

Human Ethology Bulletin

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Human Ethology Bulletin: Our New Electronic Submission System

New Procedures for Submissions to the *Human Ethology Bulletin*

The *Human Ethology Bulletin* is switching to an online electronic submission system as of 1 January 2012. From that date on, all manuscripts (of whatever type) should be submitted to the following URL:

http://media.anthro.univie.ac.at/ishe_journal/index.php/heb/author/submit/1

We are also taking this opportunity to post a briefer description of our journal on that web page, which has now been revised so that newcomers will immediately grasp the basic purposes behind the Bulletin without having to read one of our lengthy academic discourses on the matter.

Brief Description of the *Human Ethology Bulletin*

The *Human Ethology Bulletin* is an online peer-reviewed journal publishing scholarly works within the broad research tradition of **Human Ethology**, such as: (1) *Research Articles*; (2) *Theoretical Reviews*; (3) *Brief Reports*; (4) *Technical Comments*; (5) *Brevia*; (6) *Open Peer Commentaries*; (7) *Authors Responses to Open Peer Commentaries*; and (8) *Book Reviews*.

The focus of the *Human Ethology Bulletin* is to provide a unique venue for the publication of empirical, theoretical, and review articles within the tradition of Human Ethology. The substantive content of Human Ethology is perhaps best captured by Tinbergen's Four Questions, that may be asked of any behavior: (1) Proximate Mediation; (2) Behavioral Development; (3) Evolutionary History; and (4) Ultimate Adaptive Function.

The *Human Ethology Bulletin* is particularly interested in studies where behavior is directly observed and recorded using a variety of methods, which might range from traditional *ad libitum* direct observation in natural habitats to automatic computer-aided behavior recording and analysis, as well as methodological articles describing those procedures for general application. Purely descriptive and inductive studies will also be accepted, provided they are thorough and methodologically rigorous.

The *Bulletin* and the *Newsletter*

As previously announced, we have split the official journal function, retaining the name *Human Ethology Bulletin*, from the ISHE-specific information function, under the name *Human Ethology Newsletter*. Until the end of 2011, the *Bulletin* will be distributed in PDF format directly over email to all current subscribers and members of ISHE. We will afterwards be switching to a web-based distribution system to be announced as soon as it is operational.

Certain traditional features of the *Human Ethology Bulletin* are being retained within the *Human Ethology Newsletter*, such as "Current Publications", "New Books and New Editions", and "Upcoming Conferences and Meetings". The December issue (10, 2) of the *Newsletter* will be distributed directly over email concurrently with this *Bulletin* to all current subscribers, but will afterwards be switching to the web-based distribution system that is currently in preparation.

Although the current *Bulletin* Editor-in-Chief will continue to personally produce and distribute the *Newsletter* until a replacement is found, we need to find another person to fill this role at the start of 2012, as the responsibilities of the *Bulletin* Editor-in-Chief will change with the greater complexity of the new system. Any nominations (including self-nominations) for that role would be welcome.

Theoretical Articles

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

By **Johan M.G. van der Dennen**
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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.¹

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

¹ "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 bösertiger 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 *ZeitgemäÙes 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 as 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)².

² "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).³

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).

³ *“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).⁴

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

⁴ *“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.⁵

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.⁶

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

⁵ “*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*”.

⁶ “*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.).

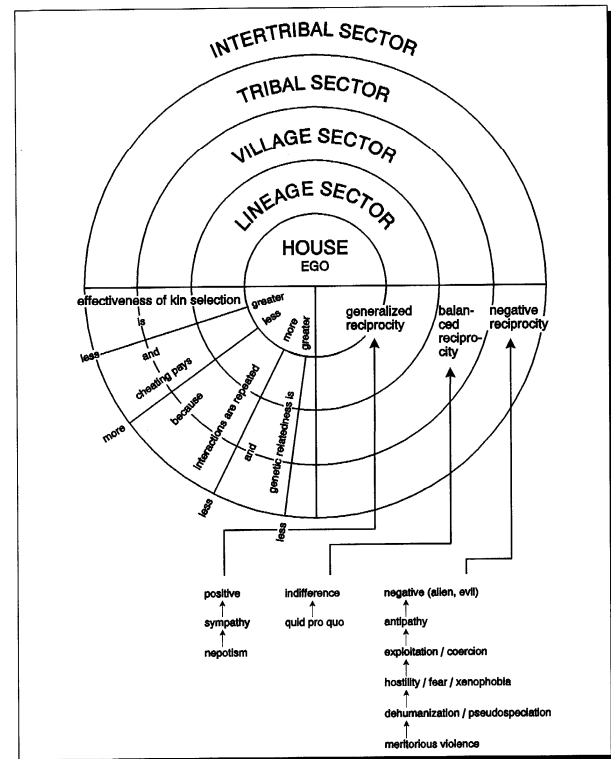
Wrangham (1999: 5) also advanced the notion that men have a ready appetite to attack their enemies. But he also noted that combatants in modern warfare are often reluctant to fight. This is understandable, he stated, because in modern warfare, unlike intergroup aggression in primates, soldiers are organized 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 ($\beta\alpha\lambda\beta\alpha\lambda\alpha\lambda\alpha$ 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).

