'babblers', i.e., non-Greek speakers).

As early as 1911, Sumner noted that "savage tribes" often refer to themselves by names that mean "men" or "the only men" implying that outgroups are not truly human:



Human beings have powerful inhibitions against killing one another. Human groups are very dangerous to one another. But there is another side to this story. We are an extremely social species, and it is important to bear in mind that our ancestors triumphed not as individuals, but as members of victorious communities. To accomplish this, they needed to maintain a very high level of cohesion and solidarity, which in turn required powerful barriers against in-group violence. The principle is a simple one: if community members are busy killing one another, they cannot present a united front against an enemy. The biologist Robert Bigelow was perhaps the first person to fully recognize the dynamic interplay between in-group cohesion and intergroup violence. "We are without doubt," he remarked, "the most cooperative and the most ferocious animals that ever inhabited the earth" (1969: 3). We cooperate to compete, and a high level of fellow feeling makes us better able to unite to destroy outsiders... The dual heritage of cooperation between insiders and hostility against outsiders imbues our most cherished cultural and religious traditions (D.L. Smith, 2007: 141-2).

The fact that killing is rarely forbidden *absolutely* means that we have had to cultivate the ability to curb violence against other community members while maintaining the capacity to unleash it against outsiders. We are equipped, according to Smith (2007: 144) with

cognitive mechanisms that enable us to shift from one state to the other: "This is what makes it possible for a loving husband and father to say good-bye to his family, go off to butcher other human beings, and eventually return, if he is fortunate, to resume his life as a law-abiding member of his society".

### **Repugnance Toward Violence in Combat Soldiers**

Despite the social legitimization of violence provided by military institutions, the repugnance and revulsion many soldiers feel toward killing is a recurring feature of the military literature. As Keegan (1977: 314) observed: "Killing people, qua killing and qua people, is not an activity which seems to carry widespread approval". Also Van Doorn & Hendrix (1985: 226) noted the average soldier's revulsion to kill.

Marshall (1947) claimed that army psychiatrists studying combat fatigue in the European theater (World War II) had found that fear of killing, rather than fear of being killed, was the most common cause of battle failure in the individual; fear of failure ran a strong second. The Stouffer study also noted this repugnance toward killing and quoted a veteran rifleman who reported feeling "funny inside" the first time he fired a shot at an enemy soldier (Stouffer et al., 1949: 87).

"Throughout history, individual men have gone to near-suicidal lengths to avoid participation in wars. Men have fled their homelands, served lengthy prison terms, hacked off limbs, shot off feet or index fingers, knocked out teeth, feigned illness or insanity so as to avoid conscription, or, if they could afford it, paid surrogates to fight in their stead", as Ehrenreich (1997) observed. "Some draw their teeth, some blind themselves, and others maim themselves, on their way to us", the governor of Egypt complained of his peasant recruits in the early nineteenth century. On the eve of the Somme, quintessentially a high moment, a

number of soldiers inflicted wounds on themselves to avoid having to "jump the parapet" (Keegan, 1977: 270).

So unreliable was the rank and file of the eighteenth-century Prussian army that military manuals forbade camping near woods or forests: The troops would simply melt away into the trees (Delbrück, 1985: 303).

Reid & White (1985) have noticed the high degree of desertion from both the Southern and Northern armies during the American Civil War.

Soldiers at the Battle of Gettysburg – a truly horrendous engagement that involved a combined force of over 160,000 with some 7,000 killed in action – often seem to have avoided firing their weapons. After the fighting was over, 27,574 abandoned muzzle-loading muskets were found on the battlefield over 90 percent of which were loaded. The loading time for these weapons was nineteen times longer than the firing time, which means that only 5 percent of the guns *should* have been found loaded – that is, on the assumption that most of the soldiers were firing their weapons. "The only rational conclusion," wrote Dyer, "is that huge numbers of soldiers at Gettysburg, both Union and Confederate, were refusing to fire their weapon even in the stand-up, face-to-face combat at short range, and were presumably going through the act of loading and perhaps even mimicking the act of firing when somebody nearby actually did fire in order to hide their internal defection from the killing process. And very many of those who did fire were probably aiming high" (2004: 55-56) (quoted in D.L. Smith, 2007: 148). There are a number of other possible explanations for this finding, and Grossman (*vide infra*) (as well as others) too easily accepts it as proving his point, but killing inhibitions cannot be dismissed as a distinctive possibility.

During the First World War, many soldiers probably deserted, some trying to keep alive

even in no-man's-land or in other 'sanctuaries'. In 1944, on the eve of Germany's last offensive in the Ardennes, Hitler's adjutant Martin Bormann concluded that more than 400,000 German soldiers were AWOL (away without order of leave; actually, had deserted): a number twice as high as assembled for the Battle of the Bulge (Tromp, 1995: 131).

### **Combat as a Traumatic Experience**

Grossman's (1995: 4) main thesis is that "there is within most men an intense resistance to killing their fellow man. A resistance so strong that, in many circumstances, soldiers on the battlefield will die before they can overcome it".

While close-range killing can be done by a very small percentage of soldiers "in cold blood" (with full conscious awareness of a subject), Grossman argued for a deep-seated inhibition against one-on-one, face-to-face, cold-blooded killing on the part of 98% of soldiers, a figure which correlates well with the estimated 2% of the population who count as low-affect or "stimulus-hungry" sociopaths (Niehoff, 1999; Pierson, 1999; Protevi, 2008: 405-6). Anecdotal evidence is clear that seeing someone else's blood and guts spill out of them is powerfully felt by many soldiers (Kirkland, 1995; Kilner, 2002; Protevi, 2008). Support is also found for the widespread recognition of the humanity of the enemy or the opponent through the sight of the face (especially the eyes). Many battlefield accounts show how the face of the enemy has profound inhibitory effects; the blindfold on the victim of a firing squad enables the shooters by breaking eye contact between victim and executioners (Grossman, 1995: 225; Protevi, 2008: 406-7).

According to Grossman (2000: 5) the experience of combat, and the killing that lies at the heart of combat, is an extraordinarily traumatic and psychologically costly endeavor which profoundly affects all that participate in it (Kennedy [1971] already advanced the thesis

that warfare involves men in a universally pathological psycho-social process).

One of the most evocative descriptions of a kill is found in William Manchester's powerful memoir *Goodbye Darkness* (1980). Manchester cornered a Japanese soldier who was trapped in his own sniper's harness, and therefore unable to defend himself. Manchester killed him, and then continued pumping bullets into the corpse. The sniper fell to the ground, his eyes glazed over, and flies began to gather on his eyeballs. "I don't know how long I stood there staring," Manchester wrote. "A feeling of disgust and self-hatred clotted darkly in my throat, gagging me."

Jerking my head to shake off the stupor, I slipped a new fully loaded magazine into the butt of my .45. Then I began to tremble, and next to shake, all over. I sobbed, in a voice still grainy with fear: "I'm sorry." Then I threw up all over myself. I recognized the half-digested C-ration beans dribbling down my front, smelled the vomit above the cordite. At the same time I noticed another odor; I had urinated in my skivvies.... I knew I had become a thing of tears and twitchings and dirtied pants. I remember wondering dumbly: "Is that what they mean by conspicuous gallantry?" (1980: 17-18) (quoted in D.L. Smith, 2007: 151).

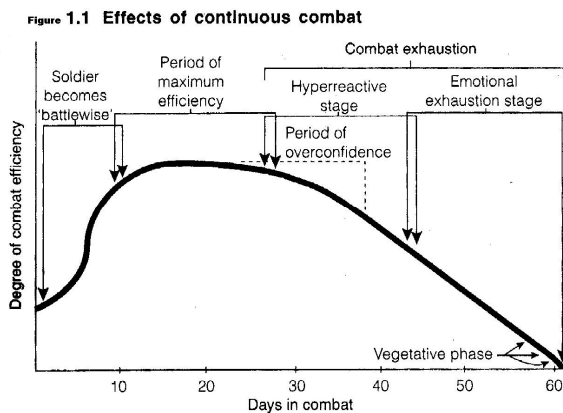
Gabriel (1988; in Grossman, 1995: 43) told us that "in every war in which American soldiers have fought in this century, the chances of becoming a psychiatric casualty – of being debilitated for some period of time as a consequence of the stresses of military life – were greater than the chances of being killed by enemy fire".

As the authors of the American official report *Combat Exhaustion* (World War II) explained:

There is no such thing as "getting used to combat"... Each moment of combat imposes a strain so great that men will break down in direct relation to the intensity and duration of their exposure. Thus psychiatric casualties are as inevitable as gunshot and shrapnel wounds in warfare... Most men were ineffective after 180 or even 140 days. The general consensus was that a man reached his peak of effectiveness in the first 90 days of combat, that after that his efficiency began to fall off, and that he became steadily less valuable thereafter until he was completely useless... The number of men

on duty after 200 to 240 days of combat was small and their value to their units negligible (Appel & Beebe, 1946: 84; quoted in Keegan, 1977: 329).

Swank & Merchand's (1946) World War II study of U.S. Army combatants on the beaches of Normandy found that, after 60 days of continuous combat, 98 per cent of the surviving soldiers had become psychiatric casualties. It must be understood that the kind of continuous, protracted combat that produces such high psychiatric casualty rates is largely a product of 20th century warfare. The Battle of Waterloo lasted only a day. Gettysburg lasted only three days – and they took the nights off. It was only in World War I that armies began to experience continuous months of 24-hour combat, and it is in World War I that vast numbers of psychiatric casualties were first observed (Grossman, 2000: 7-8).



