

Why can't Johnny kill?: the psychology and physiology of interpersonal combat

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INTRODUCTION: THE UNCOMFORTABLE TOPIC OF KILLING

As historians and archaeologists studying warfare and killing in the ancient world, it is easy to forget that violent battlefield actions were undertaken by living, breathing and thinking individuals. Killing a fellow human being cannot have always been a straight-forward or facile task to undertake, either physically or psychologically. Yet human history is punctuated and indeed frequently characterised by periods of protracted killings and atrocities.

Killing can be an uncomfortable subject to contend with. It is typically analysed from an event-based perspective, but the topic may reward an exploration into the activity-based and agency-based aspects of killing. The primary objective of this paper is to demonstrate that the act of killing does not occur in a social vacuum, it relates to a broader engagement with the human condition on many different levels. Effective killing requires training and conditioning, as well as motive, and it has longer-term effects beyond the event itself.

For example, in the ages of edged-weaponry combat, the effective use of hand-to-hand weaponry required both the 'will to kill' (psychological factors) and the 'skill to kill' (physical/physiological factors). These two aspects alone could require a lifetime of preparation and training, and (at both the individual and the collective level) any deficiency in one of these areas could mean the difference between survival and extinction.

Another area where the human aspects of combat can be observed is in the psychological toll taken *after* the battle. One does not become capable of being a killer, undertake this act in combat and then return home unchanged. The price

of combat for the returning veteran has been observed in the twentieth and twenty-first centuries, and it must have been true in past centuries as well.

This paper will analyse aspects of killing as we investigate the 'person behind the weapon', the living medium by which inanimate objects become lethal weapons. This is not a gratuitous excursion to glorify violence as something worthy of celebration, but given that history has clearly shown killing to be a part of our collective heritage, it needs to be understood in its own terms, not couched in moral analyses.

THE MEANING OF AGGRESSION: IMPULSIVE V INSTRUMENTAL

Before we investigate those aspects of killing which are unique to the human species by virtue of our abilities of abstract reasoning, morality and culture, we will examine the more base-level processes which are associated with acts of violence – the physiology of fighting. At a basic level, aggression can be separated into 'impulsive aggression' and 'instrumental aggression' (McCauley 1990). The former can be seen as a rapidly induced state of anger in response to stimuli, resulting in an emotional condition which can be characterised by physical acts of violence towards a person, animal or object.

On the other hand, Pinker's (2002: 316) definition of aggression as 'an organised, goal-directed activity, not the kind of event that could come from a random malfunction' is best applied to 'instrumental aggression'. This is essentially the manner of aggression associated with protracted premeditated acts of violence typically associated with combat. The participants rationally enter a situation whereby they will have to engage in aggressive attacks against other persons. While this is the arena of instrumental aggression *par excellence*, it does not preclude the role of impulsive aggression right 'at the coal face' of combat in the many ages of edged-weapon warfare.

Therefore, if we consider a group in society that are required to act in an aggressive and violent manner, we must understand that they are required by their societies to actually be good at it, to make instrumental aggression a skill or a craft which can be brought to bear in times of warfare. The nurturing of people's natural aggressive tendencies' is regarded as a positive quality, if it is used in a controlled manner and within the social parameters of the group's values and concepts of legitimate violence. The rational aspects of instrumental aggression can be positively exploited through training, whereas impulsive aggression is rarely related to deliberate strategic purposes and is more related to higher states of physiological arousal, as will be discussed presently.

THE PHYSIOLOGY OF THE FIGHT: THE BODY'S ROLE IN COMBAT AND THE SKILL TO KILL

The physiology of fighting relates to how the human brain and body react together in confrontational situations ranging from near-normal cognitive and physical abilities to phobic freezing of the body and irrational thought processes. The normal autonomic nervous system (ANS) of a human operates through two systems – the sympathetic nervous system (SNS) and the parasympathetic nervous system (PNS). These two work in tandem to control most organs and muscles in the human body, sometimes dealing with opposing signals – the SNS increases the heart rate, while the PNS often serves to decrease it.

The SNS prepares the body for action, and in the case of a confrontational situation, typical responses are the inhibiting of digestion, dilating the bronchial tubes in the lungs to increase oxygen intake, dilating heart vessels to allow for increased blood flow to the muscles and tensing of the muscles. It also releases epinephrine and nonrepinephrine – all geared towards maximising and focusing the body's energy resources to afford the motor functions associated with limb movement optimum strength and gross-motor performance. As Grossman (2004: 14) has put it 'think of it as the physiological equivalent of the body's front line soldiers.'