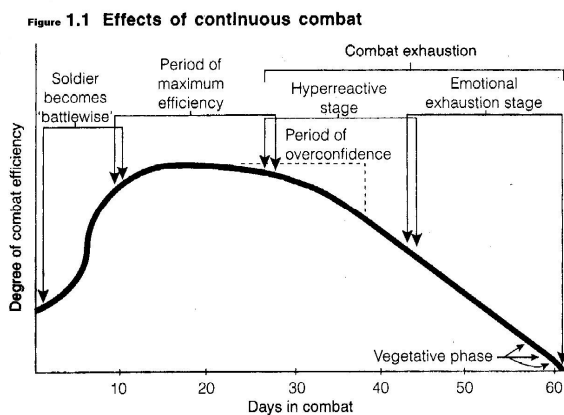
Gabriel (1988; in Grossman, 1995: 43) told us that "in every war in which American soldiers have fought in this century, the chances of becoming a psychiatric casualty – of being debilitated for some period of time as a consequence of the stresses of military life – were greater than the chances of being 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*)⁷ 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 handgrapping distance. The slaughter began with

⁷ "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.⁸ 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;

⁸ "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.

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Book Reviews

In Your Face: The New Science of Human Attraction

By **David Perrett**

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Over the past decade, the world-wide media has heralded stories about animal cognition with unprecedented fanfare. Almost daily, the general public is inundated with so-called "breakthrough discoveries" concerning here-to-fore unimaginable feats of mentation in species ranging from apes to crows. But, just in case you missed it, here's a sampling. Chimpanzees are hunting with spears (Pruetz & Bertolani, 2007), grieving over their dead (Anderson et al. 2010; Biro et al. 2010), fashioning sex toys (Tierney, 2010), filming documentaries of their own lives (Walker, 2010), imagining what each other are thinking (Schmelz & Tomasello, 2011), negotiating collective actions through offers and counter-offers (Melis, Hare & Tomasello 2009), and even making nests for sticks that they are pretending to be baby dolls (Kahlenberg & Wrangham, 2010). Meanwhile, orangutans are playing charades (Cartmill & Byrne, 2007), and suffering from self doubt (Suda-King, 2008), crows are validating Aesop's fables (Bird & Emery, 2009), scrub jays are engaging in espionage (Dally, Emery & Clayton, 2009), parrots are predicting their own demise ("Alex & Me", 2009), elephants are painting self-portraits ("Elephant 'self-portrait'", 2006), and gorillas are using sign language to emote about their difficult childhoods ("Michael's story", 2008). Viewed

from a distance, one might be forgiven for mistaking Pierre Boulle's satiric tale, *Monkey Planet* (Boulle, 1964) (aka *Planet of the Apes*) as a scientific documentary sent from the future. But are these upwardly ratcheting tales of animal cognition accurate and/or valid? Something doesn't add up. Comparative psychology -- a discipline which once offered the bright promise of defining what makes humans human -- seems on the brink of being reduced to a Vaudeville stage dedicated to performing sensationalistic skits about animal smarts.

The title and author of this new book assure widespread interest within ethology and evolutionary psychology. The title, substance and ample illustrations are likely to attract readers from the general public as well, which is the primary target audience. Anyone paging through the book will quickly see that the book is nicely illustrated with dozens of monochrome photos and figures, as well as eight pages of full color plates placed near the middle of the book. The author, David Perrett, is unquestionably one of the most important contemporary researchers in the area of face perception, especially if one considers the numerous graduate students, some now well-known themselves, who have studied in his lab.