## Dedicated Killers

Swank & Marchand's study also noted the existence of 2 percent of combat soldiers who are predisposed to be "aggressive psychopaths" and apparently do not experience the normal resistance to killing and the resultant psychiatric casualties associated with extended periods of combat. But the negative connotations associated with the term 'psychopath', or its modern equivalent 'sociopath', are inappropriate here, since this behavior is a generally desirable one for soldiers in combat. A more correct conclusion would be that there is 2 percent of the male

population that, if pushed or if given a legitimate reason, will kill without regret or remorse (Grossman, 1995: 180). Van Doorn & Hendrix's (1985) estimate is 5%; Angenent's (m.s.) and Janowitz's (1964) estimate is about 1%. The overall estimate of men who derive sadistic pleasure from inflicting violence and harm of all kinds in the general population is about 5% (Baumeister, 1997: 232).

Tiger & Fox (1971: 193) already examined male violence from an evolutionary point of view. They noted that "in every society the dedicated killer crops up, and it takes no great imagination to see how useful he would be in times of trouble. A man who will give himself wholly over to the killing of life with dedication and even pleasure is just the man to send against the enemy on raids – which are essentially murder expeditions. In our own time he is the perfect commando, marine, green beret, or whatever".

## Factors Facilitating Killing in War

Two factors appear to facilitate killing in war: distance and diffusion of responsibility. Dyer (1985) observed that there has never been a similar resistance to killing among artillerymen or bomber crews or naval personnel. "Partly", he said, this is due to "the same pressure that keeps machine-gun crews firing, but even more important is the intervention of distance and machinery between them and the enemy". They can simply pretend they are not killing human beings" (in Grossman, 1995: 59). "Increasing the distance between the [combatants] – whether by emphasizing their differences or by increasing the chain of responsibility between the aggressor and his victim allows for an increase in the degree of aggression" (Shalit, 1988, quoted in Grossman, 1995: 156). Distance in war is not merely physical. There is also an emotional distance process that plays a vital part in overcoming the resistance to killing. Factors such as cultural distance (such as racial and ethnic differences, which permit the killer to dehumanize the victim), moral distance

(such as belief in one's own moral superiority), social distance, and mechanical distance (some kind of mechanical buffer that permits the killer to deny the humanity of his victim) are just as effective as physical distance in permitting the killer to deny that he is killing a human being.

The act of killing is often rhetorically sterilized by military euphemisms: "Most soldiers do not 'kill', instead the enemy was knocked over, wasted, greased, taken out, and mopped up. The enemy is hosed, zapped, probed, and fired on. The enemy's humanity is denied, and he becomes a strange beast called a Kraut, Jap, Reb, Yank, dink, slant, or slope" (Grossman, 1995: 93).

A diffusion of responsibility can be caused by the anonymity created in a crowd. Groups can provide a diffusion of responsibility that will enable individuals in mobs and soldiers in military units to commit acts that they would never dream of doing as individuals (Grossman, 1995: 131-2).

In a way, the obedience-demanding authority, the killer, and his peers are all diffusing the responsibility among themselves. The authority is protected from the trauma of, and responsibility for, killing because others do the dirty work. The killer can rationalize that the responsibility really belongs to the authority and that his guilt is diffused among everyone who stands beside him and pulls the trigger with him. This diffusion of responsibility and group absolution of guilt is the basic psychological leverage that makes all firing squads and most atrocity situations function (Grossman, 1995: 225).

Grossman (1995: 341) presented an equation that ties in all, or at least most, factors and variables involved in the resistance to a personal kill on the battlefield.

Probability of Personal Kill = total probability of execution of specific personal kill (This is an estimation of the total psychological leverage

available to enable the execution of a specific personal kill in a specific circumstance):

- Demands of Authority = (intensity of demand for killing) × (legitimacy of obedience-demanding authority) × (proximity of obedience-demanding authority) × (respect for obedience-demanding authority)
- Group Absolution = (intensity of support for killing) × (number in immediate killing group) × (identification with killing group) × (proximity of killing group)
- Total Distance from Victim = (physical distance from victim) × (cultural distance from victim) × (social distance from victim) × (moral distance from victim) × (mechanical distance from victim)
- Target Attractiveness of Victim = (relevance of victim) × (relevance of available strategies) × (payoff in killer's gain + payoff in victim's loss)
- Aggressive Disposition of Killer = (training/conditioning of the killer) × (past experiences of the killer) × (individual temperament of the killer).

### **Killing Inhibitions in the Context of Empathy and Darwinian 'Moral Instincts'**

In his influential book *Mutual Aid* (1902), Kropotkin asserted that mutual aid was a "moral instinct" and "natural law". Based on his extensive studies of the animal world, he believed that this predisposition toward helping one another - human sociality - was of "prehuman origin". Killen & Cords (2002), in a fittingly titled piece "Prince Kropotkin's ghost", suggest that recent research in developmental psychology and primatology seems to vindicate Kropotkin's century-old assertions. A body of impressive empirical evidence reveals that the roots of prosocial behavior, including moral sentiments such as empathy, precede the evolution of culture. This work sustains

Chomsky's (1971) visionary writing about a human moral instinct.

The emerging field of the neuroscience of empathy parallels investigations being undertaken in cognate fields. Some forty years ago primatologist Jane Goodall observed and wrote about chimpanzee emotions, social relationships, and "chimp culture", but experts remained skeptical. A decade ago, the primate scientist De Waal (1996) wrote about the antecedents to morality in *Good Natured: The Origins of Right and Wrong in Humans and Other Animals*, but scientific consensus remained elusive.

All that has changed. As a recent editorial in the journal *Nature* (2007) put it, it's now "unassailable fact" that human minds, including aspects of moral thought, are the product of evolution from earlier primates. In his more recent work, De Waal plausibly argued that human morality – including our capacity to empathize – is a natural outgrowth or inheritance of behavior from our closest evolutionary relatives, the primates.

Following Darwin, Boyd & Richerson posited that large-scale cooperation within the human species - including with genetically unrelated individuals within a group - was favored by selection (Hauser, 2006: 416). Evolution selected for the trait of empathy because there were survival benefits in coming to grips with others.

Studies have shown that empathy is present in very young children, even at eighteen months of age and possibly younger. In the primate world, Warneken and colleagues recently found that chimps extend help to unrelated chimps and unfamiliar humans, even when inconvenienced and regardless of any expectation of reward. This suggests that empathy may lie behind this natural tendency to help and that it was a factor in the social life of the common ancestor to chimpanzees and humans at the split some six million years ago (New Scientist, 2007; Warneken & Tomasello,

2006). According to Dewar (2008), it turns out that nonhuman animals – even rodents – show evidence of empathy.

It is now indisputable that we share moral faculties with other species (Trivers, 1971; Katz, 2000; Gintis, Bowles, Boyd & Fehr, 2005; De Waal, 2006; Hauser, 2006; Bekoff & Pierce, 2010; see also: Barber, 2004; Jackson, Metzoff & Decety, 2004; Decety & Lamm, 2006; Jackson, Rainville & Decety, 2006; Lamm, Batson & Decety, 2007; Olson, 2007).

It must be remembered, however, that low empathy might have been advantageous in certain evolutionary contexts. According to Kanazawa & Vandermassen (2005: 591), "Having low empathy associated with the Type S brain [systematizing brain; the exaggerated male brain in the typology of Baron-Cohen] is probably conducive to aggression and pursuit of status in dominance hierarchies, allowing ancestral men to eliminate their rivals physically and ruthlessly without regard to their pain and suffering (De Waal, 1996) and to exercising leadership, with the ability to make decisive, if impersonal, decisions for the sake of the collectivity without regard to consequences for individual members (Rubin, 2002...)".

### **The Neuroanatomical Substrate of Empathy**

There is by now sufficient evidence that there exists a neuroanatomical substrate for empathy, "second-hand pain", theory-of-mind mechanisms, and, possibly, the revulsion to kill. The findings are the most direct evidence to date that humans' revulsion for hurting others may rely on a part of our neural anatomy, the ventromedial prefrontal cortex (VMPC), which is thought to make social emotions, like compassion, embarrassment, guilt, and moral judgment. The VMPC likely evolved before the brain regions responsible for analysis, planning and other executive functions (prefrontal cortex) (e.g., Decety, 2010, 2011; Decety & Cacioppo, 2011; Decety & Hodges, 2006; Decety

& Ickes, 2009; Decety & Lamm, 2006; Decety, Michalska & Akitsuki, 2008; Decety, Michalska, Akitsuki & Lahey, 2009; Dewar, 2008; Gallese, Keyser & Rizzolatti, 2004; Greene, 1991; Jackson, Meltzoff & Decety, 2004; Jackson, Rainville & Decety, 2006; Jackson, Brunet, Meltzoff & Decety, 2006; Kawasaki et al., 2001; Koenigs et al., 2007; Krämer, Mohammadi, Doñamayor, Samii & Münte, 2010; Lamm, Batson & Decety, 2007; Leiberg & Anders, 2006; Moya Albiol, 2011; Moya Albiol, Herrero & Bernal, 2010; Rameson & Lieberman, 2009; Schulte-Rüther, Markowitch, Fink & Piefke, 2007; Shamay-Tsoory, Tomer, Berger & Aharon-Peretz, 2003; Shamay-Tsoory, Tomer, Berger, Goldsher & Aharon-Peretz, 2005; Singer, 2006; Singer et al., 2004; Sturm, Rosen, Allison, Miller & Levenson, 2006).