The PNS on the other hand is more concerned with the body in a state of relaxation or recuperation, and serves to manage the body's intake of energy through ingestion of food. Homeostasis is the balance struck between SNS and PNS during normal routine behaviour, and can be thrown completely out of synchronicity when confrontation occurs, with PNS systems largely shutting down. One result of this can be the body 'blowing the ballast', that is the dumping of unnecessary bodily substances which are of no benefit in combat – urine and faeces, a rather unseemly but wholly natural bodily response to confrontation. This loosening of muscles which would be potentially drawing energy without contributing to the immediate task of survival is associated with the recession of PNS systems as the SNS is in the ascendancy.

It can be shown that there are many aspects to violence which are best interpreted as inherent to our species, whether dealing with a post-Enlightenment or prehistoric warrior. It is certainly true that the social conditioning of a professional soldier of the twentieth century dramatically diverges from that of a Bronze Age one. Yet they are physiologically the same species and subject to the same instinctive response mechanisms. As discussed below, the midbrain, the primordial aspect to our consciousness, is typically in the ascendancy in a combat environment for most warriors and this is rich in instinctive reactions and (pseudo-) rationale. These are constants defined by our biology, but social

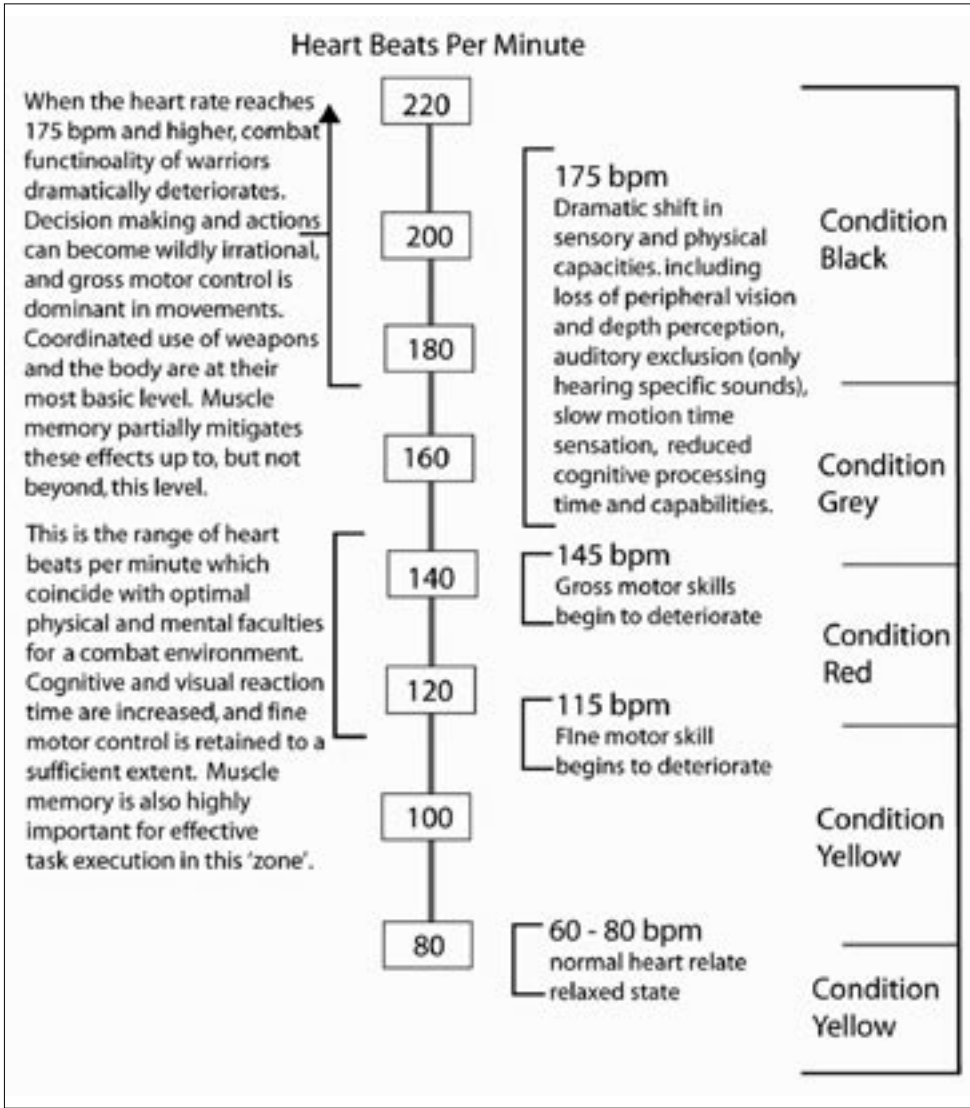
conditioning can alter these instincts through programming the body and mind to work in a different fashion. This is typically the result of extensive training and related inoculation to the stresses of a combat environment.