Indeed, an impressive proportion of the research he draws upon in this book comes from his own lab or students, highlighting the major role Perrett has played in contemporary face perception research. While this provides an authoritative insider's look at the output of an important lab, the downside is that the coverage does not provide a balanced perspective on the existent research literature. Fortunately, the research produced by the lab in St. Andrews run by Perrett is typically exemplary. Nonetheless, ignoring research from other labs is risky. Perrett's fondness for research using multi-face composites and computer simulations increases the risk; even when carefully composed there are a multitude of perils in the production of computer composites (see Alley & Cunningham, 1991; this volume, p. 83ff.) and simulations can all too easily produce results that may not generalize to real faces.

Perrett himself occasionally warns of this peril noting, for instance, that “people may find masculinity unattractive [in some studies] because computer graphic manipulations have been unwittingly masculinizing mood as well as anatomy” (p. 116).

Despite the subtitle, much of the book concerns matters other than facial attractiveness. These topics range rather widely and include such topics as the evolution of the face, imprinting, perceptual development, facial expression, odor preferences and maternal love. Psychosocial aspects of facial appearance are the focus of this book in which results from studies in neuropsychology, endocrinology, perception and social psychology are brought together to compose a readable yet fairly authoritative view of facial attractiveness and related matters.

The book starts with chapters on the evolution of the face, facial features, and non-verbal communication (Chap. 1) and on lateralization of face processing, face recognition and attractiveness (Chap. 2). His coverage of face recognition and related disorders is particularly laudable, and even covers the latest internet-based research that indicates impairments of face recognition are far more common than previously believed. Chapter 3 focuses on infants’ perception and responses to faces, including early appearance of preferences that match adults’ facial aesthetics.

The central discussion of facial attractiveness is found in Chapters 4 and 5. Perrett begins with a brief but effective discussion of facial enhancements found in various cultures, such as lip rings, skull shaping, tooth filing. It is all too easy to see these as proof that there are no universals of facial beauty even though, as Perrett argues, universals may coexist with cultural variation. Like many before him, however, Perrett fails to note that these striking facial alterations may not even have an aesthetic motivation; instead, the actual motives may include group membership, marital status, bravery, etc. His discussion of beauty highlights universal tendencies to favor both symmetry and normality (averageness) but also emphasizes individual

differences in preferences. Perrett returns to the topic of individual differences in preferences later in the book (Chap. 9), where his discussion centers on the effects of facial appearance on perceived personality and the more neglected inverse, the effects of facial appearance on one’s personality. The continuing discussion of attractiveness in Chapter 5 targets facial features that can enhance attractiveness beyond the limits of averageness. The ethological concept of supranormal stimuli works well in this situation but, alas, Perrett does no more than mention it without any exposition and in connection with the curvature of female bodies. He does make it clear that it applies to faces as well; for instance, with super-feminine haped faces being seen as most attractive. The specific traits examined in Chapter 5 are largely limited to masculinity and femininity, with the later enhancing attractiveness in women’s faces whereas masculinity has mixed effects for men. Perrett explains this discrepancy by noting the mixed effects of high-testosterone: this can make men appear more masculine and attractive but reduce their likelihood of being good long-term partners. Perrett also connects this dimension to the monthly hormone-related fluctuations in “ideal” men as seen by women.

Being a book for the general public, Perrett (Chapters 6 and 7) wisely presents the argument, well-known to ethologists, that we are attracted to facial beauty due to its tie to fitness (especially health) and reproductive potential. Perrett’s argument is nicely up-to-date and multidimensional, hence, the use of 2 chapters to make this argument. He covers MHC genes, smoking, cross-cultural studies, and skin tone, among other matters.

Taking a closer look at Chapter 8, “Wither the face: On the cuteness of babies and the effects of time”, we find an integrated look at the effects of aging on reactions to facial appearance across the lifespan. As obvious as this seems, I question whether this is a good approach. The kindenschema and related research on effects of babyish characteristics in adult faces revolve around a positive affect response that encourages caregiving. Attractiveness in the faces of adults,

on the other hand, is closely tied to the mate value (e.g., health and fertility) of those perceived. While this point is not made, the discussion does deal with cuteness separately from adult attractiveness. The discussion ranges widely, as it should, including not just the normal biology of aging but also smoking, sun exposure, and a far too brief look at cosmetic surgery.

The final two chapters address what I see as more speculative issues. One is the influence of friends and family on our idiosyncratic facial preferences (Chap. 10). This includes the claim that people tend to be attracted to those who resemble their opposite sex parent. The final topic (Chap. 11) is the nature of love and infatuation.