The ventromedial area is a primitive part of the cortex that appears to have evolved to help humans and other mammals navigate social interactions. The area has connections to deeper, unconscious regions like the brain stem, which transmit physical sensations of attraction or discomfort, and the amygdala, a gumdrop of neural tissue that registers threats, social and otherwise. The ventromedial area integrates these signals with others from the cortex, including emotional memories, to help generate familiar social reactions (Carey, 2007). Damage to the VMPC has been linked to psychopathic behavior and lack of empathy or remorse. A study by Miller and colleagues (2001; see also Damasio, Tranel & Damasio, 1990) of the brain disorder frontotemporal dementia (FTD) is also instructive. FTD attacks the frontal lobes and anterior temporal lobes, the site of one's sense of self. One early symptom of FTD is the loss of empathy.

Blair & Morton (1995; cf. Blair, 2005, 2007) have proposed a violence inhibition mechanism (VIM) that would be activated by non-verbal communications of distress. This mechanism is said to be a prerequisite for the development of some aspects of morality: the moral emotions

(such as sympathy, guilt, remorse and empathy) and the inhibition of violent action (Pitchford, 2001).

When typically developing children (aged 7 to 12 years) were presented with images of people getting hurt, they experienced more activity in the same neural circuits that process first-hand experiences of pain (Decety, Michalska, Akitsuki & Lahey, 2009). This automatic response – termed ‘mirroring’ or ‘second-hand pain’ – has also been documented in adults (Jackson, Meltzoff & Decety, 2004; Jackson, Rainville & Decety, 2006; Jackson, Brunet, Meltzoff & Decety, 2006; Dewar, 2008). But when the children watched the images of one person deliberately inflicting pain on another person, additional brain regions (in the orbital medial frontal cortex and the paracingulate cortex) were activated. Interestingly, boys with conduct disorder (CD) experienced less activation in these brain regions associated with self-regulation (emotional self-control), theory-of-mind, and moral reasoning. Unlike controls, the boys with CD experienced strong bilateral activation in the amygdala and striatum, suggesting that either the CD boys might have gotten a pleasurable ‘kick’ out of viewing the pain of others, or that observing “second-hand pain” triggered negative emotions that made the CD boys behave more aggressively (Dewar, 2008)

### **The Evolution of Killing Inhibitions**

Roscoe (2007: 448) attempted to derive the human aversion to conspecific killing from ancient ‘ritualized’ fighting. His reasoning deserves to be quoted at length:

Proponents of a human aversion to conspecific killing frequently stipulate, in fact, that the disposition is innate. If this is the case, then it is plausible that the mechanism involved is one that once deterred “ritualized” fighting among our predecessors from escalating to lethal violence. Recall that, in “ritualized” confrontations between roughly matched individuals or groups, fighting escalates until one party concludes that it is unlikely to prevail, at which point it withdraws or signals its submission. In theory, the winner could now

pursue its advantage to a lethal end. Instead, it immediately de-escalates its attack, a response indicating the presence of a mechanism that deters the killing of a conspecific. It follows that, if “ritualized” fighting was advantageous at some period in humanity’s past then, through homologous (shared evolutionary history) or homoplastic (convergent evolution) processes, our forebears would have evolved a similar mechanism.

When the species subsequently developed a capacity for intraspecific killing, this mechanism could have persisted for one or both of two reasons. First, it may still have carried an evolutionary advantage... A disinclination or aversion to killing might also have persisted as humans became a homicidal species, however, if it somehow became insulated from selective pressures: if, for example, the emergent faculty responsible for the development of killing was able simultaneously to short-circuit its operation and thus suppress its behavioral manifestation. The obvious candidate is humanity’s most distinctive feature: its intelligence (Roscoe, 2007: 488).

D.L. Smith (2011: 249-50) suggested the following evolutionary story:

It begins six and a half million years ago with a chimpanzee-like progenitor — a violently xenophobic ape. This primate handed down its violent propensities to its descendents, including *Homo sapiens*. Thanks to the evolution of language, *Homo sapiens* became capable of second-order thought, and for the first time could wonder about what makes humans human. This led to the idea of a human essence that all people share. The idea that all people share an essence softened the line drawn between in-group and out-group. People began to develop friendly relations with other communities. This led to the invention of trade, which further accelerated the spread of culture. As population density increased, and contact between cultures became more and more frequent, tribes adopted ethnic markers — distinctive forms of dress, behavior, and adornment — to signal their ethnic identity. Finally, this led to the notion of ethnoraces — essentialized human groups — as the folk-biology module began to respond to ethnic groups as though they were biological species.

This all sounds very nice, but there was a worm lurking in the apple. The dominance drive inherited from our primate progenitors didn’t simply vanish. Our Stone Age ancestors still had a deeply rooted tendency to treat outsiders with hostility, and to kill them when the opportunity arose... This is how our ambivalence toward violence began (D.L. Smith, 2011: 249-50).

The difference between Roscoe and Smith is that the former situates the killing inhibition

very early in hominid evolution, possibly even before the split between the chimpanzee and human lineages, while the latter situates it much later when humans began essentializing (in the sense of Gil-White, 2001; and Gelman, 2003).

## The Phenomenology of the Killing Inhibition

How should such a killing inhibition be envisaged? There are several possibilities regarding the absence or presence, and if present, the phenomenology of the killing inhibition in humans.

**Possibility (1):** First of all, there is the distinct possibility that humans do not possess any killing inhibition to speak of. Considering mankind’s record of genocides, massacres, mass carnages, war atrocities and soldiers’ delight in killing, mass raping, looting and pillaging, refined and nightmarish cruelties, and so on, it is not difficult to understand that many students of human behavior flatly deny the existence of a killing inhibition. Bourke (2000) presented many examples of such ecstasy of war and the joy and almost sexual thrill in slaughter. “Sickening yet exhilarating butchery” was “joy unspeakable” for one New Zealand sapper, while bayoneting a Turk unleashed “the fiercest individual excitement” for another combatant. Henry de Man thought himself above the butchery of World War I until he “saw bodies or parts of bodies go up in the air and heard the desperate yelling of the wounded or the runaways. I had to confess to myself that it was one of the happiest moments of my life”. Half a century later, the same ecstasy touched Vietnam. “I enjoyed the shooting and the killing. I was literally turned on when I saw a geek get shot”, recalled one U.S. Marine. Killing was intrinsically “glamorous” (Herr, 1979: 199). It was like “getting screwed the first time” (Caputo, 1978: 268) and gave men “an ache as profound as the ache of orgasm” (J. Jones, 1962: 197). At least there is ambivalence: “The same combatants

who admitted on one page in their diaries to feeling intense distress when killing another human being would confess, elsewhere, to feeling immensely happy while committing acts of murderous aggression. Contradictory emotions existed side by side..." (Bourke, 1999: 373).

As we have seen, Marshall (1947) insisted that it was the fear of killing rather than the fear of being killed (or wounded or mutilated) that paralyzed soldiers on the field of battle. Some students of soldier behavior, such as Dinter (1985), held to a theory diametrically opposed to Marshall's: "The average person does not particularly worry about killing. Such 'fear' is an ancient myth and it can be removed from the list of possible anxieties. Deep down in his subconscious, man seems to enjoy killing" (Dinter, 1985: 23; cf. Broyles, 1984). Coleman, a division psychiatrist in World War II, found that "there is little guilt associated with killing the enemy." Furthermore, "The destruction of the enemy is an act of vengeance, and serves the purpose of adequately discharging emotions of hatred and impulses of aggression" (Coleman, 1946: 224). Pertinent here may be also the observation and well-established psychological principle that "killing can relieve the fear of being killed" (Lifton, 1973).

Though some soldiers did enjoy killing, Dinter undoubtedly overstated his case. His observation, however, that soldiers do "not particularly worry about killing," as long as that killing falls within the bounds of what is justified, contains much truth (Kindsvatter, 2003: 224).

*Killing as pleasure; delight in destruction.* The historical evidence strongly suggests that people do not only lack killing inhibitions but that they actually *enjoy* the pleasure of watching other people suffer and die. The spectacle of violence holds a fascination that seems to transcend time and culture (Baumeister, 1997; Gray, 1970).

Our ancestors made no bones about enjoying and glorifying combat; the Romans even made it into a sport. Bidwell (1973) cites the rampages of Genghis Khan and of his successors, such as Tamerlane, as examples. Caputo (1978: 111) has described how, in the midst of a difficult pursuit, the mood of the Marines in his company (in Vietnam) turned savage: "This was especially true of First platoon; they had done the actual killing, and once men begin killing it is not easy to stop them".

Fighting in battle evokes "the delight in destruction slumbering in most of us. When soldiers step over the line that separates self-defense from fighting for its own sake, as it is easy for them to do, they experience something that stirs deep chords in their being" (Gray, 1970: 52).

Many writers have commented on the tendency of soldiers to engage in orgies of destruction (e.g., Caputo, 1977: 118; Sajer, 1967: 234). Marshall (1947: 183) presented an example of such "orgiastic overkill" (Eibl-Eibesfeldt, 1984, spoke of *dementia pugnax*)<sup>7</sup> during World War II (June 1944, Normandy), after an initial period of extreme fear.