Borrowing partially from the work of (Siddle 1996), five states of physiological arousal can be described, all of which are accompanied by (though are not the result of) different heart rates (50). As heart rates are associated with SNS responses, it should be noted that increased heart rates from physical exertion alone will not result in the other responses associated with the various 'conditions'. Likewise the physiological states are not rigidly tied with heart rates as these can be influenced by other factors such as training, physical fitness and fatigue. However, all individuals have a Condition White, Yellow, Red, Grey and Black, and these will always have a direct relationship to combat performance.

At the lowest end is 'Condition White', which is the typical 60-80 beats per minute of a normal healthy individual in a state of relaxation. Condition Yellow occurs between this level and 115bpm, but the dividing line between this state and the former one is more psychological than physiological. This latter condition is normally associated with a state of readiness/physical preparedness for conflict. Even domestic animals such as cats and dogs who have their wild roots centuries in the past seldom leave condition yellow as they are naturally territorial and predatory. They are ready to play, fight, frolic, mate or run in a split second. However, as one progresses towards the upper limit of Condition Yellow, fine motor-skills begin to reach their peak accompanied by the beginnings of other physiological changes. In the ages of edged-weapons it is unlikely that front line troops in a melee would have had the slightest chance of retaining this state of arousal, but those centurions or decision makers immediately behind the rank-and-file would need to keep as close to this as possible to maintain the cohesion of their lines.

As conflict-induced physiological responses increase in intensity, the forebrain becomes less involved in decision making processes, and the midbrain begins to take control of bodily operation. The midbrain performs extensive reflexive processes, whereas the forebrain, 'the thinking part', performs basic thought processes including abstract reasoning or problem solving. The midbrain can be described as the instinctive, animal-like aspect of our consciousness. It is not concerned with morals, etiquette, bravery, cowardice or strategy – it is concerned with survival. When the midbrain is beginning to take ascendancy in a conflict environment, the body is entering Condition Red, characterised by a heartbeat in the region of 115-45 bpm.

Other symptoms which occur in Condition Red are a reduction in fine-motor skills, while visual and cognitive reaction time and gross-motor skills are all of increased speed and efficiency. In order to perform and survive in combat while in a state of compromised fine-motor skills, it essential to equip the body with other resources to be brought to bear in this psychological and physiological condition.



50 Physiological states of arousal. From Grossman, 2004

These can be described as pre-programmed responses, or essentially training the body to undertake tasks instinctively. Through intense, high-repetition training, one can turn the skills that one needs to perform into ‘muscle memory’ allowing the performance of set tasks without conscious thought of the processes of those activities.

If unexpected actions requiring fine-motor skills are required while operating in Condition Red, one may end up in difficulty, but this is a necessary trade-off.

Two powerful and effective tools that have been developed to push the envelope and yet remain in control are: autopilot responses developed through repetitive practice, and stress inoculation through realistic, stressful training. In the case of combat using edged weaponry, the most basic of these 'autopilot responses' would be to incorporate the movement of a weapon into the body's own natural movements. To repeatedly strike effectively with a sword or spear is not to utilise natural instinctive movements of the human body because it is an artificial medium (the weapon) which makes the contact with an opponent.

To ensure that a sword, for example, will strike with the edge square-on the target, at the centre of percussion and with a correct follow through motion, requires training and experience, not verbal instruction alone (see Clements and Molloy, this volume). In the heat of battle this needs to be a pre-programmed action to a large degree, as repeated misuse of a weapon will result in its breakage – not to mention imminent death by opponents who are using their weapons correctly. This of course need not imply legions of highly-skilled warriors in all battles using edged weaponry, but basic rudimentary training in the use of bladed weapons, for those expected to use them, would dramatically increase the efficacy of any army.