Although scholarly, the book is designed for a general science audience, and has the scholarly weaknesses that follow from this tack. These include somewhat minimal referencing in places, with the references footnoted and 'hidden' in the back of the book. Some claims for which I expected a citation are made without any referencing of the underlying research. For those wondering what Perrett might have to say about a particular paper or researcher, your efforts will be stymied by lack of both an author index and a reference section. Perrett regularly provides material that may be essential for the general reader, but this means researchers will have to skim through some unnecessary explanations and definitions, such as those for "identical twins".

On the positive side, this book is certainly easier to recommend for a general audience than any of the previous books of this type (e.g., McNeill, 1998). The book tackles facial attractiveness in very broad perspective, and the text has an unconstrained breadth and a serpentine discourse to it that are seldom if ever found in fully academic works. It should be a thought-provoking pleasure to read for those who are unfamiliar with research on facial attractiveness. In addition, there are numerous excellent illustrations that provide compelling illustrations of variations in facial appearance and their effects, often by purifying or exaggerating them. Even though a few of the figures have dubious value, such as a computer-generated image of a human

face stretched over the anatomy of a frog and a hagfish (Fig. 1.1), overall the ample illustrations are certainly a strength of this book. Furthermore, many of them are not readily available elsewhere. While neither intended nor suitable as an advanced guide to the field, this book should work well for an undergraduate seminar. Recommended for nearly anyone interested in a thoughtful introduction to the topic of facial appearance, and especially for students and researchers who are new to the area or whose specialized research on faces or physical attractiveness has left them in need of a more informed perspective on the broader field.

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The Tell-Tale Brain: A Neuroscientist's Quest for What Makes Us Human

By **V. S. Ramachandran**

W. W. Norton & Company, Inc., New York, 2011,
xxvi + 358 pp., ISBN 978-0-39307782-7
[US\$26.95]

Reviewed by **Ferenc Kocsor**

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In spite of the fact that V. S. Ramachandran is a world-famous neurologist, I have to admit that – save some vague facts, e.g. on mirror neurons, and phantom limbs – his work was as good as unknown to me. His new book *The Tell-Tale Brain: A Neuroscientist's Quest for What Makes Us Human* (2011) proved to be a perfect start for those unfamiliar with his former writings.

The starting assumption of the book, which repeatedly comes into focus throughout the book, is that humans, though part of a continuous evolutionary process, are unique in respect to their brain capacities and the way they process information. This uniqueness is explained by some evolutionary novel rearrangements in brain structure, which gave rise to human specificities. The book consists of 9 chapters, all of which focus on some special brain ability thought as being unique to humans, such as abstract thinking, language, self-awareness and culture. Two chapters are dedicated to the perceptual and ethological bases of aesthetic preferences, from which human art developed. Although the importance of these features is unquestionable, Ramachandran's reasoning for *H. sapiens'* distinctiveness at times seems a bit overemphasized. For instance, when he writes about the unsupported (yet also not falsified) claim about the lack of episodic memory in other animals (p. 291). In a provocative, intentionally far-fetched paragraph he even calls our species *H.*

plasticus, pointing out our enormous capacity to improve innate abilities, and moreover, to interfere with evolutionary processes.

The introduction hints at the strange neurological phenomena discussed later in the book, and aims to explain the basic functions of the most important brain areas. Surprisingly, it is the most incomprehensible part of the book, and it remains to be hoped that this quite short section will not discourage laymen from further reading.

In the very first chapter the reader is introduced to the ingenious experiments that led Ramachandran to insights on how to cure chronic pain in phantom limbs using low-tech equipment. With a set of suitably arranged, ordinary mirrors he achieved not only dramatic improvements regarding patients' quality of life, but also contributed to a better understanding of the functioning of some neural circuits. His train of thought is described in an exciting and logical manner, so that one can only ask oneself at the chapter's end why it took researchers so long to get to these simple conclusions. This verve of storytelling carries on throughout the book; Ramachandran shows us with surprising ease the leaps from an intuition to replicable experiments, and to verifiable theories.

The author's talent of storytelling unfortunately has also its downside; generations of scholars took pleasure in depicting possible evolutionary scenarios with vivid colors, but seldom to evolutionary psychology's benefit. Just-so stories about the incidents of, for instance, oral sex during primate evolution are fun to read (p. 42), but the smile fades when bumping into out of date explanations for the giraffe's neck, or claims like „survival is the only thing evolution cares about” (p. 211). Nevertheless, Ramachandran's speculations about the ultimate causes of brain evolution are just as intriguing as his account of proximate mechanisms, even though he sometimes seems to neglect (or overlook) the achievements of modern theoretical evolutionary biology. Needless to say, both explanatory levels are necessary if we want to construct a comprehensive picture of the human brain. And Ramachandran's efforts to near these approaches

are much more powerful than what most neuroscientists had been trying to do a few decades earlier.