At the foot of the hill an enemy machine gun opened fire on the patrol but the bullets went high. The men broke and 'ran like dogs'. Millsaps and a sergeant beat them back with physical violence. After they were again collected, Millsaps lost almost an hour, alternately bullying and pleading with them before they would go forward. At last they charged the enemy, closing within handgrappling distance. The slaughter began with

<sup>7</sup> "Unverständlich für den normalen Menschen ist das Überschießen der Aggressionen in Ausnahmezuständen der Raserei. Mit Schrecken und Grauen liest man von Massakern an den Besiegten, von Orgien des Blutrausches, die einen an Tötungshemmungen zweifeln lassen. Früher versetzten sich Krieger durch Tanz und Gesang in einen Zustand der Euphorie und Gruppenraserei (*Dementia pugnax*). D.M. Warburton (1975) vermutet, daß dabei halluzinogene hypothalamische Hormone freigesetzt wurden. Das plötzliche Wegfallen der Angst nach der endgültigen Überwindung des gegnerischen Widerstandes mag dann zu einer nicht mehr beherrschbaren Freisetzung aggressiver Impulse führen" (Eibl-Eibesfeldt, 1984).

grenade, bayonet, and bullet. Some of the patrol were killed and some wounded. But all now acted as if oblivious to danger. The slaughter once started could not be stopped. Millsaps tried to regain control but his men paid no heed. Having slaughtered every German in sight, they ran on into the barns of the French farmhouses where they killed the hogs, cows, and sheep. The orgy ended when the last beast was dead.

During the orgy the men proved to be oblivious to pain and awareness of injuries, thus one may infer that the butchering was enacted in some trance-like state of mind. Dentan (1968), similarly, describes an episode of maniacally murderous 'blooddrunkenness' among Semai warrior/soldiers, an otherwise nonviolent people.

As the senseless atrocities perpetrated under wartime conditions bear witness, in the frenzy of battle, injuring and killing not only enemy soldiers but also women and children can provide intense gratification, equivalent sometimes to that of sexual orgasm, at least in males. The atrocities inflicted on Vietnamese women and children in My Lai are a modern case in point (e.g., Bilton & Sim, 1992).

Moreover, the warriors' delight in destruction persists after the battle is over. The pages of history are stained with accounts of the most atrocious tortures and massacres inflicted by conquerors on defeated armies and helpless civilians. In fact, in some societies, torture and slaying of defeated enemy warriors and civilians still is standard operating procedure (Frank, 1994).

The main flaw in Marshall's theory, or in Dinter's for that matter, is the assumption of social homogeneity. Soldiers' attitudes toward killing were more diverse than Marshall's theory allowed for. Some soldiers, although nothing close to three out of four, were indeed reluctant, for religious or ethical reasons, to kill even an armed opponent. Yet the consciences of most soldiers were assuaged by society's sanctification and the combat group's justifications for killing the enemy. And indeed a few amoral or pathological types found

slaughter to their liking (Kindsvatter, 2003: 224-225).

The notion that in humans the killing inhibition is absent is also contradicted by the fact that, no matter how thorough the training, and base camp indoctrination, it still fails to enable most combatants to fight and kill.

**Possibility (2):** Yet another, and very 'popular', possibility is to regard the killing inhibition as empathy or akin to empathy. Protevi (2008: 405), for example, envisaged "proto-empathetic identification, which produces psychological trauma at the sight of blood and guts of the killed enemy". Undeniably, empathy may contribute to the repugnance and revulsion many soldiers feel toward killing, but there is one compelling reason to think that empathy and killing inhibition are not identical, and that is the ethnocentrism model presented above. It runs counter to the empirically well-established and universal finding (reviewed by Van der Dennen, 1995: Ch. 6) that the Intertribal Sector is characterized by the *absence* of empathy, whereas the killing inhibition, if existent, concerns precisely the intertribal 'enemy'. The warriors/soldiers should empathize with exactly those they appear to show the least empathy to (according to the Mandala-model).

Moreover, females are generally much more empathic than males. Nearly all studies of empathy among postpubertal humans have concluded that females exhibit this trait to a greater degree than do males (Ellis et al., 2008: 269).

Recently, Moya Albiol and his team (Moya Albiol 2011; Moya Albiol, Herrero & Bernal, 2010) found that the human brain circuits involved in empathy and violence may overlap, such that empathy has an inhibitory effect on violence and *vice versa*. Stimulation of these neuronal circuits in one direction reduces their activity in the other. According to these researchers, "This discovery may help explain

why people are both usually kind and abnormally vicious compared to most other animals". The implications of this finding have to be evaluated yet but could be far-reaching.

Interestingly, Protevi (2008) and many others invoke empathy as traumatizing the killing soldier, whereas Goldschmidt (1988, 1989) considers empathy (identification with kin and tribe) to be the great instigator of preindustrial war and the main inducement for the individual warriors to participate in it.

**Possibility (3):** If not identical with empathy, could the killing inhibition be modular in character? It looks like a domain-specific module. It is stipulated by many military psychologists that the inhibition is specifically about killing conspecifics, not about the use of violence generally. It also seems to me clear from this literature that it is specifically the killing on the battlefield that is extremely traumatic. Furthermore, the killing inhibition seems to be universal (at least it has been described in many contemporary as well as 'preliterate' cultures). There is also some evidence that it might be sex-specific in that it is more '*ausgeprägt*' in males (who have always done the bloody handwork) than in females (though this might be an artifact of the research population). It is not to be equated with empathy, though it might be speculated that the neurophysiological substrate of the killing inhibition, given the "economy of nature", is to be found near the substrate of empathy in the ventromedial cortex.

Is it an adaptation? It is hard to imagine that the killing inhibition could have evolved in the context of intergroup violence because a group of inhibited warriors would originally have been at a severe disadvantage vis-à-vis a group of dedicated killers. It is more likely that the killing inhibition evolved in the context of more peaceful realms of life. Without killing inhibitions intermarriage and trade would have been impossible and 'preliterate' societies would have been locked in eternally hostile and

xenophobic isolation, killing any 'stranger' on sight.

**Possibility (4):** Another speculation would be that the killing inhibition originated as a hypertrophication of kin-recognition mechanisms: Ingroup killing might have been so deleterious to the small group of hominids that a powerful brake evolved with a great margin of 'error'. To my knowledge, virtually nothing is known about the neuroarchitecture of the kin-recognition mechanisms.

**Possibility (5):** Another explanation has been offered by Roscoe (2007; *vide supra*), which centers on ritual fighting in species having a high expected value for the future. A possible problem with this explanation is that it is based on game-theoretical models on inter-individual agonistic behavior, while intergroup violence is quite different in both motivation and dynamics (as many primatologists have emphasized). In mammals (especially social carnivores and primates) intergroup violence, and ethnocentric-xenophobic violence against 'strangers' and 'outsiders' is unrestrained (without a trace of inhibition) and often lethal (see review in Van der Dennen [1995]: Ch. 3 and Ch. 6). Moreover, the standard evolutionary explanation for the adoption of signaling rather than fighting among non-human animal conspecifics does not involve "empathetic identification but rather an instinctually embedded cost-benefit analysis" (Protevi, 2008: 406 note) and assessment of resource holding power (RHP).

**Possibility (6):** Finally, it is possible that the killing inhibition is a normally distributed trait, like most human psychological traits. Some evidence was already hinted at by Kindsvatter (*supra*), and other military psychologists and psychiatrists. Angenent (m.s) recently presented his research on non-combatants, defensive and offensive combatants in recent military history, beginning with the following biblical story:

The Book of Judges describes how Gideon attacked the Midianites. His initial force numbered 32,000 men, but after the first selection only 10,000 combatants remained. After the second selection no more than 300 men, less than 1%, is all that is left. This party raided the Midianite encampment during the night; a real commando-raid *avant la lettre* (Angenent, m.s.).

In a similar vein, Marshall found that "75 per cent will not fire or will not persist in firing against the enemy and his works. These men may face the danger but they will not fight". The passive 75 per cent of men would generally remain passive. But, he noted, even those soldiers who did not fire were crucial to the battle: their presence was essential for morale. Active combatants were too busy fighting to notice what their comrades were (or were not) doing. In fact, it was the presence of passive soldiers which enabled active soldiers to continue fighting (Marshall, 1947: 36, 40-42; Bourke, 1999: 87).

Thus, for about 20% (to stay on the safe side) violence is a realistic option and for 80% it is not. As was told by a Dutch officer in 1937: "in every fight there are only a few to do the job; everyone else is but entourage, but you do need that entourage" (Dames, 1954: 54). There is a need for entourage, it supports the real fighters. An apparent interaction between group and fighter is noted more than once. A fighter strikes up for the group he is part of and from which he gets his safety, the group on the other hand delivers circumstances and conditions that urge the fighter to fight. Briefly: the fighter makes his group function, the group makes the fighter function. Their simultaneous presence and behavior reduce uncertainty in the crisis of violent conflict. They cannot do without each other.

Also Gray (1959: 110) noted the existence of various subspecies of front-line men defined by their attitude towards death. There are, he argued, soldier-adventurers, to whom action

and experience are everything in war. There are soldier-killers, deadly efficient men often devoid of remorse or reflection. There are otherworldly soldiers, governed by spirituality; and there are serious professionals, to whom confronting death is part of their sworn duty (Evans, 2000: 41).

All in all, it seems that roughly 80% of males choose to avoid violent conflict. If forced into violent conflict, they just do not fight, although present. The 20% left does not reject violence as a behavioral option. Nevertheless, the main part is probably defensive only, that is, they use violence only if compelled to. Finally, about 1 percent adopts an offensive elementary strategy. Historical and statistical facts confirm the existence of a ratio of *noncombatants* - to - *defensive combatants* - to - *offensive combatants*. Roughly, this ratio looks like 80:19:1 (Angenent, m.s.).

### **Strategies for Overcoming the Killing Inhibitions: Three Modules**

"Both forms of distancing [geographical and psychological] are, in the final analysis, forms of self-deception. They are ways of creating and sustaining the illusion that one is not taking human life" (D.L. Smith, 2007: 181).