Operating in Condition Red can be seen to compromise the complex control of muscles, and reduces movement to more basic modes – essentially it would be perfectly possible to strike someone a punch in the face but not to poke them in the eye! For most people, to remain at this condition in active conflict would require substantial training and is not always retainable. The following Condition Grey, with a heart rate of 145-75bpm is more typical for untrained persons, and has further debilitating/restrictive symptoms. Cognitive processing is reduced, so decision making activities and rationality are compromised. The dominance of midbrain cognitive processing would mean that actions are generally instinctive and not based on a logical analysis of potential outcomes.

An additional feature of higher levels of arousal, beginning in Condition Grey and continuing into Condition Black, is that intense vasoconstriction occurs. This serves the function of reducing bleeding from wounds, but also reduces blood supply to limbs. Loss of peripheral vision is one of the most clear symptoms of this state of consciousness, sometimes accompanied by a loss of depth perception and/or distortion of near-vision. Auditory exclusion may also occur, which is not necessarily complete deafness, but a form of 'selective hearing' – orders or shouts from comrades might be heard, but the din of battle may be barely audible background noise.

As stated, the loss of peripheral vision (or 'tunnel-vision') is a clear symptom of Condition Grey, and many people will have experienced this when their anger levels are raised for various reasons, from sparring in martial arts to a

heated verbal argument. Another aspect of this state of consciousness may be the perception of time in slow-motion, where everything seems to move in almost freeze-frame advance and actions which only take a split second to occur can be distinctly seen and perceived. A negative aspect can be the panicky feeling of being 'frozen' as one's own physical ability to move is in relation to the sense of slow-time – that is, to move one's arm may appear to take a very long time with this altered perception, while in reality it is moving at a perfectly normal pace.

As discussed earlier, impulsive aggression is a response stimulated by provocation and in this way one can move from Condition Yellow to Condition Grey with great rapidity – so much so that one is conscious of the shift in the physical and sensory faculties. As the heart rate increases to the higher limit of Condition Grey, it may begin to become seriously counter-productive as it is pumping so fast that it cannot draw in a full load of blood before pumping it back out again. As the heart rate increases to this rate the level of oxygen in the blood feeding the brain steadily decreases.

As the heart rate increases above 175, the aptly named Condition Black may be experienced – the likelihood of this level occurring can clearly be reduced by inoculation through training. Rational cognitive processes are supplanted and instinctive reactions may be wildly beyond any level of reasonable reaction, including freezing (a typical phobic reaction), voiding of bladder, bowels or stomach, and acts of heroic or cowardly recklessness. Motor skills are also reduced to their most basic level. In this state the midbrain is controlling much if not all of the body's reactions and related movements. We all have had experiences of trying to talk to an extremely angry or frightened person – the more angry or frightened they become, the less rational they become. This is because the animal-like midbrain is dominant with the forebrain, with its rational aspects, largely silenced.

It is therefore necessary to train the individual to accept the altered states of consciousness associated with combat, to understand the nature of the midbrain ascendancy under stress and to equip him/her with 'drilled' actions which will maximise the ability to execute effective combat moves when motor skills have deteriorated and spatial and audio awareness are distorted. This of course relates to the rank-and-file infantry warriors who will be clashing at extreme close quarters with their opponents.

There are also contexts where more highly trained and specialised warriors would be required to condition their physiological responses to a greater degree still and seek to remain in Condition Yellow or low Condition Red, thus retaining a greater degree of fine motor control. This would have required extensive conditioning through training, simulated combat and altering the body and mind's natural reactions.

The swords of the early Late Bronze Age in the Aegean are an excellent case in point in this regard. It has been shown (Molloy 2006) that the slender Type C and D swords of the Aegean tradition, as exemplified by the finds from tombs in the area of Knossos on Crete, require significant skill to use effectively. These swords have sharp cutting edges, but the swords themselves are susceptible to bending if they impact heavily against a robust target such as the human form. In order to cut effectively, the edges need to be drawn swiftly along the target with a comparatively light force of impact, thus slicing/lacerating the flesh rather than cleaving it. However, this mode of attack requires a very deliberate, accurate and controlled strike with the sword, which in turn requires that the user himself be in a physiological state whereby he can retain fine motor functions to a sufficient degree to execute it. This retention of fine motor skills at a comparatively low state of physiological arousal would have come from a long period of training and practice with these weapons in simulated combat.² This is therefore a *socially constructed* system of response 'mechanisms' which operate contrary to instinctive or 'pre-programmed' reactions.