Chapters two to six focus on the most perplexing cases Ramachandran encountered as a neurologist, and the inferences which can be drawn from them. Sometimes otherwise “normal” and healthy people report tasting salty flavor when touching iron, or perceiving the color red when seeing the number 5. A melody can induce the visualization of the whole color spectrum in some people. How can these strange synesthetic feelings be explained if not with childhood experiences, conditioning, or artistic talent? As Ramachandran states, the human brain in fact used to have a well-developed device for cross-sensory synthesis, namely the angular gyrus. He argues that the split of the inferior parietal lobule into the angular gyrus and the supramarginal gyrus, due to a gene-duplication at a certain point in the human lineage, had been a crucial step in enabling our ancestors to use their primate minds in a fundamentally novel way. Symbolical thinking could be considered as one of the main achievements of this change. Substituting the visual representation of an object with an auditory one, and then uttering this specific sound, is the very basis of language, our most unique feature.

According to the author, another contributor to human uniqueness is our well-developed mirror neuron system. In the last chapter, self-awareness is ascribed to these cells. As mirror neurons match conspecifics’ movements with the observer’s, they allow not only for an insight of others’ intentions, but also reflect one’s own mental state – thus, the individual is able to see itself from another person’s viewpoint. Just as if we put two mirrors on opposite walls of a room and stood in the middle: our own image will be multiplied, while other objects in the room will lose some of their significance. This recursive use of mirror neurons could also be responsible for the overwhelming feeling philosophers are still trying to grasp in vain: self-consciousness.

This book is highly recommendable to both scientists and laymen for the inspiring tone in which Ramachandran introduces his reader to

scientific methods and a scientific way of thinking. He takes us on an exciting journey full of discoveries about the brain, while showing us the very essence (the *rasa*) of science. Though sometimes speculative, he is also careful; he does not intend us to believe he knows how we actually think – a fourth order intentionality, unimaginable without mirror neurons. But reading his book evokes the feeling that we are finally tapping into a better understanding of the human mind.

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The Turmoil Within
— A Clinician Reviews
Maladapting Minds:
Philosophy, Psychiatry, and
Evolutionary Theory

Edited by **Pieter. R. Adriaens** and
Andreas de Block, Foreword by
Geoffrey Miller

Oxford University Press, 2011, 320 pp., ISBN 978-0-19-955866-7 [US\$62.26].

Reviewed by **Nando Pelusi**

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Psychiatry, vastly complex in theory, is deceptively simple in practice. A handful of drugs are dispensed to patients in an effort to combat anxiety, depression, obsessiveness, schizophrenia, avoidance, alcoholism, etc. Then these patients see someone like me, a clinical psychologist, and they often want off of the meds.

Evolutionary psychology and psychiatry portends a grand unifying treatment theory, a consilience, an underpinning tethering all the unmoored theories in psychiatry today. But you wouldn't know from the collection in this book.

In a thoughtful foreword to this book (itself worth the price of admission), evolutionary psychologist Geoffrey Miller offers a modest appraisal of the field examined herein: "Psychiatry is a mess. Nobody seems to know how to distinguish normal behavior from mental disorders, or how to treat mental disorders" (p. vi). He's being kind. Psychiatry risks iatrogenic complications.

That's not to say there aren't dedicated practitioners constantly looking for effective

and salutary methods. Miller notes that the splintering of the field of psychiatry into a hodgepodge is an unfortunate side effect of several known factors, including staid medical curricula, Big Pharma, health insurance peculiarities and the atheoretical nature of the DSM (this last issue addressed by Jerome Wakefield in Chapter 5).

Evolutionary psychology literature continues apace, producing prodigious advances understanding the physiology and behaviors related to mating, from ovulation to showing cleavage for women and risky display for men. Depression might be a "protected polymorphism" in the words of John Price (who has a lucid chapter in this volume, Chapter 10). So far, however, research has been more descriptive than prescriptive.

What many clinicians are looking for is more than a cohesive theory or personality, but of personality change. That is, we want effective methods of treatment even if we do not fully understand their precise mechanism.