Perceiving the enemy as nonhuman would liberate us from inhibitions against killing them. How do we perform this trick? There are various forms and degrees of dehumanization, but the most effective ones inspire hate, fear or repugnance. "Killing other people is easiest if there is something about them that makes you *want* to kill them – something that arouses deep aggressive passions" (p. 187). First, we can imagine the enemy as a dangerous, subhuman beast that must be hunted and killed. Smith postulates that the human mind comes equipped with a *predator detection module* that is switched on by images of dangerous animals. In war, the soldier's predator detection module can be switched on by other human beings, who are then no longer experienced as human.

Perceiving the enemy as a game animal to be hunted and gunned down 'for sport' is another way to sidestep the taboo against killing human beings. The hunting metaphor can be found in many memoirs of soldiers. For example, the Battle of the Philippine Sea became immortalized as "the great turkey shoot".

The third, and last, way of dehumanizing the enemy is to picture him as a parasite, virus, rat, microbe, pest, louse, vermin to be eradicated. "[T]he metaphor of the enemy as a disease or as a carrier of disease, often occurs in war, especially in wars of extermination" (p. 202). "When the *antiparasite module* is activated in war, the stage is set for genocide" (p. 207).

Instead of postulating mental modules (which are, for the most part, speculative and not yet substantiated or located in the brain), I propose the following three motivational systems, which are elaborately documented as having neural substrates in the human brain, and which may – cumulatively – be invoked in the service of combat motivation (cf. Tinbergen's concept of 'super-motivation'):

- The Defensive Aggression System (or circuits);
- The Offensive Aggression System (or circuits);
- And the Predatory System (sometimes called predatory aggression) (see Bailey [1987] for a review of this literature).

### **Strategies for Overcoming the Killing Inhibitions: Berserker Rage**

According to Protevi (2008: 409-12), the vast majority of soldiers cannot kill in cold blood and therefore need to kill in a desubjectified state, e.g., in reflexes, rages and panics. They burst through the threshold of inhibition by super-charging their bodily intensity. Thus the tried and true method for killing in close combat is the berserker rage, the frenzy of killing anything that enters the "death zone" in front of the berserker. In the berserker rage, the subject is overwhelmed by a biochemical flood

that triggers an evolutionarily primitive module which functions as an agent which runs the body's hardware in its place. The Greeks called it "possession by Ares" (Shay, 1994). A common trigger of the berserker rage is the death of a comrade (Kirkland, 1995; Shay, 1994). Another trigger is direct and immediate threat to life, the panicked self-defense reaction. The military problem of the berserker rage is how to turn it on and off on command (and only on command). Rage and panic agents have no "emergency brakes". The ancient Norse berserkers were very effective killers, but could not stop killing at will; their berserker state was only turned off once all enemies were dead (Speidel, 2002).

After discussing the ways in which many aspects of the American war in Vietnam set up an "atrocious-producing situation", Lifton (1973: 41) provided a brief description of the "psychology of slaughter" in which such berserker-like rage and racialized dehumanization of the enemy play a major role (Lifton, 1973: 42-43; Protevi, 2008: 413).

### **Intelligence and Overcoming the Killing Inhibitions**

According to Roscoe (2007: 489), intelligence has played an important role in devising psychological and cultural 'technologies' to overcome the limitations imposed by the genetic emotions and dispositions to which humans are heir. With regard to conspecific killing, it has devised a set of techniques that side-step or short-circuit humanity's aversion to this act with results that have been as consequential for human lethal violence as any projectile weapon or suit of armor. The further result is that, by decoupling the disposition from its behavioral manifestations, these techniques have had the effect of insulating our aversion to killing from deselection by Darwinian processes (Roscoe, 2007: 489).

If a human aversion to conspecific killing has its origins in the mechanism that de-escalates a

winner's attack in response to an opponent's submission or withdrawal, then a developed intelligence can attempt to short-circuit or deactivate it in at least three ways. First, it can attempt to alter or distort the perceptions or interpretations that trigger de-escalation: for example, by suppressing awareness that the opponent is a conspecific or that the opponent has submitted or withdrawn. Second, it can try to counterbalance or overwhelm the aversion: for example, by offering rewards for killing or by recruiting other, countervailing reflexes or emotions. Finally, it can endeavor to alter human psychology itself. With their advanced intelligence, humans appear to have devised killing strategies that draw on all three possibilities.

Another technique is to distort the reality of killing by displacing responsibility for the act onto a spiritual or secular authority. In New Guinea, ancestral or totemic spirits may be represented as the real authors of a kill, the warrior acting merely as the vehicle of their desires (Haberland & Seyfarth, 1974: 351; Telban, 1998: 193). In more centralized societies, holy wars and killings are conducted in the name or service of a deity. Where war is under the control of a hierarchy, responsibility also can be displaced onto secular authorities: The killer was "just following orders" (Browning, 1998:171–176; Milgram, 1974) (Roscoe, 2007: 489).

The most common way to overwhelm an aversion to killing, however, is to combine dehumanization of the enemy, which denies him or her conspecific status, with an image that elicits killing responses appropriate toward nonhuman species (Roscoe, 2007: 490).

A final strategy to suppress an aversion to killing is a set of systematic, ritualized practices that are apparently designed to transform human psychology on a permanent basis: boot camp and military training.

## Boot Camp Training

Much of boot camp training is designed to remove the inhibitions ordinary civilian youths are thought to have against killing other human beings. A typical basic training drill requires that the neophyte charge a stuffed dummy of "the enemy" and plunge a bayonet into its body, all the while screaming, "Kill! Kill! Kill!". The basic training rituals also are designed to inculcate absolute and immediate obedience to superiors in the chain of command (S. Brown, 1994: 19).

Schuh & Mees (1972) already reasoned that killing inhibitions can be overcome by obedience to a commanding authority.<sup>8</sup> Compare also the Milgram (1974) experiments on destructive obedience to authority and the concept of 'agentive' violence, i.e., violence committed because it has been ordered by an authority figure.

Roscoe (2007: 490) gave the following characterization of the transformation of boys into warriors and soldiers:

During military training in nation states and initiation in New Guinea, young men are secluded from society, stripped of personal identifiers, subjected to verbal abuse and physical ordeals that inflict anxiety, fear, pain, exhaustion, hunger, and dehydration, and then indoctrinated into the meaning and value of masculinity and warriorhood. This combination of indoctrination and extreme experiential and affective states, it has been theorized, acts as a form of "brainwashing," "behavioral surgery," or "flashbulb" memorization, transforming callow youths – "mamas' boys" – into warriors, men who will kill regardless of their personal fears or the plight of their victims (Herdt, 1981: 305; Sargent, 1957;

<sup>8</sup> "Ein Mensch, der sich normalerweise aus instinktiven oder anerzogenen Hemmungen dagegen sperrt, einen Menschen anzugreifen und zu töten, verliert offensichtlich diese Hemmung, wenn man es ihm im Namen seines Kollektivs befiehlt und vorgibt zu verantworten... Die kritiklose Bereitschaft zur Ausführung befohlener aggressiver Akte erscheint als das wichtigste Korrelat der Aggression in Hinblick auf die Erklärung organisiert-durchgeführter Grausamkeiten, denn die Masse der Menschen ist am Krieg bloß als Teil einer organisierten Gesellschaft beteiligt" (Schuh & Mees, 1972).

also Whitehouse, 1996). In modern military training, these measures are reportedly combined with “operant conditioning” techniques designed to further dull a recruit’s aversion to killing. In sharp-shooting practice, for instance, soldiers no longer fire at a bulls-eye target but at a lifelike dummy that sprays imitation blood when hit (Grossman, 1996: 252–255) (Roscoe, 2007: 490).

## Conclusion

Human males may be ‘killers’, but ‘reluctant killers’. Once the powerful innate killing inhibitions have been overcome (by means of universal techniques of dehumanization of the enemy and dulling the recruit’s aversion to kill), however, combat motivation may quickly degenerate into atrocious and even lustful (‘orgasmic’) violence (e.g., Baumeister, 1996; Bilton & Sim, 1992; Bourke, 2000; Browning, 1998; Broyles, 1984; Caputo, 1978; Chang, 1997; Dentan, 1968; Dinter, 1985; Dower, 1986; Gray, 1970; Hedges, 2002; Hersh, 1970; Kassimeris, 2006; Katsuitchi, 1999; Kindsvatter, 2003; McDonough, 2007; Rees, 2002; Sajer, 1967; Scagliola, 2002; Sherman, 2010; Sledge, 1990; D.L. Smith, 2007, 2011; Sofsky, 2003; Stouffer et al, 1949; Van Doorn & Hendrix, 1970, 1985; Wiessner, 1998).

How do humans perform this trick? Basically, the mechanisms to overcome the killing inhibitions are variations on the themes of authorization, routinization (desensitization), and dehumanization: the ability to deny the humanity of ‘the enemy’ and reduce ‘the enemy’ to prey or vermin. I have called the psychological mechanisms involved “distancing devices” in my publications on genocide. Other similar or equivalent notions are “the exclusion of the victim from the universe of moral obligation” (Fein, 1979 et seq.); “exclusion from the moral domain” (Staub, 1989); “outside the circle of human obligation and responsibility” (Renwick Monroe, 1995); “moral disengagement” (Waller, 2002); Staub (1989) calls this the “continuum of destructiveness,” while Bandura. (1999) refers to it as “gradualistic moral disengagement”; “social death”, etc.

We are now in a position to bring the puzzle of war into sharp focus. The track record of our species shows, beyond a shadow of a doubt, that we are extremely dangerous animals, and the balance of evidence suggests that our taste for killing is not some sort of cultural artifact, but was bred into us over millions of years by natural and sexual selection. But we have also seen that there is something in human nature that recoils from killing and pulls us in the opposite direction. These contrary dispositions exist side by side within us, and any explanation of war must honor the tension between them. It is incorrect to claim, without qualification, that we are killer apes, but to say that we are essentially peaceable is every bit as misguided. We are ambivalent about killing, and it is impossible to understand the relationship between war and human nature without taking this into consideration (D.L. Smith, 2007: 161).