For most warriors in the ages of edged-weapons, this high degree of 'programming' through training and inoculation may not have been socially or economically viable, but the extreme counter-productivity of arming completely unskilled warriors is clear. The basic degree of training to effectively use a thrusting spear for example does not require extensive instruction, but the stamina and 'muscle memory' to effectively use it for a protracted period in battle does require practice. From the ancient Greek world the classic example of the elite hoplite warriors are the Spartans, who began their training at the age of five and continued to dedicate their lives to skills-at-arms for the following decades (Sekunda 2005: 10-12).

However, we have ample evidence from the historical sources that it was typical for most city states to ensure that their warriors had sufficient training to effectively use the specific weapons of the hoplite in phalanx warfare. Sekunda (2001: 2) has remarked on the existence of specialised *hoplomachoi* in Classical Athens who instructed students on swordsmanship and other fighting skills. In the *Life of Timoleon* (a Corinthian general) by Plutarch (28.1) we hear that as a battle between the Carthaginians and Sicilians developed to closer-quarter and looser order fighting, the latter had a distinct advantage through training when 'the struggle came to swords and the work required skill no less than strength'. Skill at arms in this context clearly provided the Sicilians with the upper hand. While training and stress inoculation may not have taken place in formal schools, it should be regarded as an integral part of the way of life of those who were expected to undertake armed combat.

THE PSYCHOLOGY OF THE FIGHT: THE ROLE OF THE MIND IN BATTLE
AND THE WILL TO KILL

So is it the case that should an army using edged-weaponry simply drill its warriors to remain in Condition Red and to function effectively thereat, that they would have a skilled band of efficient killers? Clearly not. The language of the ancient historian and archaeologist alike homogenises warriors from a period under amorphous banners such as ‘warriors’, ‘armies’, ‘war-bands’, ‘soldiers’ and so on – a semantic necessity of course, but we need to understand that these reflect composites of individuals. These are the building blocks of these ancient armies, and if they were all weak-spirited, pacifist, indecisive or downright cowardly then the overall structure of the army would be irreparably compromised. We therefore need to look at how the individuals of an army work together to form the whole, and our best place to start is the varying profiles of these theoretical individuals.

As mentioned earlier, it is a gross assumption to make that all human beings are potentially willing and capable killers. Marshall’s (1978) study of World War II veterans soon after combat provided the shocking statistics that only 15–20% of American soldiers were willing to deliberately aim at an enemy and shoot them dead. This left 80–85% of combatants *not* engaging directly in combat and not seeking to kill their opponents.

While Marshall’s data collection methodology is not always regarded as being suitably structured (e.g. in Pinker 2002: 322), the broad pattern that he highlights has been shown to be true in other studies. In Grossman’s book *On Killing* (1996: 17–28), a number of historical studies were highlighted where it was clear that significantly large numbers of combatants were unwilling to fire at their opponents. In the case of Gettysburg, more than 1 in 5 of the 27,574 muskets recovered had between 3 and 10 shots jammed into the barrels, clear evidence that the users were more keen on *appearing* to do their task than in actually firing volleys. An estimated death rate of hundreds per minute has been proven to be an accurate potential for these early musket battles (Grossman 1996: 19), but the reality was less by orders of magnitude, and was as little as 1 or 2 per minute. This figure is alarmingly low considering that the lines of men were facing each other from a mere handful of paces apart and still managing to shoot over their opponents’ heads.

Canon and artillery are a very different story. Since the outset of Gunpowder and Modern warfare they have always totted up the highest rates of casualty infliction, as the routine of firing rarely has a direct visible relationship with individual enemy soldiers. It is clear from modern military studies that there is a qualitative distinction in the killing ability of human beings based on the proximity of an opponent. The experience of killing with one’s bare hands,

as opposed to killing using a sniper rifle or killing using a mortar from a defensible location, while essentially having the same net result for the victim, are experientially different to a dramatic degree for the protagonist.