In my clinical experience, most human disturbance is evolutionarily salient and that understanding the purposes for which emotions might have evolved serves as a compass for treatment. For example, the typical cognitive behavioral approach seeks to identify cognitive "distortions" as well as emotional and behavioral disturbances. These distortions can be the source of myriad emotional pains and unnecessary loss. Worrying too much about approval or discounting the future too steeply have evolutionary roots, as do status concerns, overeating, passivity and laziness, compulsivity, infidelity, unintended procreation; explanations understandable to almost anyone.

Thus, I'll be looking for applicable nuggets from a philosophy book. Call me optimistic. But first to the cautionary chapters.

Critics of Evolutionary Theorizing

The book starts off with a collection of critics of evolutionary psychiatry that could be called the "Straw Man Section." I do not recognize the evolutionary thinking in this section. In a chapter on phobias we are admonished to assume an evolutionary origin to fears and phobias because we can also develop fears of syringes and guns. But one could have a fear of, say, getting skin punctured, which is adaptive. Developing a phobia of cars after an accident disproves an evolutionary angle? One could make the case that we can visualize and avoid bodily harm whatever the offending instrument.

Another chapter by Aronsson (Chapter 2) argues that evolutionary considerations are untenable with respect to sexual preferences because of our flexibility: "...an explanation of human sexual preferences, sexual imprinting is a viable alternative to prevailing evolutionary theories which assume that preferences are genetically determined" (p. 84). Maybe we disagree on the definition of "determined," but this seems a confusion of obligate traits (such as eye color) and facultative traits (such as our immune system which evolved to be responsive to conditions).

Another critical chapter by Geertz and Brune (Chapter 4) underscores the importance of ethological questions, namely, the proximate mechanisms that could usefully inform ultimate questions. The thesis is that depression cannot be an adaptation since performance is hindered, not helped, by it. Clinically, this makes some sense, although the depressed person might have more realistic appraisal for corrective behavior, and when among kin elicit help and support even if not performing up to snuff. The argument is partially addressed by Nettle's chapter (Chapter 7) differentiating depression as functional or dysfunctional and the criteria he proposes. It seems that the philosophical gripe shared by these chapters

hinges on definitions of "determine" and "function." These chapters lead to conceptions for mental disorders.

Evolutionary Concepts, Mental Disorders and Psychopathology

When clients are baffled by their seeming irrationality or persistent emotional disturbances, understanding the evolutionary underpinnings can contextualize modern practical problems.

Wakefield (Chapter 5) addresses concerns about harmful dysfunction from a philosophical perspective, citing Aristotle and Lucretius for good measure. The level of analysis is about function, even when we are unaware of the mechanisms, as he notes, "Hippocrates got it almost invariably right...when he labeled a condition a disorder, even though we share almost nothing in the way of common scientific knowledge about the underlying mechanisms" (p. 150).

Nesse and Jackson (Chapter 6) continue the medical analogy in a section entitled "Diagnosis and its Discontents" where they assert, "Emotions arise not from events; they arise from an individual's motivational structure, that is, from the interaction of the an objective external situation with an individuals' goals, strategies, and subjective assessments of ability to reach these goals and strategies" (p. 175). This assessment maps with my clinical experiences springing from questions such as Why do emotions exist at all? What are they designed to accomplish and under what circumstances?

Nettle (Chapter 7) argues that evolutionary thinking cannot guide us in discriminating between low mood and depression but that once a patient registers subjective distress (whatever we call it), evolutionary considerations can help in understanding depression generally. Severity of the impairment may determine treatment needs in a patient's subjective report. This is red meat

for a clinician even if Nettle might quibble with its utility.

John Price, a pioneer in evolutionary considerations in emotion pays tribute to another pioneer in the analysis of the “semantic environment” for emotions, Gregory Bateson (Chapter 10). It’s a digestible summary of the power of relationships and the powers that can define and influence individuals.

Roe and Murphy (Chapter 8) address the harmful dysfunction model and challenge it, citing Claude Bernard: “...major systems in the human body seeks to maintain stable internal homeostatic states...to keep the internal environment stable” (p. 227). Maybe evolutionary explanations of function are too fraught with complications to accurately assess what is going on? Which gets me back to my passion. We may require a lot more investigation into the complex nature of the human condition, and perhaps evolutionary theorizing has a long way to go philosophically and empirically. Still, one can still maintain that as an evolutionary model of human emotions and behaviors develops, we have enough understanding to employ an evolutionary model of emotional and behavioral improvement.

Nando Pelusi, PhD, is a clinical psychologist in New York City. He is a contributing editor to *Psychology Today* magazine and author of the *Neanderthink* column. He is a founding member of *AEPS* (Applied Evolutionary Psychology Society).

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