## Author's Note

A previous version of this article was presented at the XIX Biennial Conference of ISHE, Bologna, July 13-18, 2008. The original paper presented six arguments *pro* and six arguments *con* the concept of “natural born killers”, derived from the study of warfare in preindustrial societies, combat motivation and war atrocities in contemporary soldiers, military psychology/psychiatry, and the neurosciences.

## References

- Andreski, S. (1964) Origins of war. In: J.D. Carthy & F.J. Ebling (Eds.) *The Natural History of Aggression*. New York: Academic Press, pp. 129-36.
- Angenent, W.J. (n.d.) Dynamics of Violence. Unpubl. manuscript.
- Appel, J.W. & G.W. Beebe (1946) Preventive psychiatry: An epidemiological approach. *JAMA*, 131, Aug. 18, pp. 1469-75.
- Ardrey, R. (1961) *African Genesis: A Personal Investigation into the Animal Origins and Nature of Man*. New York: Dell.
- Bailey, K.G. (1987) *Human Paleopsychology: Applications to Aggression and Pathological Processes*. London: Lawrence Erlbaum.
- Bandura, A. (1999) Moral disengagement in the perpetration of inhumanities. *Person. & Soc. Psychol. Rev.*, 3, pp. 193-209.
- Barber, N. (2004) *Kindness in a Cruel World: The Evolution of Altruism*. New York: Prometheus.

- Baron-Cohen, S. (1995) *Mindblindness: An Essay on Autism and Theory of Mind*. Cambridge MA: MIT Press.
- Baumeister, R. (1996) *Evil: Inside Human Cruelty and Violence*. New York: Freeman.
- Bekoff, M. & J. Pierce (2010) *Wild Justice: The Moral Lives of Animals*. Chicago: Univ. Chicago Press.
- Bidwell, S. (1973) *Modern Warfare: A Study of Men, Weapons and Theories*. London: Penguin.
- Bigelow, R. (1969) *The Dawn Warriors: Man's Evolution towards Peace*. Boston: Little, Brown.
- Bilton, M. & K. Sim (1992) *Four Hours in My Lai*. New York: Viking.
- Blair, R.J.R. (2005) Responding to the emotions of others: Dissociating forms of empathy through the study of typical and psychiatric populations. *Consciousness & Cognition*, 14, pp. 698-718.
- Blair, R.J.R. (2007) The amygdala and ventromedial prefrontal cortex in morality and psychopathology. *Trends Cognitive Neurosci.*, 11, pp. 387-92.
- Blair, R.J.R. & J. Morton (1995) Putting cognition into sociopathy. *Behav. & Brain Sci.*, 18, p. 548.
- Bourke, J. (2000) *An Intimate History of Killing: Face-to-Face Killing in Twentieth-Century Warfare*. London: Granta Books.
- Boyd, R. & P.J. Richerson (1985) *Culture and the Evolutionary Process*. Chicago: Univ. Chicago Press.
- Brown, S. (1994) *The Causes and Prevention of War*. 2nd ed. New York: St. Martin's Press.
- Browning, C.R. (1998) *Ordinary Men: Reserve Police Battalion 101 and the Final Solution in Poland*. New York: HarperCollins.
- Broyles, W. (1984) Why men love war. *Esquire*, 102, 5, Nov., pp. 55-65.
- Caputo, P. (1978) *A Rumor of War*. New York: Holt, Rinehart & Winston.
- Carey, B. (2007) Study finds brain injury changes moral judgment. *New York Times*, March 21.
- Chagnon, N. (1977) *Yanomamö, the Fierce People*. 2nd. ed. New York: Holt, Rinehart & Winston.
- Chang, I. (1997) *The Rape of Nanking: The Forgotten Holocaust of World War II*. New York: Basic Books.
- Chomsky, N. (1971) *Human Nature: Justice versus Power*. New York: Pantheon.
- Coleman, J.V. (1946) The group factor in military psychiatry. *Amer. J. Orthopsychiat.*, xvi.
- Crook, P. (1994) *Darwinism, War and History: The Debate over the Biology of War from the 'Origin of Species' to the First World War*. New York: Cambridge Univ. Press.
- Damasio, A.R.; D. Tranel & H. Damasio (1990) Individuals with sociopathic behavior caused by frontal damage fail to respond automatically to social stimuli. *Behav. Brain Res.*, 41, pp. 84-94.
- Dames, G.W.T. (1954) *Oom Ambon van het K.N.I.L.* 's-Gravenhage.
- De Waal, F.B.M. (1996) *Good Natured: The Origin of Right and Wrong in Humans and Other Animals*. Cambridge MA: Harvard Univ. Press.
- De Waal, F.B.M. (2006) *Primates and Philosophers: How Morality Evolved*. Princeton: Princeton Univ. Press.
- De Waal, F.B.M. (2009) *The Age of Empathy: Nature's Lesson for a Kinder Society*. New York: Harmony.
- Decety, J. (2010) The neurodevelopment of empathy in humans. *Developm. Neurosci.*, 32, pp. 257-67.
- Decety, J. (2011) Dissecting the neural mechanisms mediating empathy. *Emotion Rev.*, 3, pp. 92-108.
- Decety, J. (Ed.) (2011) *Empathy: From Bench to Bedside*. Cambridge, MA: MIT Press.
- Decety, J. & J.T. Cacioppo (Eds.) *The Oxford Handbook of Social Neuroscience*. New York: Oxford Univ. Press.
- Decety, J. & S.D. Hodges (2006) The social neuroscience of empathy. In: P.A.M. van Lange (Ed.) *Bridging Social Psychology: Benefits of Transdisciplinary Approaches*. Mahwah: Erlbaum, pp. 103-9.
- Decety, J. & W. Ickes (2009) *The Social Neuroscience of Empathy*. Cambridge, MA: MIT Press.
- Decety, J. & C. Lamm (2006) Human empathy through the lense of social neuroscience. *The Scientific World J.*, 6, Sept., pp. 1-25.
- Decety, J. & K.J. Michalska (2010) Neurodevelopmental changes in the circuits underlying empathy and sympathy from childhood to adulthood. *Developm. Sci.*, 13, pp. 886-93.
- Decety, J.; K.J. Michalska & Y. Akitsuki (2008) Who caused the pain? An fMRI investigation of empathy and intentionality in children. *Neuropsychologia*, 11, pp. 2607-14.
- Decety, J.; K.J. Michalska; Y. Akitsuki & B.B. Lahey (2009) Atypical empathetic responses in adolescents with aggressive conduct disorder: A functional MRI investigation. *Biol. Psychol.*, 80, 2, pp. 203-11.
- Delbrück, H. (1985) *History of the Art of War within the Framework of Political History. Vol. 4: The Modern Era*. Westport: Greenwood Press.

- Densmore, F. (1929) Papago Music. *GPO Bull.* 90, Washington.
- Dentan, R.K. (1968/1979) *The Semai: A Nonviolent People of Malaya*. New York: Holt, Rinehart & Winston.
- Dewar, G. (2008) Empathy and the brain. [www.parentingscience.com/empathy-and-the-brain.html](http://www.parentingscience.com/empathy-and-the-brain.html)
- Dinter, E. (1985) *Hero or Coward: The Physical and Psychological Pressures on the Soldier in Battle*. London: Frank Cass.
- Dower, J.W. (1986) *War without Mercy: Race and Power in the Pacific War*. New York: Pantheon Books.
- Dyer, G. (1985) *War*. New York: Crown / *War: The Lethal Custom*. Carroll & Graf.
- Ehrenreich, B. (1997) *Blood Rites: Origins and History of the Passions of War*. New York: Metropolitan Books.
- Eibl-Eibesfeldt, I. (1975) *Krieg und Frieden aus der Sicht der Verhaltensforschung*. München: Piper Verlag.
- Eibl-Eibesfeldt, I. (1977) Evolution of destructive aggression. *Aggr. Behav.*, 3, 2, pp. 127-44.
- Eibl-Eibesfeldt, I. (1979) *The Biology of Peace and War*. London: Thames & Hudson.
- Eibl-Eibesfeldt, I. (1984) *Die Biologie des menschlichen Verhaltens: Grundriss der Humanethologie*. München: Piper Verlag.
- Ellis, L. et al. (2008) *Sex Differences: Summarizing More Than a Century of Scientific Research*. Washington DC: Psychology Press.
- Erikson, E.H. (1966) *Childhood and Society*. rev. ed. New York: Norton.
- Fein, H. (1979) *Accounting for Genocide*. New York: Free Press.
- Fein, H. (1990) Genocide: A Sociological Perspective. *Current Sociol.*, 38, 1, whole issue.
- Fossey, D. (1983) *Gorillas in the Mist*. Boston: Houghton Mifflin.
- Frank, J.D. (1994) Some psychopathological and sociopsychological determinants of bloodthirstiness. *Medicine & War*, 10, 1, pp. 36-49.
- Frazer, J.G. (1890) *The Golden Bough; A Study of Magic and Religion*. 12 Vols. London: Macmillan.
- Freud, S. (1913) *Totem und Tabu*. Wien: Heller.
- Freud, S. (1915) *Zeitgemäßes über Krieg und Tod (Thoughts for the Time on War and Death)*. *Imago*, 4, pp. 1-21.
- Gabriel, R.A. (1988) *The Painful Field: The Psychiatric Dimension of Modern War*. Westport: Greenwood Press.
- Gallese, V.; C. Keysers & G. Rizzolatti (2004) A unifying view of the basis of social cognition. *Trends Cognitive Sci.*, 8, 9, pp. 396-403.
- Gelman, S. (2003) *The Essential Child: Origins of Essentialism in Everyday Thought*. New York: Oxford Univ. Press.
- Ghiglieri, M.P. (1999) *The Dark Side of Man: Tracing the Origins of Male Violence*. Reading MA: Perseus Books.
- Gil-White, F. (2001) Are ethnic groups biological 'species' to the human brain? Essentialism in our cognition of some social categories. *Current Anthropol.*, 42, 4, pp. 515-54.
- Gintis, H.; S. Bowles; R. Boyd & E. Fehr (Eds.) (2005) *Moral Sentiments and Material Interests: The Foundations of Cooperation in Economic Life*. Cambridge MA: MIT Press.
- Goldschmidt, W.R. (1988) Inducement to military participation in tribal societies. In: R.A. Rubinstein. & M.L. Foster (Eds.) *The Social Dynamics of Peace and Conflict*. Boulder: Westview Press, pp. 47-65.
- Goldschmidt, W.R. (1989) Inducement to military participation in tribal societies. In: P.R. Turner & D. Pitt (Eds.) *The Anthropology of War and Peace: Perspectives on the Nuclear Age*. London: Greenwood Press, pp. 15-31.
- Goodall, J. (1986) *The Chimpanzees of Gombe: Patterns of Behavior*. Cambridge MA: Harvard Univ. Press.
- Gray, G.J. (1970) *The Warriors: Reflections on Men in Battle*. New York: Harper & Row.
- Greene, J.D. (1991) An fMRI investigation of emotional engagement in moral judgement. *Sci.*, 293, Sept. 14, pp. 2105-2108.
- Groebel, J. & R.A. Hinde (Eds.) (1989) *Aggression and War: Their Biological and Social Bases*. Cambridge: Cambridge Univ. Press.
- Grossman, D. (1995/1996) *On Killing: The Psychological Cost of Learning to Kill in War and Society*. Boston: Little, Brown.
- Grossman, D. (2000) Human factors in war: The psychology and physiology of close combat. In: M. Evans & A. Ryan (Eds.) *The Human Face of Warfare: Killing, Fear and Chaos in Battle*. St. Leonards: Allen & Unwin, pp. 5-24.
- Haberland, E. & S. Seyfarth (1974) *Die Yimar am oberen Korowari (Neuguinea)*. Wiesbaden: Steiner Verlag.