This reluctance by the majority of the male population to kill others at close range is very much contrary to machismos view of the 'ideal' male. Part of the reason for poor understanding of this element of our species is that combat, like sex, is laden with a baggage of expectations and myth. A belief that most soldiers will not kill the enemy in close combat is contrary to what we want to believe about ourselves, and it is contrary to what thousands of years of military history and culture have told us. If for thousands of years the vast majority of soldiers secretly and privately were less than enthused about killing their fellow man on the battlefield, the professional soldiers and their chroniclers would be the last to let us know the inadequacies of their particular charges. One would find it oddly out of context if Thucydides were to explain away the failures of the Sicilian expedition by the reticence of fellow Athenians to actually kill the enemy!

It is clear that killing a fellow human as an act of instrumental aggression in the age of gunpowder weaponry was simply not an instinctive or inherent human trait. There was a clear reluctance to kill and avoidance of a situation whereby one might be expected to have to consciously and deliberately kill. Keegan (2004: 161) raises the interesting point that people who grow up in a largely pastoral society learn from a young age the ability to kill animals without compunction. The acts of killing become natural and the individuals involved become skilful in their undertaking.

A colleague (B.M.'s) who undertook his military service in a particular European country's army has stories of young soldiers killing domestic animals such as dogs and cats in competitive displays of machismo. The object of these acts was to demonstrate to their peers their ability, skill and willingness to kill without compunction. These displays, however, retain a massive difference in moral distance to acts of killing fellow humans. The distance between this 'representation' of event and the actuality of such an event are ironically accentuated through this violent play-acting lacking any reciprocal threat. While killing is to some degree a natural predatory aspect of human nature (given our ability to digest meat), the rationale and justifications applied when slaughtering animals do not readily translate into killing members of our own species.

THE WARRIOR'S OPTIONS

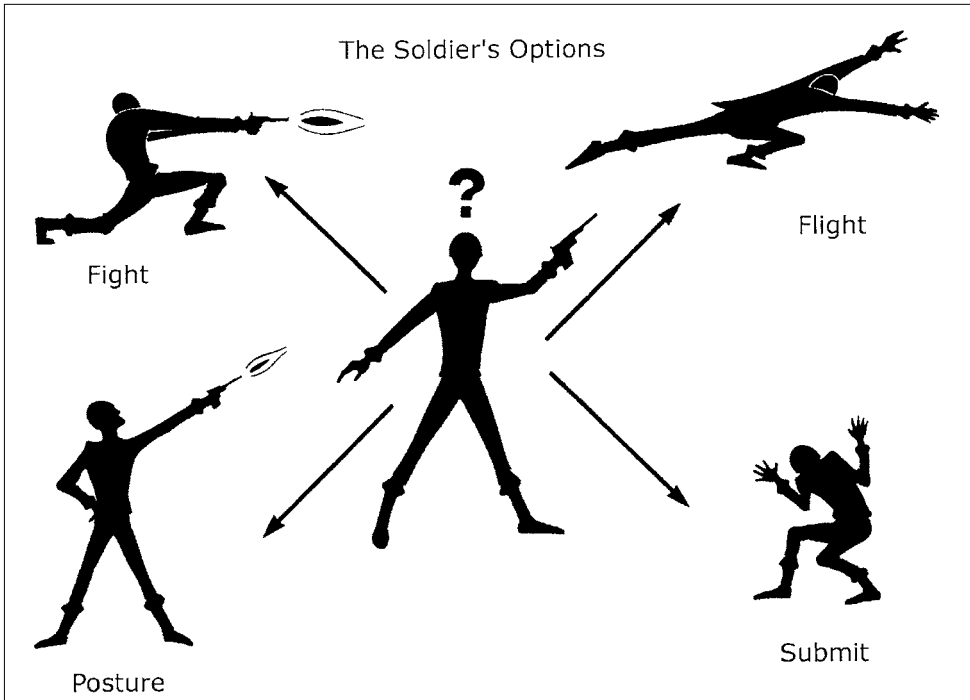
When faced with direct and imminent aggression, there are a range of 'options' open to most members of the animal kingdom, including human beings (51).

The first and perhaps most obvious is to respond by simply fighting an opponent (fight option), or contrary to this there is the equally straightforward response of simply running away (flight option). Further to these two, we can add the assertive/aggressive option of posturing which can include both physical and verbal display. This may range from a primate raising itself up to its full height, thumping its chest and bellowing (an option sometimes taken also by men) or it could be a line of warriors banging swords on shields and shouting to intimidate the enemy (posture option). The final option would be to engage in submissive gestures such as bowing the head or laying down one's own offensive weaponry. An evening spent watching nature programs on television would rapidly reveal that these four options are far from unique to human beings, and that other aspects of our aggressive behaviour have correlates in the animal kingdom. An important comparison in this regard is the rarity of killing in intra-species conflicts – territorial battles between males can be vicious and result in fatalities, but it is more common for the loser to slink or run away to fight again another day.