- Hauser, M.D. (2006) *Moral Minds: The Unconscious Voice of Right and Wrong*. New York: HarperCollins.
- Hedges, C. (2002) *War is a Force that Gives Us Meaning*. New York: Public Affairs.
- Herd, G.H. (1991) *Guardians of the Flutes: Idioms of Masculinity*. New York: McGraw-Hill.
- Herr, M. (1978) *Dispatches*. New York: Avon Books.
- Hersh, S.M. (1970) *My Lai 4: A Report on the Massacre and its Aftermath*. New York: Random House.
- Jackson, P.L.; A.N. Meltzoff & J. Decety (2004) How do we perceive the pain of others? *Neuroimage*, 125, 2004, pp. 5-9.
- Jackson, P.L.; P. Rainville & J. Decety (2006) To what extent do we share the pain of others? *Pain*, 125, pp. 5-9.
- Jackson, P.L.; E. Brunet; A.N. Meltzoff & J. Decety (2006) Empathy examined through the neural mechanisms involved in imagining how I feel versus how you feel pain: An event-related fMRI study. *Neuropsychologia*, 44, pp. 752-61.
- Janowitz, M. (1964) (Ed.) *The New Military: Changing Patterns of Organization*. New York: Russell Sage Foundation.
- Jones, J. (1962) *The Thin Red Line*. New York: Scribner's.
- Junod, H.A. (1927) *The Life of a South African Tribe*. London: Macmillan.
- Kanazawa, S. & G. Vandermassen (2005) Engineers have more sons, nurses have more daughters: An evolutionary psychological extension of Baron-Cohen's extreme male brain theory of autism. *J. Theoret. Biol.*, 233, pp. 589-99.
- Karsten, R. (1923) Blood revenge, war and victory feasts among the Jibaro Indians of Eastern Ecuador. *Bur. Amer. Ethnol. Bull.* 79.
- Kassimeris, G. (Ed.) (2006) *The Barbarisation of Warfare*. London: Hurst.
- Katsuichi, H. (1999) *The Nanjing Massacre: A Japanese Journalist Confronts Japan's National Shame*. New York: M.E. Sharpe.
- Katz, L.D. (ED.) (2000) Evolutionary origins of morality: Cross-disciplinary perspectives. *J. Consciousness Stud.*, 7, 1-2, spec. issue.
- Kawasaki, H. et al. (2001) Single-unit responses to emotional visual stimuli recorded in human ventral prefrontal cortex. *Nature Neurosci.*, 4, pp. 15-16.
- Keegan, J. (1977) *The Face of Battle: A Study of Agincourt, Waterloo and the Somme*. New York: Viking.
- Keeley, L.H. (1996) *War Before Civilization: The Myth of the Peaceful Savage*. New York: Oxford Univ. Press.
- Kennedy, J. (1971) Ritual and intergroup murder; comments on war, primitive and modern. In: M.N. Walsh (Ed.) *War and the Human Race*. Amsterdam: Elsevier, pp. 40-61.
- Killen, M. & M. Cords (2002) Prince Kropotkin's ghost. *American Scientist*, 90, 3, p. 208.
- Kilner, P. (2002) Military leaders' obligation to justify killing in war. *Military Rev.*, 82, 2, pp. 24-31.
- Kindsvatter, P.S. (2003) *American Soldiers: Ground Combat in the World Wars, Korea, and Vietnam*. Lawrence: Univ. Kansas Press.
- Kirkland, F. (1995) Postcombat reentry. In: *War Psychiatry: Textbook of Military Medicine*, Part 1. Washington DC: Office of the Surgeon General.
- Koenigs, M. et al. (2007) Damage to the prefrontal cortex increases utilitarian moral judgments. *Nature*, 446, 7138, pp. 908-11.
- Krämer, U.M.; B. Mohammadi; N. Doñamayor; A. Samii & T.F. Münte (2010) Emotional and cognitive aspects of empathy and their relation to social cognition – an fMRI-study. *Brain Res.*, 1311, pp. 110-20.
- Krige, E.J. (1936) *The Social System of the Zulus*. London: Longmans, Green.
- Kroeber, C.B. & B.L. Fontana (1987) *Massacre on the Gila: An Account of the Last Major Battle between American Indians, with Reflections on the Origin of War*. Tucson: Univ. Arizona Press.
- Kropotkin, P.A. (1902) *Mutual Aid. A Factor of Evolution*. London: Heinemann.
- Lamm, C.; C. Batson & J. Decety (2007) The neural substrate of human empathy: Effects of perspective-taking and cognitive appraisal. *J. Cognitive Neural Sci.*, 19, 1, 2007; pp. 42-58.
- Leiberg, S. & S. Anders (2006) The multiple facets of empathy: A survey of theory and evidence. *Prog. Brain Res.*, 156, pp. 419-40.
- Lifton, R. (1973) *Home from the War: Vietnam Veterans – Neither Victims nor Executioners*. New York: Simon & Schuster.
- Lorenz, K. (1963) *Das sogenannte Böse. Zur Naturgeschichte der Aggression*. Wien: Borotha-Schock Verlag.
- Lorenz, K. (1966) *On Aggression*. London: Methuen; New York: Bantam Books.
- Lorenz, K. (1970) On killing members of one's own species. *Bull. Atomic Scientists*, 26, 8, 3-5, 51-56.