Does all of this lead to the conclusion that humans are incapable killers and that modern armies only have a minimal contingent of men willing to fight? Certainly not. For one thing the technology of killing has been developed to increasingly include killing over greater distances. Training regimes have been developed which will increase the killing potential of modern soldiers, estimates of 95% killing 'willingness' have been put forward for American soldiers in Vietnam (Grossman 1996: 35). This increase in killing rate is not a purely mathematical consideration, as it is indicative of a suppression of an individual's inherent desire *not to kill*, and the psychological casualties of this psychological alteration are not to be underestimated, as Grossman discusses further in *On Killing*.

This means that during the millennia in which edged-weaponry was in the ascendancy, close range killing techniques were by far the most frequent cause of casualties, a characteristic with a marked difference from later historical periods. We therefore have a combat environment dramatically different from that of the gunpowder age, as the proximity of one's own comrades and opposing persons is point-blank, and the adage of 'kill or be killed' is perhaps more pertinent than in the realm of projectile weaponry. Greek hoplite warfare has been argued to represent the birth of the so-called Western way of war (Hanson 1989), and is perhaps a suitable starting point for an investigation into the differences in skill at killing and the will to undertake these actions in a collective environment with mutual peer visibility.

As discussed by Pittman (this volume), the opposing lines of hoplites met with each other on a chosen field of battle, with the phalanxes extending perhaps a kilometre or more in length. With the heavy defensive shields and effective



51 The warrior's options : Fight, Flight, Posture and Submit. *From Grossman, 1996*

armour it would have proved very difficult to accurately land a strike capable of killing an opponent in this environment and consequently brute force was a contributory factor in the breaching of opponents' lines. This is not to suggest that it was a harmless pushing contest, but as discussed by Molloy (2006) if each man were to kill an opponent only every 15 minutes or so, this could result in casualty rates of 50% or more in a mere hour of combat. From historical sources such as Thucydides, Herodotus and Xenophon, there are no references to casualty figures of this scale in typical Greek versus Greek combat (of course the figures cited for the Persian wars are higher but more questionable).

We can therefore see that from this earliest historical period in Europe killing rates were not excessively high and that battle was not a bloody free-for-all as characterised by modern cinema. The reputed Spartan phrase of 'come home with your shield or on it' is perhaps characteristic of this situation as the shield is the weapon which is used to hold the structure and defensibility of one's line as opposed to the tool used to kill opponents. The exiled Spartan king Demaratos, when asked why it was more shameful to return without one's shield than one's helmet or cuirass replied: 'Because the latter they put on for their own protection, but the shield for the common good of the whole line.' (Plutarch

Moralia. 220 A cf Sekunda 2005: 26). It was more important not to endanger one's comrades by cowardice or negligence than it was to actively kill opposing soldiers. Indeed repeatedly seeking to strike and kill opponents for hours-on-end in group combat would rapidly exhaust a warrior and, counterproductively, increase the risk of being killed and/or weakening one's own line.

When the integrity of a line crumbles or a rout occurs, the dynamic of killing is rapidly altered and the ability to kill opponents increases exponentially as the chase instinct takes effect. While posturing, fighting or even submission have a direct engagement with the enemy, flight has a negative relationship as the engagement is broken and the killing distance consequently increased. Add to this the impersonal aspect of not being able to see an opponent's face or eyes and the fact that a human-being's offensive capabilities are geared towards the front of the body – a fleeing opponent is somewhat de-personalised and does not represent a direct threat.

In the *Iliad* (Book XIV) we hear that Ajax is a particularly keen pursuer of the routed Trojans: 'there was none so speedy of foot as he, to follow men fled, when Zeus sent terror among them'. A very early pictorial scene of a possible rout is dated to the fifteenth century BC and comes from identical sealings from Knossos and Aghia Triada on Crete (52). The osteological evidence for the skeletons recovered from the Battle of Towton indicates that many of them were killed when fleeing, or at least from behind (Novak, 2000). Another pattern from this collection of skeletal material is the degree of overkill found on victims, some having as many as 10 peri-mortem wounds, further examples of this overkill are known from Ireland (Sikora & Buckley, 2003) and Crete (MacGeorge 1984, 1988; Arnott 1999). These were clearly inflicted when the threat represented by the enemy had been neutralised but the physiological state of the assailant led to frenzied (essentially unnecessary/irrational) attacks on a defeated foe.