- MacCurdy, J.T. (1918) *The Psychology of War*. London: Heinemann.
- Manchester, W. (1980) *Goodbye Darkness: A Memoir of the Pacific War*. New York: Dell.
- Marett, R.R. (1933) *Sacraments of Simple Folk*. Oxford: Oxford Univ. Press.
- Marshall, S.L.A. (1947) *Men Against Fire*. New York: Morrow & Co.
- McDonough, G. (2007) *After the Reich: The Brutal History of the Allied Occupation*. New York: Basic Books.
- Meek, C.K. (1937) *Law and Authority in a Nigerian Tribe: A Study in Indirect Rule*. London: Oxford Univ. Press.
- Métraux, A. (1963) Warfare, cannibalism, and human trophies. In: H.H. Steward (Ed.) *Handbook of South American Indians*. Vol. 5. New York: Cooper Square Publ., pp. 383-409.
- Meyer, P. (1993) Human nature and the origins of warfare: Some evolutionary considerations. Paper 16th Ann. Meeting Internat. Soc. Polit. Psychol., Cambridge MA, July.
- Milgram, S. (1974) *Obedience to Authority: An Experimental View*. New York: Harper.
- Miller, B.L. et al. (2001) Neuroanatomy of the self: Evidence from patients with frontotemporal dementia. *Neurol.*, 57, 5, pp. 817-21.
- Moya Albiol, L. (2011) La violencia: la otra cara de la empatía. *Mente y Cerebro*, 47, pp. 14-21.
- Moya Albiol, L.; N. Herrero & M.C. Bernal (2010) Bases neurales de la empatía. *Revista de Neurología*, 50, 2, pp. 89-100.
- O'Connell, R.L. (1989) *Of Arms and Men: A History of War, Weapons and Aggression*. Oxford: Oxford Univ. Press.
- Olson, G. (2007) Neuroscience and moral politics: Chomsky's intellectual progeny. [www.identitytheory.com/social/olson-neuro.php](http://www.identitytheory.com/social/olson-neuro.php)
- Pierson, D. (1999) Natural killers – Turning the tide of battle. *Military Review*, May-June, pp. 60-65.
- Pitchford, I. (2001) The origins of violence: Is psychopathy an adaptation? *Human Nature Rev.*, 1, pp. 28-39.
- Potegal, M. (1979) The reinforcing value of several types of aggressive behavior: A review. *Aggr. Behav.*, 5, 4, pp. 353-73.
- Potts, M. (m.s.) *Understanding War: The Biological Origins and Future of Wars and Terrorism*. Manuscript. Berkeley: Univ. California.
- Protevi, J. (2008) Affect, agency and responsibility: The act of killing in the age of cyborgs. *Phenomenol. & the Cognitive Sci.*, 7, 3, pp. 405-13.
- Rameson, L.T. & M.D. Lieberman (2009) Empathy: A social cognitive neuroscience approach. *Social & Personality Psychol. Compass*, 3, 1, pp. 94-110.
- Rees, L. (2002) *Horror in the East: Japan and the Atrocities of World War II*. Cambridge MA: Da Capo Press.
- Reid, B.H. & J. White (1985) 'A mob of stragglers and cowards': Desertion from the Union and the Confederate Armies, 1861-65. *J. Strategic Stud.*, 8, 1, pp. 64-75.
- Renwick Monroe, K. (1995) Review essay: The psychology of genocide. *Ethics & Internat. Affairs*, 6, pp. 215-39.
- Roscoe, P.B. (2007) Intelligence, coalitional killing, and the antecedents of war. *Amer. Anthropol.*, 109, 3, pp. 485-95.
- Rubin, P.H. (2002) *Darwinian Politics: The Evolutionary Origin of Freedom*. New Brunswick: Rutgers Univ. Press.
- Sajer, G. (1971) *The Forgotten Soldier*. New York: Harper & Row.
- Sargent, W. (1957) *Battle for the Mind: A Physiology of Conversion and Brain Washing*. Melbourne: Heinemann.
- Scagliola, S.I. (2002) Last van de oorlog. De Nederlandse oorlogsmisdaden in Indonesië en hun verwerking. Den Haag: Uitgeverij Balans.
- Schiefenhövel, W. (1995) Aggression und Aggressionskontrolle am Beispiel der Eipo aus dem Hochland von W-Neuguinea. In: H. von Stietencron & J. Rüpké (Eds.) *Töten im Krieg*. Freiburg: Verlag Karl Alber, pp. 339-62.
- Schuh, H. & U. Mees (1972) Aggression und gewaltsamer Konflikt. *Beiträge zur Konfliktforschung*, 2, pp. 59-99.
- Schulte-Rüther, M.; H.J. Markowitsch; G.R. Fink & M. Piefke (2007) Mirror neurons and theory of mind mechanisms involved in face-to-face interactions: A functional magnetic resonance imaging approach to empathy. *J. Cognitive Neurosci.*, 19, 8, pp. 1354-72.
- Shalit, B. (1988) *The Psychology of Conflict and Combat*. New York: Praeger.
- Shamay-Tsoory, S.G.; R. Tomer; B.D. Berger & J. Aharon-Peretz (2003) Characterization of empathy deficits following prefrontal brain damage: The role of the right ventromedial prefrontal cortex. *Cognitive Neurosci.*, 15, 3, pp. 324-37.

- Shamay-Tsoory, S.G.; R. Tomer; B.D. Berger; D. Goldsher & J. Aharon-Peretz (2005) Impaired 'affective theory of mind' is associated with right ventromedial prefrontal damage. *Cognitive & Behav. Neurol.*, 18, 1, pp. 55-67.
- Shay, J. (1994) *Achilles in Vietnam*. New York: Macmillan.
- Sherman, N. (2010) *The Untold War: Inside the Hearts, Minds and Souls of Our Soldiers*. New York: Norton.
- Singer, T. (2006) The neuronal basis and ontogeny of empathy and mind reading: Review of literature and implications for future research. *Neurosci. Biobehav. Rev.*, 30, 6, pp. 855-63.
- Singer, T. et al. (2004) Empathy for pain involves the affective but not sensory components of pain. *Sci.*, 303, Feb. 20, pp. 1157-62.
- Sledge, E.B. (1990) *With the Old Breed at Peleliu and Okinawa*. New York: Oxford Univ. Press.
- Smith, D.L. (2007) *The Most Dangerous Animal: Human Nature and the Origins of War*. New York: St. Martin's Press.
- Smith, D.L. (2011) *Less than Human: Why We Demean, Enslave, and Exterminate Others*. New York: St. Martin's Press.
- Smith, P. (1991) Codes and conflict: Toward a theory of war as ritual. *Theory & Society*, 20, pp. 103-38.
- Sofsky, W. (2003) *Violence: Terrorism, Genocide, War*. London: Granta Books.
- Sommer, V. (1987) Das Töten von Artgenossen. In: H. Albertz (Ed.) *Die Zehn Gebote, 6: Du sollst nicht töten*. Stuttgart: Radius, pp. 85-97.
- Speidel, M. (2002) Berserks: A history of Indo-European 'mad warriors'. *J. World History*, 13, 2, pp. 253-90.
- Staub, E. (1989) *The Roots of Evil: The Origins of Genocide and Other Group Behavior*. New York: Cambridge Univ. Press.
- Stouffer, S.A. et al. (1949) *The American Soldier: Combat and its Aftermath*. Princeton: Princeton Univ. Press.
- Sturm, V.E.; H.J. Rosen; S. Allison; B.L. Miller & R.W. Levenson (2006) Self-conscious emotion deficits in frontotemporal lobar degeneration. *Brain*, 129, pp. 2508-16.
- Sumner, W.G. (1911) *War and Other Essays*. New Haven: Yale Univ. Press.
- Swank, R.L. & W.E. Marchand (1946) Combat neuroses: Development of combat exhaustion. *Arch. Neurol. & Psychiat.*, 55, 3, pp. 236-47.
- Telban, B. (1998) *Dancing through Time: A Sepik Cosmology*. Oxford: Oxford Univ. Press.
- Tiger, L. & R. Fox (1971) *The Imperial Animal*. New York: Holt, Rinehart & Winston.
- Tinbergen, N. (1968) On war and peace in animals and man. *Sci.*, 160, pp. 1411-18.
- Tinbergen, N. (1981) On the history of war. In L. Valzelli & L. Morgese (Eds.) *Aggression and Violence: A Psychobiological and Clinical Approach*. Saint Vincent: Edizioni Centro Culturale, pp. 31-38.
- Trivers, R.L. (1971) The evolution of reciprocal altruism. *Quart. Rev. Biol.*, 46, 4, pp. 35-57.
- Tromp, H.W. (1995) On the nature of war and the nature of militarism. In: R.A. Hinde & H.E. Watson (Eds.) *War: A Cruel Necessity? The Bases of Institutionalized Violence*. London: Tauris, pp. 118-31.
- Turney-High, H.H. (1949/1971) *Primitive War: Its Practice and Concepts*. Columbia: Univ. South Carolina Press.
- Van der Dennen, J.M.G. (1979) *Agressie en oorlog [Aggression and War]*. Groningen: Polemological Inst., IP/05.
- Van der Dennen, J.M.G. (1980) *Problems in the Concepts and Definitions of Aggression, Violence, and Some Related Terms*. Groningen: Polemological Inst., IP/14.
- Van der Dennen, J.M.G. (1995) *The Origin of War: The Evolution of a Male-Coalitional Reproductive Strategy*. Groningen: Origin Press.
- Van Doorn, J.A.A. & W.J. Hendrix (1970) *Ontsporing van geweld*. Rotterdam Univ. Press.
- Van Doorn, J.A.A. & W.J. Hendrix (1985) *Het Nederlands/Indonesisch conflict. Ontsporing van geweld*. Dieren: De Bataafsche Leeuw.
- Vogel, C. (1989) *Vom Töten zum Mord; das wirkliche Böse in der Evolutiongeschichte*. München: Carl Hanser Verlag.
- Waller, J.E. (2002) *Becoming Evil: How Ordinary People Commit Genocide and Mass Killing*. New York: Bowkers Magazine group.
- Warburton, D.M. (1975) *Brain, Behaviour and Drugs: Introduction to the Neurochemistry of Behaviour*. London: Wiley & Sons.
- Warneken, F. & M. Tomasello (2006) Altruistic helping in human infants and young chimpanzees. *Sci.*, 311, 5765, pp. 1301-3.
- Washburn, S.L. & D.A. Hamburg (1968) Aggressive behavior in Old World monkeys and apes. In: P.C. Jay (Ed.) *Primates: Studies in Adaptation and*

*Variability*. New York: Holt, Reinhart & Winston, pp. 458-78.

Whitehouse, H. (1996) Rites of terror: Emotion, metaphor and memory in Melanesian initiation cults. *J. Roy. Anthropol. Inst.*, 61, pp. 703-15.

Wiessner, P. (1998) Indoctrinability and the evolution of socially defined kinship. In: I. Eibl-Eibesfeldt & F.K. Salter (Eds.) *Indoctrinability, Ideology and Warfare: Evolutionary Perspectives*. Oxford: Berghahn Books, pp. 133-50.

Wrangham, R.W. (1999) Evolution of coalitionary killing. *Yearbook Phys. Anthropol.*, 42, pp. 1-30.

Wrangham, R.W. & D. Peterson (1996) *Demonic Males: Apes and the Origins of Human Violence*. Boston: Houghton Mifflin.

Wright, Q. (1942/1965) *A Study of War*. Chicago: Univ. Chicago Press.

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