The reticence to kill fellow humans appears to be intrinsic to most members of our species and while it is well documented in modern times, casualty figures from historical sources from earlier periods support this contention. While mutual peer visibility and extreme proximity in edged-weapon combat is likely to increase the potential for an individual to kill, it does not and cannot be taken to suggest that all of those involved in these battles sought to kill opponents. The known mortality rates simply do not support this. The fundamental principal in edged-weapon combat was the maintenance of the cohesion of one's line of battle while trying to disrupt the integrity of the enemy's line. This would clearly involve killing, but the *majority* of the time an individual would be seeking to literally stay on his feet and maintain his guard, to defend against opposing combatants. When an opening was created, even briefly, this was the time when one may *choose* to strike.



52 Image from clay sealings found at Knossos and Aghia Triada on Crete depicting warrior (probably armed with a sword) chasing down another male figure. This could be interpreted as symbolising a rout in progress. *Sketch by B.P.C. Molloy after CMS II.6 15*

We must be acutely aware that battles were not a five minute set-piece but protracted events typically lasting many hours with perhaps more than one single engagement (rallied troops, use of reserves or specialised troop types etc.). The maintenance of relative order (and organisation) amidst chaos was of prime importance, not brute force or vein heroics. As the dynamic of a battle shifts, especially in the case of a rout, the killing potential is dramatically increased and it appears that the ferocity of attacks can also increase in these instances. As discussed above, the ‘excitement’ at seeing the enemy fleeing when in a heightened physiological state is likely to trigger instinctive midbrain responses of pursuit.³ This may also account for the apparent barbarity enacted in some cases.

CONCLUSION: ARCHAEOLOGY’S ROLE IN THE STUDY OF KILLING

Killing in combat in ancient times, like later times, would have been undertaken with relative ease by some warriors, while others may have taken on more severe psychological effects from the experience. When we discuss a natural reluctance

in most humans to kill members of our own species, it is clearly not a denial that this all too frequently occurs; rather we seek to explore the humanity of this experience. It is perhaps ironic that fictitious narratives of killing are so prevalent in our popular culture, almost to the same level as sexual fiction and/or pornography, yet factual explorations of the nature and reality of the former appear more uncomfortable and infinitely more rarely than the latter.

This shroud of myth and mystery that surrounds killing is still firmly in place; unlike sex, it is not a 'taboo' subject that can be liberalised or legitimately experienced by interested parties due to its illicit nature being part of the very fabric of our societies. *If* it is a repeatedly occurring human action, taking place all around the world on a daily basis, yet vilified by most world cultures, *then* we must continue to explore it as part of human nature, despite it being abhorrent to most. Archaeology is a discipline well located in the humanities and social sciences to investigate this topic since we have a great breadth of time and cultures to draw our data from, as has been discussed throughout this volume.

This chapter has been concerned with the functional aspects of how human beings operate in a combat environment, physically and emotionally, and also with what it 'means' to kill another person(s).⁴ Killing is not to be understood merely in the short-term limited environment of the act or event, but as part of a broader pattern of human consciousness, development and nature.

We should not underestimate the importance that the act of killing can have on the trajectory and policy of a society where the elite were (at least in part) characterised by their warrior identity. Some were willing killers, some postured as such, some had killed and incorporated the trauma of this experience into their nature. There would have been veterans who had never killed and those who had yet to kill: all were part of this same group. The dynamic relationships that this would develop in a peer-group with the same social expectancies of killing, could potentially have had a very significant impact on socio-political dynamics.

The control of legitimate violence by a polity's leadership was manifested through this group, and this control would have a reciprocal relationship with social policies with regard to undertaking acts of legitimate violence. In this regard, the act of killing is clearly not an incidental event in the life of a warrior, but a potentially transformative event with potentially longer term personal effects. Warfare and killing represent a dynamic in social interaction which should not be interpreted solely in an event based military-historical mould, but need to be understood as lived-experiences which shaped the social and moral perceptions of past human beings.